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VALUE CREATION IN CHILDHOOD OBESITY CARE AND PREVENTION

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OBESITY CARE AND PREVENTION

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Abstract
The aim of the thesis is to increase understanding about creation of value in health care. Value is created through knowledge processes in multiprofessional integrated care pathways (ICP) of childhood obesity and defined as health and well-being which benefits the patients, their families, health care organisations and society. An ICP is a practice among Finnish primary and special care which in this study is regarded as the value creating network. Knowledge processes take place in social networks of health professionals and families and information technology (IT) networks.

The transdisciplinary study combines theories of Information Studies with theories of customer value in Business and Marketing research. The care and prevention of childhood obesity pursues permanent lifestyle changes through health counselling. Examination of value creation in networks based on knowledge processes has the potential to enhance health professionals’, patients’, and their families’ interaction in counselling.

The qualitative case study involves the ICPs of two Finnish University Hospital districts. The empirical data, collected between 2009 and 2012, consists of semi-structured interviews of 30 health professionals in primary and special health care, of three children and their mothers, a family questionnaire (N=13), and care path instructions and memos of an ICP work group.

The findings indicate that information practices and IT do not support knowledge processes and organisational learning in the ICP. Along with structural and IT-based boundaries in and between organisations, organisational culture confirms boundaries. Moreover, lack of time restricts the sharing of experiences. Knowing in health care is a complex phenomena; especially the care of childhood obesity appeared to include emotional aspects not addressed in previous research. Thus, the study contributes to theoretical knowledge by suggesting empathetic knowing to be included in the typology of knowing in the context of health care. Even if counselling was perceived well, it does not ensure permanent lifestyle changes. Actual value for the families is created in the everyday practices which should be supported by the environment.

The theoretical framework can be tested further in similar constructions in health care organisations or in other ICPs to enhance Knowledge Management and value creation in health care.

Keywords: health care, integrated care pathway, knowledge management, knowledge processes, obesity, value creation
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Tiivistelmä
Tutkimus pyrkii lisäämään ymmärrystä siitä, mite n arvoa luodaan lasten lihavuuden hoitoketjun tietoprosesseissa moniammatillisessa yhteistyössä. Hoitoketju on perusterveydenhuollon ja erikoissairaanhoidon välille luotu käytäntö, jota tarkastellaan arvoa luovana verkostona. Arvolla tarkoitetaan hyötyä, joka syntyy potilaille, heidän perheilleen, terveydenhuolto-organisaatioille ja yhteiskunnalle. Tietoprosessit muodostavat arvoverkoston ammattilaisten ja perheiden sosiaalisten verkostojen sekä hoitoketjun tietoverkstojen kautta.

Tieteidenvalinnainen tutkimus yhdistää informaatiotutkimuksen teorioita liiketalouden tutkimuksen teorioihin asiakasarvon luomisesta. Lasten lihavuuden tärkein hoito- ja ennaltaehkäisykeino on terveysneuvonta, joka pyrkii pystyvän elämäntapamuutoksiin. Tietoprosessien tarkastelu arvoverkstoinaan mahdollistaa ammattilaisten ja perheiden vuorovaikutuksen kehittämisen terveysneuvonnassa.


Asiakasnot: arvon luominen, hoitoketjut, lihavuus, terveydenhuolto, tietojohtaminen, tietoprosessit
Acknowledgements

After working for over twenty years as a dentist in public health care I felt a need for a change and a break from work. I applied for a sabbatical year and in order to do something sensible I started studies of Information Science at University of Oulu. The studies proved to be so interesting that I decided to continue to master’s degree. After three years of intensive studies I got my MA. At the time of my graduation in 2006 professor Maija-Leena Huotari was planning a health-related research project in Information Studies in Oulu and suggested PhD studies for me. Thus the original idea of one year sabbatical was extended to over ten years of studies.

This thesis is a subproject of the Health Information Practice and its Impact (HeIP), the Context of Metabolic Syndrome and Obesity - project. HeIP was funded by the Academy of Finland from 2008 to 2012 and it was conducted in Information Studies at the University of Oulu and Åbo Akademi University. My research periods varied from two to fourteen months at a time and between the fulltime research periods I have been working as a dentist. Some periods of fulltime research were possible because of the grants from University of Oulu’s Graduate School, the foundation of Tyyny Tani and EVO-funding of the hospital district of Northern Ostrobotnia. I owe my thanks for all the financial support I have received.

The process has been long and I am grateful to many people who have provided their support and encouragement. First of all I owe my deepest gratitude to my main supervisor professor Maija-Leena Huotari who suggested the subject of the thesis. Her creative ideas have guided my research process and supported through the moments of chaos and despair. I thank also my other supervisor Dr. Stefan Ek from Åbo Akademi University who accepted the supervisor task at a later phase of the thesis project. Stefan’s wise comments helped me to construct the unity and structure of the thesis from multiple details and concepts. The reviewers of this thesis, Dr. Christine Urquhart and Dr. Pamela McKenzie are thanked for their critical and insightful comments which helped me to clarify the thesis. For language checking of the Finnish abstract I most warmly thank Dr. Katja Västi.

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Finally, I owe my deepest gratitude to my nearest and dearest: to my late parents Heljä-Terttu and Pentti who both were both lifelong learners and proponents of education, and to my children, Antti, Lauri and Johanna who always have patiently adapted to their mother’s passions regarding both hobbies and work life.

In Oulu, March 2014

Helena Käsäkoski
### Abbreviations

<table>
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<th>Description</th>
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<tbody>
<tr>
<td>BMI</td>
<td>Body mass index</td>
</tr>
<tr>
<td>EBM</td>
<td>Evidence-based medicine</td>
</tr>
<tr>
<td>EBN</td>
<td>Evidence-based nursing</td>
</tr>
<tr>
<td>ELIS</td>
<td>Everyday life information seeking</td>
</tr>
<tr>
<td>EPR</td>
<td>Electronic patient record</td>
</tr>
<tr>
<td>GP</td>
<td>General practitioner</td>
</tr>
<tr>
<td>ICP</td>
<td>Integrated care pathway</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and communication technology</td>
</tr>
<tr>
<td>IS</td>
<td>Information Studies</td>
</tr>
<tr>
<td>ISO-BMI</td>
<td>BMI for children (2–18 years)</td>
</tr>
<tr>
<td>IT</td>
<td>Information technology</td>
</tr>
<tr>
<td>KM</td>
<td>Knowledge management</td>
</tr>
<tr>
<td>LIS</td>
<td>Library and information science</td>
</tr>
<tr>
<td>MSAH</td>
<td>Ministry of social affairs and health</td>
</tr>
<tr>
<td>NIHW</td>
<td>National Institute of Health and Welfare</td>
</tr>
<tr>
<td>SNA</td>
<td>Social network analysis</td>
</tr>
<tr>
<td>UA</td>
<td>Unit of analysis</td>
</tr>
<tr>
<td>UHD</td>
<td>University hospital district</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WMA</td>
<td>World Medical Association</td>
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PART I
1 Introduction

The epidemic of obesity is a growing health problem all over the world. The prevalence of overweight appears to be increasing rapidly even during childhood and adolescence (WHO 2013). In Finland, about 14% of 15-year-old adolescents (11% of girls, 17% of boys) are obese while the average rate in the European Union is 13% (OECD 2012). Overweight and obesity in childhood and youth are a risk of overweight and obesity in adulthood (Singh et al. 2008). The health consequences of obesity range from increased risk of premature death to chronic conditions such as metabolic syndrome, type 2 diabetes and cardiovascular diseases (Cali & Caprio 2008). The treatment costs of obesity-related diseases are increasing.

Obesity is the condition of having excessive body fat. The most common cause of obesity is the imbalance between energy intake and energy output. The main treatment for obesity in childhood and adolescence is lifestyle counselling which aims at a change in health behaviour: a decrease in energy intake and increase in expenditure (Han et al. 2010, Obesity (children) Current Care 2012). It is thus essential that lifestyle guidance is effective and that health information is relevant for the patient. With children and adolescents the counselling is aimed at the whole family because parents are responsible for the nutrition of the child and give an example of active or passive lifestyle (see e.g., Van Lippevelde et al. 2012). The Cochrane review of Waters and his colleagues (2011) suggests that lifestyle interventions can produce a reduction in children’s overweight. However, the study findings and research designs vary a lot and the long-term effects remain unclear (see also Collins et al. 2006, McGovern et al. 2008).

In Finnish public health care the emphasis is on health promotion and prevention of diseases (MSAH 2010). The programme of the Finnish government (2011) stresses the delivery of municipalities’ integrated social and health services, preventive measures, and the role of the client. Prevention, early diagnosis and treatment of diseases are the tasks of primary health care. However, some medical conditions including severe childhood obesity require more advanced care and the patients are referred to special health care. This study examines the collaboration in relation to value-creating information and knowledge processes between primary and special health care in the treatment of obese children and adolescents.

Information seeking of health care professionals has been investigated in Information Studies (e.g., Gorman 1995, Nicholas et al. 2005, Reddy & Jansen 2008, Reddy & Spence 2008) as part of a long tradition of information-seeking...
research of professionals of various fields (Leckie et al. 1996). In recent years, health information seeking of citizens has been a growing research interest (Case 2012). Johnson and Case (2012, xi) claim that consumers’ information seeking is a “survival tool for individuals” because individuals find that they must choose between alternatives in treatment and prevention. Dutta-Bergman (2005) argues that health-conscious individuals challenge doctors to acknowledge the health information which has been gathered by the patients (see also Anker et al. 2011). However, health professionals are generally trusted sources of health information (Eriksson-Backa 2003, Huang 2004, Marshall & Williams 2006, Pálsdottir 2011).

The study is transdisciplinary with elements of Public Health Care, Nursing Science, Business and Marketing Studies and Information Studies. In the field of Information Studies the research contributes to research on Knowledge Management (KM). The practical implementation and research of KM varies according to the discipline (to be discussed further in Chapter 5). In this study the working definition of KM involves management of people and management of information in relation to value-creating processes in health care. Knowledge management is a relatively new and unfamiliar term in health care (Candy 2007, Kivinen 2008). KM in Finnish health care has been studied for example in the disciplines of Health and Social Management (Kivinen 2008, Simonen et al. 2011), Developmental Work Research in Behavioural Sciences (e.g., Engeström et al. 2001, Kerosuo & Engeström 2003), and in Business Information Management (Myllärniemi et al., 2012, Laihonen 2009, 2012) but not explicitly in a Library and Information Science (LIS) context.

Van Beveren (2003) suggests that the reason for rare KM studies in health care settings lies on organisational culture and hierarchical structures especially of public health care organisations, which do not aim at or encourage new innovations and creation of knowledge. Rashman and her colleagues (2009) claim that in KM research the assumption is that the organisation is a private firm. Public sector organisations’ management operates under the control of politicians and the organisations do not aim to produce profit which eventually is the goal of efficient knowledge management (see also Tukia et al. 2007). KM research in health care organisations has been conducted in the fields of Public Administration and Health Management in Nursing Science for mainly practical purposes: to promote management and processes in health care.

Bosio and his colleagues (2012) emphasise the need for qualitative research in studying knowledge and practise construction in health care organisations and settings. They point out that the new patient-centred approach in medicine
suggests promising research topics such as patient participation and engagement in care, social groups and actors, health community and intra- and inter-organisational functioning. These topics shift the perspective from “inside” to the “outside” of health care organisations. They “give voice to patients’ meanings and experiences, explore expert and lay knowledge interactions and mismatches and deal with new contexts of health care interventions” (Bosio et al. 2012: 259).

This research is based on the idea of value creation in networks (Normann & Ramirez 1994, Wikström et al. 1994), which offers a wider perspective for examining the impact of lifestyle guidance and the participation of the patients in their health care. The traditional approach of health promotion by providing general health information through educational campaigns has been challenged. Individually tailored health information can influence its use more than general information (Enwald 2013). The paternalistic approach of health education has changed into recognition of the perspective of the individual. Légaré’s and his colleagues’ (2010) Cochrane review indicates that patients who are involved in decision making about their health have better health outcomes. However, health professionals do not often involve patients in decision making. Ideas from business and marketing have the potential to enhance health promotion. The theoretical background of this study is partly based on social marketing. This study aims at meeting people’s needs, helping them solve their problems and enabling them to achieve their goals and wishes (see, e.g. Lefebvre 2013). Value creation in networks benefits all the stakeholders, or actors, of the network and the outcome is a win-win situation.

Value in health care has been defined in monetary terms (Teperi et al. 2009, Porter 2010), but it is also aesthetic, moral, social and psychological (Normann & Ramirez 1994). In this research, value in health care is defined as better health and well-being for patients and their families. In the long term, this is also a benefit for Finnish public health care and society. Better health is likely to decrease the costs of health care, but this perspective is beyond the scope of this study.

To study value creation in health care especially for the patients, the integrated care pathways (ICP) for obese children between primary and special health care are regarded as value networks in this study. In Finland, the health care system consists of multiple actors in public and private sectors which can be taken for a network with actors and ties between them. Value networks in health care consist of health professionals and patients with their families, close relatives, and friends. The ICPs have been established to enhance multiprofessional
collaboration and efficient treatment of the patients. This study does not pursue identifying the network structure of the ICPs as such, but rather indicating the nature of ICPs from the perspective of their ability to enhance value creation. Value is created in information and knowledge processes within these networks (see, Normann & Ramirez 1994, Wikström et al. 1994, Huotari & Iivonen 2005). The outcomes of the knowledge processes can be, for example, new practises and care processes in health care, new methods or approaches in lifestyle guidance, or material for patients that support their self-care in everyday life.

Information and knowledge processes in organisations have been perceived as tools for knowledge management to ensure the availability of knowledge for all the actors of the organisation (Anttiroiko 2002, Mäki 2008, Still 2007). Information and knowledge processes refer to acquisition, transfer, sharing, creation, storing, and using of knowledge. In organisations, information and knowledge sharing is related to organisational culture and trust, the nature of knowledge, opportunities, motivation, and evaluation of the risks and benefits of sharing knowledge (Huotari & Chatman, 2001, Ipe 2003, Wilson 2010).

Invisible cultural boundaries between organisations and professional groups can hinder information transfer and knowledge sharing processes. In this research, Burnett and Jaeger’s (Jaeger & Burnett 2010) theory of information worlds, a further development of Chatman’s (1991, 1992, 1996, 1999) theory of normative behaviour in small worlds, is applied to examine organisational information behaviour. This facilitates the identification of the features of organisational culture which are related to information and knowledge processes. As the nature of knowledge is one factor which affects knowledge sharing (see, e.g., Ipe 2003), the typology of organisational knowledge and the idea of organisational knowing presented by Blackler (1995) are applied to get a deeper grasp of the complexity of different aspects of knowledge and knowing in health care. These theoretical ideas are elaborated through the empirical data and their analysis as outlined in the flowchart of the research process in Figure 1.
The study has a qualitative case study approach. The data were collected in two Finnish university hospital districts (UHD) between 2009 and 2012. The UHDs are embedded units of analysis which are marked in Figure 1 with UA1 and UA2. Both UHDs have established an integrated care pathway (ICP) for obese children, the first UHD in 2006 and the second in 2005. The findings of the two UHDs are combined to catch more general features of the integrated care pathways for obese children in Finnish public health care.

1.1 Aim of the study

The aim of the study is to increase understanding about value creation in the context of prevention and care of childhood obesity. The purpose is to examine value-creating information and knowledge processes, the patients’ and their families’ involvement in these processes, and factors related to these processes.
This is done through a research setting in a multiprofessional integrated care pathway of childhood obesity in Finnish public health care.

The main research question is formulated as follows: How do the information and knowledge processes in the integrated care pathway create value for the patients and for the health care organisations?

The main question is divided into five subquestions:

1. How is the structure of the integrated care pathway (ICP) related to the information and knowledge processes of the ICP?
2. How is organisational culture in the ICP related to the information and knowledge processes of the ICP?
3. What types of knowing are involved with the information and knowledge processes?
4. How are the patients and their families involved in the information and knowledge processes and in the creation of value in the ICP?
5. How do patients and their families perceive value?

1.2 Structure of the dissertation

The dissertation is divided into two parts. In Part I the theoretical basis of the research is presented based on a selective literature review. The literature was sought between Feb 2009 and Dec 2012 and updated in Dec 2013. The literature was retrieved from the following databases: Pubmed and Ovid (MEDLINE), Science Direct (Elsevier), Academic Search Premier and CINALH (EBSCO), Library and Information Science Abstracts (LISA), Library, Information Science & Technology Abstracts (LISTA) (EBSCO), Emerald Journals (Emerald), Web of Science (ISI) Scopus, Sociological Abstracts (CSA), Wiley Online Library (Blackwell), ABI/Inform and Business Databases (ProQuest) and Google Scholar. In addition the database of Oulu University Library (OULA) was used to identify relevant literature. The main search terms were: obesity, overweight, child*, adolesc*, knowledge management, information management, health care, health care organisation*, organisational culture, value, and value creation. The searches were not limited by publication date, but the availability of articles and books was taken into account. The articles of childhood obesity were primarily limited to review articles although some individual research articles which seemed to be relevant for this study were also retrieved. Pearl-fishing or chaining strategy was
also used by taking a look at relevant articles or books which were cited in other articles.

After this introductory chapter, health promotion by counselling, childhood obesity, its health consequences and treatment principles are presented in Chapter 2. The concept of value in health care and the theories of value creation in networks are introduced in Chapter 3. In Chapter 4, organisational culture, collaboration in health care, and the theory of information worlds are presented, and knowledge management from the perspective of Information Studies is discussed in Chapter 5. The organisational knowledge processes are presented at the end of Chapter 5 and the theoretical framework of the study is outlined in Chapter 6.

In Part II, the empirical environment and research design of the study are described in Chapter 7. Findings of the study are presented in detail in Chapter 8. The research questions are answered in Chapter 9 and the findings are discussed in relation to earlier literature. The validity and reliability of the research are evaluated according to the quality criteria of qualitative research. The contribution of the findings in theory and practise is examined and suggestions for further research are presented.
2 Childhood obesity care and prevention

In this chapter, health, health promotion and health information behaviour will be discussed on a general level. After that, the condition of obesity in childhood and adolescence, its prevalence, definition, health consequences and treatment are presented. This is followed by a discussion of the role of health professionals in health counselling. Finally, earlier research on prevention and care of childhood obesity is reviewed.

2.1 Health and health promotion

Health is a relative and individual perception influenced by physiological, psychological, socio-cultural, spiritual and developmental domains and the interaction between each (King 1994). WHO (1998: 1) defines health as a “state of complete physical, mental and social well-being”. In this study, health refers to a person’s subjective perception of both physical and mental health in present and in future. Well-being in this context includes also social, physical, mental and economical aspects; it concerns the patient and also his/her family and nearest social relationships.

Health promotion is a comprehensive action which consists of creating premises not only for good health but also for societal, environmental and educational circumstances. WHO (1998: 1) defines health promotion as a “process, which enables people to increase control over and to improve their health”. Health promotion influences on three levels, namely intrapersonal (individual), interpersonal (group), and/or the community level. On the group and community levels the strategies to try to influence peoples’ health behaviour are health communication and health education. The individual level is the most basic in health promotion and besides general health communication and health education, individual health counselling is also used.

The concept of disease prevention has an illness orientation; it can be divided into primary, secondary, and tertiary prevention. Primary prevention aims at preventing the disease process before it starts. Secondary prevention aims at lessening the complications after the disease is present, the focus being on the early diagnosis of the disease. Tertiary prevention is actually rehabilitation, and it begins when the disease process is stable and aims at restoring the normal functions. Secondary and tertiary prevention include thus the care of diseases with the emphasis on preventing further complications. Disease prevention derives
from the health sector unlike health promotion, which includes also social, political and economic conditions (King 1994, WHO 1998, Tuominen et al. 2005). In Finland, the current Primary Health Care Act of 1972 (modified later) and the Health Care Act emphasise health promotion as an essential task of public health care centres (MSAH 1972, 2010).

2.2 Health behaviour and lifestyle

WHO (1998:1) defines health behaviour as “any activity undertaken by an individual regardless of actual or perceived health status, for the purpose of promoting, protecting or maintaining health, whether or not such behaviour is objectively effective towards the end”. This definition excludes behaviours which may be adopted regardless of consequences of health, which also can be defined as risk behaviours.

Health behaviour in this study is defined as the complexity of ways in which individuals exercise, eat, sleep, and use (or do not use) stimulants, for example. This definition entails also health behaviour which does not necessarily promote health. Health behaviour is thus more or less a synonym for lifestyle, “the typical way of life of an individual, group, or culture” (Merriam-Webster Online Dictionary 2013). WHO (1998) refers to lifestyle as complex patterns of behaviours which include both health-promoting behaviour and risk behaviour.

Health information behaviour can be regarded as a subconcept of information behaviour describing the ways in which individuals interact with health information. The concept of information behaviour includes the aspects of information needs, seeking, organising, giving, sharing, evaluating, encountering, using, and avoiding (Bates 2009, Case 2012). Health information seeking is associated, for example, with discussing search results with physicians and healthier behaviour; on the other hand the outcomes can be negative, such as self-diagnosis and non-adherence to care (Anker et al. 2011, Pálsdottir 2008). Health consciousness is positively related with active health information seeking. In other words individuals who already have positive health behaviour are likely to seek more health information (Dutta-Bergman 2005).

The environment can influence health behaviour. Social norms, neighbourhood safety, the amount of grocery stores and spaces where the inhabitants can exercise are involved with health-related behaviour (Ludwig et al. 2011). The environment can, for instance, support healthy eating and promote physical activity. Chan and his colleagues (2011) discovered that, for example,
providing free cold water everywhere can diminish soft drink consumption. They also found that adolescents consume unhealthy foods in social contexts. Peer pressure, lack of time and knowledge of how to prepare healthy foods, and limited availability of healthy foods at schools can be barriers to healthy eating (Chan et al. 2011).

2.3 Health communication, health education and health counselling

Health communication is a part of mass communication (Torkkola 2002) but in a wider perspective the concept includes also interpersonal communication (Torkkola 2008). WHO (1998: 8) defines health communication as “a key strategy to inform the public about health concerns and to maintain health issues in the public agenda”. It can be aimed at promoting health which is the most common meaning of the term (Torkkola 2008), but it can include all kinds of communication which are concerned with health issues such as advertising and TV hospital series (Torkkola 2002).

Health education aims at increasing people’s knowledge about health-related issues. It also aims at increasing people’s ability to perceive the world and oneself, to recognise values, and to act according to them. Health education is more of an all-inclusive process emphasising the perceptions of an individual rather than just giving instructions (WHO 1998, Kasila 2007). Health counselling is health education in interpersonal communication between two or more persons (Nupponen et al. 1991, Kettunen 2001). The term includes various aspects such as interaction between the patient and the caregiver, information giving, helping the patient with care choices and an actual care process (Kääriäinen 2007).

The term counselling is used in Nursing Science to describe a professional activity or process and is often used side by side with the concepts of guidance, education, and information. Counselling can be defined as an “active and target-oriented action related to the client’s and the counsellor’s context and interaction relationship” (Kääriäinen & Kyngäs 2005: 250). Health counselling is bound with the premises of the patient and of the health care professional and its content and goal is constructed in the counselling situation. The patient’s needs should be the starting point of counselling (Kääriäinen & Kyngäs 2005).

Giving direct advice is limited in effectiveness and it can even arouse resistance in the patient. Information itself does not lead to changes in lifestyle and behaviour. The patient can feel that a physician’s or other health care
personnel’s interventions in lifestyle are too personal and even threatening. The patients do not want someone else telling them how to live. A consultation in which the patient himself is brought up to think about his lifestyle and its effects on health has been shown to produce better results (Speedling & Rose 1985, Ruggiero 2000).

Counselling should be performed with mutual understanding and with acceptance of the patient. The patient’s human dignity, conviction and privacy should be respected. Professional ethics justifies the health care professional’s interference with the patient’s lifestyle which otherwise contradicts general customs and ethics (Lahtinen 2006).

Motivational interviewing is a method that was introduced in the 1980s and brought to practice in counselling in the 1990s. This method can be defined as a client-centred counselling style for making behaviour change by helping patients explore and resolve ambivalence. Motivational interviewing is based on the idea that behaviour change is affected more by motivation than by information. The health care professional affirms the patient’s thoughts and feelings by reflective listening, by repeating the patient’s thoughts and suppressing the instinct to respond with questions or advice. Patients are encouraged to find and express their own reasons for lifestyle changes and plan how to do it (Resnicow et al. 2006). However, motivational interviewing does not always lead to better results as in traditional health brochures (Lakerveld et al. 2013) or simple advice (Noordman et al. 2012), for example.

Counselling is not only educating and giving information. Good interaction is a prerequisite of successful counselling. Interaction is related to ethical principles of health care, communication, the environment, and the relationship between the patient and the professional. Good interaction takes place between equal partners who plan the content and goals of counselling together (Donovan et al. 2007, Kelo 2013). Counselling requires empathy, it can help individuals clarify different aspects of their life-world and provide hope and encouragement, comfort, and support. The process involves exploring feelings and helps the patient to discover his/her own coping strategies. The health care professional may even encounter strong feelings unexpectedly and he/she should be prepared for this (Soohbany 1999).

Patients’ prior assumptions, beliefs and other components of their illness representations affect the reception of health counselling. “Although patients may become knowledgeable about new strategies, translating new knowledge into behaviour change is unlikely if the strategies are inconsistent with existing beliefs”
(Donovan & Ward 2001: 212). Patients’ perspectives of their health experience and their responses to guidance should be heeded in order to improve the outcomes of counselling (Donovan et al. 2007). Kääriäinen and her colleagues (2006) perceived that the hospital health care staff had positive attitudes towards counselling and their skills of interaction were generally good. However, the patient and his/her life situation were not always taken into account (Kääriäinen et al. 2006).

2.4 Childhood obesity

Childhood obesity is a worldwide health problem and the number of obese children has also increased in Finland (Kautiainen et al. 2010, Vuorela et al. 2010, Vuorela 2011, Mäki et al. 2012). Mäki and her colleagues (2012) found that 18% of Finnish children between three and twelve years were overweight and 4% of them were obese. WHO (2013) estimates that in 2010 over 42 million children under five years of age were overweight. Underweight and poor growth were previously the main health concerns in children in developing countries. Today the issue is the opposite: overweight and obesity are increasing problems (Cali & Caprio, 2008, WHO 2013, Gupta et al. 2012).

Obesity is the condition of having an excessive amount of fat in the body. The main diagnostic tools of obesity are body mass index (BMI), measurement of waist circumference and/or skin folds, and the weight for height measurements compared with average weight for height indexes. BMI is a measure of body fat based on height and weight. It is defined as the individual’s body weight divided by the square of their height which produces a unit of measure of kg/m². BMI over 25kg/m² has been internationally defined as overweight and 30kg/m² or higher as obese in adults. The use of BMI in children and adolescents is more problematic because the average BMI is lower in children than in adults, BMI changes during childhood, and it is different in boys and girls (Reilly et al. 2002, Krebs et al. 2007).

In Finland the weight and height indexes are most commonly used in the evaluation of overweight and obesity in children and adolescents. The child’s weight for height—expressed as percentage deviation of weight from the median weight for height and sex—indicates the limits of overweight and obesity. The child is considered overweight if his/her weight for height before school age is 10–20% higher than the median, or 20–40% higher at school age. The child is considered obese if the corresponding figures are over 20% or over 40%,
respectively. Increases in the weight curve are important to identify. BMI can be used for adolescents who have reached their final height (Obesity (children) Current Care 2012).

However, the Finnish National Institute for Health and Welfare (NIHW) recommends that BMI should also be used with children in order to compare international results of children’s weight with results in Finland. The growth charts (ISO-BMI) which have been renewed in 2010 and 2011 take into account the child’s age but the interpretation of the results is not simple (NIHW 2013).

Hereditiy seems to be a significant factor in childhood obesity. Genetic factors are associated with the tendency to become overweight or obese. However, the rapid rise of childhood obesity in recent decenniums depends more on the environment than on genetics (see, e.g., Miller et al. 2004, Dubois et al. 2013). Easily available calories and sedentary lifestyle cause imbalance in energy intake and expenditure. The built environment can also hinder children’s opportunities for outdoor play, cycling, and walking (Tappe et al. 2013).

Physical activity can decrease the influence of genetic factors on body mass index and waist circumference in young adulthood (Mustelin 2012). Other significant factors related to childhood obesity are low socio-economic status and lifestyle of the child and the family, including issues of the quality of nutrition, frequency of meals, and exercise (Obesity (children) Current Care 2012). Furthermore, parental obesity has been found to be one of the major risk factors of childhood obesity (Baughcum et al. 2000, Larsen et al. 2006, Steffen et al. 2009, Morandi et al. 2012). With children the indications for active treatment of obesity emerge if overweight or obesity causes difficulties in the child’s life or if there is an increased risk of obesity-related diseases in the child’s family history (Obesity (children) Current Care 2012).

2.5 Health consequences of obesity in childhood

Research has indicated that the higher the BMI in childhood, the greater the probability of obesity in adulthood (Krebs et al. 2007, Singh et al. 2008). Body weight can be distributed differently in individuals and the physiologic status of an overweight person can be quite good. The situation is complex and the real health risks are difficult to identify (Ogden et al. 2007). However, obese children tend to avoid exercise which increases their risk of complications like cardiovascular disease (Jiménez-Pavon et al. 2013) and earlier mortality in adulthood (Bellavia et al. 2013).
Systematic reviews indicate that obesity in childhood can be a risk factor for severe diseases in adulthood, which may include type 2 diabetes, hypertension and coronary heart disease (Cali & Caprio 2008, Park et al. 2012). After puberty the risk of developing metabolic syndrome is increased with overweight and obese adolescents (Yanovski & Yanovski 2011, Pacifico et al. 2011, Obesity (children) Current Care 2012). Metabolic syndrome is characterised by a group of metabolic disorders. The syndrome includes abdominal obesity, blood fat disorders, elevated blood pressure, insulin resistance or glucose intolerance, and elevated prothrombine and C-reactive protein of the blood. People with metabolic syndrome are at increased risk of coronary heart disease and type 2 diabetes (Laaksonen & Niskanen 2006).

Type 2 diabetes is a metabolic disorder characterised by insulin resistance, relative insulin deficiency and hyperglycaemia. In Finland about 75% of the patients diagnosed with diabetes suffer from type 2 diabetes. Most patients carry overweight and they have elevated blood pressure or blood fat disorders or both. The disease is often underdiagnosed and asymptomatic. Type 2 diabetes can be associated with a number of severe acute and chronic complications which affect the patient’s quality of life. Acute complications are hypoglycaemia, ketoacidosis or hyperosmolar coma; the main chronic complications are cardiovascular disease, chronic renal failure, retinal damage, nerve damage, and microvascular damage, which can even lead to foot gangrene (Diabetes Current Care 2007).

Furthermore, systematic reviews indicate that hypertension and risk of coronary heart disease in adulthood seem to be associated with overweight in childhood and adolescence. Cardiovascular effects of obesity persist and predict morbidity/mortality in adulthood (Reilly et al. 2003, Cali & Caprio 2008, Park et al. 2012). Overweight in late adolescence increases the risk of stroke in adulthood and it has been suggested that some types of cancer and all-cause mortality are related with high BMI in childhood and adolescence (Park et al. 2012).

Along with the medical risks, obesity is often a socially restricting issue for children. Weight-related teasing in early adolescence is related to obesity in young adulthood (Quick et al. 2013). Harjunen (2009) studied fat women’s experiences about their fatness and found that for most women, school was the place they had learned that their bodies did not fit into social norms. Her findings indicated that fat women thought of fatness as a transitory and temporary bodily state of being even though they had been fat since early childhood and their state of fatness was permanent. Normal body weight was a self-evident goal and this normal-weight body represents the real identity of the person (see also Leipämaa-
Leskinen 2011). Body dissatisfaction and unhealthy methods of weight control efforts (e.g., fasting, purging) at a young age seem to increase the risk of obesity in adulthood (Quick et al. 2013).

Harjunen (2009) claims that medical discourse of fatness supports the construction of the fat body as a socially unacceptable and stigmatised body. People do not generally want to identify with this widely stigmatised group of “others”, even if they clearly belong to it. Fatness is often linked with an assumed moral weakness, laziness, being out of control, and even stupidity. In medical discourse, any weight gain is pathologised and constructed as risky behaviour. Even health care professionals and overweight people themselves can have negative associations towards obese people which is an implication of the stigma of obesity in society (Teachman & Brownell 2001, Wang et al. 2004). Kokkonen (2012) discovered that normal height and weight present not only indicators of the child’s normality and health but also of “good” parenthood for the parents. Especially mothers are blamed for the child’s fatness in Internet discussions and even by the mothers themselves (Kokkonen 2009). Mothers defend themselves by reference to other factors, such as genes. Furthermore, parents say that they confront challenges with feeding the children. Hectic everyday life, children's tendency to be picky eaters and the trend to respect the child as “self”, as an individual with his own choices, makes it difficult to stick only to healthy, non-fattening food (Kokkonen 2012).

2.6 Health care professionals’ role in lifestyle guidance and counselling

Rippe and his colleagues (2001) argue that the importance of doctors’ involvement in the patient’s healthy lifestyle practises cannot be overemphasised. Health professionals are considered useful and reliable sources of health information (Pálsdottir 2011). However, Larsson and his colleagues (1987) claim that conversations about lifestyle in medical consultations are superficial and that doctors avoid interfering with the patients’ lifestyle. Although health care professionals find disease prevention important, the preventive services compete with curing acute or chronic illnesses, patient concerns, and the doctors’ productivity (Crabtree et al. 2005).

Health care professionals often feel insecure with health education (Demak & Becker 1987). Doctors especially have a traditional role in therapeutic care as an expert with power to define problems and to find solutions to solve these
problems. In health education or counselling the roles are changed: the patients are experts of their own lives and are thus more equal. Demak and Becker (1987) argue that because the changes in lifestyle require the patient’s cooperation and responsibility, health counselling can be frustrating for the physicians because they cannot fully control the outcomes. For example, Foster and his colleagues (2003) claim that primary care physicians view obesity care treatment as less effective than treatment of most other chronic conditions.

According to several Finnish researchers health promotion in primary health care has not been effective (Laitakari et al. 1989, Sihto 1997, Koponen 1998). A study in Finnish municipal health centres (Miilunpalo et al. 1995) indicated that health education was based on counselling of individual patients and most health centres did not have any planned or continuous activities for population-based health education. Many people visit a doctor at least once a year and therefore doctors could be in a good position for counselling. There is also some evidence that continuity of care improves the uptake of preventive care (Gray et al. 2003). However, the continuity in patient contacts is often disrupted and the time limitations decrease the doctors’ possibilities to handle anything other than treatment-related matters (Miilunpalo et al. 1995).

2.7 Interaction and communication with children and families in health care

It is widely recognised that the quality of interaction between the patient and the health care provider is an essential factor which affects the results of the care. In studies about patient expectations in health care the issues of relationship and communication with physicians, the length of consultations, and technical skills have emerged as the most important factors (see, e.g., McBride et al. 1994, Kukkola 1997, Heritage & Maynard 2006). In the last few decades the participation of the patient in care and decision making has been emphasised. Positive attitudes of health care professionals and respect for the child and the family facilitate communication and may improve the parents’ partnership in care (Lee 2007).

Earlier research in paediatric health care indicates that medical consultations have some distinct characteristics compared to consultations with adults. There are at least two persons, often even more, involved in the consultations and the participation of the child in the interaction with the physician or other health care professional is mostly very limited. Children learn during the consultations also
“how to be a patient”. The social roles of the health care professional and the patient are constructed and internalised during repeated medical consultations (Nova et al. 2005). Earlier research has mainly focused on the interaction between the physician and the parents, ignoring the role of the child. The child as a patient has been the target of the conversation and not an active participant (Tates & Meeuwesen 2001).

Furthermore the interaction is often dominated by health care professionals. The power relationships in medical encounters are recognised by many researchers. This power can be productive, though; sometimes the situation warrants the doctor taking an authoritative stance and this is encouraged by the patient as well (Lupton 1994). Research in child health clinics in Finland and Sweden support the findings of earlier studies. Public health nurses dominate the interactions and initiate the discussions about the child’s physical and mental development and behaviour (Vehviläinen-Julkunen 1999, Baggens 2001).

Sirviö (2006) compared thoughts and expectations of health promotion from both social and health care professionals and from families with children. Social and health care workers emphasised responsible parenting, and the principal method of health promotion was providing information on a general level. The encounters were child-centred which diminished parents’ participation. The parents’ approach to health promotion was more family-centred than child-centred and was related to the significance of family life and coping in general. Furthermore, families expected that social and health care workers would have an objective attitude, trusting relationship, and that the encounters would be equal. If the professionals are always categorically right there is no room for genuine dialogue (Sirviö 2006).

2.8 Recommendations for the prevention and care of childhood obesity

The Finnish Current Care recommendations for the treatment of childhood obesity were updated in June 2012 (Obesity (children) Current Care 2012). Current Care guidelines are based on systematic research reviews. The guidelines emphasise strongly the family’s and parents’ roles in prevention and care of overweight and obesity. The children learn the importance of healthy nutrition and exercise for well-being within families and this knowledge transmits also to future generations. On the other hand, health problems of one family member affect the whole family (Paunonen & Vehviläinen-Julkunen 1999, Vanhala 2012).
Family is a changing concept. In modern Western societies the size of families has decreased, the amount of one-parent families has increased, the roles inside the family have changed, and the family does not necessarily consist of the traditional nuclear family, namely parents and children (Paunonen & Vehviläinen-Julkunen 1999). For family researchers, defining family and specifying the unit of analysis is a challenge because of the complexity of family structure and function (White et al. 1999).

In this study family is defined as a child (or children) and the adult(s) who mainly take(s) care of him/her (or them). The adults can be parents, grandparents, or legal guardians who are the main providers of the child. One of the interviewees of this research defined family in a down-to-earth way: family is “the group of people who eat their sausage soup from the same soup pot”.

With small children the parental influence on healthy eating is central (Vanhala 2012, Dubois et al. 2013), but with adolescents, eating habits and food preferences as well as physical activity are often influenced by peers (Sawka et al. 2013). Stevenson and his colleagues (2007: 418) argue that “obesogenic patterns of eating have become integrated into youth culture and are normative”. However, adolescents who are involved in sports or cooking have more positive attitudes towards healthy eating because of greater awareness of the relationship between energy intake and output and engagement with a wider variety of foodstuffs.

It seems that the most efficient treatments for childhood obesity include both increasing physical activity and dietary interventions. Information about the needed changes is not solely adequate; self-monitoring, goal setting, parental modelling of healthy eating and physical activity, contingency management, and other behavioural therapeutic techniques can facilitate the needed changes (Spear et al. 2007). However, especially for children, true comprehension of the association of present overweight or obesity and health risks in the future is not always very clear. Furthermore the relationship between eating and weight is not always obvious.

Nowicka (2005) emphasises the importance of a multidisciplinary team consisting of a clinical nutritionist, exercise expert, physician, nurse, and behavioural therapist for successful obesity management. One special challenge in the treatment of obesity in childhood and adolescence is to take care that the child gets enough nutrients to ensure normal growth and development and that the treatment does not lead to severe eating disorders such as bulimia or anorexia. The role of the family, school, and community environment is important (Barlow 2007, Quick et al. 2013).
2.9 Earlier research of the prevention and care of childhood obesity

The effectiveness of dietetic interventions in childhood obesity is difficult to estimate. Collins and her colleagues (2006) point out in their review article that heterogeneity of research designs, treatment combinations, outcome measures and follow-up make it impossible to compare the impact of childhood obesity interventions. Furthermore, the trial sizes are often too small and the age ranges vary from 3–12 years to 12–18 years. The age of the child or adolescent has significance in weight issues because the body composition changes during growth and especially in puberty.

Luttikhuis and his colleagues (2009) state in their Cochrane review that “...combined behavioural lifestyle interventions compared to standard care or self-help can produce a significant and clinically meaningful reduction in overweight in children and adolescents”. Ho and her colleagues (2012) perceived also in their systematic review and meta-analysis that interventions with dietary and physical activity components are effective in treating childhood obesity. However, Reilly and his colleagues (2002) claim that childhood obesity is not preventable although some approaches to treatment are promising. This finding is supported by the systematic review and meta-analysis of Kamath and his colleagues (2008). Strategies attempting to reduce unhealthy behaviours seem to be more effective than those promoting positive behaviours. So decreasing sedentary behaviour and dietary fat is more efficient than increasing physical activity and consumption of fruits and vegetables (Kamath et al. 2008).

Pharmacological treatment of children and adolescents with metabolic syndrome has no recommendations though statins and antihypertensive drugs are considered in selective cases (Pacifico et al. 2011). McGovern and his colleagues (2008) included pharmaceutical treatment methods of obesity in their meta-analysis of paediatric obesity treatment impact. Their conclusion was that medications and lifestyle interventions, such as increased physical activity combined with dietary modifications, have at least short-term efficacy in weight reduction. The long-term efficacy of obesity treatment and impact on health remains unclear (McGovern et al. 2008).

Ho and her colleagues (2012) found that families’ involvement was essential in almost all effective intervention studies (N=38) in the treatment of childhood obesity. Larsen and her colleagues (2006) perceived that parental attitudes were a barrier for nurse practitioners in the United States in preventing childhood obesity.
Parents were not motivated to make lifestyle changes in the family and they appeared to be poor examples for their children regarding physical activity and nutrition habits (see also Story et al. 2002, Steffen et al. 2009). Families tend to protect their privacy and their territory, namely their home. They want to hide some of their practices from outsiders and the intrusion into the family requires the permission of all family members (Marin 1999). Furthermore, overweight and obesity are often delicate issues and the parents may be ashamed of the child’s overweight and do not want to talk about it (Gerards et al. 2012, Isma et al. 2012).

Moreover, many mothers of overweight children do not perceive their children as overweight and they are not concerned about health consequences (Baughcum et al. 2000, Jain et al. 2001, Larsen et al. 2006, Vuorela et al. 2010, Vuorela 2011, Vanhala 2012, Gerards et al. 2012, Isma et al. 2012, Lundahl et al. 2014). When the problem is not recognised, the motivation to make lifestyle changes is as good as non-existent (Towns & D’Auria 2009). Isma and her colleagues (2012) also present that during the pre-school period the overweight of children is not taken seriously and that parents are more concerned about the appearance of the child than about health issues.

Furthermore, Vanhala (2012) discovered that emotional eating, namely eating in the absence of hunger, was common in overweight children living with only one biological parent and especially the mothers’ emotional eating was positively associated with the child’s emotional eating. Konttinen (2012) found that various psychological and social factors are related to eating habits. For example, depressive symptoms and emotional eating are related to unhealthy eating and low socio-economic status influences food choices towards high energy-dense food and lower vegetable and fruit intake.

Many mothers find it difficult to restrain the child’s eating. Being a good mother and providing enough food for the child are tightly connected. Using food and treats as a reward is common. Even when the mother is trying to keep up with a diet for the child, other members of the family (mostly the father or grandparents) can impede the efforts (Jain et al. 2001). Jain and his colleagues (2001) propose that improving general parenting skills could be the best approach to prevent childhood obesity. However, in a study in the US (Story et al. 2002) health care professionals were perceived to have low skill levels of guidance concerning parenting techniques and behavioural management strategies.

Singhal and his colleagues (2007) present that further research is needed to develop efficient interventions for the prevention and treatment of childhood and adolescent obesity. Recruiting overweight adolescents for campaigns or
Interventions aimed at increasing physical activity has proved to be challenging. The older the child is the more challenging it seems to be to activate children to participate in organised exercise (Huoltoliitto ry. 2011, LIKES ja Nuori Suomi 2010).

Kalavainen (2011) found that intensive group programmes produce good results with children’s weight loss in the short term but after two or three years there are no significant differences in efficacy between the groups of intensive and routine counselling. According to Virtanen (2012), supporting families to cope with the hectic pace of life and creating opportunities for family exercise can help children’s weight control.

2.10 Summary of childhood obesity care and prevention

The main treatment for obesity in childhood and adolescence is lifestyle counselling which is aimed at the whole family. The aim of lifestyle counselling is to influence the family’s health behaviour which supports the child’s weight management. Counselling entails health information about the risks of obesity-related health consequences, recommendations for nutrition and exercise, daily rhythm with regular meals and sufficient rest and sleep. Weight loss and weight maintenance require more effort than just a simple decision to lose weight. It is important that the patient himself decides what changes to make and how to apply them in everyday life based on health information provided by health care professionals (Mustajoki & Lappalainen 2001).

In Finnish primary health care, public health nurses and doctors are mainly responsible for the prevention and care of childhood obesity. However, clinical nutritionists and physiotherapists can also be involved in the care. In primary health care the emphasis is on primary prevention of obesity whereas special health care focuses more on the care of obesity or on secondary prevention (see, Tuominen et al. 2005).
3 Value creation

This chapter will begin by discussing the concept of value creation in business and marketing and the idea of social networks as value-creating networks. Value-creating networks entail also tools such as Information Technology (IT) networks, and the role of IT in health care will be considered next. The chapter ends pondering the concept of value in health care which simultaneously refers to value for the patients and value for health care organisations.

3.1 Value creation and value networks

All organisations aim to create value. In the classical value chain model, suppliers develop and offer products or services and value is realised when the customer buys this product or service. Bovel and Martha (2000) claim that this value chain model which Porter presented in 1985 is nowadays a special rather than a common case (see, e.g., Huotari 1995). A classical value chain or supply chain “pushes products down the line and out the door, hoping that someone will want them” (Bovel & Martha 2000: 24).

The approach of value creation emphasising the interaction between the organisation’s employees and its customers has been presented. Value creation as a broad concept includes offerings as products and services, developing new ways of collaborating with customers, training and education, and network building by incorporating new parties into the collaboration (Wikström et al. 1994). Vargo and Lush (2008) argue that the organisation cannot deliver value; it can only offer value propositions for the customer. The customer is always a co-creator of value and furthermore value is created in use, not embedded in offerings. Thus value is socially constructed in practises and furthermore both practises and customers are constantly changing (Holttinen 2010).

Stabell and Fjeldstadt (1998) distinguish three value-creating forms for different types of firms, namely value chains, value shops and value networks. They claim that the logic of value creation through value chains is applicable when transforming inputs into products as in a traditional manufacturing industry. Value shops provide professional services to solve a customer or client problem. Medicine, law, architecture and engineering are typical professions in which information asymmetry between the firm and the client forms the basis of the services and value creation (Stabell & Fjeldstadt 1998).
Stabell and Fjeldstadt (1998) state that value networks rely on mediating technology. The firm itself is not the network, but provides the networking service. According to Stabell & Fjeldstadt (1998: 434) these value-creating logics are combined by Normann and Ramirez (1994): “Where the production of goods (chain) is supplemented by both assisting customers in problem-solving (shop) activities and by value-adding new services and products on the distribution infrastructure (value networks)...”

The customer has his/her own knowledge and resources and the company or organisation complements these. Wikström et al. (1994) suggest that this value-creating process takes place in a value star as presented in Figure 2. These value constellations are based on the concepts of knowledge, resources, and activities, which unite the employees and stakeholders of an organisation in knowledge processes. These knowledge processes create joint value manifested in “offerings”, the outputs of a value creating system. This view is explained by Wikström and her colleagues (1994, 51) as follows:

According to the old production logic the concept of the product is quite straightforward: products are what companies produce and offer on the market. Those who buy these products are the company’s customers. But when the customer becomes a co-producer, the sequence of events changes radically. It is no longer a question of selling what has been produced, but selling what will be produced; production is flexible and adapted to the customers’ requirements; it is geared to their situation, their needs and interests. Nor is it self-evident that what is produced will be limited to products or services or even to a combination of these; it may well consist of something much more complex and difficult to define.
Value constellations can take many forms in organisations including personal contact networks, flows of information within and between groups, strategic alliances between firms and global network organisations, etc. (Monge & Contradictor 2001). Internal value networks consist of work-groups and actions inside and between these groups inside an organisation. External value networks are those between the organisation and its suppliers, investors, strategic business partners and customers. The network relations define the nature of communication and the connections between people, groups, and organisations. Network linkages are created when one or more communication relations are applied to a set of people, groups, or organisations (Monge & Contradictor 2001, Allee 2008). Parolini (1999: 62–63) defines a value-creating system as “a set of activities creating value for customers...Final customers not only receive and consume the value created, but can also participate in value creating activities”.

A value net creates value for all of its participants (Bovel & Martha 2000). According to Allee (2009: 429), a value network is “any purposeful group of people or organizations creating social and economic good through complex dynamic exchanges of tangible and intangible value”. Technologies provide a
means for knowledge and value exchange but the exchange is the most important part of value creation (Allee 2000).

Tsai and Ghoshal (1998) suggest that social capital and trust in an organisation are essential to value creation. Informal social relations and social arrangements encourage resource exchange and combination. Close and frequent interactions allow actors to know and create trust among one another, which makes it easier to share information and create a common point of view (Tsai & Ghoshal 1998). Rezgui (2007) claims that knowledge management systems can also promote value creation by enforcing the organisation’s social capital by bonding and binding the work team members together.

### 3.2 Social networks as value networks

Normann and Ramirez (1994) present that value creation takes place in knowledge processes within social networks which consist of suppliers and customers. Value networks in health care can consist of health professionals and patients with their families, close relatives and friends. Furthermore, Normann and Ramirez (1994) suggest that IT and electronic networks are an essential part of value networks.

Most organisations are structured formally but at the same time they are formed by informal social contacts creating networks. The difference between formal and informal structures in organisations has diminished: there are more team-based organisations, more matrix-formed organisational structures, and also the philosophy of management has been changing. New information technologies (e.g., e-mail) have facilitated communication without regard for traditional hierarchy (Monge & Contradictor 2001).

Social network theory emphasises the relationships of people as a significant force on an individual’s behaviour. The term *social network theory* is though somewhat disputed; some researchers (Scott 1991, Hersberger 2003) argue that there is no concise social network theory but rather a set of methods to examine social networks. Thus such terms as the perspective of social networks or a social network approach are more justified.

A social network approach focuses on the structure of the network and the resources which flow through the network. Social networks consist of individual actors and the relationships between them. Actors are nodes in the network and they can be individuals, groups or organisations. Pairs of actors are linked or tied by relationships. The relationships and interactions can be of many kinds, for
example exchange of resources (material or immaterial), physical connections (a road, river or a bridge), or they can be based on kinship, friendship or work relationships (Wellman 1988, Haythornthwaite 1996). At its simplest a relationship between two actors and the unit is a *dyad*. Dyadic ties are influenced by the social structure features where the dyad operates (Wellman 1988). Larger groups of actors can consist of several subgroups (Wasserman & Faust 1994). The network structure determines the resources which are available for the individual and thus influences an individual’s behaviour (Berkman et al. 2000).

The relationships in social networks are identified by such attributes as content, direction and strength. The direction of the relationship can be asymmetrical or symmetrical, but also undirected. Actors can belong to many networks, each based on different types of relationships. Tie strength refers to the nature of relationships between actors. Many relationships between the actors as well as reciprocal, long-lasting and personal connections are indicators of strong ties (Wellman 1988, Haythornthwaite 1996, Wasserman & Faust 1994).

Homophily of a network denotes that actors with similar characteristics are likely to have strong ties or relationships (McPherson et al. 2001).

According to Granovetter (1973), strong ties, breeding local cohesion, are up to form cliques and lead to fragmentation in a larger community. Weak ties give more opportunities to individuals to access more and different information. According to Nohria and Eccles (1992), relationships based only on IT are weak. The organisation cannot work effectively without face-to-face relationships. Electronically mediated information and exchange is appropriate for simple routine messages and for reaching many people simultaneously in the situations where the identities of the interactants are insignificant.

Weak ties link members of different small groups, strong ties concentrate within particular groups (Burt 1992). Burt (1992) describes structural holes in social networks as a gap between two individuals with complementary information. The gap can be filled with a third person, *tertius*, and this position can create important advantages for him. According to Allen (1995), gatekeepers or brokers (Wellman 1988) have many relationships and are the individuals to whom others turn most often for information. Tushman and Scanlan (1981) call the activities of gatekeepers *boundary spanning*. *Boundary objects* (Star & Griesemer 1989) are artefacts that link different entities, such as technologies (Kimble et al. 2010).

The structure of social networks is often studied with social network analysis (SNA) which is based on a mathematical approach. SNA analyses the ties
between individuals, groups and/or organisations. The network is often presented graphically as a sociogram and the analysis involves a quantitative perspective which numerically describes, for example, the strength, direction, and type of tie, and derivation of groupings.

However, social networks can also be studied from a qualitative perspective. Socio-metric analysis in qualitative research implies the roles and positions of the actors and the dynamics of social processes in the network (Ropo 2001). Kjos (2009) suggests that quantitative methods are the best for measuring the effects of social networks while qualitative methods function by describing structure, content and function. Bishop and Waring (2012) argue that a qualitative approach to networks brings out the meaning and their implications for network members, which are especially important in health care work (see also Cunningham et al. 2013).

3.3 Information Technology in health care

Information Technology and electronic networks are an essential part of the value network (Normann & Ramirez 1994). Electronic patient records (EPR) are databases containing patient information. The terms patient record and medical record are often used interchangeably. Patient records should enable easy storage and retrieval of patient information (Berg 2004). Electronic records can include graphics, video, colour, moving images and sound, but mainly the contents are textual.

The goal of EPR is to minimise errors in patient documents because the information is stored only once into the system and thus the need to copy it is diminished. This also reduces the possibility of making mistakes. The information can easily be accessed by all those who are entitled to see it. The patient records are not lost, they are all in the same place and the information is timely. The records of earlier treatment and examinations are available, which facilitates the continuity of the care (Kuntaliitto 2008).

Development of IT in health care has been slow compared to many other fields. Health care and its specialities require specialised systems—one solution is not sufficient for all fields of medicine. The issues of security and concealment of confidential information and knowledge transfer between organisations and different data systems are challenges for the construction of a collective knowledge reserve (Saaren-Seppälä 2006).
3.3.1 Medical records and health care work

Information needs in health care work are very complex. Information must be gathered from many sources and combined to a meaningful totality to be able to make care decisions. This concerns both individual professionals as well as care teams. Medical records have two main functions: they accumulate data and they co-ordinate activities and events. For the continuity of the care and multidisciplinary care of patients the exchange of information is vital (Bath 2008, Pollard et al. 2013). Medical records are reports of the actions of the professionals. The entries are made with the awareness that they are used later to evaluate these previous actions. The entries are summaries of the actions; they are condensed information about the case. The notes, in turn, are the basis of further care (Berg 1996). The care of the patients cannot be planned in detail beforehand. It is impossible to predict the trajectory of the patient because there are many complex processes involved. Health care work is more about responding to ad hoc situations with decisions based on knowledge and previous experiences. (Berg 2004).

Health care work is characterised by its interpretative, interactional and pragmatic nature. The nature of information in EPR is contextual. Health care professionals need information linked to the patient’s trajectory. For them the information about earlier care processes, the laboratory and radiological examination’s results, etc., are relevant when making diagnoses and new plans for the care of the patient. This information is for the primary purposes in health care. Secondary purposes include administrative, research and management purposes (Berg 2004).

Weir and her colleagues (2011) claim that users, i.e., health care professionals, may adapt electronic documentation to support communication and collaboration needs. The users are aware that the records are available all time and in all locations and they expect that others also read their entries. However, the tools to improve documentation input efficiency such as the increase of structured data may decrease shared sense-making. Use of electronic medical records influences the way patient data is gathered and this can result in a loss of relevant information (Patel et al. 2002). Formal documents do not support knowledge work, because they are not rich enough (Dalkir 2011). Furthermore, computer-mediated asynchronous communication takes more time than face-to-face interaction (Kuziemsy & Varpio 2011).
Many health care professionals perceive that the electronic medical records do not make their daily tasks easier. There are some indisputable benefits such as better availability of information regardless of time and location, but some professionals find many inconvenient issues. Although electronic patient record systems enable the access to information for many users in one’s own organisation at any time and from any place, they do not support collaboration between physicians and nurses. Moreover, physicians are dissatisfied with difficulties of accessing patient information from other organisations in spite of electronic referral and discharge systems and regional information systems (Winblad et al. 2010).

Walsh (2004: 1187) argues that “medicine is far from factual science, and patient management requires a tentative, evolving reinterpretation of previous data in the light of new information”. According to Kay and Purves (1996), medical consultations are based on storytelling. The patient tells a story of his or her illness and the doctor is “the author” of stories in the medical record. Electronic patient records do not support this kind of storytelling. Information retrieval from EPR is mostly based on structured data entry. The user has to select relevant terms and codes from a predefined list and reducing the patient narrative into clinical terms is not always simple and may take lots of time. Clinicians value the ability to make free text entries as reminders of the moments and interaction of consultation in order to maintain good relationships with their patients (de Lusignan et al. 2003). However, the choice to use more structured templates or to dictate the notes of the patient visit as a narrative varies across specialty, physician demographics, and practise characteristics (Pollard et al. 2013).

In general, patient records are comprehensible only for those who know the codes and language of medicine. The form of the records defines what information should be logged into the charts. There prevails an implicit assumption that those using and reading patient records know what usually happens in clinical contexts and the record does not represent what has actually happened, it only describes the special details of that incident. The insiders can fill the gaps in the records based on their own knowledge and experiences of those situations. Condensed expressions save time for the one who enters the notes in the patient records and for the one quickly trying to trace it (Berg 1996, 2004.) Health care professionals are also aware that their notes of patients and their medical condition can be read by the patient and they should be written so that they do not stigmatise or insult the patient (Wibe et al. 2011).
Making entries requires time. Asikainen and his colleagues (2008) discovered that most of the health care professionals thought that making entries was very time-consuming and that the same patient data was documented several times. The usability of clinical Information and Communication Technology (ICT) systems has been poor; the physicians have perceived that the documentation and retrieval of patient data do not support clinical tasks and decision making (Viitanen et al. 2011).

One goal in the development of medical records has been the support of multiprofessional collaboration. The idea of continuing patient records from birth to old age would facilitate the work of the many health and welfare professionals, and would even support administrative decision making by providing statistical information and information about the care processes (Berg 1996, Saarelma 1999). However, the quantities and incompatibility of different electronic patient care systems in different hospitals and municipalities hinder the evaluation of the impact and effectiveness of care (Silvennoinen-Nuora 2010). Medical records are a form of organisational memory (see also Mäkinen & Huotari 2004). It must be noted that this memory is never complete, some parts are always missing. For example, the record may consist of only structural data, if the record does not allow entries of unstructured information (Berg 1996). One problem has also been that this information has not been used in an efficient manner (see, e.g., Korhonen 2005).

The software of the IT systems is interpreted by its users and its effectiveness is defined by the users in their work context and culture. The value of IT is also determined only by its users. People prefer people when they need decision support; sharing and interpreting information is also a social interactive process (Berg 2004). The technology does not limit the development of the EPR. Integration of electronic records into health care is more dependent on human, managerial and organisational issues (Bath 2008). Furthermore the work of health care professionals is complex and variable. Patient care is interpersonal and IT can somewhat support the skills and enhance cooperation between professionals, but it cannot transform medicine’s core business (Berg 2004).

### 3.3.2 Information technology in Finnish health care

In Finland, health care centres implemented electronic patient records mainly in the late 1990s and in hospitals after the year 2000. The slowness of the hospitals in the transition from paper records to electronic records is due to the more
complex nature of the organisations and to the huge amount of information systems that had to be connected. During previous decades the use of ICT has increased rapidly in Finnish health care organisations. Almost all (99.1%) of municipal health care centres, private medical services, and central and university hospitals used electronic patient records (EPR) as the only source of patient narratives in 2007 (Hämäläinen et al. 2009).

As Finnish health care organisations implemented EPRs, each municipality purchased its hardware and software independently. This independent acquisition led to the situation in which primary health care used about ten different electronic patient record systems and hospitals used six different hospital information systems at the end of the 1990s. The technical solutions, stage of development and age of the systems varied, which has caused technical problems in communication among the systems. Furthermore at the early stage of IT implementation some Finnish hospitals independently developed their own information systems in the 1960s and 1970s which has made the situation even more complex (Koskimies 1999).

Health care organisations’ ICT systems communicate with each other through interfaces which enable the use of electronic referrals and electronic discharge letters between organisations. The actual patient records can usually not be transferred directly to other systems. Electronic referrals are used when a patient is guided from primary health care to special health care (i.e. to the hospital). When the patient’s treatment is finished an electronic discharge summary or epicrisis is returned to the sending institution. In Finnish healthcare the term epicrisis is established when talking about the care feedback or consultation summary in (special) healthcare (see Figure 7, p. 118.) Sometimes also electronic consultation is used. This means that the patient is not actually transferred to the other organisation, but professional advice or opinions for treatment are sought. The referrals, consultation and feedback letters are narrative texts, but also results of laboratory tests and radiological examinations can be transferred electronically.

This electronic information transfer has progressed rapidly in Finland in past years. According to a report from 2009 77% of the primary health care centres used electronic information exchange when communicating with the hospitals and 20 of the 21 hospital districts used electronic discharge letters (see, Hämäläinen et al. 2009). Once taken into practise, the electronic referral-feedback system appears to become the principal mode of action.

Some hospital districts have regional information systems which concern mostly radiography and laboratory tests. Thus for example the laboratory tests
which have been taken in primary health care are also available in the central hospital. At the time of this study, the implementation of these regional information systems is still in progress (Hyppönen et al., 2012). However, some projects to enhance information flow between different levels of patient care have failed because of deeply embedded distinctions between health care organisations (Paane-Tiainen, 2013). Hyppönen and her colleagues (2014) likewise suggest that if searching for patient information is laborious and time-consuming, it is not sought even if it is available.

Medical practitioners need an informed consent of the patient in order to transfer the patient records to another health care organisation (MSAH 1992). The need of the patient’s consent has proven to somewhat hinder fluent information transfer between different health care organisations although most patients are willing to give consent (Hyppönen et al. 2014). Patients are concerned about privacy and security, but on the other hand they perceive that transmission of electronic health information between health care providers can be a benefit to a person’s health (Simon et al. 2009).

3.4 Value in health care

The terms value and value creation originate from economics and marketing and from business-to-business research and so far they have not been widely used in health care (Lee 2010). In business and marketing, value creation gives a company a competitive advantage. Porter and Teisberg (2006) emphasise the competitive element of value creation also in United States health care. However, in Finnish public health care the competitive element is quite irrelevant. The economic advantage of increased value of health care is most often evaluated with saving of costs (see, e.g., Porter 2010). The idea of value creation in networks includes the idea of a win-win situation: value networks create value for all the stakeholders. In this study the value network is a networked setting of activities, an Integrated Care Pathway (ICP) for obese children, which is a practice among health care professionals in primary and special health care. The ICP is enabled and supported by information technology.

In health care and in the context of health promotion the person who receives the care or health information can be named a patient, consumer, client, user of the information, health consumer or patient-consumer. The Finnish Act on the Status and Rights of Patients (MSAH 1992) defines the patient as “a person who uses health care services or is otherwise the target of them”. Based on this
**Definition**

The term *patient* is used when referring to the user of health care services which are provided by health care professionals in public health care. When referring to previous studies, the term of the original text is used.

The main outcome of the activities of health care organisations is better health of the population which is a result of both physical products and health professionals’ care services. Porter (2010: 2477) defines value in health care as “the patient outcomes achieved per dollar spent”. However, these outcomes are difficult to measure. Each medical condition has a different set of outcomes and furthermore the outcomes should be evaluated in the long-term (Porter 2010).

Porter (2010: 2477) also states that “health outcomes are inevitably coproduced by the patient and the care team”. Yet Porter and Teisberg (2006: 296) point out that:

- consumer-driven health care is also unrealistic in assuming that individuals can fully take charge of their own care. Very few consumers will be expert enough, or should be expert enough, to oversee their care on their own. They will need to rely heavily on their doctors, their health plan, and other advisers.

Nevertheless, Porter and Teisberg emphasise the responsibilities of consumers in value creation; they must participate actively in disease prevention programmes and adopt a healthy lifestyle and seek relevant expert information and advice. De Korne and his colleagues (2009) argue that Porter’s and Teisberg’s (2006) term “patient value” is too generic and vague and also that the reduction of costs gives no added value to the patients. Patient value should be further operationalised to be able to calculate the costs of health results as Porter and Teisberg suggest.

Pitta and Laric (2004) also have a marketing perspective on value creation in health care. They stress that value in health care is created for the consumer. They argue that when delivering superior value, the customer’s perceived value and the lifetime value of the customer to the firms are the most important elements. Lifetime value of the customer refers to retaining customers, which is cheaper than acquiring new customers. These critical success factors of health care are created in the health care value network which consists of value chains. The value chains, in turn, are groups of entities which include distributors, suppliers and consumers (see also Payne & Holt 2001).

Nordgren (2009: 124) states that “Value is created in the recreation of the value creation process and interaction between the provider and the customer”. He perceives that value in health care cannot stress only service productivity in the terms of reduced costs, activities, and outcomes. Value in health care includes
also experienced health, quality of life, accessibility, trust, communication, and avoidance of suffering and death.

Koivuniemi and Simonen (2011) define creation of customer’s value in health care as a process which aims at maximizing people’s coping in all aspects of everyday life. Value creation also enables professionals to perform their work efficiently. They point out that every customer increases knowledge of the health care professionals and gives references of solved problems. A learning health care organisation supports thus both learning of the organisation and the customer’s learning.

Gruber and Frugone (2011) investigated patients’ desires of qualities and behaviours of general practitioners (GP) during medical encounters. They indicated that in order to gain trust, a GPs’ competence, friendliness and empathy besides active listening are the most important qualities. Trust, in turn, leads to a sense of comfort which enables the patients to take part in the effective treatment and co-creation of value. According to Gruber and Frugone (2011), health is the main value which patients seek and is considered to be the gateway to other values such as well-being, belongingness, accomplishment, and self-realisation.

Salokekkilä (2012) states that medical consultations and encounters do not add value for the patient if the patient feels that the visit has been unnecessary. This may happen if the patient has not been given an opportunity to tell about his or her illness and condition enough or has not been listened to. Salokekkilä (2012: 93) argues that “the patient as an expert of his or her own condition makes the assessment of the value of the outcome connected to the consultation”.

The terms patient-centred care and empowerment along with the idea of an “expert patient” have been implemented especially in Nursing Science. These terms stand for the idea that patients are experts of their own bodies, symptoms and situations and this knowledge is necessary in successful treatment and prevention of diseases (Enehaug 2000, Fox et al. 2005, Holmström & Röing 2009). Patient-centred care and empowerment can be perceived as tools for value creation. Empowerment is a personal process that professional, organisational, political, and marketing actions can promote but personal interest and desire to change and to control over one’s own life are most important. We can assume that empowered patients, patients who are willing to take part in their own care, are active partners in value creating knowledge processes. Patient participation requires also a change in the role of the patient. It can be difficult and even scary for the patients to become active partners in the care instead of being passive receivers (Enehaug 2000).
In this research the definition of value in health care for all the stakeholders is health and welfare. For the patients, health and well-being increase quality of life and the health care organisations learn how to treat the patients to reach these goals.

3.4.1 Value for the patient

In marketing and economics the concept *customer perceived value* has been defined in various ways. To get a grasp of the concept value for the patients some of these definitions are scrutinised (see Table 1).

<table>
<thead>
<tr>
<th>Aspects of customer value</th>
<th>Researcher(s)</th>
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</thead>
<tbody>
<tr>
<td>value components</td>
<td>Khalifa 2004</td>
</tr>
<tr>
<td>benefits/costs (intangible &amp; tangible/monetary &amp; non-monetary) means-ends</td>
<td></td>
</tr>
<tr>
<td>received value</td>
<td>Flint et al. 2002</td>
</tr>
<tr>
<td>desired value</td>
<td></td>
</tr>
<tr>
<td>value of products</td>
<td>Lindgren &amp; Wystra 2005</td>
</tr>
<tr>
<td>value of relationships</td>
<td></td>
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<tr>
<td>economic value</td>
<td>Liu et al. 2005</td>
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<tr>
<td>value of the core service</td>
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<tr>
<td>value of support service</td>
<td></td>
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<tr>
<td>exchange value</td>
<td>Möller 2006</td>
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<tr>
<td>relational value</td>
<td></td>
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<tr>
<td>proprietary value</td>
<td></td>
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<tr>
<td>quality and satisfaction</td>
<td>Ulaga &amp; Chacour 2001</td>
</tr>
<tr>
<td>Functional benefits (usability)</td>
<td>Holtinen 2010</td>
</tr>
<tr>
<td>Emotional benefits (experiences)</td>
<td></td>
</tr>
<tr>
<td>Meanings</td>
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</tr>
</tbody>
</table>

According to Khalifa (2004) customer value in management literature is difficult to define because the concept is dynamic. He categorises the definitions into three groups: value components models, benefits/costs models and means-ends models. Examples of value components are esteem value (“want”), exchange value (“worth”) and utility value (“need”) or dissatisfiers, satisfiers, and delighters. Benefits/costs models or benefits/sacrifices models compare the intangible or...

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tangible benefits for the customer with the monetary costs, time costs, search costs, learning costs and emotional costs of the product or service. Also included is the cognitive or physical effort and social, financial and psychological risks of getting or using the product or service. Means-ends models assume that customers need products or services to accomplish favourable ends which are important personal values for them. The value that matters is the customer’s personal experience, not the current value on the market or the price of the product (Khalifa 2004).

Moreover, customer value has been categorised into received value (what the customer perceives he/she has received) and desired value (what the customer wants to happen when interacting with the supplier) (Flint et al. 2002), to the value of products and relationships (Lindgren & Wynstra, 2005) and to economic, core service, and support service value (Liu et al. 2005). Möller (2006) presents a typology of customer value which includes exchange value, relational value and proprietary value. Exchange value is the trade-off between benefits and sacrifices; relational value is embedded in the buyer-supplier relationship itself; and proprietary value benefits mainly the supplier. Ulaga and Chacour (2001) claim that the concept of customer value is near to customer-perceived quality and satisfaction when the customer is evaluating the benefit/cost ratio. Holttinen (2010) emphasises value creation in use. She claims that the offerings have no value; value is created in practises when the consumers experience functional and emotional benefits and meanings (see also Zainuddin et al. 2013).

**Value for the patients**

In preventive health care the means-ends model and the benefits-sacrifices model offer a promising perspective to inspect people’s health behaviour and the impact of health information. In this study these models are combined in Figure 3 (see p. 54) to illuminate their relationship and the elements of value for the patients. Means-ends models assume that products or services provide the customer with the means to reach the customer’s personal goals (Khalifa 2004). Benefits-sacrifices models emphasise the balance between the benefits for the customer and the sacrifices or costs in which he/she must invest to accomplish the benefits (Ulaga & Chacour 2001, Khalifa 2004). For example, Wang (2012) applies the benefits-sacrifices model in the context of medical tourism. In his model the perceived benefits are perceived medical quality, service quality and enjoyment, and the perceived sacrifices consist of perceived risks and fees.
In preventive health care the means-ends model can mean that the goal of the patient is health and well-being and the counselling is the means to reach this goal. The costs-sacrifices model applied to this context refers to the patient’s comparison of the benefits of lifestyle changes with the costs or sacrifices he/she has to make to achieve the goals. The benefits include better health and well-being and social acceptance; the costs or sacrifices may include learning new eating habits, giving up treats or excessive/comfort eating and the time and energy required to learn new eating and/or exercise habits. For example, grocery shopping and preparing healthier meals instead of fast food or readymade meals takes time and increasing physical activity may take some arranging in the daily schedule. Thus value is tied to practises that create offerings, not to offerings as such (Holttinen 2010).

The goals or benefits are achieved by making lifestyle changes. The changes are costs or sacrifices for the families. On the other hand these changes should be permanent—a new lifestyle of the family. The actual value for the patient, quality of life, is constructed from the balance between the costs and benefits. Parolini
(1999: 107) names this net value “...the value the customer receives by the service or goods compared with the cost”.

The quality of counselling is relevant in value evaluation. Quality includes among other issues the aspects of successful interaction between the professional and the patient and the scientific basis of the knowledge and information in counselling. Good interaction between the health care professional and the patient has an impact on the care results and patient satisfaction (Cameron & McMillan 2006, Heritage & Maynard 2006, Zainuddin et al. 2013). Moreover, in the interaction of counselling the patient and the family participate and influence both the processes and outcomes of counselling (Laihonen & Lönnqvist 2010). As Porter (2010, App. 1.) notes, patient satisfaction itself is not a health outcome, but it can lead to better patient compliance and increase motivation to lifestyle changes (see also Manary et al. 2012, Zainuddin et al. 2013). However, customer (patient) satisfaction does not lead automatically to health behaviour change, nor does actively listening to instructions mean that the patient has internalised the message. Lifestyle changes require understanding of the facts of why these changes are needed; otherwise the changes are not permanent.

In medicine and nursing, Evidence-Based Medicine (EBM) and Evidence-Based Nursing (EBN) present a widely recognised standard of high scientific quality. In Finland, the Finnish Medical Association Duodecim produces and publishes Käypä hoito (Current Care), guidelines of several diseases and medical conditions which are freely available via Internet for both professionals and for the public. The guidelines support experts’ care decisions in individual patient cases (Mäkelä 2011, Öhman 2011).

3.4.2 Value for health care organisations: organisational learning

As already discussed, value networks create value for all members of the network. Thus value creation in health care also increases value for public health care and society. Value for health care organisations increases competence to treat the patients efficiently. This competence increases with health care professionals’ experiences of the care of every individual patient. Good health outcomes also decrease health care costs in the long term.

Porter and Teisberg (2006) emphasise specialisation and increasing and accumulating experience as a mean to increase value creation in health care. They state that “patient value comes from expertise, experience, and volume in particular medical conditions” (Ibid: 201). Comparing and evaluating clinical
results is necessary when trying to improve health care work and in order to evaluate its efficacy, information of the achieved results should be easily available.

Organisational learning has been perceived and studied as individual, organisational, and team learning (Prugsamatz 2010). Dalkir (2011: 368) defines organisational learning as “learning what worked and what did not work from the past and effectively transferring this experientially learned knowledge to present-day and future knowledge workers”. He finds top-down learning as an initiation of the management and bottom-up learning as that which happens in action; it is learning from positive or negative experiences. Positive events can be named “best practises” and negative events “lessons learned” (Dalkir 2011).

Araujo (1998: 317) argues that organisational knowing and learning are collective phenomena which emerge “in networks of relationships between the social and material world”. Learning is a creative process which occurs at both the individual and the collective levels with engagement (Blackler 1993). Brown and Duguid (1991) perceive work, learning and innovation as connected activities in an organisation; learning can be regarded as a bridge between work and innovation. Thus knowledge creation as a process is also associated with organisational learning (see Subchapter 5.4). Organisational learning is also the creation and re-creation of collective routines (Kerosuo & Engeström 2003).

Porter and Teisberg (2006) present that systematic knowledge development which enables learning in health care organisations should include the components of measuring and analysing results, identifying process improvement and training staff. Teamwork, active leadership and information flow enhance organisational learning. Individual self-mastery and mental models, a group’s or team’s shared vision, dialogical learning and ability to see interrelationships are the key characteristics to enhance organisational learning (Dalkir 2011).

Hakkarainen (2003) claims that knowledge processes in complicated expert work cannot be explained by focusing on the knowledge of individuals. Deeper understanding of these processes requires understanding of the interaction between internal and external knowledge in the mind and embedded knowledge and knowing of the environment. In some communities such as operation teams in a hospital, special weapons and tactics (SWAT) teams in police forces, or sports teams, you can even talk about the collective mind in which the actors are dependent and aware of their own actions and the actions of others.

However, Boder (2006) emphasises the actions of making individuals’ expertise explicit in the process of building collective intelligence. He claims that tacit, unspoken knowledge can even hinder collaboration. Collective intelligence
in an organisation is built from the competencies of individuals, common goals and mechanisms consisting of culture and norms. All these elements have to be made explicit in order to create new knowledge and to create value together with customers.

Nordentoft and Wistoft (2012) investigated the collaborative learning of school health nurses in Denmark. Their approach is that collective learning is a construction of knowledge in interaction and thus social and situated. Working with a peer enables both participants to learn from each other, thus learning is sharing of knowing.

This research focuses on learning on an organisational level although learning of individuals is also discussed. Dalkir (2011) claims that those organisations that support individual learning are more likely to be capable of organisational learning. Prugsamatz’s (2010) empirical research results in non-profit organisations indicate that individual motivation to learn, team dynamics and cultural practises influence learning in organisations (see Subchapter 5.7.2). These are mostly the same factors which have been perceived to influence knowledge sharing in organisations. Furthermore Dalkir (2011: 382) claims that “knowledge processing (also referred to as knowledge sharing in the KM literature) supports learning that occurs in organizations”.

3.5 Summary of value creation in health care

The goal of public health care is to enhance health in society. This objective entails benefits for individuals and health care organisations which in this research are defined as value. Value for both the patients and the health care organisations is health and welfare. For the obese children and their families value consists of the balance between the benefits and costs of lifestyle changes. Value for the health care organisations is better competence to treat the families with obese children through organisational learning.

Public health care organisations are hierarchical structures. However, they involve also social networks consisting of different organisational employees and different organisations which have ties or relationships with each other. The electronic networks provided by IT also enable the value network. Both the hierarchical or formal structure and the informal social network are related to the actions of the organisation. They are also related to the organisation’s ability to create value for the patients, for the organisation itself, and finally for public health care and society.
4 Organisational culture

In the following chapter organisational culture will be discussed as a factor which can influence organisational information behaviour. The aspects of organisational subcultures and professionalism are considered and followed by a discussion about collaboration in health care. After that Chatman’s idea of small worlds and normative behaviour (1991, 1992, 1996, 1999) and Burnett’s and Jaeger’s (Jaeger & Burnett 2010) theory of information worlds are introduced to be applied as a part of the theoretical framework in this study. At the end of the chapter earlier research of organisational culture in Finnish health care is reviewed.

4.1 Definitions of organisational culture

Organisational culture can emerge only in a definable group with a significant history; it is a “learned product of group experience” (Schein 1991: 7). Sackmann (1992) states that the diversity of central concepts such as ideologies, sets of beliefs, basic assumptions, core values, etc., make it difficult to operationalise culture; researchers use the concepts in various ways.

Edgar H. Schein (1991: 9) defines organisational culture as a “a pattern of basic assumptions - invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration - that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”. Furthermore, Schein (1991) categorises organisational culture into three levels. The first level consists of basic assumptions, of something that has been taken for granted. Basic assumptions define the way of thinking of the nature of reality; they are a scheme to interpret the environment and they are mostly unconscious. At the second level are the values which represent a more visible manifestation of culture. Members of an organisation are often aware of the values which can be debated and discussed. Values are also a basis of social norms which affect the behaviour of individuals and define the rules of social interaction. The most visible level of organisational culture is the level of artifacts and creations consisting of art, technology and visible behaviour patterns and written and spoken language.

Research of organisational culture has been based on two main aspects. Firstly culture has been seen as a characteristic of the organisation (“has”) and secondly as something that has been socially constructed by shared meanings and
interpretations (“is”) (see for example Smircich 1983). Schein’s (1991) definition of culture represents the former aspect: organisational culture can be empirically researched and described. The latter aspect emphasises the changing nature of culture; it is not a stable and coherent construction of values and norms that can be managed, changed and measured, it is something that the organisation is. Thus organisations are constantly made meaningful by their members in interaction (Smircich 1983).

Meyerson and Martin (1987) separate three aspects in the studies of organisational cultures: the aspects of integration, differentiation and fragmentation. Their analysis of these different approaches can be classified based on the “is” assumption of organisations. The aspect of integration emphasises a common organisational culture with mutual understanding. Differentiation brings out different subcultures. These subcultures can have consensus or contradictions, and inside the subcultures prevail through mutual understanding. The aspect of ambiguity or fragmentation includes contextual and situational factors in cultural phenomena. Thus consensus and contradictions are temporary and they depend on the subject (see also Martin 1992).

The theory of information worlds (Jaeger & Burnett 2010) which is chosen to explore the social aspects of information behaviour in the organisational settings of this study represents more or less the differentiation perspective of studies of organisational culture with its limitations. Martin (1992: 168) argues that “An objectivist, single-perspective approach assumes that researchers can judge, by some objective standard, which one of the perspectives offers a more accurate description of a particular context at a given point in time”. Furthermore she states that:

In order to avoid the blindspots inherent in a single-perspective approach, a researcher must be able to study any cultural context from all three perspectives...In order to adopt this multiperspective approach, a researcher has to abandon the objectivist assumption that one perspective will be correct, or more correct, than the others. Instead, the perspectives need to be seen as subjective frames—like lenses—that bring some aspects of culture into focus while inevitably blurring others, not because of researcher carelessness, but because of the inherent limitations of any one perspective. (Martin 1992: 169).
4.2 Organisational subcultures and professionalism

Informal groups defined by demographic characteristics or personal relationships and formal groups such as departments, functional units or shared hierarchical experiences are likely to construct organisational subcultures (Schein 1991). Schein (1990) presents a hypothesis that in the process of evolving and growing organisational cultures, two processes occur simultaneously. Firstly, the process of differentiation occurs which leads to the development of subcultures and secondly the process of integration which creates a common, congruent culture. Lok and his colleagues (2011) argue that differential organisational practices in complex and large organisations such as contemporary public health care easily develop subcultures. For example nurses tend to identify more tightly with their ward, their closest work environment, than with the whole hospital. Occupational groups often form subcultures which affect the dynamics of the organisation. These occupational subcultures emerge during the training and socialisation into the occupation.

Especially in health care the profession becomes a part of the whole identity. Paulsen (2003: 14) states that:

Identity is central to a conception of what it means to be human. An individual’s identity is based in part on the groups to which he or she belongs, and identification with these groups forms a part of an individual’s self-concept. Within organizational contexts, employees are members of a number of groups, all of which are potential targets of units, as well as management teams, project teams, professional groups, or other informal groups. In other words, organizations are structured both formally and informally such that individuals within them relate to one another in essentially an intergroup context.

Occupational subcultures are close to the concept of professionalism. Andrew Abbott (1988: 8) defines professions loosely as “exclusive occupational groups applying somewhat abstract knowledge to particular cases”. Professional work consists of complex situations or problems which cannot be solved routinely. Traditionally doctors, lawyers, priests, architects, teachers, librarians and social workers have been established professions.

Professions are legitimised by credentials which give the professional or expert a jurisdiction to perform certain tasks in society. A jurisdiction is recognition by society of the profession’s own cognitive structure (Abbott 1988,
Trice 1993). This jurisdiction is not constant, though it is reevaluated in work and work environments, in decision-making processes, in labour markets and at many levels in society (Konttin 1997). Professional boundaries are also important sources of identity and belonging (Pinder et al. 2005).

Professional and occupational boundaries are not determined by geography or job titles. Moreover, subgroups can exist also within occupations: in the medical profession surgeons and psychiatrists or librarians in academic and public libraries represent different occupational subgroups. The features of occupational subcultures are determined by several factors such as work conditions, social status of the profession, or for example elements of danger in work which affect the language, rules and ranks by which the members of the occupation relate to each other and to other professional groups (Trice 1993).

4.3 Collaboration in health care

Collaboration is a term which refers to an idea of sharing with an action towards a common goal in trust and harmony. Engeström (2005: 426) states that “Medical work is not anymore only about treating patients and finding a cure. It is increasingly about reorganizing and re-conceptualizing care across professional specialities and institutional boundaries”. Information sharing is essential for collaborative group work (Sonnenwald 2006). Teamwork and collaboration have been one goal in health care for over thirty years; the WHO conference on primary health care in Alma-Ata 1978 states that health care workers, including doctors, nurses, midwives, etc., should work as a health team to respond the expressed health needs of the community (WHO 1978).

Collaboration is influenced by the properties of individuals, co-workers and the culture of the environment (Isoherranen 2005). In health care the relationships between professionals are complex. The professionals represent different disciplines which all have developed a strong theoretical framework that gives access to professional jurisdictions. The professional system is often rigid and collaboration requires making changes to this paradigm (D’Amour et al. 2005).

Multiprofessional (multidisciplinary) collaboration in social and health care is a patient-centred approach. It aims at gathering knowledge and different aspects together by collaboration in interaction, by crossing boundaries and by taking networks into consideration. The term multiprofessional team is sometimes used to refer to people working in the same workplaces without any real team meetings or opportunities to share knowledge (D’Amour et al. 2005, Isoherranen 2005, Vyt
In multiprofessional teams its members present different disciplines. The members of the team each have their own points of view and their own problems to take care of in the co-ordinated treatment of the patient (Payne 2000).

Interprofessional (interdisciplinary) teams are small groups with clear operational principles and common goals including the opportunity to share knowledge in a common place and time. The term implies to a greater collaboration between team members, where the decisions are made by team discussions (D’Amour et al. 2005, Vyt 2008). The term transprofessional (transdisciplinary) team means crossing the traditional borders of disciplines by the means of exchanging knowledge, skills and expertise. Transprofessional collaboration needs shared goals, shared planning of the care, and it releases the stereotyped roles and role perceptions (D’Amour et al. 2005, Isoherranen 2005, Vyt 2008).

Saaren-Seppälä (2004) categorises the relationships in health care to three types. The first type is an interactional relationship, which is a personal contact between a doctor and a nurse, for example, or between a patient and a health care professional. Secondly, the relationship can be institutionalised cooperation, a relationship with no personal contact. This kind of relationship is typically the referral-epicrisis or care feedback practise between primary and special health care. The third type is a collaboration relationship which can be either personal or mediated only by documents. This type of relationship can cross organisational boundaries and with a common target, i.e., the professionals treat the same patient in different organisations.

4.3.1 Teams

Teams are one way to perform collaboration in health care. In the 1960s and 1970s the main goal of the teams was to improve work motivation. Nowadays teams are formed to create new solutions, products or services, and to increase innovations and flexibility (Launis 1997). However, Launis (1997) remarks that teams and work groups do not automatically lead to interprofessional collaboration and boundary crossing (see also Karjalainen 1996).

The most successful teams are those which have been established and sustained over a longer period of time. In these teams members know and trust each other and they have similar interests, values and goals. Team roles are official or unofficial. The official roles depend on the title or position in the hierarchy of the organisation; unofficial roles are constructed by the personal
qualities of the members of the group. Cohesion of the group can lead to better results in the work; on the other hand it can prevent the uttering of different opinions (D’Amour et al. 2005, Isoherranen 2005, Vyt 2008). Teams should consist of members who can complement each other’s disciplines. They should have knowledge of and respect for the roles and competencies of the other team professionals; they must also be able to handle conflicts and opinion differences (Vyt 2008).

According to Engeström (1992), the health care teams have three typical characteristics. Firstly, they consist of professions with different training, status and ideology, which easily make more or less open tensions among each other. Secondly, health care teams are often lead by strong and autocratic persons, mostly doctors. Thirdly, the success of the team is dependent on the involvement and cooperation of the patient; the patient can decide whether to follow or not to follow the recommendations of the professionals.

A multidisciplinary approach to patient counselling allows the primary care physician to take advantage of his or her influence with the patient and to design an individual plan for the patient from various approaches. It provides the most flexible, individualised and effective strategy. A multidisciplinary team in the context of weight management can consist of e.g., a physician, a dietician, an exercise physiologist and behaviourist (Rippe et al. 2001).

4.3.2 Earlier research of collaboration in health care

Collaboration and communication between different professionals in health care have previously been studied, mainly in the discipline of Nursing Science. According to Dougherty and Larson (2005), the main reason for this is that different professions in the field of medicine have different roles. The doctors’ role is to make independent decisions and the nurses’ role is to make shared decisions in the context of co-ordinating and communication in the health care work. Physicians and nurses have different thoughts about the values and needs of cooperation, which also affects the research interests (Dougherty & Larson 2005).

The research of collaboration so far has focused on the aspects of gender, power, education, appreciation of the professions and disturbances in communication between doctors and other health care personnel (e.g., Watts et al. 1990, Sweet & Norman 1995, Keenan et al. 1998, Hojat et al. 2003, Copnell et al. 2004, Daiki 2004, Rosenstein & O’Daniel 2005, Reiheld 2006, Manojlovich & DeCicco 2007). Inadequate communication between the nurses and physicians,
divergent professional roles, and differing ethical positions and administrative barriers are the main reasons for conflicts (Watts et al. 1990). Severe conflicts and disturbances may increase mistakes, be a risk to the safety of the patients and even increase mortality (Rosenstein & O’Daniel 2005).

There are, though, some indications that active collaboration between health care professionals produces better results in patient care (e.g., Dashiff et al. 1990, Nakanishi et al. 2006, Raatz et al. 2008, Schmalenberg & Kramer 2009). Those teams in which members trust each other are able to make changes in work practises and to apply new knowledge (Elovainio & Lindström 1993). Caldwell and his colleagues (2008) perceived that team norms and social control facilitate change. Although teamwork is considered to be useful, hospitals do not take full advantage of the intellectual capital and experience of their personnel (Skela-Savic & Pagon 2008). The health care professionals’ attitudes towards interdisciplinary collaboration can be positive, but if the professional jurisdiction is threatened, they tend to remain in traditional professional models (Sicotte et al. 2002, see also Abbott 1988).

In Finnish health care Engeström and his colleagues have studied collaboration between primary and special health care (Engeström et al. 2001, Kerosuo & Engeström 2003). The shared objective of medical work is the patient who embodies and carries the medical problems (Engeström 2005). However, the responsibility of the health care work is individual and based on each professional’s own expertise. Care is not collective and shared even though it has been collectively agreed according to the sharing of the tasks (Saaren-Seppälä 2004, 2006, Sirviö 2006, Lehtomäki 2009). Patients in multi-organisationally provided care can feel uncertainty and neglect because of the gaps in information exchange and problems in the co-ordination of care (Kerosuo 2006, 2010).

Specialities are also connected to the issues of power and the autonomy and self-efficacy of the specialist. Specialist doctors do not easily want support or additional information about the patient from colleges and co-workers. Professional power also often means imbalance in the communication between different professional groups (Sinervo & Lindström 1992, Sicotte et al. 2002, Atwall & Caldwell 2005, Whitehead 2007).

The size, structure and course of action define the activities of the organisations. According to Elovainio and Lindström (1993), typical features of health care organisations are bureaucracy and professionalism. The division into different horizontal and hierarchical sectors is based on professional and especially on formal competency. An individual professional seldom sees the
entity or the results of his work and has difficulties to perceive how his work relates to the activities of the whole organisation (Elovainio & Lindström 1993, Miettinen 2005). Furthermore, activity and process routines and busy schedules do not support creativity and innovations (Miettinen 2005).

Mertala (2011) argues that different organisational orders and structures in primary and special health care cause discontinuities in patients’ care. The personnel must deal with complicated and unpredictable situations and dialogical knowing together is at risk to fail in the complexity of health care. The personnel must deal with the issues of resources in health care along with the patients’ needs and reactions without possibilities to influence the enabling structures of the totality of health care work. Moreover Miettinen (2005) argues that focusing on productivity in health care can even hinder collaboration and innovativeness.

Sinervo and Lindström (1992) argue that health care organisations in primary health care are hierarchical and divided into several units of activities. Collaboration between the units and even in the units between different professional groups is rare. The professionals respect the borders of the specialities and do not want to interfere with others’ work. Lack of time, common planning and resources, differing goals, different ways to act, and ignorance of each other’s work are the main barriers for collaboration (Ojuri 1996). Different professional and organisational cultures, values and interests are also barriers to collaboration (Sicotte et al. 2002, Axelsson & Axelsson 2006, Lehtomäki 2009). Furthermore nurses and physicians are not socialised to collaborate with each other and they are even expected not to do so (Keenan et al. 1998, Whitehead 2007, Lehtomäki 2009).

Patients often have multiple problems in physiological, health-related, and sociological issues. These complex patients meet many different experts. Doctors especially have limited time or incentive to stop and reflect on their problems. The computerised medical records system does not work as an efficient communicative tool to analyse the plan and care of the patients collaboratively (Cole & Engeström 1993). Sirviö (2006) claims that the multiprofessional approach in health-care work is not considered to be a means to develop the work but rather a burden. The professionals want to remain independent.

The Primary Health Act in Finland in 1972 had an objective to increase the professional collaboration in primary care teams. According to one research study, in municipal health centres only every 20th patient was referred to another care provider (for example, to a nurse or clinical nutritionist) for further counselling. The traditional individual work orientation seemed to persist in health centres.
The multiprofessional team work in Finnish health centres seemed to be realised by the differentiated tasks. No practical co-work between the professional groups existed (Miilunpalo et al. 1995). Many opportunities to consult and co-operate are wasted; each health care professional takes care of his own tasks independently (Saarelma & Kokkinen-Jussila 1993).

4.4 Small worlds and normative behaviour

Elfreda Chatman presented the concept of small worlds and her theory of normative behaviour based on extensive empirical studies (1991, 1992, 1996, 1999) which focused on everyday life information seeking (ELIS) and information sharing of people living in the margins of society. Though, the concept of small worlds has been presented by many other scholars before, for example by Schutz and by Luckman (1970), Chatman gave the concept a more concrete interpretation (Hayter 2007, Savolainen 2009a.)

Savolainen (2009a: 44) speculates that even though Chatman’s ideas of small worlds appear somewhat outmoded in modern society with wireless networks and loosened information boundaries, the concept “may still be relevant in the study of local communities such as firmly established cliques at work places”. People are more concerned about their immediate environment than of the whole world and they interact rather with people who are similar to themselves (Savolainen 2009a).

A small world by Chatman (1999) is a community of like-minded individuals who share co-ownership and social reality. In small worlds life is routine and predictable, social control binds life together and social norms anticipate life (Chatman 1999). Everyday activities are considered to be “the way things are” and are also taken for granted in other small worlds even if they apply only to one particular group (Burnett & Jaeger 2008).

The main concepts of Chatman’s small worlds are worldview, social types, social norms and information behaviour. Worldview includes language, values, meaning, symbol and context. It is a shared outlook on life and is constructed on information. It determines which aspects of the world are important enough to deserve attention and which are not (Chatman 1996, 1999, Huotari & Chatman 2001, Burnett & Jaeger 2008). In Schein’s (1991) classification of the levels of organisational culture the concept of worldview in Small World Theory equals the levels of basic assumptions and values.
Of the social types the most meaningful are insiders and outsiders. Merton presented these concepts in 1969 (here, Merton 1972). Insiders are socialised members of the small world and outsiders are strangers to it. Most often the internal types of a small world are more important as information sources than the outsiders. In Abbott’s (1988) definition of professionalism a profession is a part of an individual’s identity which has an impact also on everyday life. Moreover, Paulsen (2003) states that organisational groups can become identity groups. This is equivalent to the idea of “insiders” in Chatman’s Small-World theory: professional identity and membership in an organisational group strengthens the individual’s status as an insider.

Social norms define what kind of information is relevant for members and what can be ignored; furthermore, norms provide a collective sense of direction and order. The level of values by Schein (1991) is also parallel to social norms of the Small World Theory. Social aspects are equally important as physical or intellectual aspects in information access (Burnett et al. 2008). Information behaviour is influenced by trust. Some information seeking and sharing is accepted by the members of the small world but some can be considered to be socially unacceptable. If the information source’s claims can easily be sifted and verified, the information is considered to be credible and acceptable.

Chatman (1999) claims that information boundaries are crossed only if the information is perceived as critical or if it is expected to be relevant. Different professions and their jurisdiction inhibit knowledge sharing even when the boundaries are diminished by lateral structures such as project groups, teams, or networks (Currie et al. 2007). According to Hernes (2003), social boundaries are connected with a sense of identity, a perception of “sameness” and “otherness”. They are maintained and strengthened with social relationships and narratives and they are central in the creation of behavioural norms. Storytelling and conversation transmit organisational culture, norms, values, and shared understandings. Stories introduce norms and values to the newcomers and at the same time they reinforce them to others within the organisation (Ipe 2007). For example, Currie and Suhominova (2006) perceived a significant organisational boundary between primary and special health care in the UK National Health Service.

Sligo and Jameson (2000) perceived that Pacific Island immigrant women in New Zealand favoured sources of health information that were mediated through their community groups, or “insiders”, but the information source was from the “outside”. These findings contrast with Chatman’s description of the inability to
accept outside information (see also Chatman & Pendleton 1995). This may partly be due to the fact that the New Zealand immigrants are not such an isolated group as the individuals in Chatman’s studies.

### 4.4.1 Information worlds

Gary Burnett and Paul Jaeger (Burnett & Jaeger 2008, Jaeger & Burnett 2010) developed Elfreda Chatman’s ideas of small worlds as social environments further in their theory of information worlds. Burnett and Jaeger bridge the gaps between Jürgen Habermas’s macro-level concepts of information behaviour and Chatman’s micro-level concepts related to small worlds.

Chatman’s idea of small worlds focuses on information poverty of individual groups on the micro-level but the interaction between these groups and the larger society is missing. Habermas on the other hand concentrates on the public sphere, the space within a society where information can flow freely. The concept of the public sphere is closely related to information lifeworld which is the collective information and communication environment of a social collective. Burnett and Jaeger (2008) claim that Habermas’s works on the broad social world and Chatman’s idea of small worlds complement each other and that the concepts of social norms, worldview, social types and information behaviour are also relevant to Habermas’s macro-level theories.

Burnett’s and Jaeger’s theory of information worlds focuses on five elements, three of which have been borrowed from Chatman’s works. These elements are social norms, social types, information value, information behaviour and boundaries. The descriptions of these elements are for the most part the same as Chatman’s. Burnett and Jaeger (2010) substitute the concept of worldview with the term information value, “a world’s shared sense of a scale of the importance of information” (Jaeger & Burnett 2010: 6). Information value is intrinsic to specific worlds and does not transfer easily across the boundaries between the worlds. On the other hand Lingel and Boyd (2013) suggest that information poverty can depend on the subject: a community can experience information poverty in a highly specialised field and both the community and the needed information are stigmatised.

Information value can be thought of as a spectrum of interrelated issues with the aspects of information content, perception, control, and economics. Content refers to the aboutness of information and responding to the needs of individuals and groups. In addition, the perception of the intrinsic aboutness of information
eventually defines information value. The concept relevance is thus near to the concepts of content and aboutness (Jaeger & Burnett 2010).

Boundaries are places where different information worlds come into contact with each other. As information flows through boundaries it is always re-evaluated in each group according to the norms of that world. In other words, information has different value within each group (Jaeger & Burnett 2010). The norms of the small world filter the information from the public sphere. Small worlds can even try to protect their own views from outsiders (Burnett & Jaeger 2008).

Jaeger and Burnett (2010) remark that the concept “small world” should be perceived as neutral—neither negative nor positive, but rather as descriptive. A small world is thus a social environment in which common interests, expectations and behaviours, including information behaviour, exist. However, the theory of information worlds acknowledges that the (small) worlds or social contexts are not isolated from each other. Individual actors can belong to several worlds or networks, and the small worlds exist within a broader lifeworld. The lifeworld influences the small worlds, small worlds influence the lifeworld, and intermediate levels such as school and library institutions can interact with both (Jaeger & Burnett 2010).

The theory of information worlds has three levels. At the micro level the focus is on small worlds, individual groups of people. At the meso level are the intermediates of information such as schools and libraries which try to ensure the information flow between small worlds. The macro level concerns the whole lifeworld of society (Jaeger & Burnett 2010).

Jaeger and Burnett state that small worlds are the core component of the theory of information worlds. Small worlds are all linked to networks and the term can be applied in many social environments. An individual can be a member in many small worlds and sometimes he/she can even be a gatekeeper between separate small worlds. Pressure from outside can influence information behaviour inside the small worlds. Furthermore the theory argues that information behaviour of a group influences its environment. The small worlds and the larger society interact and construct each other (Jaeger & Burnett 2010).

However, Jaeger and Burnett (2010) do not define the core concept of the theory, namely information worlds. Yu (2012) explores the term information worlds conceptually based on library and information science (LIS) literature and empirical research. Yu suggests that the concept describes individuals and groups rather than communities and social environments. She emphasises the individuals’
own information practises rather than social norms as boundaries of information worlds. Thus, *information world* is more like “way of life” (Savolainen 1995) rather than a small world (Chatman 1999).

The focus in this research is on the micro level, on the small worlds of health care organisations and the families and their mutual interaction. However, health care organisations can also be perceived as a meso level, an intermediating public sphere institution that ensures that information flows through different small worlds.

### 4.4.2 Organisational boundaries in health care

Individuals relate to one another in an organisational context as a member of a group. These groups are either identity groups based on personal or biological characteristics or organisational groups, whose members share common organisational positions or work tasks. Individuals are members in many different groups and the membership of a group is dependent on the context of the interaction. Power relationships and permeability of the group boundaries define the behaviour of individuals in interaction with members of other groups.

Boundaries can be physical, often made of tangible entities or, for example, electronic with regulations of access and transmission of information. Rules and regulations are also physical boundaries. Intangible boundaries are social or mental. Social boundaries are connected with a sense of identity, with the perception of “sameness” and “otherness”, or with the concepts of small worlds “insiders” or “outsiders”. They are maintained and strengthened with social relationships and narratives and they are central in the creation of behavioural norms. People interact preferably with similar people in terms of lifestyles and socio-economic status (Savolainen 2009a). Tight social boundaries enable good teamwork even without close physical proximity due to trust between members of the team (Hernes 2003).

Boundaries have dual properties: they constrain and enable actions in organisations. Constraining devices enable internal and external control but the stability also enables changes. Mental boundaries make sense of the world. They establish a mental sphere in which terms and symbols enable groups to communicate and also shields from the world of which the members of the group wish to make sense. This can lead to false interpretations but it can also be basis of new knowledge and organisational change (Hernes 2003).
From the patient’s point of view the boundaries between health care organisations and service units have meant that the services, decisions and responsibilities are shattered (Iivari et al. 2002). Teperi and his colleagues (2009) claim that the Finnish health care system today is divided into many actors and units, which leads to many unco-ordinated visits and missed appointments. The patient does not know whom to ask about medications or treatment. Nobody is responsible for the total care of the patients and the patients do not know what is expected from them (Teperi et al. 2009, see also Saaren-Seppälä 2006).

Koivuniemi and Simonen (2011) argue that Finnish health care focuses on production processes instead of taking care of customers or patients. Furthermore, they claim that the infrastructure of health care is overlapping and information does not flow fluently between different actors, which causes many problems and even increases costs of health care. The division to primary health care and special health care is based on the differentiation of knowledge and on the different knowledge-base of the professionals which has led to separated stages of the activities (Saaren-Seppälä 2006).

According to Paane-Tiainen (2013), the distinction between primary and special health care, medical specialisation and division of labour are profound in Finnish health care and hinder the efforts to increase collaborative processes between organisations. Currie and Suhomlinova (2006) also claim that the boundaries between health care organisations and higher education organisations, between primary and secondary health care, and between different professions are strong and hinder knowledge sharing.

Patient records are the basis of the common knowledge base but they don’t create active collaboration between the different organisations by themselves. Communication of professionals by face-to-face interaction or by use of documents is active use of the common knowledge base. There is a need for personal knowing and individual solutions when the patient’s care is divided across levels of care. The patient himself can be the bearer of the documents but he cannot use them to create medically relevant conclusions without the help of the medical professionals (Saaren-Seppälä 2004, 2006).

4.5 Earlier research of organisational culture in Finnish health care


The culture in hospitals and health care centres has some differences; health care centres are considered to be less hierarchical than hospitals (Wiili-Peltola 2005, Lehtomäki 2009). Wiili-Peltola (2005) argues that the tradition of professional autonomy, ethics, and values influences how changes and reforms in hospitals succeed. Professional cultures form a framework consisting of tacit agreements and complex interdependences and dominant and competing patterns of thought. Changes in hospital organisations require participation of professions; reforms managed by the administration are insufficient. External changes are not easily adapted to the prevailing organisational culture (Peltokorpi 1996).

Kinnunen (1990) found remarkable differences between professional subcultures in primary health care. Physicians derived their roles as independent specialists from scientific knowledge whereas nurses were in a role of helpers and supporters. According to Viitanen (1997) the strong professional culture of physiotherapists in primary health care hampered multiprofessional collaboration. Professional expertise and independent work were emphasised but client-centredness remained only in speech and did not come true in practices.

Kasila (2007) described the organisational culture of oral health care as a role-dependent, goal-oriented and task-centred culture which also emphasised the role of independent professionals and lack of taking into account the client’s or patient’s role. This goal-oriented, highly motivating work was also perceived by Eloainio et al. (2001). Lehtomäki (2009) perceived that organisational culture and structure seemed to play an important role in the introduction of clinical guidelines to practices in Finnish health care centres. In the health care centres’ culture, independent working and decision making prevailed and collaboration with one’s own professional groups was more common than multiprofessional collaboration (see also Launis 1997).

Kinnunen and Vuori (2005) claim that the goal to promote health and ethical aspects justifies the existence of health care systems and organisations. A stable structure is necessary to achieve the goals and legislation and political decisions define the frames of activities. These underlying factors are related to management and organisational culture in health care.
4.6 Summary of organisational culture

Definitions of organisational culture vary and the unconscious nature of culture deeply embedded in organisational practices makes research challenging. Organisational culture is not always homogeneous, different groups based on e.g., common occupational, demographic, work task or hierarchical positions’ similarities can form cultural subgroups.

Earlier research of organisational culture in Finnish health care establishes that there are strong subcultures in primary and special health care consisting of professional groups, specialties and units. The most prominent subcultures are those of physicians and nurses. “Doctor subculture” emphasises independence and individuality; the actions are based on scientific, mostly explicit clinical knowledge. “Nursing subculture” is more collaborative and relies on authorities. In nursing, tacit knowledge and know-how are more important than in the “doctor subculture”. Strong subcultures can hinder multiprofessional collaboration and even cause conflicts (Kinnunen 1990, Viitanen 1997, Eriksson-Piela 2003, Wiili-Peltola 2005, Lehtomäki 2009).

It can be presumed that in health care organisations social norms define the roles of the different professionals and of the patients. Traditionally medical doctors have been on top of the hierarchy and other professionals in a lower position (Eriksson-Piela 2003, Coombs & Ersser 2004, Currie & Suhomlinova 2006). The role of professionals as experts in the care and the patients as targets and passive receivers of information in preventive care has changed in recent years (see, e.g., Ijäs & Ruusuvuori 2007), but biomedical hegemony prevails still.

In this study, organisational culture is considered one explanatory factor influencing information behaviour. This is especially true of the sharing of information and knowledge, their processes, and thus also value creation in networks in health care organisations. The theory of information worlds (Jaeger & Burnett 2010) can be seen from the integration perspective by Meyerson and Martin (1987) when thinking of health care organisations as an entity or from the perspective of differentiation with the aspect of occupational subcultures. The common worldview of health care emphasises trustworthiness and eminence of biomedicine and evidence-based medicine (Coombs & Ersser 2004, Lehtomäki 2009). New members of the medical small world (e.g., hospital, ward, clinic), are socialised to the community and to the language, values and meanings. These socialised members are insiders, who according to Merton (1972) are privileged with certain knowledge and are willing to share it with other insiders.
On the other hand, in health care organisations professional boundaries appear to be strong although multiprofessional collaboration in the form of teamwork and networks has been a goal in the previous decades in order to improve patient care and outcomes (Hall 2005, Currie et al. 2007). In health care, insiders can be the entire health care personnel but the tradition of hierarchy and professionalism seem to create subgroups (Viitanen 1997, Lehtomäki 2009). Outsiders are thus either members of other subgroups or in a larger scale, all the others outside the health care organisation, including patients.
5 Knowledge management in health care

In this chapter the definitions of Knowledge Management (KM) in Information Studies are initially discussed. After that the special characteristics of KM in health care organisations are considered. Next the relationship between individual and organisational knowledge will be pondered followed by a discussion of the relationship between knowledge and knowing. Blackler’s (1995) idea of organisational knowing and its application to health care are introduced to be used as a part of the theoretical framework of the study. Finally, organisational knowledge processes in health care are outlined.

5.1 Knowledge Management in Information Studies

Knowledge Management (KM) research is a multidisciplinary field which is applied in e.g., organisational research, economics, education, computer science, and engineering. The perspective of knowledge management can be used for understanding value creation in value networks. KM is a way of reaching an organisation's goals through sharing the meaningful knowledge that each individual has. Further, once that knowledge is shared, it must be gathered in a way that allows it to become organised and reordered. Reuse of knowledge and innovation add value for the organisation (Dalkir 2011).

In Information Studies the terms knowledge and information have been defined in many ways (see, e.g., Bawden 2001, Yates-Mercer & Bawden 2002). The ambiguity of these terms has caused criticism of the term knowledge management. Wilson (2010) states that the terms knowledge and information have sometimes been used interchangeably and sometimes there have been efforts to distinguish the terms. Wilson (2002) makes a clear distinction between them and argues that it is not possible to manage knowledge which is in the minds of individuals. He claims that the activities of knowledge management are information management and management of work practices which for example enable information sharing. Furthermore, Wilson (2010) states that this has the clear implication that knowledge cannot be shared, you can only share information of what you know.

Huotari and Livonen (2004) define KM as a combination of human resource management and information management. It involves both people as knowledge creators and information as the raw material for knowledge processes. Furthermore, human behaviour is strongly linked to knowledge because
knowledge is socially constructed. McInerney (2002: 1014) defines knowledge management as “an effort to increase useful knowledge within the organization. Ways to do this include encouraging communication, offering opportunities to learn, and promoting the sharing of appropriate knowledge artifacts”.

Schultze and Leidner (2002) approached the complexity and epistemology of knowledge management by analysing the discourses of KM research based on the division made by Deetz (1996, here, Schultze & Leidner 2002). They categorised research articles which were published in six information systems journals between 1990 and 2000 into normative, interpretive, critical, and dialogic discourses. They justified the analysis of discourses rather than paradigms by the fact that the basis of the discourses is in the language and discourses give a more dynamic and flexible way to approach the research of KM. The division by paradigms results easily to a dualistic classification which is often oversimplified whereas the boundaries between discourses are more fluid.

The normative discourse emphasises the objects or artefacts as facts and the research findings to be generalisable and cumulative in nature. Knowledge is an object or a property of an individual knower. In the interpretive discourse the social activities of the organisation are more important than the economic ones and people in the organisation are viewed as active sense-makers. Knowledge is regarded as a socially constructed, dynamic, and situated phenomenon. Critical discourse and dialogic discourse are very near each other. The difference is that critical discourse emphasises the conflicts and struggles more as a structural feature of the organisation, and dialogic discourse considers power and domination as situational which cannot be owned by anyone or anything (Schultze & Leidner 2002).

According to Schultze and Leidner, the emphasis of normative and interpretive discourses creates a bias in KM research. The research does not question the value of knowledge itself and the aspects of power, politics and contradictions remain unrecognisable. Schultze and Leidner claim that knowledge and its management also have negative, unintended consequences, namely disciplining and dominating effects, which should be taken into account in KM research (Schultze & Leidner 2002).

The ambiguity of the definitions of KM is partly due to the multidisciplinary origins of the concept (Dalkir 2010). In spite of its criticism the concept knowledge management has been accepted as a fairly established term (see, e.g., Sveiby 2001, Wilson 2002, Martin 2008). Since the concept is wide, containing issues from organisational behaviour to information management, communication,
knowledge sharing and information transfer, organisational learning, knowledge creation, and interpersonal and interorganisational collaboration, this study does not try to define it comprehensively.

Some researchers have divided the development of knowledge management into different phases or generations. According to Koenig (2002, see also Snowden 2002) the beginning of KM was determined by IT. The second generation of KM focuses more on the creation of new knowledge and know-how, human and cultural dimensions and the concepts of tacit knowledge and learning organisations (Nonaka & Takeuchi 1995, Koenig 2002). Koenig (2002) claims that the third phase is the awareness of the importance of the content.

Sveiby (2001) sees the development of KM at the beginning of the millennium in three phases as the maturity of IT. In the first phase the focus was in the productivity of the organisation, the second phase was aimed at customers to serve them better, and the third phase created interaction with the customers. Sveiby (2001) predicts that the next phase is the realisation of the value of the people in the organisation; sharing of knowledge and creating new knowledge. Vorakulpipak and Rezgui (2008) describe the evolution of KM at the end of the first decennium of the 2000s slightly differently in three phases. According to them, knowledge sharing was from the past generation, knowledge creation is the current phase, and value creation is the future generation of KM.

5.2 Knowledge management in health care organisations

Health care work is dealing with people, negotiating with co-workers and trying to find solutions to patients’ problems. Health care work is highly knowledge-intensive and knowledge and knowing of the professionals are the prerequisites for all the functions of health care organisations. Kivinen (2008: 60) defines KM in health care as “an action of combining and promoting the processes of managing knowledge and knowing and learning in an organization”. In health care the term knowledge management has not been widely used (Lau 2004, Candy 2007, Kivinen 2008) although Nicolini and his colleagues (2008) discover a growing interest in KM issues in the health care sector. Some aspects of knowledge management in health care selected for the purposes of this research are presented in Table 2.
Table 2. Aspects of knowledge management in health care.

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Main identified factors of KM in health care</th>
</tr>
</thead>
</table>
| de Lusignan et al. (2003), Hansen et al. (1999) | 1. Codification strategy  
2. Personalisation strategy |
2. Knowledge use  
3. Knowledge refinement |
| Tukia, Kivinen & Taskinen (2007)    | Discourses of  
1. Systematic development  
2. Open communication  
3. Information management  
4. Competence management  
5. Accentuating explicit knowledge  
6. Ability to adapt information and knowledge  
7. Competence, social and structural/intellectual capital |
| Orzano (2008b)                      | 1. Finding knowledge  
2. Sharing knowledge  
3. Developing knowledge |
2. Type of KM tools and initiatives  
3. Barriers and enablers in KM practises |
| Kivinen (2008)                      | 1. Systemicity  
2. Amenability to linkage  
3. Control  
4. Learning  
5. Ability to make progress |
| Sheffield (2008)                    | 1. Personal learning  
2. Communities of practise  
3. Technical expertise and technology |
| French (2009)                       | 1. Knowledge need  
2. Knowledge sharing  
3. Knowledge use |

de Lusignan (2003) categorises knowledge management strategies in health care into two types: the “codification” strategy and the “personalisation” strategy (see also Hansen et al. 1999). Codification strategy focuses on the reduction of the work into routine tasks whereas personalisation strategy enhances customised solutions for individual cases. He perceives that medicine has emphasised formalised explicit knowledge according to the codification strategy and claims
that organisational learning could be enhanced by shifting from strictly evidence-based medicine to a broader approach which supports sharing of professionals’ knowledge, expertise and experiences.

Lau (2004) proposes that KM in health care can be conceptualised with the terms knowledge production, use and refinement which are situated in a complex and evolving social context. Knowledge production includes the creation of knowledge through the collection of experience, the generation of new understanding by combining research into a particular health setting, the synthesis of research findings and identification of experts who could share their tacit knowledge. Codification, storage and packaging of knowledge as well as co-ordination of intellectual resources are subconcepts of organising policy, evidence, and experience and belong to knowledge production. The subconcepts of knowledge use are distribution, sharing, application and adaptation of knowledge in the local setting. With knowledge refinement Lau (2004) refers to the ways organisations internalise policy, evidence, and experience to become part of routine practises. The social context consists of organisational structures and values and preferences of individuals.

Tukia and her colleagues (2007) analysed seven KM articles in the health care field in Finnish scientific and professional journals from 1998–2007 by discourse analysis. They identified nine different discourses of KM in health care, namely 1) the discourses of systematic development, 2) individual as a producer, 3) definition of competence, 4) enabling a holistic view, 5) the approach of information technology, 6) management, 7) open communication, 8) immaterial capital, and 9) caretaking. The discourse of systematic development which emphasised the development, culture, change and competitiveness of the organisation prevailed. Much attention was paid to the discourses of open communication as a way to develop the organisational culture and structure and social capital, competence capital and intellectual capital. Tukia and her colleagues state that the articles construct the reality of KM in health care organisations by describing knowledge management as an internal feature of the organisations and emphasising the individual rather than the collective perspective of the KM theme. However, the role of the customer [patient] was completely left out (Tukia et al. 2007).

Furthermore, Tukia and her colleagues (2007) state that Finnish health care organisations differ in some aspects in their activities from other fields and their management. Firstly legislation, public funding and the significant role of the public sector as a service producer influences strongly the actions and
administration of health care services. Secondly the target group of the actions is the human and his health. Thirdly the market of health care differs from other markets in that health-related issues are difficult to predict, uncertain, and there exists an imbalance of knowledge between the producer and the consumer. The price of the services is not the primary criteria for the selection of the products or the services and the resources restrict the choice of the consumer/patient. Lastly health care services cannot be interrupted when changes are needed, which makes the changes gradual and slow (Tukia et al. 2007).

Orzano and his colleagues (2008a, 2008b) perceive two competing views in KM: firstly managing information tools and resources and secondly emphasising human factors. They present a conceptual model of knowledge management in health care. They define KM in health care “as the process by which people in organizations find, share, and develop knowledge for action” (Orzano et al. 2008a: 491). Three critical processes are described as finding, sharing and developing knowledge.

According to Sheffield (2008), literature of KM in health care concerns mainly three conceptual domains: personal learning, communities of practise, and technical expertise and technology. Nicolini and his colleagues (2008) identify also three themes in the KM debate, namely the nature of knowing, the type of KM tools and initiatives in the health care sector, and barriers and enablers of KM practises. Medical knowledge appears to be fragmented and distributed and strong professional boundaries hinder knowledge sharing. Furthermore there seems to be a gap between academic research evidence and everyday practise. Scientific knowledge increases so fast that doctors cannot always keep up with recent research (Nicolini et al. 2008).

Knowledge management tools which are based on IT are, for example, electronic databases, clinical protocols and guidelines, electronic patient records, data-mining tools and decision support systems. The utility and safety of these tools is disputed and practises in health care change slowly. Nicolini and his colleagues argue that communities of practise and informal networks can be both enablers and barriers to knowledge management in health care. Besides lack of time to share knowledge, culture, professionalisation, leadership, lack of rewards and recognition systems, hierarchical organisation structure, distributed IT systems are barriers to the success of KM practises; also the influence of the political sphere affects the health care sector (Nicolini et al. 2008).

Kivinen (2008) analysed in her dissertation about knowledge management in Finnish health care the concept of KM in international articles between 1985 and
The attributes of KM were systematicity, amenability to linkage, control, learning and ability to make progress. The development of IT has preceded discussion, research and practise of KM. Kivinen (2008) argues that KM in Finnish health care organisations concentrates on management of existing knowledge through the use of IT systems. Furthermore, creation of new knowledge may occur in individuals but the distribution of this new knowledge to the organisational level does not occur.

French and her colleagues (2009) identified the categories of knowledge need, acquisition of new knowledge, knowledge sharing and knowledge use in their review of KM in health care. Organisational vision, leadership and learning culture determine the ways in which these knowledge categories are realised in the organisation. Knowledge need includes the elements of encouraging and supporting a questioning culture, learning from experience and recognising and valuing existing skills and knowledge. Knowledge sharing is related to promoting internal knowledge transfer, knowledge transfer mechanisms, supporting teamwork and promoting external contacts and networks. Resources, support and access to expertise, role recognition and reward, developing expertise and encouraging innovation refer to knowledge use. Supporting communities of practise and other social networks of individuals, encouraging of groups and individuals to ask questions, discussing and sharing ideas and adopting new ideas by embedding them into systems and processes could lead to better outcomes of health care organisations (French et al. 2009).

Myllärniemi and his colleagues (2012) elaborate knowledge management in health care and the aim to link knowledge-based value creation and health care management. They state that “knowledge processes and their development initiatives should always be tightly connected to serve service provision and value creation” (Ibid: 62). According to Myllärniemi and his colleagues, previous knowledge management efforts in health care have concentrated on solving local problems and technical solutions. Information systems at present collect vast amounts of data and they should be developed to enhance information usability. The role of knowledge in health care organisations should be clarified because it is an important asset.

For the purposes of this research, knowledge management in health care is defined as management of people and management of information. People are creators of knowledge and information is the raw material of the processes which create knowledge and knowing in organisations (see, Huotari & Iivonen, 2004).
5.3 Individual and organisational knowledge

Knowledge management concerns the individual, the group, and the organisational levels. Dalkir (2010) states that innovation and knowledge creation occur on the individual level and that knowledge sharing and dissemination take place at the group level. Organisational memory is at the organisational level and forms the knowledge reserve of the organisation (Parviainen 2006). Rules and routines establish organisational memory and act as carriers of organisational learning (Kerosuo 2006). Mertala (2011) states that knowledge in organisations is at the same time flow of information and the sense or meanings made of this information.

In KM literature knowledge is often seen as personal possession achieved by reasoning, mental processes and intellectual efforts (Schultze & Leidner 2002). Individual knowledge can be obtained by receiving information from various sources, combining this information with previous understanding and knowledge, and by experience. Tsoukas (1996), however, points out that individual knowledge is possible only through social practices; it does not emerge by itself.

Tsoukas and Vladimirou (2001) argue that making a distinction between personal knowledge and organisational knowledge might bring out a new perspective on knowledge management. According to them KM is a process which turns an unreflective practise into a reflective one by sustaining and strengthening social practises in which knowledge is produced when it is shared (Tsoukas 1996, Tsoukas & Vladimirou 2001). Spender (1996: 52) argues that “collective knowledge is the most secure and strategically significant kind of organizational knowledge”. He defines collective knowledge as social and implicit knowledge which is embedded in the organisations’ routines, norms and culture (see also Davenport & Prusak 1998). He also points out that individuals cannot act as productive employees until they have acquired enough collective knowledge to be aware about “the way things are done around here”. Organisational knowledge is emergent and cannot be possessed by a single individual; organisations are distributed knowledge systems (Tsoukas 1996). The relationship between individual knowledge construction and collective knowledge reserves are outlined in Figure 4.
Parviainen (2006) suggests that the benefit of a collective knowledge reserve for an individual is that he or she does not have to master all the knowledge in the field. Being part of a collective expertise permits access to the other experts’ know-how and knowledge (see also Widen-Wulff 2007). Normal routine tasks are performed based on the collective knowledge resources of the work community. Routines act as carriers of tacit organisational knowledge (Patriotta 2003). New knowledge is needed when the problem or work task causes unexpected difficulties or when the environment changes (Parviainen 2006).

Individual and organisational knowledge is often divided into explicit, implicit, and tacit knowledge (e.g., Nonaka & Takeuchi 1995, Choo 2006) elaborated from the work of Polanyi (1966, here 1983). Explicit knowledge has been defined as knowledge that has been or can be articulated, codified and stored in media. Implicit knowledge is associated with skills and know-how, and is not normally expressed, but may be. Tacit knowledge is implicit and non-codifiable; it may be hidden even from the consciousness of the knower. It cannot be expressed; it can only be transmitted through acts, show-how, or face-to-face contacts between the transmitter and the receiver (Nonaka & Takeuchi 1995, Vorakulpipat & Rezgui 2008).
The division of organisational knowledge into explicit and tacit dimensions has been criticised by several researchers (Cook & Brown 1999, Wilson 2002, Tsoukas 1996, Gourlay 2006). Tsoukas (1996) and Wilson (2002) claim that the original idea of Michael Polanyi (1966, here, 1983) has been misinterpreted: explicit knowledge contains also an element of tacit knowledge, the awareness of existing knowledge (see also Orlikowski 2002). Cook and Brown (1999) argue that the transformation between tacit and explicit knowledge is not possible (see also Tsoukas & Vladimirou 2001).

Tacit knowledge exists also in cultures and social constructions (Blackler 1995, Normann 2002). For example, Choo (2006) categorises the knowledge of an organisation into tacit, explicit, and cultural knowledge. Spender (1996) makes further a distinction between individual and social knowledge and labels organisational knowledge types as conscious (individual-explicit), automatic (individual-implicit), objectified (social-explicit) and collective (social-implicit).

Blackler (1995) categorises the aspects of organisational knowledge according to earlier research literature into five overlapping types: embrained, embodied, encultured, embedded and encoded knowledge. Blackler’s knowledge typology is discussed in more detail in Subchapter 5.4. Some selected classifications of organisational knowledge for the purposes of this study are presented in Table 3.
Table 3. Classifications of organisational knowledge.

<table>
<thead>
<tr>
<th>Type or characterisation of knowledge</th>
<th>Researcher(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit knowledge</td>
<td>Nonaka &amp; Takeuchi 1995, de Long 1997</td>
</tr>
<tr>
<td>Tacit knowledge</td>
<td></td>
</tr>
<tr>
<td>Explicit knowledge</td>
<td>Choo 2006</td>
</tr>
<tr>
<td>Tacit knowledge</td>
<td></td>
</tr>
<tr>
<td>Cultural knowledge</td>
<td></td>
</tr>
<tr>
<td>Book knowledge</td>
<td>Hara 2007, Hara &amp; Hew 2007</td>
</tr>
<tr>
<td>Practical knowledge</td>
<td></td>
</tr>
<tr>
<td>Cultural knowledge</td>
<td></td>
</tr>
<tr>
<td>Encoded knowledge</td>
<td>Blackler 1995</td>
</tr>
<tr>
<td>Embrained knowledge</td>
<td></td>
</tr>
<tr>
<td>Embodied knowledge</td>
<td></td>
</tr>
<tr>
<td>Embedded knowledge</td>
<td></td>
</tr>
<tr>
<td>Encultured knowledge</td>
<td></td>
</tr>
<tr>
<td>Conscious (individual-explicit)</td>
<td>Spender 1996</td>
</tr>
<tr>
<td>Automatic (individual-implicit)</td>
<td></td>
</tr>
<tr>
<td>Objectified (social-explicit)</td>
<td></td>
</tr>
<tr>
<td>Collective (social-implicit)</td>
<td></td>
</tr>
<tr>
<td>Tacit (cognitive and technical) /explicit participation</td>
<td>Alavi &amp; Leidner 2001</td>
</tr>
<tr>
<td>individual / social declarative (know-about)</td>
<td></td>
</tr>
<tr>
<td>procedural (know-how)</td>
<td></td>
</tr>
<tr>
<td>causal (know-why)</td>
<td></td>
</tr>
<tr>
<td>conditional (know-when)</td>
<td></td>
</tr>
<tr>
<td>relational (know-with)</td>
<td></td>
</tr>
<tr>
<td>pragmatic</td>
<td></td>
</tr>
<tr>
<td>Embodied: individual-tacit</td>
<td>Lam 2000, Cabrera &amp; Cabrera 2002</td>
</tr>
<tr>
<td>Embrained: individual-explicit</td>
<td></td>
</tr>
<tr>
<td>Encoded: collective-explicit</td>
<td></td>
</tr>
<tr>
<td>Encultured and embedded: collective-tacit</td>
<td></td>
</tr>
</tbody>
</table>

In de Long’s (1997) classification, explicit knowledge refers to structured knowledge in documents, databases, products and processes and tacit knowledge is unstructured knowledge in action, context and in personal experience. Hara (2007) defines book knowledge as knowledge about facts, practical knowledge as knowledge applied into practise (know-how), and cultural knowledge as a personal perception of working in one’s own profession. Hara finds the dichotomy of explicit and tacit knowledge too rigorous; she rather sees
knowledge as a continuum between tacitness and explicitness. In her classification, book knowledge is solely explicit and cultural knowledge tacit, whereas practical knowledge contains both explicit and tacit elements.

5.4 From knowledge to knowing and organisational learning

Blackler (1995) adapted the conceptual distinctions of knowledge dimensions (explicit-tacit and individual-collective) which were first suggested by Collins (1993) to describe “images” of knowledge within organisations. Blackler categorises the aspects of organisational knowledge according to earlier research literature into embrained, embodied, encultured, embedded and encoded knowledge (see Table 4).

Table 4. Images of organisational knowledge (Collins 1993, Blackler 1995, modified).

<table>
<thead>
<tr>
<th></th>
<th>Explicit</th>
<th>Tacit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Embraied knowledge</td>
<td>Embodied knowledge</td>
</tr>
<tr>
<td>Collective</td>
<td>Encoded knowledge</td>
<td>Embedded knowledge</td>
</tr>
<tr>
<td></td>
<td>Encultured knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Embrained knowledge is dependent on conceptual skills and cognitive abilities, and is knowledge about something. It is formal, abstract or theoretical such as scientific knowledge. Embodied knowledge is action-oriented knowledge about how to do something and is only partly explicit. It depends on the context and becomes relevant only in practise. Encultured knowledge refers to shared understandings, depends on language and the socialisation process, and is socially constructed (see also Normann 2002, Choo 2006). Embedded knowledge is in the organisation’s systems and routines. According to Patriotta (2003), routines act as carriers of organisational tacit knowledge. Organisational skills are formed in complex relationships between people, technology, and structures. Embedded knowledge is organic and dynamic, contextual and dispersed (Lam 2000). Encoded knowledge is information, knowledge that can be expressed by symbols and signs.

Blackler (2002), however, finds the categories of knowledge unsatisfactory. He stresses that knowledge should not be thought of as a thing that people or systems possess, but as something that people do. Knowledge in organisations is an interplay of actions, language, technologies, social structures, and explicit rules, history, and institutions (Blackler 1993). Thus “knowing should be studied as a
practice, and practice should be studied as activity that is rooted in time and culture” (Blackler 2002: 63).

Cook and Brown (1999) emphasise the need to bridge knowledge as a possession and knowing in organisational practises in order to generate new knowledge and new ways of using it. They see the relationship between knowledge and knowing as a dynamic action, as “a generative dance”, in which organisations produce not only knowledge, but also products and services. Orlikowski (2002) also stresses the dynamic nature of organisational knowing which is reconstituted in everyday practise. She emphasises the social accomplishment of knowing and argues that “tacit knowledge is a form of “knowing” and thus inseparable from action because it is constituted through such action” (Ibid: 251). Gherardi (2009) stresses the nature of knowing as doing, and collective and distributed activity that cannot be fully captured in mental schemes or codified (see also McInerney 2002, Cox 2012).

Moreover, Kuhn and Porter (2011) criticise the cognitivist-representational view of organisational knowledge. When knowledge is seen as a cognitive entity possessed by actors and the representation of knowledge is in technical expertise, technical skills and abstract principles, these technical and instrumental aspects including efficient knowledge transfer are emphasised. This cognitivist-representational view does not explain how knowledge is constituted and altered in organising practises. Kuhn and Porter (2011: 19) state that “Knowing, as a social practice, suggests that our explanatory focus should not be knowledge (seen as a commodity), but rather the complex interactive processes that apply and invent (that which we take to be) knowledge in situated problem-solving”.

The social constructivist view emphasises the social nature of knowledge; individuals construct together an understanding of what they have around them and also learn from social interaction within social systems such as organisations (Gherardi et al. 1998). Chiva and Alegre (2005: 60) point out that “If we focus on knowledge as a process (knowing), the supposed distinction between learning and knowing disappears”. Huysman and De Wit (2002: 30) define organisational learning as “the process through which an organization constructs knowledge or reconstructs existing knowledge”. Gherardi and her colleagues (1998) claim that novices learn the “situated curriculum” of a work community in social relationships. The “situated curriculum” is tacit knowledge learned by newcomers in the role of peripheral participants; it occurs during interaction with co-workers and becomes a part of their tacit knowledge.
5.5 Organisational knowledge and knowing in health care

Gorman (1995) divides the types of information used by clinicians in health care into five categories. The first type is patient data which refers to medical history and physical examination of the patient and also to clinical tests such as laboratory data. The second type is population statistics such as public health data and recent patterns of illness. The third type in Gorman’s typology is medical knowledge based on research, textbooks and common knowledge. Gorman’s fourth type is logistic information which is needed to get the job done. This information type is available in things like guidelines and policy and procedure manuals. The fifth type of information originates from social influences; discussions with colleagues tell how others get the job done.

Bawden (2002) applies Karl Popper’s “Three Worlds” epistemology to health care. World 1 consists of information products, namely the increasing amount of books and journals, databases, audio and video materials, etc., in printed or electronic forms. The tacit dimension of health care knowledge, namely World 2, entails the “knowing how” of professionals which is personal and often difficult to articulate. World 3 is a complexity of a large and growing entity of evidence-based medicine which is incomplete and developing.

Nylander and his colleagues (2002) categorise information in health care and social welfare into two main categories: information of patient contacts and administrative information. Information in patient contacts is created in interaction between the patient and the care giver. The health care professional interprets the problems of the patient in cooperation with the patient by using professional knowledge and experience. Administrative information consists of information which is available in different records such as name, address, social security number, texts about previous visits to health centres, and previous diagnoses. Berg (2004) perceives that important information types for health care organisations are primarily information about the patients, secondly information about processes and outcomes, and thirdly, professional knowledge. Lau (2004: 3) includes also both tacit and explicit elements of knowledge in health care by defining “knowledge as information combined with experience, context, interpretation, and reflection”.

Murphy and Eisenberg (2011) state that conceptions of organisational knowledge take two general forms. The first perspective emphasises the objective, defined nature of knowledge and information as an object, the second approach sees knowledge as a dynamic process which emerges through communication,
action and events. Murphy and Eisenberg (2011) divide knowledge in health care into three “frames”. They approach knowledge both as an object and socially constructed process. The first framework describes “knowledge as routine”, as patient information which is coded, structured and documented in electronic patient records. The second framework is based on social construction of knowledge. This “knowledge as emergent” is created when people are in interpersonal relationships and develop interpretations to make sense of ambiguous situations. The third framework is “knowledge as political” which emphasises the different value of knowledge in different situations.

The framework of knowledge as routine emphasises the importance of evidence-based medicine and efficient information transfer through electronic health records and other technology. The assumption is that reliable transmission of knowledge minimises medical errors and improves the quality of care. The framework of knowledge as emergent focuses on collaborative sensemaking to varying situations and patients. Emergent knowledge in health care is constructed in interpersonal relationships through experience, conversations and routines, intuition, and tacit understandings. Sensemaking requires a rich network of relationships which makes knowledge resilient, and opportunities to share experiences and exchange ideas about patients. Moreover, each professional hears a slightly different patient narrative, since they seldom meet the patient at the same time. Knowledge sharing also has a “political” aspect and the third framework by Murphy and Eisenberg draws theories of power. “It is these political relationships that determine who speaks, who listens, who defers, and who is deferred to” (Murphy & Eisenberg 2011: 268). Power relationships in health care are based on hierarchy, traditional professional roles, and the history of the work community (Murphy & Eisenberg 2011).

Mylärniemi and his colleagues (2012) categorised information in health care organisations into exact and interpreted information. Exact information is fact-based information and it includes for example data on medical outcomes and costs of care. Interpreted information is based on the experiences and skills of individual decision-makers (i.e., clinicians).

Zhou and Nunes (2012) present that patient knowledge which is needed in the care of patients consists of three types, namely technical knowledge, ethical and emotional knowledge and social and behavioural knowledge. Technical knowledge is explicit and includes details of patient condition, medical history, current symptoms, etc. Ethical and emotional knowledge include feelings and emotions and are the basis of approaches of communication, persuasion and
management of individuals. Social and behavioural knowledge are concerned with how patients behave and react and what their expectations are. Ethical and emotional knowledge and social and behavioural knowledge are constructed in professional-patient relationships; they consist of experiences and perceptions of professionals and are tacit. Selected classifications of knowledge and information in health care are presented in Table 5.

**Table 5. Selected classifications of knowledge and information in health care.**

<table>
<thead>
<tr>
<th>Type or characterisation of knowledge and information in health care</th>
<th>Researcher(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient data</td>
<td>Gorman 1995</td>
</tr>
<tr>
<td>Population statistics</td>
<td>Nylander et al. 2002</td>
</tr>
<tr>
<td>Medical knowledge</td>
<td>Murphy &amp; Brown 2011</td>
</tr>
<tr>
<td>Logistic information</td>
<td>Berg 2004</td>
</tr>
<tr>
<td>Practical knowledge (how to get the job done)</td>
<td></td>
</tr>
<tr>
<td>World 1. Health-care information products</td>
<td>Bawden 2002</td>
</tr>
<tr>
<td>World 2. The tacit dimension</td>
<td></td>
</tr>
<tr>
<td>World 3. Health-care knowledge base</td>
<td></td>
</tr>
<tr>
<td>Information in patient contacts</td>
<td></td>
</tr>
<tr>
<td>Administrative information</td>
<td></td>
</tr>
<tr>
<td>Knowledge as routine</td>
<td></td>
</tr>
<tr>
<td>Knowledge as emergent</td>
<td></td>
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<tr>
<td>Knowledge as political</td>
<td></td>
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<tr>
<td>Information about the patients</td>
<td></td>
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<tr>
<td>Information about the processes</td>
<td></td>
</tr>
<tr>
<td>Professional knowledge</td>
<td></td>
</tr>
<tr>
<td>Exact information</td>
<td>Myllärniemi et al. 2012</td>
</tr>
<tr>
<td>Interpreted information</td>
<td></td>
</tr>
<tr>
<td>Technical patient knowledge</td>
<td>Zhou &amp; Nunes 2012</td>
</tr>
<tr>
<td>Ethical and emotional patient knowledge</td>
<td></td>
</tr>
<tr>
<td>Social and behavioural knowledge</td>
<td></td>
</tr>
<tr>
<td>In nursing:</td>
<td>Nurminen 2000</td>
</tr>
<tr>
<td>Empirical knowledge</td>
<td></td>
</tr>
<tr>
<td>Conceptual knowledge</td>
<td></td>
</tr>
<tr>
<td>Tacit knowledge</td>
<td></td>
</tr>
<tr>
<td>Intuition knowledge</td>
<td></td>
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</tbody>
</table>

In Nursing Science the classification of knowledge involved with the care of patients is not based on factual and technical knowledge. Nurminen (2000) presents that research in Nursing Science emphasises empirical, conceptual and...
tacit knowledge as well as intuition in nursing work. However, intuition has not been the focus of research. Nurminen perceives that intuition is an inner feeling, a subjective, simultaneous realisation of a variety of issues in the interaction between the patient and the nurse.

Knowing in health care

Blackler (1995) suggests that organisational knowing could be analysed as a phenomenon that is mediated, situated, provisional, pragmatic and contested. Mediated knowing is defined as knowing which is “manifest in systems of language, technology, collaboration and control” (Blackler 1995: 1039); it is collective and explicit, and thus more or less a phenomenon which in Information Studies has been defined as information. Moreover, health and care reports include situated knowing, knowing that is “located in time and specific to particular contexts” (Blackler 1995: 1039). The types of knowing (mediated and situated) here are overlapping and complementary. Pragmatic knowing, “purposive and object-oriented”, is mostly individual and tacit, but it is partly also explicit (Blackler 1995: 1039). A good example of pragmatic knowing in health care is the skills of a surgeon or of an orthopaedist who through work experience gains a touch of how to perform a procedure. In the context of childhood obesity prevention and care, pragmatic knowing is related to counselling skills.

Organisational routines and practises are and should be continuously changing because of the rapidly changing environment. In Blackler’s (1995: 1039) knowing typology, provisional knowing is “constructed and constantly developing”. Provisional knowing can partly be shared as mediated knowing (or information) in instructions and guidelines. Blackler proposes that the fifth type of organisational knowing is contested knowing. He remarks that knowing is always related to power. He argues that social systems are always unequal and “dynamics of domination and subordination [that] are a feature of every-day life” (Blackler 1995: 1040). Contested knowing is collective and tacit and thus difficult to identify. The aspects of power and power relations are closely related to organisational culture.

To capture the complicity of organisational knowledge and knowing in health care, Blackler’s typology of organisational knowledge and his idea of organisational knowing are used in this study. This division and application of Blackler’s suggestion to health care organisations are presented in Table 6.
### Table 6. Aspects of organisational knowing and knowledge in health care organisations (Collins, 1993, Blackler, 1995, modified).

<table>
<thead>
<tr>
<th>Knowing which is</th>
<th>Characterisation of knowing</th>
<th>Knowing in health care organisations</th>
<th>Knowledge which is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediated</td>
<td>Manifest in systems of language, technology, collaboration and control</td>
<td>Patient records, databases, documents, guidelines, factual knowledge</td>
<td>Encoded Collective-explicit</td>
</tr>
<tr>
<td>Situated</td>
<td>Located in time and space and specific to particular contexts</td>
<td>Knowledge of professionals which is manifested in patient records, databases, documents and e.g., counselling</td>
<td>Embraided Individual-explicit</td>
</tr>
<tr>
<td>Provisional</td>
<td>Constructed and constantly developing</td>
<td>Routines and practises</td>
<td>Embedded Collective-tacit</td>
</tr>
<tr>
<td>Pragmatic</td>
<td>Purposive and object-oriented</td>
<td>Knowledge and competencies of professionals, expertise, professional skills</td>
<td>Embodied Individual-tacit</td>
</tr>
<tr>
<td>Contested</td>
<td>Debated power, hidden conflicts</td>
<td>Organisational culture, norms, attitudes, beliefs</td>
<td>Encultured Collective-tacit</td>
</tr>
</tbody>
</table>

New information and communication technologies are changing organisations as activity systems and Blackler (1995) stresses the need to investigate people’s behaviour and coping in this development of mediated knowing. Research on situated knowing could enlighten people’s understanding and interpretations of their activities. Knowing is developing and provisional which creates tensions in organisations. People’s conceptions of the object of their activities are a central element of activity theory and in a changing environment this pragmatic knowing is changing. Organisational knowing is always contested, power relations influence knowing as a cultural phenomenon.

#### 5.6 Organisational information and knowledge processes

The term *organisational knowledge process* is somewhat elusive and has been defined and classified in various ways. Anttiroiko (2002) defines a knowledge process as a personal or collective process in which information is collected, created, processed, used or demolished in order to form an enriched knowledge-intensive orientation base for taking care of organisation’s knowledge.
management tasks. Mäki (2008) perceives knowledge processes as vehicles to guarantee knowledge availability and knowledge flow in organisations. He states that based on research literature the most common knowledge processes include knowledge acquisition, knowledge storing, knowledge transfer and sharing and knowledge creation (Mäki 2008). Nold (2012) describes knowledge processes as an entity which consists of knowledge management, organisational learning and knowledge creation.

Davenport and his colleagues (1996) consider knowledge work’s primary activity as the acquisition, creation, packaging, or application of knowledge. They state that when knowledge work is approached as a process, this view enhances the viewpoint of reaching targeted outcomes and producing value for a customer. Cervera (2005: 1) defines knowledge processes as "high added value processes in which the achievement of goals is highly dependent on the skills, knowledge and experience of the people carrying them out". Communication, willingness to work together and flexible instructions or rules enhance creative knowledge processes (Cervera 2005).

Still (2007) claims that knowledge transfer is a knowledge process in itself as a part of knowledge creation. She stresses that tacit knowledge provides new insights and value for the processes when it is made explicit. According to Mohrman and her colleagues (2003) knowledge use and generation of new knowledge are social constructions. People interact in a social context and construct new knowledge which influences their behaviours, cognitions and perceptions. Based on this aspect, knowledge work is sensemaking which emphasises the outcomes. People make sense of how their work fits into the larger system and allows them to develop and broaden their experience and knowledge (Mohrman 2003).

Mäki (2008) perceives the outcomes of knowledge work as both concrete tangible products or services and intangible knowledge and information which can also be used later. Moreover he states that this knowledge and information take the forms of embrained, embodied, encultured, embedded and encoded knowledge as suggested by Blackler (1995). Thus “[t]he outcomes are results of individual and group knowledge processing and learning” (Mäki 2008: 64).

Wikström (1994) and her colleagues divide creating or developing knowledge processes into three categories: generative, productive and representative. Generative knowledge processes aim at solving problems; they create new knowledge and lead to innovations. Existing explicit knowledge and partly tacit embedded knowledge is combined with new knowledge, enabling the
organisation to create new services or products or to improve existing ones. Productive knowledge processes use knowledge created in generative processes for providing and maintaining products and services. They also generate knowledge which is used and the processes are often repeated (Wikström et al. 1994).

In representative knowledge processes, created knowledge is transferred to the customer as a ready product which usually also “has a price tag”. The customers can use the results of these representative processes for their own value-creating processes. Representative processes can be generators of new generative processes, for example, through customer feedback. These knowledge processes are not linear (generative processes leading to productive processes which lead to representative processes); they are more or less simultaneous, multidimensional, and overlapping (Wikström et al. 1994). Normann & Ramirez (1994) present that value creation takes place in these knowledge processes (see also Huotari & Iivonen 2005).

One product of knowledge processes is collective construction of knowledge (see Figure 4, p. 85). Huysman and De Wit (2002) state that organisational learning is a process through which individual knowledge becomes organisational knowledge. Individuals use this organisational knowledge when acting as an organisational member (Huysman & De Wit 2002). The collective knowledge reserve (Parviainen 2006) or organisational memory (Dalkir 2011) enables organisational learning. According to Dalkir (2011), the “documentation” process, a technological “container”, and a means to reuse this collective knowledge are needed to put the learned lessons into practise. In other words, transfer storing and use of organisational knowledge are those processes which enhance learning as value creating knowledge processes for organisations.

Savolainen (2009b) perceives knowledge creation closely related to knowledge use. New knowledge becomes a way of knowing; knowledge use becomes meaningful only as a component of action or practise. New social innovations emerge when new solutions are found by looking at an old problem from a new point of view. The concept of emergent construction of knowledge refers to new, unexpected results of interaction. The dynamics of this kind of dialectic creates new knowledge which cannot be predicted from the previous components (Mayr 1997, Parviainen 2006).

Tsoukas (2009) emphasises productive dialogue as a means to create new knowledge by making new distinctions. Often this requires the participation of experts and laymen which gives new perspectives to the problem. Construction of
new knowledge this way is not easy, however. Even for experts with the same education it is difficult and often even impossible to create new knowledge together. When unexpected problems or changes in the environment occur, new knowledge is needed since the old skills and knowledge are not sufficient to solve the problems (Parviainen 2006).

According to Dalkir (2011) knowledge use includes the aspects of distribution of knowledge to targeted audiences, sharing of knowledge in interpersonal reciprocal communications and application of knowledge in work tasks or routines. Majchrzak et al. (2004) find knowledge resource reuse as using knowledge in routine tasks and in the creation of new knowledge and innovations.

As discussed in Chapter 5 (p. 77) the terms knowledge and information are used in knowledge management literature sometimes interchangeably. In this research, the term information is used when discussing the information transfer of explicit documents or messages through some media or in human interaction. Individual knowledge is a mental process in an individual’s mind including the aspects of understanding and learning. Some of the knowledge processes are thus also information processes rather than knowledge processes. As a summary, information and knowledge processes according to the former research literature consist of six essential elements:

1. knowledge/information acquisition or collection
2. knowledge/information transfer
3. knowledge/information sharing
4. knowledge creation and construction
5. knowledge use
6. knowledge/information storage

These elements are parallel, overlapping and often simultaneous. According to the idea of value creation by Normann and Ramirez (1994), knowledge processes require interaction in the value network between the stakeholders. Implicitly this outlook thus emphasises the importance of knowledge sharing. Knowledge sharing in organisations and the factors which are related to the sharing of information, knowledge and knowing are discussed in more detail in Subchapter 5.7.2. Furthermore, Mäki (2008) states that even though storing or transferring knowledge do not add value to knowledge as such, they are needed to make knowledge available for all the members of the organisation.
5.7 Knowledge processes in health care

Medical work is not only thinking; it is the combination of several elements such as laboratory data, information about previous care and illnesses, experiences and knowledge. The elements are transformed into manageable problems in these processes (Berg 1996). Orzano’s and his colleagues’ (2008b, 2008c) conceptual model of knowledge management in health care presents three critical processes of finding, sharing and developing knowledge. This model emphasises the importance of collective knowledge in health care organisations. Knowledge processes are also individual; each professional seeks and finds information, combines it with existing knowledge and uses this in his work.

In health care knowledge is acquired and collected from various sources. Firstly, information about the patient is required (Gorman 1995). This information is collected from the previous medical history of the patient which is often available in the EPRs in medical records, laboratory results and x-rays, and in some cases, in referrals to special health care. Current information about the patient is acquired by direct questions, in conversation with the patient and the family, and through anamnesis questionnaires which the patient or his/her next of kin have filled in.

Secondly a professional’s own knowledge and knowing is needed and if there are some information needs, the professional can ask his or her colleagues or seek relevant information from databases, journals, books, etc. The review of Gorman (1995) indicates that human information sources are preferred, because the information needs in health care are complex and the information must be interpreted (see also Case 2012).

Frize and her colleagues (2007) describe knowledge (management) processes in health care as: 1) data access (collection, storage, and retrieval of data); 2) knowledge discovery (data transformed into knowledge); 3) knowledge translation (clinical decision support systems); and 4) knowledge integration and data entries into EPR, intranet, or Internet. This process model emphasises the IT system’s role in health care by combining clinical databases, data-mining techniques, clinical decision-support tools and integration technologies.

Reddy and Spence (2008) found that health care professionals also need organisational knowledge alongside patient information and plan of care in order to co-ordinate the care of the patient. Nicholas and his colleagues (2005: 38) describe the information needs of nurses as “pragmatic, practical and procedural”. They claim that nursing information needs are patient- and care-
centred whereas information needs of doctors are more scientific and evidence-based on the disease model with procedures and techniques.

Mylärniemi and his colleagues (2012) stress the importance of knowledge flow in knowledge processes (see also Laihonen 2009, 2012): “For a health care organization or the health care system, knowledge flows depict mediators of knowledge and thereby a method for approaching their knowledge processes and, further, knowledge-based value creation” (Ibid: 56). Knowledge flow refers to the transfer of information and knowledge in and between organisations. Laihonen (2009) stresses knowledge transfer and knowledge flows as requirements for seamless health services and development of working methods and models. Patient information in health care is mediated through IT in electronic patient records, and sometimes between primary and special health care through secure interfaces. In addition, information about practises and regulations is transferred through e-mail, intranets and extranet. In some cases printed documents must be used, as different EPR systems in different health care centres do not communicate with each other (Winblad et al. 2010).

Knowledge creation in organisations is aimed at new innovations, leading to new products and/or services or to improvement and development of the existing ones. Porter and Teisberg (2006) define innovations in health care as new methods, new facilities, new organisational structures, new processes and new forms of collaboration across providers. Innovation can also be perceived as the capacity to learn and change (Orzano et al. 2008, 2009, Crabtree et al. 2005). However, the main goal of public health care is not to create new innovations; treatment and care of patients should be based on evidence-based medicine and patient safety must be taken into account (Kivinen 2008).

Porter and Teisberg (2006: 140) argue that innovations in health care are often ‘viewed with suspicion and even resisted by providers, health plans, employers, and the government, partly grounded in the problem of oversupply of care’. In Finnish public health care the oversupply of care is hardly a problem, but implementation of new methods or processes into health care is slow. Work experience, individual or collective learning from previous patients and families and suitable updated training can lead to new approaches in care. Yamazaki and Umemoto (2010) stress multiprofessional knowledge sharing in the creation of new knowledge in clinical pathways. Guidelines and medical records transfer explicit knowledge whereas tacit knowledge is involved in the knowledge processes of “Accept”, “Integrate”, and “Practise” in interaction (Yamazaki & Umemoto 2010).
Knowledge use in health care is intertwined with knowledge creation (see Savolainen 2009b) and learning. Treatment of patients requires care decisions which are based on patient information (Gorman 1995), professional medical knowing, information about guidelines and practises, work experiences, and ethical principles of care. In the course of the treatment, patient information is documented in the electronic patient records. These entries form a knowledge reserve for other professionals in the health care organisation. EPRs can support organisational learning: for example, unsuccessful treatment methods do not have to be repeated.

Knowledge processes take place in social networks which consist of health care professionals and patients with their families, but some processes are mainly mediated by IT. Information and knowledge processes in health care and in this study are outlined in Figure 5.

Fig. 5. Information and knowledge processes in health care.

The information processes which take place mainly in the technological network (ICT) are collection, storing, and transfer of information. These processes are based on information flows in organisations. The processes of sharing information and knowledge, knowledge creation, and use of knowledge and information require personal interaction between health professionals and with patients and their families. Thus these latter information and knowledge processes are related with human information behaviour. However, the processes and their
environments are overlapping. For example an individual health professional’s collection of information takes place in the ICT environment but also in interaction between colleagues and with patients and their families.

5.7.1 Sharing of knowledge and information in organisations

As discussed in Subchapter 5.6 knowledge sharing is an essential part of the knowledge processes which enhance organisational learning and creation of value for patients and organisations. The factors affecting knowledge sharing are outlined in Subchapter 5.7.2. The focus of this research is knowledge as a dynamic process and action, knowing, but former research has concentrated on sharing of information and knowledge in organisations. According to Wang and Ko (2012), knowledge sharing in organisations has been studied from five different perspectives, namely communications, learning, knowledge market, knowledge flow and interaction perspectives. They claim that the interaction perspective connects all these perspectives because knowledge sharing requires often formal or informal interpersonal interactions, not only a media, such as documents.

The term sharing refers to reciprocity. The verb “to share” means to “have a portion of (something) with another or others” (Oxford Dictionary of English 2012). Mohammed and her colleagues (2010) argue that this term is inherently ambiguous and can mean either “having in common” or “dividing up”. McDermott (1999) states that knowledge is always recreated in the present moment; it is an “insight about using experience and information to think” (Ibid: 106). Knowledge sharing involves an individual who guides another individual through using his own thinking or insights to help them see their own situation better. Successful knowledge sharing requires awareness of the receiver’s knowledge needs or gaps, use and purposes (McDermott 1999). Hendriks (1999) represents a constructivist approach and argues that knowledge actually cannot be shared. What is named knowledge sharing requires rather an act of reconstruction: knowledge receivers try to understand the information they receive by using their own existing knowledge.

In Information Studies some scholars argue that only information can be shared whereas knowledge, which is in an individual’s mind, cannot be shared (e.g., Wilson 2010, Pilerot 2012). Furthermore, Pilerot (2012: 575) states that “information sharing” is the most favourable term to conceptualise information sharing activities “even though it often coexists with wordings such as
information exchange, and sometimes with information transfer and information flow”. Pilerot (2012: 574) suggests that:

The activities related to through the discourse of knowledge sharing actually indicate that what is studied is how people learn together rather than how they share knowledge. Studies of knowledge sharing are thus more accurately termed as studies of collective learning or organisational learning.

In this research, knowledge sharing and information transfer are seen as two separate activities. The term information transfer refers to the transfer of documents and explicit messages physically, electronically, or in personal interaction whereas knowledge sharing requires only personal interaction (see also Chai 2010). Interaction refers to “mutual or reciprocal action or influence” (Merriam-Webster Dictionary 2013). Suppiah and Sandhu (2011) present that tacit knowledge sharing requires willingness to share knowledge freely and it takes place in organisational communications, personal interactions, and in mentoring or tutoring. Van den Hoof and Huysman (2009: 1) state that “knowledge sharing is more than transferring knowledge, but creating it—less exploitation of existing knowledge than generation of new knowledge”. Knowledge sharing is thus an activity in which knowledge is made available to another or others and can result in construction of common meanings and creation of new knowledge; that is learning.

5.7.2 Factors related to sharing of knowledge and information in organisations

In organisations, knowledge exists and is shared at individual, group, and organisational levels (Nonaka 2003, Ipe 2003, see also Riege 2006). Riege (2006) identifies barriers to knowledge sharing at the individual, organisational and technology levels. At the individual level these include structural, cultural and personal barriers, and at the organisational level mostly structural and managerial problems. Furthermore, technology must support the activities of the organisation. He emphasises the role of management to support, motivate, and encourage individuals to transfer and disseminate both existing knowledge and to apply newly generated knowledge. Huysman and De Wit (2002) find lack of motivation, time, and means to share knowledge as the main obstacles of knowledge sharing in organisations.
Parviainen (2006) finds several barriers against expert-based sharing of knowledge. These are 1) hierarchies and power aspects, 2) organisational culture, 3) asymmetry in cognition, 4) language and professional terminology, 5) gender, 6) age, 7) ethnical background, 8) emotions, 9) lack of trust, 10) too much trust, 11) individual interests, 12) lack of time, 13) competition, and 14) restrictions put up with the space. Furthermore, Parviainen argues that building networks or teams does not necessarily lead to an increase of communal collaboration and knowledge sharing (Parviainen 2006).

According to Ipe (2003), knowledge sharing between people in organisations is related to the nature of knowledge, the motivation to share, opportunities to share, and the culture of the work environment. Nature of knowledge indicates a division into tacit, implicit and explicit knowledge. However, in this study the typology of organisational knowledge and knowing by Blackler is applied (see Table 6, p. 94). Factors which are related to sharing of knowledge and information in organisations according to earlier research are presented in Table 7. These factors are intertwined with each other. For example, network structure is related to opportunities to meet co-workers and affective trust is constructed mostly within these personal meetings.

Table 7. Factors which are related to sharing of knowledge and information in organisations.

<table>
<thead>
<tr>
<th>Factors which are related to sharing of information and knowledge in organisations</th>
<th>Researcher(s)</th>
</tr>
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Factors which are related to sharing of information and knowledge in organisations

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Researcher(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of knowledge</td>
<td>Ipe 2003, Smedlund 2008</td>
</tr>
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</table>

Structure of the social network and especially temporal and spatial proximity influence the opportunities to share knowledge (Keating et al. 2007, see also Wilson 2010). Hasgall and Shoham (2008) claim that hierarchical organisations do not enhance effective use of personal knowledge. Smedlund (2008) argues that the social network structure is an important factor which affects sharing of different types of knowledge in an organisation. Explicit knowledge is shared and distributed within centralised networks. Tacit knowledge is shared within distributed social networks consisting of multiple strong links: every actor is connected to a couple of others and mutual trust prevails. The third knowledge type presented by Smedlund is potential knowledge, which is important in new innovations. Smedlund suggests that this knowledge type is distributed within decentralised networks with many structural holes (see, Burt 1992) and weak ties (see, Granovetter 1973). A decentralised network makes it possible to gain a lot of information and weak signals from many directions thus enabling creation of new knowledge (Smedlund 2008).

Opportunities to share information and knowledge are formal or informal. The knowledge which is shared through formal channels such as meeting memos and technology-based systems is mainly explicit. Knowledge is often shared in informal settings (face-to-face communication) where trust, respect, and friendship influence the behaviour (Davenport & Hall 2002, Huysman & De Wit 2002, Ipe 2003, Sonnenwald 2004, Riege 2006 McInerney & Mohr 2007). Islam and his colleagues (2012) argue that socialisation into organisation such as an employee’s rotation across different tasks, brainstorming camps, and cooperative projects promote sharing of tacit knowledge.

Lack of time can hinder knowledge sharing (Huysman & De Wit 2002, Riege 2006). In work and organisational environment, information is needed at the right moment and information sharing requires mostly interpersonal interactions face-to-face or possibly through the use of telephone or e-mail (Widen-Wulff 2007).
Organisational culture influences all other factors (Ipe 2003). The aspects of organisational culture were discussed in more detail in Chapter 4. De Long (1997) sees four ways through which culture affects knowledge sharing, creation, and use in organisations. Firstly, culture and subcultures define what knowledge is useful, important, or valid for the organisation (see also Chatman 1991, 1996, 1999, Burnett & Jaeger 2008, Jaeger & Burnett 2010). Secondly, unspoken norms tell what knowledge is individual and what is organisational (see also Järvenpää & Staples 2001, du Plessis 2006). The culture can emphasise individual knowledge or knowledge sharing between individuals. Thirdly, culture creates a context for interaction. Fourthly, culture defines how knowledge coming outside the organisation is treated, whether it is rejected or used as a starting point for discussions and development and distributed further.

Organisations are not homogenous cultures. There can exist several subcultures, which all have their own norms and practises (Ipe 2003). Different professions and their jurisdictions can inhibit knowledge sharing even when the boundaries are diminished by lateral structures such as project groups, teams, or networks (Currie & Suhomlinova 2006, Currie et al. 2007). On the other hand, organisational climate can also promote knowledge sharing through social interaction, which has a mediating role between organisational climate, structure, and knowledge management (Alavi et al. 2006). Group identity, goals, open climate, roles, and status also affect knowledge sharing (Widen-Wulff 2007).

Motivation to share knowledge depends on internal and external factors. Internal factors are related to power aspects and reciprocity of sharing; external factors include relationships with the receiver of the knowledge and the rewards of sharing (Davenport & Hall 2002, Hall 2003, Ipe 2003, Parviainen 2006, Riege 2006). Evaluation of risks and benefits also affects knowledge sharing (Riege 2006, Wilson 2010). Motivation to share is influenced by the value of knowledge. In some situations valuable knowledge is connected with status, career prospects and individual reputation so that the knower makes a decision what knowledge to share, when to share, and with whom to share it (Wilson 2002, Ipe 2003). Individuals with lower status and power tend to direct information to those with more status and power (Ipe 2003, Yang 2007, Widen-Wulff 2007). According to Constant and his colleagues (1997) “altruism” can be a strong motivating factor to share knowledge.

Furthermore, trust is the foundation of knowledge sharing. Both cognitive and affective trust is needed to create new understanding and new knowledge. Cognitive trust is formed on the concepts of competence and reliability and
affective trust focuses on interpersonal bonds (McAllister 1995, Sonnenwald 2004). Trust has an influence on group identity which affects knowledge sharing and motivation to share (Widen-Wulff 2007). Holste and Fields (2010) suggest that affect-based trust affects the willingness to share especially tacit knowledge, whereas cognition-based trust affects more the willingness to use tacit knowledge. Open communication, knowledge, and information sharing requires trust embedded in the organisational culture (Huotari & Iivonen 2004).

5.7.3 Sharing of information and knowledge in health care

Tagliaventi and Mattarelli (2006) argue that especially in health care, common values, or “the best of the patient”, along with network proximity establishes knowledge sharing. Keating and her colleagues (2007) perceived that primary health care physicians rely often on colleagues for new information and advice about the care of their patients. Physical proximity, for example working in the same clinic affects knowledge sharing and physicians seek out those colleagues who have the most experience and are likely to give the needed information. Fattore and his colleagues (2009) claim that social influence creates similar behaviours among doctors.

The findings of West and her colleagues (1999) indicate that the social networks of medical doctors and nurses in English hospitals are somewhat different. The doctors’ professional networks are dense with strong ties and these cohesive groups fortify professional identity. New information does not easily cross the boundaries and information flow is mostly horizontal, respecting the hierarchies in the organisation. On the other hand, once implemented, new practises are accepted by all group members because of the strong control of the group. Bouyer and his colleagues (2010) found that doctors in French hospitals have the highest centrality in social networks which emphasises their role as leaders. In nurses’ social networks, information also flows vertically; senior nurses discuss professional issues with juniors more often than doctors (West et al. 1999). On the other hand, Cunningham and his colleagues (2013) claim that nursing networks in hospitals are more hierarchical than medical networks.

Bishop and Waring (2012) state that network structure alone does not explain knowledge sharing in health care organisations. Quantitative social network analysis provides a map of the relationships but the complexities, ambiguities, and confusions in interactions remain concealed. Creation of new central and peripheral roles in networks to enhance knowledge sharing does not automatically
lead to better results because of underlying cultural issues. Interpersonal trust is a major factor in clinical practices and it takes time to build this trust.

Cunningham and his colleagues (2013) reviewed 26 studies which applied social network analysis in the context of health care. Brokerage and hierarchy were associated with knowledge sharing networks rather than density. Network clusters are based on homophily which is a challenge for creating multidisciplinary or interprofessional teamwork. Effective networks encourage communication and trust and increase an actor’s job satisfaction. However, most of the reviewed studies focused on describing the structural features of the networks and the function and outcomes of the networks remained unnoticed.

Boder (2006) presents that in health care, creation of collective intelligence is essential. Formal scientific knowledge and know-how developed from previous experiences and the knowledge of individual patients define a framework, in which new knowledge can be created. Zhou and Nunes (2012: 240) state that...

...KS [knowledge sharing] should occur through collaborative communication channels so that patient knowledge is always available and is used to provide the best possible healthcare services to patients, to improve the quality of patient care and to achieve patient satisfaction.

In Finnish health care, patients shift between the different actors of health care according to their diseases or residences. Data systems and networks have been developed to make information transfer easier, but all information cannot be transferred by organisational routines or data networks (Saaren-Seppälä, 2006). Saaren-Seppälä (2006) argues that professional knowledge in health care is not only tacit or special, but something more.

Reddy and Jansen (2008) point out that collaborative information behaviour has an essential role in health care organisations. They define collaborative information behaviour as “activities that a group or team of people undertakes to identify and resolve a shared information need” (Ibid: 257). Reddy and Jansen (2008) indicate that in health care teams communication is essential in information sharing (see also Reddy & Spence 2008). The complexity of the evolving problems and tasks requires collaboration in which each team member focuses on his own part of information seeking. IT has a supporting role in collaborative information behaviour; an information system is often just the first step in solving the information problem, which can occasionally be solved by consulting another professional.
Reddy and Jansen (2008) remark that patient information is very fragmented. In health care there are many different information resources and systems; different pieces of patient information such as laboratory results or digital images are located in different resources. According to Saaren-Seppälä (2006) the collective knowledge reserve (see Figure 4, p. 85) in health care forms a foundation for the experts to understand and use collective knowledge, to outline the care of the patient in other organisations and to put together the entity of the patient’s diseases and care. Saaren-Seppälä (2006) perceives that the treatment of the patient consists of three elements, the first being the collective knowledge reserve. The second element is the expertise of health care professionals and the last is the experiences of the patient. The collective knowledge reserve is not only the medical history of the patient on paper or in EPRs; it is activated through the interaction of the different actors involved in the treatment of the patient. This interaction can be personal, face-to-face, or transmitted through documents or electronically (Saaren-Seppälä 2006).

Moreover, in spite of the vast amount of information available on the Internet, intranet, printed documents and other sources, earlier studies indicate that health care professionals keenly use informal networks as a means to support and exchange information (Gabbay & le May 2004, Coumou & Meijman 2006, Jackson et al. 2007). Gabbay and le May (2004) present that evidence-based guidelines and other explicit evidence from research and other sources is rarely used directly. This information is “filtered” through the interaction and sharing of knowledge and experiences with colleagues, patients, and other sources. Informal interactions in social networks or communities of practise, or “mindlines”, enable sharing of tacit knowledge and create socially constructed “knowledge in practise”. Professionals value local knowledge—“knowledge in practise”—and rely on “mindlines”, guidelines and practises which are often tacit, collectively reinforced, and internalised (Gabbay & Le May 2004). Asking a colleague who works nearby is an efficient way to seek and share information.

Biomedical knowledge has exceedingly increased in past decades and professionals must try to keep up with this information flow. Sweeney (1998) denominates this as “the information paradox”. The medical profession has a vast repertoire of means to gain information about recent medical research and guidelines based on biomedical evidence but he argues that this evidence-based medicine (EBM) does not automatically relieve the suffering of patients. Guidelines of EBM are based on statistical significance which can differ from clinical significance and even more from personal significance, a concept which
describes the “interpretation of a new idea by a doctor and patient together” (Sweeney 2006: 129, see also Hassey 2002). Sweeney (2006) emphasises a two-way interaction in medical consultations. Both participants have different perspectives but both have personal knowledge and the outcome of their interaction is a clinical decision.

Murphy and Eisenberg (2011) divide doctors’ knowledge sharing into three dimensions. The first dimension is instrumental, which refers to a formalised exchange of information, for example, about a patient. This dimension includes elements of both routine, which is factual knowledge, and socially constructed emergent knowledge. The second dimension is performative, which features political and routine levels of knowledge. According to Murphy and Eisenberg, these levels come together for example when doctors in training are socialised to speak and act “like doctors” in cultural performances. The third dimension is relational, which connects emergent and political levels of knowledge. Doctors collaboratively construct knowledge as they work together.

Moreover Zhou and Nunes (2012) state that sharing of technical knowledge such as information about patients’ medical history and current condition is easy but sharing of tacit, ethical and emotional knowledge and social and behavioural knowledge is much more difficult. These latter types of knowledge are individual professionals’ experiences and perceptions and often hard to explicate. “Sticky knowledge” such as best practises in health care are difficult to transfer (Elwyn et al. 2007).

Experiences are shared through narratives. Patriotta (2003) suggests that common-sensical wisdom is an important knowledge resource in organisations. According to him, narratives are the main carriers of organisational tacit knowledge (see also Davenport & Prusak, 1998). Narratives are stories which have no definitions of what is relevant or irrelevant; the listener interprets the story (Greenhalg & Hurwitz 1999). Case (2012: 304) points out that one implication of Gorman’s (1995) review of the information needs of physicians is that “…much of the knowledge physicians use in treating patients is a narrative: the story of the patient’s history of symptoms and treatments”. Moreover Lee and Foo (2007) identify three types of narratives in health care: organisational stories, patients’ illness narratives, and health professionals’ stories about their experiences. Organisational stories reaffirm, create and redirect organisational relationships and thus also social capital of the organisation.
5.8 Summary of knowledge management in health care

Knowledge management is a multidisciplinary field. Knowledge management in organisations has shifted from managing the existing information and developing information systems to trying to capture the knowledge of employees to create new knowledge and innovations. In order to create new knowledge the organisation must ensure that the employees have access to the right knowledge and information.

Medicine and health care are knowledge-intensive disciplines and the knowledge and knowing of the professionals is the main resource of health care organisations. However, in health care the term knowledge management has been fairly unfamiliar and research of health care KM has been rare.

Organisational knowledge has been categorised in various ways. Most of the typologies entail the elements’ individual and collective tacit and explicit knowledge. Knowledge and information processes in organisations are collection, transfer and storage of information, sharing and creating knowledge, and use of knowledge and information. Organisational culture, the type of knowledge, motivation, trust, and time- and place-related factors are related to knowledge sharing in organisations.
6 Theoretical framework of the study

In the beginning of this chapter, the aims of the study are outlined. This is followed by a presentation of the theoretical framework of this study as a summary of the main theoretical concepts and their relations as discussed in Chapters 2 to 5 of Part 1.

6.1 Aim of the study and the research questions

The aim of the study is to increase understanding about value creation in the context of prevention and care of childhood obesity. The purpose is to examine value-creating information and knowledge processes, the patients’ and their families’ involvement in these processes, and factors related to these processes. This is done through a research setting in a multiprofessional integrated care pathway of childhood obesity in Finnish public health care.

The main research question is formulated as follows: How do the information and knowledge processes in the integrated care pathway create value for the patients and for the health care organisations?

The main question was divided into five subquestions:

1. How is the structure of the integrated care pathway (ICP) related to the information and knowledge processes of the ICP?
2. How is organisational culture in the ICP related to the information and knowledge processes of the ICP?
3. What types of knowing are involved with the information and knowledge processes?
4. How are the patients and their families involved in the information and knowledge processes and in the creation of value in the ICP?
5. How do patients and their families perceive value?

6.2 Theoretical framework

The theoretical background of this study can be summarised in the theoretical framework as outlined in Figure 6.
In this study it is assumed that value creation takes place in the information and knowledge processes creating the value networks. The value network in this study is regarded as a social network which consists of health care professionals and patients and their families, and are partly enabled by inter- and intra-organisational electronic networks. The families are members of larger social networks in their environment which are likely to influence their health behaviour (see, e.g., Berkman et al. 2000), but those networks are beyond the scope of this study. The context of this study is the integrated care pathway (ICP) for obese children which has been established in Finnish public health care. This enhances the care of these children, which also involves their families.
In this study the information and knowledge processes are examined as sequences of collection, transfer and storing of information, sharing and creation of knowledge, and use of knowledge and information. These processes take place at three levels. Collection, transfer, and storing of information are mostly mediated through IT in and between the health care organisations. Sharing and creation of knowledge require interpersonal communication among health care professionals and knowledge use takes place in communication among the patients, their families, and the health care professionals.

These information and knowledge processes produce knowing which relates to organisational learning and enhances efficacy of health counselling for the families. Organisational learning creates value for the health care organisations and good counselling is seen as a means for the family to achieve the goals of health and welfare. Value for the patients is a balance of the benefits of lifestyle counselling and the costs which the change of lifestyle requires in practise.

Information and knowledge processes are related to various organisational characteristics. The structure of social networks, opportunities to transfer, share and create information, knowledge and knowing, time- and place-related factors, and type of knowledge and organisational culture define the frameworks of knowledge processes. To capture the complicity of organisational knowledge and knowing in health care, Blackler’s (1995) typology of organisational knowledge and his idea of organisational knowing is applied. Blackler (1995) suggests that organisational knowing should be perceived as activities of mediated, situated, pragmatic, provisional, and contested knowing.

Organisational culture in the primary and special health care organisations of this study is approached with the concepts of Burnett’s and Jaeger’s theory of information worlds (2010). Namely, Jaeger and Burnett (2010) extend the perspective of isolated small worlds onto society in which small worlds form a network of relationships. This enlargement of the view matches the idea of social networks as value creating networks (Normann & Ramirez 1994, Wikström et al. 1994, see also Huotari & Chatman 2001).
PART II
7 Research design

The empirical research was conducted in the integrated care pathways for obese children in two Finnish university hospital districts between 2009 and 2012. In this section, the practises of integrated care pathways and of treatment of childhood obesity in Finnish health care are generally described. Secondly, the empirical research design, research methods, data collection, the units of analysis of this research, and the principles of data analysis are presented.

7.1 Integrated care pathways in Finnish health care

The Finnish constitution (Ministry of Justice 1999) states that public authorities should guarantee adequate social, health and medical services for every inhabitant in Finland. Furthermore the Local Government Act requires municipalities to promote the welfare of their inhabitants (MSAH 2012). The Health Care Act (MSAH 2010) rules that municipalities are responsible for primary and secondary health care and for health promotion.

Primary health care covers all kinds of health care services from local health care to maternity care, child health care, school health care, family planning, care for the elderly, preventive services, long-term hospital care, environmental health care and transportation of the patients. Municipalities can provide these services themselves or in collaboration with other municipalities, or they can be purchased from private or other public providers. Private and occupational health services function alongside the municipal system (MSAH 1972, 2012).

Finland is divided into 20 hospital districts, and the semi-autonomous province of Ahvenanmaa forms its own district. Each hospital district provides specialised care for the population in its area. Every municipality belongs to a particular hospital district, each of which contains a central hospital and one or more regional hospitals. Five of the central hospitals are university hospitals that provide specialised levels (tertiary health care) of treatment (MSAH 1989, 2012). For the purposes of this study, the division to primary and special health care is sufficient. Patients need a referral to see a specialist in public health care except in the case of an emergency. Figure 7 describes the relationship between primary and special health care in Finland.
Fig. 7. The relationship between primary and special health care in Finland.

National health work and primary health care focus on prevention of diseases by following the health status of people and counselling. Furthermore, municipalities must provide amongst other services acute health care, medical rehabilitation, occupational health care, home health care and mental health care (MSAH 1972). Municipal health centres were established in the 1970s (Saarivirta et al. 2012). Pregnant women can go to maternity clinics and families with children under school age visit child health clinics, where public health nurses and doctors are available. Every primary and secondary school has a public health nurse who is responsible for school health care. If the school has not got many pupils, the public health nurse does not work every day at the school so she can be responsible for several schools.

Special health care "means health care services in specialized fields of medicine and dentistry, including the prevention, examination and treatment of diseases, medical emergency services and medical rehabilitation" (MSAH 1989). A joint municipal board in each hospital district is responsible for the organisation of specialised medical care which cannot be provided by the health care centres themselves within its area. Furthermore, research, development, and training should also be provided in the hospital district’s area.
7.1.1 Integrated care pathways

An integrated care pathway (ICP) is a practise between primary health care and special health care. Practise in this context is approached in the sense of modern social sciences as structured and established forms of activities with habits and routines (Giddens 1984, Schatzki 2000, see also Cox 2012). In international research literature the terms clinical pathway, critical pathway, clinical protocol, care track, care path, care map and collaborative care of plan are used as a synonym of an integrated care pathway (Renholm et al. 2002, de Bleser et al. 2006, Vanhaecht et al. 2006, Rotter et al. 2010). The verbatim English translation of the Finnish term “hoitoketju” is “care chain”, which is not generally used in international research. In this study, the term integrated care pathway (ICP) is used and the term of the original source is used when referring to previous research.

The goal of an ICP is to ensure the care of the patient by the optimal use of existing resources by giving the right care at the right time in the right place (Nuutinen et al. 1997, Nuutinen 2000). An ICP ensures the use of available resources in primary health care and specialised care as efficiently as possible. At its best an integrated care pathway diminishes the expenses of health care by eliminating overlapping services. The diagnosis of a disease determines the guidelines of the integrated care pathways. The responsibility of the care for the patient is locally agreed and described in step-by-step protocols. These care processes are in English literature called shared care, seamless care, integrated health care and managed care but the use of these terms is quite unestablished (Nuutinen 2000). In this study I use the term which has been used in the original source.

An ICP’s purpose is to determine locally agreed, multidisciplinary care practise which is based on guidelines and evidence for a specific patient group. Moreover, an ICP is an ideal tool to promote the introduction of clinical guidelines into practise (Campbell et al. 1998, Nuutinen 2000, Nuutinen et al. 2004, Rotter et al. 2010). All medical treatment, including counselling, should be based on Evidence-Based Medicine (EBM).

All the actors involved in an ICP should have access to the necessary patient records. Electronic patient record systems are widely used in municipal health centres and in hospitals in Finland (see Subchapter 3.3.2). In the municipal health care centres of this study, three of the four had the same EPR system. Both university hospitals had their own systems, so the interviewees of this study used...
in total four different information systems. In health care the safety and security of information transfer are essential; the system must work even in critical situations (Nuutinen et al. 1998). IT in social welfare and health care should support seamless linking of services of various providers (Ohtonen 2002). Moreover, the activities of an ICP should be evaluated continuously.

7.1.2 Earlier research of integrated care pathways


Integrated care pathways are set up to improve multidisciplinary collaboration and communication between different professionals (Yamazaki & Umemoto 2010). According to Atwall and Caldwell (2002), this presumption does not come true if the goals are not shared and the attitudes of the professionals are against knowledge sharing. Atwall and Caldwell (2002) claim that this may partly be due to an urge to retain one’s own professional identity. Pinder and her colleagues (2005) argue that care pathways reproduce professional boundaries and the tension between the idea of patient-centredness and organisational efficiency and effectiveness. Vanhaecht and her colleagues (2006) criticise the lack of systematic evaluation of the clinical pathways.

Engeström and his colleagues (1999) perceived that historical images and practises of professional autonomy among physicians and nurses caused ruptures in communication in integrated care. Physicians’ habits of working and carrying responsibility alone hindered negotiations with nurses and other physicians when making a care agreement. White and his colleagues (2000) also indicated that managed care, lack of time, separation, multitasking, and new technologies did not encourage physicians and nurses to share knowledge and to learn from one another.

indicate that information flow between primary and special health care has some deficiencies (Brander 2003, Dunder 2003, Saaren-Seppälä 2004, Ensio & Ryynänen 2007, Mertala 2011). The traditional referral-epicrisis/care feedback system is based on the idea of linear treatment of the patient. However, in practice the patient often visits multiple units which provide health care services at the same time and some patient information is not transferred between the health care organisations (Saaren-Seppälä 2004).

7.2 Prevention and care of childhood obesity in Finnish health care

In Finland, child health care is a part of primary health care which reaches almost all children below the age of seven years, the year they start primary school. Before school age the health services for the children are provided in child health clinics, and in cases of acute illness, in local health centres. Public health nurses work with health supervision, immunisations, parental education, and screening examinations.

Overweight and obese children should mainly be treated in primary health care, in child health clinics, and in school clinics. The focus in primary health care is early prevention of obesity. Mustila (2013) suggests that the preventive methods of obesity should start early in life, during the child’s first year. If there are some signs of increasing weight in relation to the child’s height an intervention should be initiated. The most severely obese children and those patients with suspected endocrinological disturbances or some other health problems are referred to special health care. Most health centres in primary care have established their own guidelines for the treatment of overweight and obese children. These guidelines describe the criteria for referring the child to special health care and give recommendations for laboratory tests for differential diagnosis of diseases associated with obesity.

The public health nurse of the child health clinic usually gets to know the child and the family well because of the regular physical examinations and vaccinations. At school age the school nurse is mainly responsible for the physical examinations of the child, including measurements of body height and weight. The children are measured and weighed in child health clinics after the age of one year; measurements are taken regularly, every year or even more often if there seem to be some kind of irregularities with growth. At school, health check-ups are in the first, fifth and eighth school years, and in addition to these check-ups
the school nurse should measure the pupils’ height and weight yearly (Mäki et al. 2011).

7.3 Empirical study design

All research is based on some underlying philosophical assumptions about essence of knowledge and how it can be obtained. Metatheories analyse and describe the basic assumptions behind the theories. The metatheoretical approach of this study is closest to the idea of social constructivism (Talja et al. 2005) which Hjorland and Albrechtsen (1995) name collectivism. According to Talja and her colleagues (2005: 92), “collectivism takes professions and knowledge domains as its research object and sees the information and communication practices and terminologies of professions as the primary context for information behaviour and knowledge organization”. In this study, health care organisations and professional groups are knowledge domains whose behaviour as actors in the information and knowledge processes is scrutinised.

Hjorland and Albrechtsen (1995: 409) state that “The domain-analytic approach recognized that discourse domains comprise actors, who have worldviews, individual knowledge structures, biases, subjective relevance criteria, particular cognitive styles, etc. In other words, there is an interplay between domain structures and individual knowledge, an interaction between the individual and the social level”.

The constructivist approach suits well to describe and understand human actions. Information behaviour relies on construction of knowledge; information is sought, found and used to create new knowledge. Knowledge formation of an individual derives from social interactions and cultural meanings, which are shared by a group, and internalised by the individual. Language serves as an instrument in the creation, organisation, and sharing of knowledge. However, language and discourses are not the focus of research in collectivism (Talja et al. 2005).

Of the knowledge management discourses by Deetz (1996, here Schultze & Leidner 2002) this research approach is nearest to the interpretive discourse as discussed in Subchapter 5.1. The interpretive discourse of knowledge management studies the role of knowledge and technologies in knowledge work, and organisational practises in the context of organisational learning. This approach emphasises the socially constructed and dynamic nature of knowledge in organisations.
7.3.1 Qualitative research

The methodology of this study is qualitative. According to Creswell (1998: 15), “Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views on informants, and conducts the study in a natural setting”. Qualitative research aims at understanding human behaviour and the reasons that govern this behaviour. Furthermore, Creswell (1998) points out that in qualitative research, change during the process is questioned as an indication of an increased understanding of the problem. Data collection, analysis, and report writing are intermingled.

Qualitative research is naturalistic when it is made “in the field”, in real world settings. This kind of research aims at understanding social reality as “it really is” in the context of the study subjects’ world, and the researcher does not attempt to manipulate the phenomenon of interest (Silverman 2000, Patton 2002, Saaranen-Kauppinen & Puusniekka 2006). This study aims to increase understanding of value creation in health care organisations and of the factors which are related with this phenomenon. Thus a qualitative approach suits well for this kind of research.

Patton (2002: 51) points out that a researcher should “adopt a stance of neutrality” without any predetermined results to support. However, “the researcher is the instrument in qualitative inquiry” (Patton 2002: 566) with conceptions of self, history, and the environment. In this study, the researcher aims at being a disinterested observer of a phenomenon with a new aspect of value creation in the context of prevention and care of childhood obesity. However, long work experience in public health care provides the researcher a preunderstanding of the activities in health care organisations.

7.3.2 Case study approach

A case study approach suits well for the study of organisations and fits the interpretive discourse in Deetz’s framework of scientific discourses. According to Schultze & Leidner (2002: 217), “The interpretive discourse aims to create a coherent, consensual, and unified representation of what the organizational reality is ‘actually’ like, despite its complexities and contradictions.”
Yin (2009) proposes that a case study approach is best suited for research aimed at finding explanations for a phenomenon and thus the research questions are formulated “how?” or “why?” However, a case study can also be descriptive, aiming at presenting “a detailed account of the subject of study” (Savin-Baden & Major 2013: 159) and providing a research frame with structural and historical boundaries (Stoecker 1991). Case studies examine contemporary events within real life contexts and the researcher does not try to manipulate or control them. Savin-Baden and Major (2013: 168) state that “Case study research is a research that examines the relationship between people and structures, in which they work, live and learn; it acknowledges that the dynamics of interaction must be the starting point of research”.

Yin (2009) describes four types of case study designs: a single holistic case, a single embedded case, multiple holistic cases and multiple embedded cases. A single case study design is best suited for a critical, extreme, or unique case, a representative or typical case, and for longitudinal cases studies. However, a single case may involve more than one unit of analysis and the study design is thus an embedded case study. A single embedded case study design was used in this research (see Figure 8).

Fig. 8. Single case study design of an ICP for obese children in Finnish public health care with two embedded units of University hospital districts (adopted from Yin 2009, 46).

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The two university hospital districts (UHDs) represent one case: an integrated pathway for obese children in Finnish public health care. The UHDs, which represent embedded units of analysis (UA), were selected because they represent different parts of Finland. The gathering of empirical data, that is the interviews, was performed personally by the researcher and thus the timely and financial factors restricted the options of the selection of the cases. The results of the two units were predicted to be more or less similar, because public health care in Finland is regulated with national laws and instructions in order to guarantee equal possibilities for all citizens for good health care.

In qualitative studies the cases for the study are often selected because they are “information rich” and the sample sizes are rather small. Cases and samples can be chosen in terms of the theory or by purposeful sampling, because they give the answer to research problems (Silverman 2000, Patton 2002). Purposeful sampling was also used in this research in the selection of the two units of analysis and of the informants. Most case studies require field work; the data are gathered through interviews, direct observation, and/or participant observation. Documents, archival records and physical artefacts can also be sources of case study evidence. Yin (2009) recommends the use of more than one source of evidence in case studies in order to increase the quality of research.

7.4 The research environment and methods

In this subchapter the research environment is first described, namely the two university hospital districts’ ICPs, which represent the embedded units of analysis. The data of the two embedded units of analysis were collected separately (see Figure 9) and the process of data collection is described in detail in the following sections.
Yin (2009) suggests that versatile research data helps the researcher to get a deeper grasp of a case. Combining several methods, data, researchers or theories is referred to as triangulation in research methodology literature. Triangulation has been claimed to strengthen the study by revealing different aspects of empirical reality. Using different data and methods in one study tests the validity of the research methods and inconsistencies in findings can bring deeper insight into the phenomenon (Patton 2002). The methods of data collection were 1) interviews of health care professionals in both units of analysis and interviews of patients and their families in the first UA, 2) writing field diaries when conducting the interviews, 3) a questionnaire for families in the second UA, 4) gathering of documents of care path instructions in both UAs, and 5) making notes in the meetings of the work group of the ICP for obese children in the first UA (see Figure 9). The data of the study are summarised in Table 8.
### Table 8. Empirical data of the study.

<table>
<thead>
<tr>
<th>Unit of analysis</th>
<th>Special health care interviews</th>
<th>Primary health care interviews</th>
<th>Patients and families interviews</th>
<th>Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>n=6</td>
<td>n=6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 nurse</td>
<td>4 public health nurses</td>
<td>3 patients and 3 mothers</td>
<td>The care path instructions for overweight and obese children in primary health care</td>
</tr>
<tr>
<td></td>
<td>2 doctors (paediatricians)</td>
<td>1 doctor</td>
<td></td>
<td>2 documents, 13 pages</td>
</tr>
<tr>
<td></td>
<td>2 physiotherapists</td>
<td>(paediatrician)</td>
<td></td>
<td>10 memos of the care pathway work group meetings</td>
</tr>
<tr>
<td></td>
<td>1 clinical nutritionist</td>
<td>1 clinical nutritionist</td>
<td></td>
<td>Field diary 10 pages</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>n=6</td>
<td>n=12</td>
<td>Patient survey, N=13</td>
<td>The care path instructions for overweight and obese children in special and primary health care in three health centres</td>
</tr>
<tr>
<td></td>
<td>1 nurse</td>
<td>10 public health nurses</td>
<td></td>
<td>4 documents, 20 pages</td>
</tr>
<tr>
<td></td>
<td>2 doctors (paediatrician, 1 doctor in training)</td>
<td>2 doctors (paediatrician, 1 doctor )</td>
<td></td>
<td>Field diary 9 pages</td>
</tr>
<tr>
<td></td>
<td>1 physiotherapist</td>
<td>2 clinical nutritionists</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empirical material, Interviews of health care professionals N= 30</td>
<td>Interviews of patients and families N=6</td>
<td>6 care pathway instruction documents, 31 pages</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient &amp; family survey N=13</td>
<td>10 agendas and memos of care pathway group meetings 42 pages</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total N= 19</td>
<td>Field diaries 19 pages</td>
<td></td>
</tr>
</tbody>
</table>

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7.4.1 The studied units of analysis

The first unit of analysis

The university hospital district of the first unit of analysis (UA1) covers close to 400,000 inhabitants and the district of special health care about 740,000 people. In addition to the university hospital there are two other hospitals in the district. The number of municipalities which form the hospital district is 35. In 2009 when the data of the UA was collected, the smallest of the municipalities had only 1,000 inhabitants and the largest about 140,000 residents. The municipalities differ from each other considerably in their sources of livelihood and infrastructure.

The specialised treatment of obese children in UA1 university hospital is located at the Paediatric Outpatient Clinic for children with endocrinological diseases. In addition to paediatricians and nurses there are some special health care professionals such as clinical nutritionists and physiotherapists working at the outpatient clinic. The Paediatric Clinic is meant for children and adolescents under the age of 16 years, but some adolescents with chronic conditions can be patients there until 18. In 2009 the referrals were addressed to the clinic and the specialised doctors (paediatricians) handled them either independently or within a team of other doctors. One of the interviewees in special health care estimated that the number of referrals with the main problem of obesity was between 40 and 50 per year, but precise statistics were not available.

The first appointment of the children and their families at the clinic was at the time of data collection in 2009, often arranged so that the family met the nurse, the doctor and often also the clinical nutritionist, respectively. Between these meetings there were some laboratory tests. The blood glucose test is often needed and since the test takes two hours it had regularly been combined with the meetings with the health care professionals. The children and their parents visited the Paediatric Outpatient Clinic of the University Hospital two or three times and after that they were generally guided back to primary health care if they had no endocrinological or other diseases which require specialised care.

The second unit of analysis

The second unit of analysis (UA2) university hospital district extends about 250,000 inhabitants in 21 municipalities. There are four hospitals in the hospital district: the university hospital, two psychiatric hospitals (one for children and the
other for adults) and one district hospital for surgery and rehabilitation. The number of inhabitants in the municipalities ranged from 1700 to 98 000 in 2011.

The practises of division of treatment in primary and special health care of overweight and obese children were more or less the same as in UA1; the criteria for referrals to special health care in both cases are based on national Käypä hoito (Current Care) guidelines. The main structure of the ICP is similar to that in the first UA, but in this university hospital there is a special team to treat obese children. The treatment is arranged in a “weight clinic” for children and adolescents. The team consists of a paediatrician who is in charge of the weight clinic but does not do any clinical work there, a changing doctor in training, a nurse, two clinical nutritionists (the other works only part time) and a physiotherapist. The paediatrician sees the referrals with the doctor in training and the patients’ first meeting is arranged with the nurse and with the doctor in training.

The weight clinic team has its own guideline called “weight path”. It describes the care protocol of the weight clinic team. The treatment plan is for about one year with at least five visits to the weight clinic if the patient and the family are willing to step on this path and commit to the treatment. The care protocol is presented in Table 9.

**Table 9. Treatment plan in the second unit of analysis weight clinic for obese children.**

<table>
<thead>
<tr>
<th>Visit</th>
<th>Health care professional in the university hospital</th>
<th>Contents of the visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.visit</td>
<td>Nurse</td>
<td>Interview, presentation of the weight clinic, finding out about the motivation for the treatment, measurements (weight, height, waist circumference, blood pressure)</td>
</tr>
<tr>
<td></td>
<td>Doctor (specialising)</td>
<td>Evaluation of the health status, differential diagnosis of other diseases, telling about the risks and health consequences of obesity, agreeing about the weight path (if the family is motivated)</td>
</tr>
<tr>
<td>2.visit</td>
<td>Physiotherapist</td>
<td>Interview, finding out about the daily schedule, resident, interests, friends and resources of the family</td>
</tr>
<tr>
<td>+ 1 month</td>
<td>Clinical nutritionist</td>
<td>What kinds of changes have already been made in nutrition, discussing needs for further changes, setting goals</td>
</tr>
<tr>
<td>3.visit</td>
<td>Nurse</td>
<td>Evaluation of changes in lifestyle, measurements, setting new goals</td>
</tr>
<tr>
<td>+ 2 months</td>
<td>Nurse</td>
<td>Evaluation of changes in lifestyle, measurements, setting new goals</td>
</tr>
<tr>
<td>4.visit</td>
<td>Nurse</td>
<td>Evaluation of changes in lifestyle, measurements, setting new goals</td>
</tr>
<tr>
<td>+ 4 months</td>
<td>Nurse</td>
<td>Evaluation of changes in lifestyle, measurements, setting new goals</td>
</tr>
<tr>
<td>Visit</td>
<td>Health care professional in the university hospital</td>
<td>Contents of the visit</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>5.visit + 6-9 months</td>
<td>Nurse</td>
<td>Measurements, evaluation of changes in lifestyle and of their effects. Agreed by the follow-ups, sending the epicrisis to primary health care</td>
</tr>
<tr>
<td>Follow-up visit + 12 months</td>
<td>Nurse</td>
<td>Evaluation of health status, evaluation of the impact of the care</td>
</tr>
</tbody>
</table>

### 7.4.2 Data collection in the first unit of analysis

Semi-structured interviewing of health care professionals was chosen for data gathering for both units of analysis, because the research area was new and had not been studied before. Interviewing is used typically in research which concerns unexplored subjects, so the questions can be modified during the interview in order to deepen and clarify the information given by the respondent (Hirsjärvi & Hurme 2001). Open-ended questions are used when the researcher does not want to predetermine the answers of the respondents (Patton 2002). Semi-structured interviews allow the interviewer to pose additional questions in response to particular comments and reactions of the interviewee (Savin-Baden & Major 2013).

**Health care professionals’ interviews in primary and special health care**

Data collection of the first unit of analysis started in May 2009 and the last interview was conducted in December 2009. The interviews of health professionals were conducted at the informants’ workplaces. The total number of interviewees was 12, six in special health care and six in primary health care. The interview themes were expertise of the interviewees, guidance of patients and their families, transfer of patient information and medical knowledge in and between health care organisations and in the ICP of childhood obesity, and sharing of knowledge and information in one’s own professional group and multiprofessional collaboration. Overall, the themes were the same but individual questions in the interview guides were formulated slightly differently for primary and special health care (see Appendices 1 and 2).
The researcher also attended meetings of the work group of the ICP of childhood obesity in the UA1 university hospital seven times, from February 2009 to May 2012, and one regional training session. These have provided valuable background information about the construction of the ICP and about the practises at the outpatient clinic of the hospital. The work group is set up to update the ICP instructions and to plan the updating regional training for primary health care. This training is on the responsibility of the hospital district by law. Furthermore the work group tries to keep up with new research about childhood obesity treatment practises in its area. The notes and materials of these meetings have been used to plan data gathering and to increase understanding of the general practises of the ICP to help the analysis (see Appendix 13).

Permission to conduct the interviews in the hospital was granted by the medical director of the hospital district and by the medical director of the department of paediatrics and adolescence. The interviewees in special health care were two paediatricians, one nurse, one clinical nutritionist, and two physiotherapists (see Table 8, p. 127). At the time of the interviews, three endocrinological nurses, two to four paediatricians and one clinical nutritionist were mainly responsible for the care of obese children. Physiotherapists were involved in some, but not all, cases. Thus the interviewees represented well all the professional groups in the care of obese children. The interviewees were contacted first via e-mail and after a second interview request the researcher telephoned the two health professionals who had not answered the e-mails to agree to the interviews.

The interviews in primary care were conducted in one municipality and the research permission was obtained by the medical director of health care. Thus the informants of the first unit of analysis are a convenience sample representing only part of the value network of primary health care. The chosen municipality is a city with over 100 000 inhabitants. Four of the interviewees in primary health care were public health nurses working in child welfare clinics and schools, a clinical nutritionist, and a paediatrician (see Table 8).

The recruitment of the interviewees in primary health care proved to be quite challenging. After the researcher got permission to perform the interviews, the managers of the fourteen health service districts of the municipality were contacted. They were asked to provide contact information for the public health nurses and doctors so they too could be contacted for possible interviews. Only two of the managers answered the request and the list of public health nurses was completed from the web-pages of schools where this information was available.
During the next two months interview requests (and two reminders) were sent via e-mail to over 20 public health nurses and 24 doctors. Two public health nurses answered the e-mail request and two agreed to interviews when telephoned.

The researcher used a field diary to describe the observations and impressions of the contacts with the informants and of the actual interview situations. This material was used to help the analysis of data. The field diary notes were written immediately after the interview to keep them fresh. The atmosphere of the interview was described: was it friendly or busy; was the interviewee nervous or reserved; were there any disturbances during the interview. The main aspects which came up in the interview were also written down and whether the interviewee said something that was surprising or quite new. These new aspects often reflected upon the following interviews and shaped its questions. In order to describe the difficulties of recruitment, a note from the field diary from October 2009 is presented:

Today I called one public health nurse. I had already sent her two e-mails with no response. In the telephone the public health nurse was very resistant. She said that she had too much work already, the “pig flue” vaccinations kept her busy and everything extra seemed to be impossible. I assured that my interview questions are not difficult and that we can make the interview as a short version and concentrate on the most essential themes if the time is limited. I tried to convince her that an experienced public health nurse like she is would surely have a lot to say about my interview themes. After a long persuasion we agreed to make the interview even in a few days (it happened to be a school holiday week).

Only one of the doctors answered the e-mail, unfortunately only to decline. The doctors’ telephone numbers were not given to the researcher and this information is restricted so that they could not even be telephoned. The interviews in primary health care were finally completed with a clinical nutritionist and a paediatrician through the researcher’s contacts in the ICP work group, bringing the final number of interviewees in primary health care to six.

The data were gathered by semi-structured interviews at the informants’ work places. The interviews were recorded and transcribed verbatim for analysis by the researcher and they lasted from 20 to 60 minutes (approximately 7 hours of audio data in total). The average time of the interviews was 35 minutes. The total number of transcribed pages was 90 after converting the font size to 12 points and the spacing to 1 (see Table 10.)
Table 10. The interviews in the first embedded unit of analysis.

<table>
<thead>
<tr>
<th>Case</th>
<th>Date of the interview</th>
<th>Duration of the interview recording in minutes</th>
<th>Number of transcribed pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>sp1</td>
<td>29.4.2009</td>
<td>31:29 min.</td>
<td>10</td>
</tr>
<tr>
<td>sp2</td>
<td>2.6.2009</td>
<td>49:22 min.</td>
<td>13</td>
</tr>
<tr>
<td>sp2</td>
<td>18.6.2009</td>
<td>26:24 min.</td>
<td>7</td>
</tr>
<tr>
<td>sp4</td>
<td>24.6.2009</td>
<td>24:18 min.</td>
<td>6</td>
</tr>
<tr>
<td>sp5</td>
<td>7.7.2009</td>
<td>20:58 min.</td>
<td>5</td>
</tr>
<tr>
<td>sp6</td>
<td>30.9.2009</td>
<td>31:00 min.</td>
<td>8</td>
</tr>
<tr>
<td>pr1</td>
<td>23.9.2009</td>
<td>32:14 min.</td>
<td>7</td>
</tr>
<tr>
<td>pr2</td>
<td>9.10.2009</td>
<td>30:19 min.</td>
<td>7</td>
</tr>
<tr>
<td>pr3</td>
<td>22.10.2009</td>
<td>59:33 min.</td>
<td>6</td>
</tr>
<tr>
<td>pr4</td>
<td>2.11.2009</td>
<td>28:41 min.</td>
<td>6</td>
</tr>
<tr>
<td>pr5</td>
<td>11.12.2009</td>
<td>34:05 min.</td>
<td>8</td>
</tr>
<tr>
<td>pr6</td>
<td>14.12.2009</td>
<td>54:14 min.</td>
<td>7</td>
</tr>
<tr>
<td>Total 12 interviews</td>
<td>Total duration of interviews: 419 min = 6,98 hours</td>
<td>Total number of transcribed pages: 90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean duration/interview: 35 min.</td>
<td>Mean number of transcribed pages/interview: 7,6</td>
<td></td>
</tr>
</tbody>
</table>

Patient and family interviews

In the second phase, three patients of the ICP for childhood obesity were interviewed in spring 2010. Permission to perform the research was granted by the hospital and by the ethical committee of the hospital district (Statement of the ethical committee of [name] hospital district 71/2009). The medical directors of the families’ home communities were also contacted and asked for permission to conduct the interviews. The patients were recruited for the research by nurses at their visits at the outpatient clinic of the hospital. A meeting with the nurses of the paediatric outpatient clinic was arranged and the researcher described the main outlines of the research and criteria for the children to be recruited for the interviews.

The age of the patients was restricted to 9- to 16-year-olds, because the intention was to interview also the children and thus the youngest children were left out. The nurses gave the children and their parents information sheets about the research and collected the signed consent forms (Appendices 3, 4, 5, 6). After receiving the consent forms the families were contacted and a time for the
interviews was fixed. The recruitment of interviewees proved to be so challenging that the final number of interviews was six (see Table 8, p. 127). The interviewees were two boys aged 10 and 12 years and one girl aged 9 years and their mothers (see Table 11).

Table 11. Patient and parent interviews in UA1.

<table>
<thead>
<tr>
<th>Date of the interview</th>
<th>Interviewees</th>
<th>Duration of the interview recordings in minutes</th>
<th>Number of transcribed pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.3.2010</td>
<td>Mother and son (10 years)</td>
<td>22:29 min. telephone interview</td>
<td>6</td>
</tr>
<tr>
<td>26.5.2010</td>
<td>Mother and son (12 years)</td>
<td>18:29 min. telephone interview</td>
<td>6</td>
</tr>
<tr>
<td>4.6.2010</td>
<td>Mother and daughter (9 years)</td>
<td>24:55 min. telephone interview</td>
<td>6</td>
</tr>
<tr>
<td>Total 3 interviews</td>
<td>Total duration of interview recordings: 65:13 min = 1h 5 min</td>
<td>Total number of transcribed pages: 18</td>
<td>Mean number of transcribed pages/ interview: 6</td>
</tr>
<tr>
<td></td>
<td>Mean duration of recordings/interview: 21:7 min</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The interviews were performed via telephone because this arrangement was most convenient for the families. The mothers answered the telephone at home and the child was interviewed after the mother. The children’s interviews lasted only a few minutes and their duration is not marked separately into Table 11. The duration of the interview recordings refers to both the mothers’ and the children’s interviews together. The interviews were recorded and transcribed by the researcher. The average time of the interviews was 21 minutes (from 18 to 25 minutes) (see Table 11). The interview guides are in Appendices 7 and 8.

7.4.3 Data collection in the second unit of analysis

Health care professionals’ interviews in primary and special health care

Data of the second unit of analysis (UA2) was collected in another Finnish university hospital in June 2011 and in primary care of the hospital district in September 2011. The total number of interviewees in UA2 was 18, 6 in special health care and 12 in primary health care (see Table 8, p. 127). The interview guides were the same as in UA1 (see Appendices 1 and 2). Four of the interviews
in special health were conducted at the informants’ workplaces, one via telephone and one at the informant’s home. Permission to conduct the interviews in the hospital was granted by the medical director of the hospital district and by the personal director of the hospital.

The interviewees of special health care were a paediatrician, a doctor in training, one nurse, two clinical nutritionists and one physiotherapist. The team at the weight clinic consists of a paediatrician who is responsible for the medical care and functioning of the weight clinic, a nurse who co-ordinates its activities, two clinical nutritionists, one of which works half-time, a physiotherapist and a specialising doctor. The paediatrician does not meet the patients personally; he or his colleague reads the referrals from primary health care and discusses the cases with the specialising doctor. Thus all the main actors of the weight clinic were interviewed. The request to conduct the interviews was first sent to the nurse, who kindly arranged some of the interviews, the rest of the interviewees were contacted via e-mail.

The interviews in primary care were conducted in three different municipalities. One of the municipalities is a city with over 97 000 inhabitants, the second is a growing community near the city with about 20 000 inhabitants and the third is a rural municipality with about 10 000 inhabitants about 60 km from the city. Eight of the interviews in primary care were conducted at the informant’s workplaces and four via telephone. The research permissions in primary care were given by the medical directors of health care. The informants of the second UA are also convenience samples representing only a part of the value network. In primary health care ten of the interviewees were public health nurses working in child welfare clinics and schools, and two doctors (see Table 8, p. 127).

After receiving permission to conduct the interviews the public health nurses and doctors were contacted. The names were given to the researcher by the medical directors or head nurses of the municipalities. Nearly all public health nurses (12 out of 13) and both doctors responded to the interview requests and the interviews were arranged. The researcher tried to arrange face-to-face interviews but four of them had to be made via telephone. The telephone interviews succeeded well with no major technical problems. Only one conversation was disconnected suddenly but it was continued almost immediately by calling the interviewee again.

The data were gathered by semi-structured interviews. The interviews were recorded and transcribed for analysis by the researcher and they lasted from 22
minutes to 51 minutes (a total of approximately 11 hours 6 minutes audio data). The average time of the interviews was 39 minutes. The total number of transcribed pages was 153 after converting the font size to 12 points and the spacing to 1 (see Table 12). A similar field diary as in the UA1 study was used to describe observations and impressions of the contacts with the informants and of the actual interview situations, and this material was used to help analyse the data.

Table 12. Interviews of health professionals in UA2.

<table>
<thead>
<tr>
<th>Unit of analysis 2</th>
<th>Date of the interview</th>
<th>Duration of the interview recording in minutes</th>
<th>Number of transcribed pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>sp1</td>
<td>8.6.2011</td>
<td>43:16 min. telephone interview</td>
<td>9</td>
</tr>
<tr>
<td>sp2</td>
<td>8.6.2011</td>
<td>60:05 min.</td>
<td>12</td>
</tr>
<tr>
<td>sp2</td>
<td>8.6.2011</td>
<td>57:53 min.</td>
<td>9</td>
</tr>
<tr>
<td>sp4</td>
<td>8.6.2011</td>
<td>32:00 min.</td>
<td>9</td>
</tr>
<tr>
<td>sp5</td>
<td>9.6.2011</td>
<td>30:59 min.</td>
<td>5</td>
</tr>
<tr>
<td>sp6</td>
<td>9.6.2011</td>
<td>27:57 min.</td>
<td>7</td>
</tr>
<tr>
<td>pr1</td>
<td>24.8.2011</td>
<td>46:06 min. telephone interview</td>
<td>11</td>
</tr>
<tr>
<td>pr2</td>
<td>5.9.2011</td>
<td>50:02 min.</td>
<td>12</td>
</tr>
<tr>
<td>pr3</td>
<td>5.9.2011</td>
<td>25:29 min.</td>
<td>6</td>
</tr>
<tr>
<td>pr4</td>
<td>5.9.2011</td>
<td>30:00 min.</td>
<td>8</td>
</tr>
<tr>
<td>pr5</td>
<td>5.9.2011</td>
<td>47:31 min. telephone interview</td>
<td>12</td>
</tr>
<tr>
<td>pr6</td>
<td>6.9.2011</td>
<td>51:36 min.</td>
<td>10</td>
</tr>
<tr>
<td>pr7</td>
<td>7.9.2011</td>
<td>29:56 min.</td>
<td>8</td>
</tr>
<tr>
<td>pr8</td>
<td>7.9.2011</td>
<td>22:12 min. telephone interview</td>
<td>6</td>
</tr>
<tr>
<td>pr9</td>
<td>7.9.2011</td>
<td>33:26 min.</td>
<td>7</td>
</tr>
<tr>
<td>pr10</td>
<td>8.9.2011</td>
<td>31:54 min.</td>
<td>7</td>
</tr>
<tr>
<td>pr11</td>
<td>8.9.2011</td>
<td>35:47 min.</td>
<td>7</td>
</tr>
<tr>
<td>pr12</td>
<td>21.9.2011</td>
<td>43:32 min. telephone interview</td>
<td>8</td>
</tr>
<tr>
<td>Total 18 interviews</td>
<td>Total duration of interview recordings: 696:21 = 11h6min</td>
<td>Total number of transcribed pages: 153</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean duration of recordings/interview: 38,7 min</td>
<td>Mean number of transcribed pages/interview: 8,5</td>
<td></td>
</tr>
</tbody>
</table>

The family questionnaire

Recruiting patients and their families for interviews proved to be so challenging in UA1 that a questionnaire was chosen for the method for data gathering in UA2. Moreover, the findings of the pre-analysis of the UA1 interviews indicated the
important role of families in weight management and thus the questionnaire was
directed to the families and not to the children.

The family survey was conducted after the approval of the first hospital
district’s ethical committee to expand the research to another hospital district
(Approval of the amendment of the ethical committee of [name] hospital district
21.3.2011). The choice to conduct the survey for the families who are referred to
special health care was made because these families have experienced both
primary and special health care, from the whole ICP of childhood obesity. Yet
their individual care pathways may vary; some of the children and adolescents are
referred to the weight clinic from some other clinic of the hospital, such as the
cardiological clinic or the clinic of lung and respiratory treatment. The nurse who
is responsible for the activities in the weight clinic gave the questionnaires to the
patients and their families during their visits to the weight clinic between August
2011 and June 2012.

Alasuutari (2011) presents that questionnaires lie on the tradition of research
in natural sciences and in the testing of hypotheses. In social sciences the
dichotomy between qualitative and quantitative research is not clear; the same
data can often be analysed both qualitatively and quantitatively and both methods
can be used in the same research. For example, the transcribed interviews or
observation material can be coded like structured questionnaires to be analysed
statistically. On the other hand, the results of the statistical analysis of a
questionnaire can be used as clues to interpret meanings.

One of the first steps to plan the questionnaire for a survey is to define
indicators which measure the research phenomenon. Operationalising means
moving from abstract concepts to more concrete, everyday expressions by
dividing the concept into subcategories or subconcepts. The central concept in the
family questionnaire is value, or patient value, which is defined as “the benefits of
counselling for the patients” in the information leaflet which was given to the
recruited families (see Appendix 9). In order to operationalise the very abstract
concept value, the customer value concepts of literature and research in marketing
were applied and reflected with the findings of the UA1 interviews.

From the models of customer-perceived value creation in the marketing
literature, the value elements of the benefits versus costs or sacrifices can most
easily be identified in the interviews (see, Khalifa 2004, Ulaga & Chacour 2001).
Thus the value of counselling is the health and well-being of the child and family,
and the costs consist of the changes required in the issues of lifestyle. For
example, exercising and meal preparation requires time. In families with many
children the diet of the overweight or obese child has to be taken into special account. The process of analysing the elements of patient value is presented in Table 14 (p. 142). The health care professionals’ conceptions about the elements of patient value and good quality in counselling in UA1 were also analysed to get a deeper grasp of these concepts for the survey.

As discussed in Chapter 3.4.1, the quality of counselling is a relevant factor in value evaluation. Counselling is the instrument of health care professionals to give the tools for the families to be able to make those changes in lifestyle which increase the patient’s benefits. This aspect fits the means-ends model of customer-perceived value in the marketing literature.

The questions 3a and b (concerning primary health care) and 10a and b (concerning special health care) in the family questionnaire were formulated based on the combined analysis of the first unit of analysis patients’ and their mothers’ and health care professionals’ interviews (see Appendices 1, 2, 7 and 8). These survey questions concerned for example the expertise, objectiveness, and friendliness of counselling and the family’s perceptions about the applicability of the guidance into everyday life. The families were also asked if they had had time to pose questions.

These elements were used in the questionnaire to measure the perceived quality of counselling. Other questions in the survey dealt with the families’ perceptions of information transfer and collaboration between primary and special health care and the possibilities to be involved in the care of the child. Almost all health care professionals in UAI mentioned lack of motivation as a major barrier for lifestyle changes. In order to reach an understanding of the families’ conceptions of motivating factors for weight management, question 16 was added to the survey. The questionnaire contained in its totality 20 multiple choice questions (Likert scale) and one open-ended question. Most of the multiple choice questions could also be completed with free text (see Appendix 10).

The total number of questionnaires given was 40, of which 13 were returned, thus the response rate was 32.5%. Background information about the families which returned the questionnaire is presented in Appendix 16. According to the paediatrician who is responsible for medical care at the weight clinic, the number of referrals to the clinic varies yearly from 30 to 40. Some patients and families are not willing to commit to the “weight path”, the whole programme in the hospital, and the number of those families who are in the programme yearly is about 30. Although the number of returned questionnaires is rather small, it represents about one-third of the “weight path” families during one year.
7.4.4 Gathering the document material in both units of analysis

Care path instructions

Both university hospital districts have their own instructions about the care path for obese children with a detailed prescription of the indications to send the child to special health care. In addition, all health care centres in this research have their own care path instructions concerning the care of overweight and obese children. These instructions vary from flow charts to free text. The care path instructions in both university hospitals and in the four different municipalities were asked from some of the informants in each municipality. The document material of the care path instructions is presented in Appendix 11.

Agendas and memos of the first unit of analysis integrated care pathway work group

The integrated care pathway for obese children in UA1 was established in 2006. A work group was set up to compile the practises and instructions and to inform about these issues for all the health centres in the region. The goal of the ICP is to enhance multiprofessional collaboration and collaboration between primary and special health care and to agree on division of work tasks and practises. The ICP work group consists of health care professionals in primary and special health care and after the implementation of the ICP its purpose has been the follow-up and development of the ICP.

During the period of empirical research (2009–2012), the ICP work group had ten meetings and one regional training session. The researcher was invited to these meetings but unfortunately was only able to attend seven of them. However, all the meeting agendas and memos were sent to the researcher by e-mail. Since the documents of the meetings have been used as text, the agendas and memos of all the meetings are used as empirical material of the research. In some meetings field notes have been used to complete the analysis (see Appendix 13).
7.4.5 Data analysis

Content analysis of the interviews

The interviews of the health care professionals of both embedded units of analysis and the interviews of the patients and their families were digitally recorded and transcribed verbatim by the researcher. The analysis was conducted according to the principles of inductive qualitative content analysis (Strauss & Corbin 1990), although the categories of the analysis were based on the theoretical framework of the study. Thus the analysis was more abductive (Alasuutari 1994) or theory driven (Eskola 2007, Tuomi & Sarajärvi 2009) than inductive; the theory gave frames to the categories.

In open coding (Strauss & Corbin 1990) the units of analysis were clauses, sentences, parts of clauses and parts of sentences. Original expressions of the interviewees were reduced to make further construction of subcategories easier. Similar and consistent utterances were divided into subcategories and combined into main categories (axial coding), matching the research problems. Designation of the subcategories is already interpretation of the researcher which is based on the researcher’s pre-understanding of the research problems.

The interview quotations were translated from Finnish by the researcher. Some of the colloquial utterances could not be translated into English but in those cases the meaning of the expression was attempted in the translation. The quotations were marked with letters and numbers. The code UA1 refers to the first unit of analysis and UA2 to the second unit. Letters Sp refer to health care professionals in special health care, letters Pr to health care professionals in primary health care, and letter M to the mothers of the patients and Ch for the children (See Table 13.) To protect the anonymity of the interviewees in health care their professions are not mentioned although this information would be interesting. Since there are only one or two actors in each professional group full anonymity could not be guaranteed if the professions are mentioned in the quotations. Moreover in the presentation of the findings (see Chapter 9) some interview quotations are without the identification number of the interviewee in order to not reveal their professions. Quotations from the open-ended questions in the family questionnaire in UA2 are marked with letter F and a number. (See Table 13.)
Table 13. The labelling of the interviewees in the units of analysis.

<table>
<thead>
<tr>
<th>Units of analysis</th>
<th>Special health care</th>
<th>Primary health care</th>
<th>Patients (children 9-12 years)</th>
<th>Families (in UA1 mothers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of analysis 1</td>
<td>UA1Sp</td>
<td>UA1Pr</td>
<td>UA1Ch</td>
<td>UA1M</td>
</tr>
<tr>
<td>Unit of analysis 2</td>
<td>UA2Sp</td>
<td>UA2Pr</td>
<td>-</td>
<td>F</td>
</tr>
</tbody>
</table>

The analysis of the embedded units was performed separately at first and then the findings of the two units were combined (see Figure 10).

Fig. 10. The study process (Yin 2009, 57, modified).

The findings of the embedded units of analysis were combined because they proved to be similar for the most part, as presupposed. The similarities are due the firm regulation of Finnish health care and moreover, the care practises in both university hospital districts are based on national Current Care (Käypä hoito) guidelines. Analysing the embedded unit of analysis separately allows comparison of the possibly emerging differences in the two units.

In order to operationalise the concept of value for the patient survey, the patient and family interviews were pre-analysed and the findings were completed with the pre-analysis of the health care professionals in UA1. In the following Table 14 the data analysis is presented in more detail with the example of the development of the elements of patient value in the patient and family interviews. Findings of the analysis were used for constructing the questionnaire for the family survey of the second unit of analysis, but they are also a part of the findings of the entire study.
Table 14. The development of the elements of patient value.

<table>
<thead>
<tr>
<th>Original expression</th>
<th>Reduced expression</th>
<th>Subcategory</th>
<th>Main category element</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is of course that you do not get any diseases when you are older. (UA1M1)</td>
<td>No diseases in adulthood</td>
<td>Health</td>
<td>Health</td>
</tr>
<tr>
<td>We are well aware of this weight issue, because my husband has got diabetes and it is a risk to get it, so we are quite well aware of it. (UA1M2)</td>
<td>Diabetes risk in the family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>He knows a lot about things and finds out. It is not about that that he would not know. (UA1M2)</td>
<td>Awareness of the risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is because you would not get any diseases because of it. (UA1Ch2)</td>
<td>Disease prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most of all you think about health, both physical and mental health. (UA1M3)</td>
<td>Mental and physical health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>He suffered from severe constipation, his stomach did not work at all. (UA1M1)</td>
<td>Existing health problem</td>
<td>Problems with health</td>
<td></td>
</tr>
<tr>
<td>I called the school nurse in the autumn and said that something has to be done now. [Child’s name]’s health is in danger, the joints hurt and the whole body is under a strain. (UA1M1)</td>
<td>Early symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Why is weight management and healthy eating important? I don’t know? Would it be that when you are an adult you are healthy or is it that you now would be able to do things and exercise? Would it then be to exercise…? (UA1Ch1)</td>
<td>Ability to exercise</td>
<td>Ability to function and emotional issues</td>
<td>Welfare</td>
</tr>
<tr>
<td>The siblings of my husband have had severe problems with weight since childhood and I have seen how difficult it has been for them in adolescence and in adulthood. (UA1M3)</td>
<td>Experiences from relatives</td>
<td></td>
<td>Benefits</td>
</tr>
<tr>
<td>It has such a big meaning in childhood and in adolescence. It would be important that the child feels good about herself now and in adulthood. So that physical health and self-esteem are ok. (UA1M3)</td>
<td>Prevention of emotional problems</td>
<td></td>
<td>Commitment to make changes</td>
</tr>
<tr>
<td>…he does not like all foods. Some salads and root vegetables—he does not want to eat them. So that we have not been able to realize all the instructions because I cannot get him to eat them. (UA1M1)</td>
<td>It is difficult to change the child’s eating habits</td>
<td>The difficulties to make changes</td>
<td>Commitment to make changes</td>
</tr>
<tr>
<td>Original expression</td>
<td>Reduced expression</td>
<td>Subcategory Main category element</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Not so much. It depends on [child’s name] also, I cannot make him exercise by force (UA1M2)</td>
<td>It is difficult to change the child’s exercising habits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Child’s name] always gets excited about everything new but then he loses his interest. (UA1M2)</td>
<td>The child’s impatience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have thought if we have in a wrong way paid attention to the weight problem and this has caused her distress. Eating in secrecy can be associated with that: if we control her eating, she tries to eat secretly… (UA1M3)</td>
<td>Emotional problems of the child, eating in secrecy</td>
<td>Costs or sacrifices</td>
<td></td>
</tr>
<tr>
<td>It is so obvious that the problem should be treated but she is so clearly distressed when we talk about this. (UA1M3)</td>
<td>Emotional distress of the child</td>
<td>Emotional sensitivity of interfering with eating and obesity</td>
<td></td>
</tr>
<tr>
<td>…so that she would not have to be different than others. (UA1M3)</td>
<td>Differing from other children</td>
<td>Resource of the family</td>
<td></td>
</tr>
<tr>
<td>It is so difficult to talk about it and to interfere with a small child’s eating. And then they say that the reason is that you have so many children and the child eats because she is sad… (UA1M3)</td>
<td>Judgment of the environment</td>
<td>Judgment of the environment</td>
<td></td>
</tr>
<tr>
<td>He is so tired after the school days and we live on a farm, we have these works here. It has been like that. (UA1M2)</td>
<td>Exhaustion, family’s other tasks</td>
<td>Exhaustion, family’s other tasks</td>
<td></td>
</tr>
<tr>
<td>I think that it is associated with that when I started working - there is no control at home when the children come home from school. It goes easily so that they eat all the night and it is so difficult to control it. (UA1M3)</td>
<td>Difficulties with control over eating</td>
<td>Other duties of the family</td>
<td></td>
</tr>
<tr>
<td>Then we have this other child who is underweight and it is a big challenge to encourage one child to eat more and to restrict the other child’s eating. (UA1M3)</td>
<td>Different challenges with other children in the family</td>
<td>Lack of time</td>
<td></td>
</tr>
</tbody>
</table>
Analysis of the survey

Due to the nature of the survey including its size (N=13), the data were analysed quantitatively only through standard deviations. The data of the open-ended questions were analysed through content analysis.

Content analysis of the documents

The document material of this study consists firstly of the care path instructions of the four municipalities’ health care centres, the care path protocol of the second university hospital and the document of the regional care pathway for obese children in the first university hospital which was available in the hospital district’s extranet at the time of data collection.

The form and extent of the care path instructions varied. Two of them were text documents, two were flow charts and two were tables. The instructions were categorised according to the themes which occurred in most of them. These documents are listed in Appendix 11. The identified themes were general criteria for overweight/obesity, main principles of care, description of measurements and required examinations, how to set the goals, means to achieve the goals, follow-up recommendations and other general instructions. The frequency of the main categories was counted (see Appendix 12). The main categories of the care path instructions were motivation for health professionals (4/6), division of tasks between primary and special health care (6/6), recommended medical examinations and mapping the family’s lifestyle (5/6), counselling and motivating the patients and the families (5/6), and evaluation of the results (3/6).

Secondly, the memos and agendas of the first unit of analysis integrated care pathway’s work group meetings between 2009 and 2012 were content analysed (see Appendix 13). The themes which emerged in the meetings were categorised as follows: development of the ICP, current problems with ICP practises, presentations of research which concerned the ICP, planning of regional updating training, updating the ICP protocol, and reporting recent activities. The frequency of these themes in the ten meetings from 2009 to 2012 was counted (see Table 17, p. 194).
Outlining the social networks

The areas of both university hospital districts of this study are wide: the first district covers about 740,000 inhabitants in 35 municipalities and the second district about 250,000 inhabitants in 21 municipalities. In order to cover the whole network in each unit of analysis, all the municipal health care centres of the area should have been contacted which would have required more resources and time. Furthermore, the structure of these networks is elusive. In principle, all the health care professionals in municipal health care are actors of the ICP for obese children because they can contact special health care either directly or indirectly.

The child can visit a doctor in the health care centre if needed in cases of emergency or illness and the issue of obesity can be brought up in that occasion and be followed by a referral to special health care. Moreover, doctors in the private sector can refer to special health care. However, public health nurses and doctors in child welfare clinics or school clinics are in practise the most likely actors of the ICP network of childhood obesity, because they meet the children in regular check-ups most often. The network structures in this study are described roughly only to give a general idea of the actors and their relationships in the two units of analysis.

7.5 Ethical concerns

Permission to conduct the interviews in both university hospitals was obtained by the medical directors of both the hospital districts, in UA1 by the medical director of the Department of Paediatrics and Adolescence and in UA2 by the Personnel Director of the hospital. Permission to conduct the interviews in primary care (UA1 and UA2) was given by the medical directors of the municipalities’ health care. All the interviewees in special and primary health care were first contacted via e-mail and the message included detailed information about the research and the notice that participation in the research is voluntary and furthermore that individual interviewees cannot be identified in the research report. Prior the interview, the participants received verbal information about the aim of the study, the time required, and they were encouraged to pose questions if they were anxious about some details.

The patient interviews in the first university hospital (UA1) and the patient survey in the second university hospital (UA2) were granted permission by the ethical committee of the first university hospital district (Statement of the ethical
The research was conducted according to the Finnish law and decree of medical research and to the declaration of Helsinki (MSAH 1999a, MSAH 1999b, WMA 2009). In the first unit of analysis the mothers and children received an information sheet about the purpose of the research, the voluntariness of research participation, and about how anonymity of the informants is guaranteed (see Appendices 3 and 5). For children this information was given in simple and comprehensive language (see Appendix 5). The contact information of the researcher was included in case the family had some questions about the research. Both the mothers and the children were asked for a written informed consent to participate in the research (see Appendices 4 and 6). Prior the interview the informants received verbal information about the study and its purpose. In the second unit of analysis the families received a separate information sheet attached to the questionnaire about the purpose of the research, the voluntariness of research participation, and about how anonymity of the informants is guaranteed. The contact information of the researcher was included if the family had some questions about the research (see Appendix 9).

The anonymity of the informants was protected by giving each informant a number (see Subchapter 7.4.5). Consent forms of the UA1 children and parents were stored separate from the transcribed interviews in a safe place. The digitally recorded interview data was stored on one computer and protected with passwords. When the study has been published, the recordings will be erased and the consent forms will be destroyed in an appropriate manner.

The World Medical Association (WMA) Declaration of Helsinki (2009) requires that subjects are protected from any discomfort and harm that may be psychological, emotional or economic. This research involved a minimal risk for the subjects that participated in the interviews. The findings are presented so that they cannot be used against the children’s, parents’ or health professionals’ interests. Ethical rules of scientific research were followed by ensuring that the data and analysis were accurate and the findings were presented honestly.
8 Findings

In this chapter the main elements related to sharing of knowledge and information and thus also with the knowledge processes in the Integrated Care Pathway (ICP) of childhood obesity are scrutinised in following order. Firstly, the network structure of the ICP is outlined and the opportunities to transfer and share knowledge and information in the ICP are identified. Secondly, the aspects of organisational culture by identifying the main concepts of the theory of information worlds (Jaeger & Burnett 2010) in the ICP are examined. Thirdly, the organisational knowledge processes in the ICP are identified and described as sequences of knowledge collection, transfer, sharing, creation, use, and storing. The different types of organisational knowing in these processes are identified. The roles of the ICP work group and the municipal health care organisations’ and the two university hospitals’ weight path instructions in knowledge processes are explored. The role of the patient and of the family in the knowledge processes of the ICP is viewed. Fourthly, the elements of value for the patients and their families are identified.

8.1 Network structure of the integrated care pathway of childhood obesity

An integrated care pathway (ICP) in this study is regarded as a social network with actors from both primary and special health care. The value network includes both the social and electronic networks inside and between health care organisations. The health professionals in the ICP are the actors of the internal value network within public health care. The role of the patient and their families as actors of the external value network is discussed in the context of knowledge processes.

The network structures of the embedded units of analysis (UA1 and UA2) integrated care pathways were outlined on the basis of the health care professionals’ interviews. The professionals mentioned other actors of the ICP with whom they used to have personal contacts, telephone contacts, contacts solely through IT (e.g., e-mails or EPRs), or through documents. The two embedded units of analysis are university hospital districts (UHD). In the findings the terms unit of analysis (UA) and university hospital district (UHD) are used interchangeably (see Figure 9, p. 126).
A rough network structure of the integrated care pathways of childhood obesity of both UHDs can be outlined as a figure (see Figure 11). The structures of the two UHDs are combined to indicate a more general structure of an ICP for childhood obesity in Finnish health care. Figure 11, however, is not meant to be an exact sociogram; the purpose is more to describe the nature of the ties than the actual ties in reality. The ties of the actors are divided into two categories. Personal relationships are mostly face-to-face encounters but may also take place via telephone. The electronic relationships are mediated through IT. Intra-organisational electronic patient record systems enable relationships between all the actors inside the health care organisations but these ties are not marked separately into the figure. One university hospital district entails several municipalities with their own health centres and some municipalities have agreed on common health services. To keep the figure simple the term primary health care refers to one municipality’s health care and its actors. Furthermore, the actors in different municipalities vary. For example, every municipality does not necessarily have its own clinical nutritionist. The services can be bought from a neighbourhood municipality, from a hospital or private sector.
Fig. 11. Sketch of a network structure of an integrated care pathway for obese children in a university hospital district.

The actors of value networks are restricted to public health nurses, clinical nutritionists, physiotherapists and doctors in primary health care and to the nurses, paediatricians, clinical nutritionists and physiotherapists in special health care (see Table 9). It must be noted that some professionals in primary health care mentioned schools, day care, and social work as important partners in the care and prevention of childhood obesity but those municipal institutions are beyond the scope of this research.

8.1.1 Actors and ties in primary health care

All the public health nurses at schools or in child health clinics have regular contacts with their colleagues and doctors either personally, via telephone, through EPRs or via e-mail. In both UAs the public health nurses have meetings
We have these monthly meetings where we discuss all our common issues. Sometimes we have a special theme” (UA2Pr1). The purpose of these meetings is to inform about current issues and practices, but often the meetings also include short presentations of a special theme: “In school health care we have once a month sector meetings and we can ask some experts to join the meetings. For example the clinical nutritionist has been talking to us about the basic issues...” (UA1Pr3). Furthermore, these meetings give an opportunity to meet colleagues and to discuss problematic patient cases face-to-face:

We have a short personnel meeting in the health centre once a month and there we can discuss about the topical issues. I would say that if you go and ask a colleague, you can share thoughts and get some tips. It is up to you. (UA1Pr3)

Most of the interviewees mentioned that it is always easier to contact and collaborate with someone you know beforehand than with a complete stranger. Thus meetings and common education make collaboration and contacts easier also in the future: “It would be so important to know the people you work with, so it would be much easier to collaborate” (UA1Pr4). One public health nurse was critical, though, and did not always find the meetings useful: “I think that when you have many different meetings and work groups they do not always serve for the purpose” (UA2Pr6).

Busy schedules and lack of time hinder sharing of information and knowledge during the work day.

Yes, it [knowledge sharing] happens when needed and when we have opportunities to do it, but it has been quite a while since I qualified as a public health nurse and it seems that in earlier years we had more time for instance to take a cup of coffee and share our thoughts than we have today...We work here side by side, when he [the physician] is here. He comes here for one morning, but he has a full schedule for the whole day. So time and work restrict sharing of thoughts. (UA1Pr3)

We do not have time to discuss work issues with colleagues. We hardly meet, maybe say good morning and bye bye when we leave. All this common planning, developing and these kinds of things a—we are not able to do them. (UA2Pr6)
The most significant professional tie for the public health nurses is the tie with the doctor who is responsible for the school or child health clinic, even if they meet quite infrequently: “If I think about schools, the doctor visits them once a month and then I can always bring up and discuss some issues” (UA1Pr1).

If there are some clinical nutritionists or physiotherapists in the health centre of the municipality, the child can be referred to these professionals. The referrals are embedded in the EPR and the tie between public health nurses and the clinical nutritionists is most often electronic. However, in the smallest health care centre in UHD2, the four interviewed public health nurses also had telephone contacts and personal relationships with the clinical nutritionist.

The school doctor is of course a co-worker with whom you can talk and ask his/her opinions. And I sometimes contact the clinical nutritionist—especially if I have written a referral and I want to ask about something. (UA2Pr1).

Child health clinics are mostly situated in health centres in which other employees of their own and other professional groups are also available.

We are in the same building at the same workplace, so it is easy to go and knock on the door and ask. I think that all our employees, doctors and special workers allow this, so that you can go and ask. (UA2Pr5).

A small health centre like ours—is so good. I have always said that it is so good to have someone else who works with the same tasks so that you can go and ask for advice. (UA2Pr12).

Especially in small municipalities and health centres the collaboration with all other professional groups was perceived easy and uncomplicated: “We meet of course during the lunch hour and if you have time for a coffee break then there also with this small group of people” (UA2Pr12).

8.1.2 Actors and ties in special health care

In UA1 special health care at the time of data collection the care of obese children was a part of the activities of the endocrinological outpatient clinic of the hospital. There was no team or common care protocol for the care of obese children; the care was managed according to the prevailing practises of the hospital:

We do not have anything like that that we would have some regular meetings. It would be good to have some kind of group, which could check what kind of
guidance we give, what kind of written material we have, and how we could co-ordinate these things. (UA1Sp1).

The medical doctors in the endocrinological outpatient clinic had meetings where the issues of obese children could also be discussed:

*We have these weekly meetings where we discuss certain cases and it depends... These are actually individual cases, with individual patients we think about the follow-up...* (UA1Sp3).

In UA1 the nurses of the endocrinological outpatient clinic and the clinical nutritionist often meet personally and the nurses also meet the doctors. Informal knowledge sharing takes place during breaks or in the course of work practises: “*I often ask the nurse when I go to meet the patient. I often ask her then what they have been talking about*” (UA1Sp1). Network proximity is a significant enabler for these relationships, as working in the same outpatient clinic eases communication: “*Here at the outpatient clinic I usually meet and talk with the nurses*” (UA1Sp3). However, the physiotherapists in UA1 work in another section of the hospital. If the obese child is referred to a physiotherapist, they are contacted by telephone or via the electronic patient record system.

Lack of time is also intertwined with the possibilities to attend the meetings—patients come before meetings. The time for meetings in special health care is restricted and sometimes health professionals find the meetings frustrating and unnecessary:

*It seems that these meetings have become more frequent every year... Well, we have so many meetings that I don’t hope for any more. But perhaps once or twice a year would be OK. I have a feeling that the number of all these meetings has increased here.* (UA1Sp6).

In UA2 there is a multiprofessional team which is responsible for the care of childhood obesity with regular team meetings. In the hospitals other professionals of the same occupation can sometimes be working far away.

*We have this physical distance. Earlier when we were [previous work place] we had the same patient office. We met in the patient office in the mornings and in the afternoons and we could share some information. But now we are so far away that we do not meet.* (UA2Sp3).

Thus the multiprofessional team is significant for the team members as a place to share experiences.
In order to maintain patient confidentiality the discussions about individual patient cases must take place so that other professionals who are not involved with the cases do not overhear intimate or delicate details.

*I think that it is extremely important that when you have issues they should be discussed but when you meet occasionally in the recreation room you should be able to talk about patients so that outsiders cannot hear you. The team meeting is a place where you can meet and you do not have to trace the co-worker separately.* (UA2Sp).

At the intraorganisational level in UA2 the nurse has strong ties with the doctors and also with the clinical nutritionist and physiotherapist because of the regular team meetings: “*We try to meet every Wednesday at 3 p.m. with all the actors*” (UA2Sp3). However, team meetings are often cancelled because of sick leaves or other duties: “*It worked well for a while, but last autumn there have been many other things. The doctors in training change and our clinical nutritionist has been doing research and she was elsewhere for a while...*” (UA2Sp3).

The paediatrician and the doctor in training do not usually attend the team meetings:

*The specialising doctor—well, it is the meaning that he/she attends the meetings but I do not believe that he/she is present every time. But maybe more than I...I attend the meetings only occasionally, because my main duties are teaching and research and there are so many other things to do.* (UA2Sp).

### 8.1.3 Ties between primary and special health care

Direct personal contacts between special and primary health care are rare: “*The contacts take place mostly through the computers*” (UA1Sp3). In UA1 the electronic referral from a primary health care doctor is managed in special health care by the doctors at the endocrinological outpatient clinic who decide what other professionals the patient should meet in the hospital and how the treatment should be managed.

*We take turns which one of us handles the referrals. But one of my roles is to read the referrals, to plan the medical examinations, and to consult the cases with my colleagues. And then we make a plan how to proceed with the treatment.* (UA1Sp).
The doctor also writes the electronic epicrisis to primary health care after the treatment period in the hospital. It is addressed to the primary care doctor who has written the referral: “…the paediatrician sends it to the doctor in special health care and the return happens so that these doctors communicate with each other” (UA1Sp1).

In the second university hospital district the practise of electronic referrals and epicrisises is similar to UHD1.

…the documents move between the doctors in both organisations electronically. The referrals from primary health care are managed in the meeting of the endocrinological team of the hospital: we handle every patient systematically in our meeting. In the meeting there are the doctors [name], [name], and also some other doctors and the nurse of the weight clinic. We discuss the story of every child… (UA2Sp).

If the child is suitable and motivated for the hospital’s weight clinic or weight path, he/she meets the nurse and the paediatrician and most often also the clinical nutritionist and the physiotherapist according to the weight path protocol (see Table 9, p. 129). As a distinction from the practise in the first UHD, the nurse of the weight clinic also mails the epicrisises and the care documents as paper documents to the child’s public health nurse in primary health care.

Earlier I used to call these public health nurses but nowadays it is so difficult to reach them, because they have big districts and they work at many schools. So this year I have written a letter to them and I attach all these care reports so that they can see what the content of the visits has been, how I have guided the families and what kind of impression I have. Furthermore I write about the issues that should be taken into consideration in the future and the secretary adds the doctor’s epicrisis and the texts of the clinical nutritionist and of the physiotherapist and the growth charts. (UA2Sp).

According to the law each hospital district joint municipal board shall provide research, development and training in its own area (MSAH 1989). The first university hospital has provided training for primary care about the treatment of childhood obesity twice between the years 2006 and 2012. These training sessions provide opportunities for the actors in primary and special health care to meet personally. Personal meetings facilitate later communication and collaboration and enable discussion.
The responsibility area of the university hospital is wide. It is not possible for all professionals to come to the university hospital for training. Videoconference techniques are used to mediate the training sessions to distant regional hospitals and health care centres. However, technology can cause problems in communication to remote places:

...we have some collaboration, we have regional trainings and recently we had one about the integrated care pathway for primary health care. There was some conversation and there would have been more, but we had a problem with the remote connection to [name of the hospital] and moving the microphone was so difficult that it hindered the conversation. They would have liked to share their thoughts more. (UA1Sp1).

It is evident that these kinds of problems do not support collaboration and sharing of knowledge between primary and special health care.

The second university hospital has arranged training on the treatment of childhood obesity for primary health care professionals three times between the years 2005 and 2011:

After 2005 we have had three regional trainings...They are aimed at medical doctors and public health nurses in primary health care and the participation rate has been good...I think we should have more training and furthermore training in the municipalities health centres so that we would go there, but we have not had those yet. (UA2Sp4).

The public health nurses seldom have any direct contacts with special health care. Only two of the 14 interviewed public health nurses in both UAs mentioned that they had sometimes phoned some professional in special health care. In primary health care the doctors manage the electronic referrals to and from special health care:

Well, the public health nurse does not write the referral to special health care. It is always the doctor who does it. And then when the epicrisis comes, it comes to the health records of the child and the doctor receives a message that the epicrisis has arrived but we public health nurses do not receive any messages. (UA2Pr1).

The two interviewed doctors in primary health care in UA2 sometimes had personal contacts with special health care. They are specialised paediatricians who had been doctors in training in the university hospital of their work region
and earlier contacts and familiarity with the actors and with the practises in special health care facilitate the contacts.

8.1.4 Summary of the network structure of the ICP

The main tie in the ICP network between primary and special health care in both university hospital districts is the electronic referral-epicrisis system. However, although the documents are managed mainly by the doctors in both organisations they are stored in the organisation’s electronic patient records for access by all other actors of the network. Personal meetings between primary and special health care are rare. The regional updating training sessions which special health care arranges are so far the only arranged opportunities to personally meet colleagues from the other organisation.

In both primary and special health care there are formal meetings inside the organisations. However, actual teamwork concerning the care of obese or overweight children is not established in primary health care centres. In primary health care the public health nurses and doctors form dyads with strong ties in the social network. Public health nurses have strong ties within their own professional group. In small health care centres public health nurses’ and doctors’ interpersonal contacts with other professional groups (clinical nutritionists, physiotherapists) are more frequent than in larger work communities. However, these ties are weak.

In special health care ties between one’s own professional groups are strong and in addition nurses have strong ties to doctors and strong or weak ties to the other professional groups. This is mainly due to the practises of the endocrinological outpatient clinic in the first university hospital and of the weight clinic in the second university hospital. Nurses are co-ordinators of patient care. The strength of the ties depends on the work place circumstances. Spatial proximity is likely to create stronger ties.

Work meetings have been scheduled at all health care organisations. However, lack of time is a significant factor which hinders discussions and informal meetings with colleagues and co-workers both in primary and in special health care. A health professional must sometimes skip the formal work meetings because of other duties.
8.2 Organisational culture in the integrated care pathway

Organisational culture in primary and special health care organisations and in the integrated care pathway is approached with the concepts of Burnett’s and Jaeger’s theory of information worlds (Jaeger & Burnett 2010). The main concepts are social norms, small worlds, social types, boundaries and information value (see Chapter 5).

8.2.1 Social norms

In the health care professionals’ interviews the main value in health care appeared to be prevention and healing of diseases.

*First of all you have to find out why the child is obese, so that differential diagnosis works well so that we can identify those children who have a disease.* (UA1Sp3).

*It is a part of treating other diseases that we follow the development of weight.* (UA1Sp2).

The value of prevention and healing of diseases entails the ethical principle of working for the benefit of the patients. In the interviews of health care professionals the norm of “doing one’s best” becomes visible as a contradiction between the restricted time and resources and the effort to help the patients as best one can: “This weight management is such an issue that I do not have enough time to do it… I would like to do my work better than these resources allow me to do” (UA1Pr3).

*I must often think that now I have so little time so what is the most important thing? To which issues should I put my mind?* (UA2Pr3).

*On the other hand, the results of care should also be effective as failure causes frustration for the health care professionals as well as for the patients. Everybody has full reservation books and you should make some results.* (UA1Pr3).

*Successful treatment should be such that overweight disappears but treatment of obesity is so frustrating in my own experience that it is very seldom that you see such miracles.* (UA1Sp2).
In health care organisations the prevailing norms are embedded in practises and often difficult to identify. The norms are slightly different in special and primary health care. The focus of this study is the integrated care pathway as a unit and the common norms of the ICP are the main interest. The findings indicate that the common norms are expertise, collegiality, ethical principles of care, independent work and respect to other professionals’ work and expertise. In health care organisations these norms become visible in the ways the actors of the ICP talk about their own and other professionals’ work and competence as highly trained professionals.

_We have a new clinical nutritionist here and she has told us about her work and how to make a referral to her and how to collaborate with her. And one paediatrician made a small refresher course in the autumn. It was very good and I think that we received some of the newest information there._ (UA1Pr3).

Keeping up with new information and developing one’s own expertise is important and these activities are not always restricted to work hours:

_It derives from the basic education and here at work knowledge accumulates all the time and of course updating training and these meetings—there we often get useful information about current issues. And of course I study on my own, read journals and get more information this way._ (UA1Pr1).

Division of work tasks of different professional groups can be perceived as a norm: “The public health nurses play a key role here. They meet the families and children and adolescents and ask them for follow-up visits and give guidance and that is actually all you can do” (UA2Pr4). At the same time this utterance conveys trust on the public health nurses’ competence of performing the task of guidance. The entitlement of certain actions in health care is regulated by the law (MSAH 1994). For example, only a qualified doctor is allowed to diagnose a disease. Care decisions should be based upon diagnosis.

_In this work I handle the referrals and I take a look at these patients. I think that the most important thing is to make differential diagnosis, to pick those patients who clearly have a disease and those who have risks for complications such as disturbances in sugar metabolism or in fat metabolism or have high blood pressure and other things._ (UA2Sp).

In special health care the role of the doctors seems to be more dominating than in primary health care. In primary health care the public health nurses work very
independently in the prevention of childhood obesity and they consult the doctor only when needed. The primary care doctor decides if some further medical examinations or procedures are needed. However, for the families the doctor’s opinion can be more significant than the public health nurse’s intervention: “The school doctor is there then when the child is really overweight. The idea is that the doctor is there to give some authority and to influence the families to do some changes” (UA2Pr7).

8.2.2 Small worlds, social types and boundaries

Several small worlds can be perceived in the ICP. Firstly, a clear boundary between primary and special health care can be identified in the interviews of the health professionals. Thus primary health care and special health care are two separate small worlds. The small world and its insiders are evident in the following quotation. The emphasis is on the words we, our, or us meaning special health care as a separation from primary health care.

"Usually the school doctor or other doctor in the health care centre writes the referral and it arrives to us and our specialised doctor reads and approves it and the patient gets an appointment to us." (UA2Sp1).

From the primary health care’s point of view, special health care is an unknown entity; the practises and actions are not familiar to primary health care professionals: “We have made a referral to special health care very seldom, but when we have done so I have a feeling that we do not get any feedback. Somehow it is a bit ambiguous, the patients disappear somewhere...” (UA1Pr3).

The health care professionals do not often know the actors and the practises in other organisations. This was evident in both units of analysis:

"There is a clear gap here that you do not necessarily know—or maybe you know—who the public health nurse is..." (UA1Sp1).

"I always think what the content of those appointments is. Is it so that the child goes there for weighing or are some public health nurses able to take the parents? I don’t know." (UA2Sp1).

Secondly, each municipal health care centre which belongs to the regional integrated care pathway is its own small world. The practises and actions even of the neighbourhood municipality are not always familiar in other health care
centres although some collaboration can take place: “In [name of the municipality] they have their own system but I do not know how well it works” (UA2Pr2). Furthermore, the electronic patient record systems of neighbourhood municipalities’ health care centres do not communicate with each other, which does not enhance collaboration. For example, one health centre in UA2 recently became part of a larger community which provides social and health services for four municipalities’ inhabitants and technological problems cause difficulties in collaboration:

...we are in the same organisation as [municipality’s name], [municipality’s name] and [municipality’s name] and it just came up in a meeting that [municipality’s name] and [municipality’s name] do not have access to the intranet where we have information for every employee and forms and everything else that we need in our work. (UA2Pr5).

Moreover, the patient documents must be requested from the other organisation with the permission of the patient. The boundary between health centres is thus actually structural due to different EPRs. Furthermore, the practise of transferring patient documents is defined by the law (MSAH 1994):

We get the papers of the child welfare clinic quite well, but we do not get any other papers. We also do not have permission to send the epicrises of the [name of the hospital] forward. (UA1Pr2).

Thirdly, each professional group forms a small world within an organisation in which sharing of information and knowledge between insiders is easy:

And your own colleagues help and support, you can always ask what they would do... (UA1Pr2).

Sharing of knowledge and information seems to be easier within one’s own professional groups even across organisations. Organisational boundaries are crossed and professional group identity strengthens.

...in paediatrician updating training we regularly discuss this problem of overweight and its treatment. About what somebody has discovered and tried. (UA1Sp).

The clinical nutritionists of [name] of Finland meet a couple of times a year and then we have these meetings for children’s clinical nutritionists...so we have a lot of them. (UA1Sp).
Fourthly, a common work place with professionals of many disciplines constitutes a small world. The coherence of these small worlds varies depending on the individuals and on general work conditions. For example the structure of the social network is related to opportunities to meet co-workers. Collaboration and sharing of knowing can function well: “I have this colleague near and good collaboration with the doctor and then we have a clinical nutritionist and a physiotherapist and we work tightly together” (UA2Pr12). However, in some cases there are clear boundaries even in the same health centre:

Maybe it is that the child health clinic functions as the child health clinic and the doctors work as doctors and the nurses work as nurses. We have only two floors here in between us but sometimes I have a feeling that information transfer does not function well. (UA2Pr6).

However, the multiprofessional team of the weight clinic in UA2 breaks professional boundaries and enables true collaboration and sharing of knowing:

We have a doctor, a nurse, a clinical nutritionist and a physiotherapist and sometimes when the patient has met the psychologist she can be there. In the beginning we used to handle all the patients of the week, but nowadays we talk only about the problematic cases, because we have only an hour... (UA2Sp).

It can be presumed that the core team forms a small world with its insiders. However, the doctors in training remain as outsiders. This is partly due to the practises in university hospitals where doctors in training change after their fairly short (from three to six months) training period and they do not have time to internalise the practises and norms of the small world.

And the specialising doctor is always the weakest link, because he/she is new and this work differs from other medical work. (UA2Sp2).

Long work relationships establish collaboration and trust and the network ties become stronger. Colleagues and co-workers are perceived as insiders: “We have good telephone connections. We know each other and it is easy to call a colleague and to talk about work issues” (UA2Pr9). Trust in these relationships is based both on affective and cognitive aspects. For example the public health nurses who have been working with the same doctor in the child welfare clinic or at a school form an “insider” dyad: “In this other school we have had the same doctor for years and with him collaboration goes well since we have known each other for a
Cognitive trust in these dyads is based on the health care norm to respect co-workers’ competencies and also on the dominance of medical knowledge and on the situated knowing of doctors. Collaboration and communication with a familiar co-worker is easy and builds up affective trust.

And still one thing about those doctors: We have a long-term doctor who is devoted to treating small children and school children. We have thus an outstanding situation when we have a regular long-term doctor and it is easy to collaborate with her. (UA2Pr12).

On the other hand constantly changing work partners hinder true collaboration and trust. There is not enough time to build up trust and to learn to collaborate. This seemed to be a problem especially in primary health care because understaffing has led to changing substitute personnel.

Formerly when we had a regular doctor at the secondary school, it felt that it was so much easier to work with a person you were used to working with and whom you were able to trust. But now, we have these visitors. During that time when I worked at the other secondary school there were at least ten different doctors. Continuity in the collaboration between the public health nurse and the doctor would be so important. (UA1Pr3).

At the schools the public health nurses have different situations: Some have a regular doctor who has been there for years and in some places the turnover is fast. If there is always a new doctor the school nurse is a bit alone and the doctors are not so devoted to the work. (UA2Pr4).

Almost all (27/30) interviewed health professionals in both units of analysis had a long work experience for over 10 years (see Appendices 14 and 15). The average work experience of the interviewees in UA1 and UA2 was over 20 years (from 4 to 31 years) and the work experience in their current position or a similar task was on average 12 years (from 2 months to 30 years). Attitudes towards newcomers and their knowing came up in the interviews of more experienced health professionals.

I think that the doctors could better internalise this weight path. Often when they come here they can say that they have never heard of it. Still it should be familiar to them even if they work in health centres and not at schools. (UA2Pr2).
It can well be that someone has been let’s say six months working here and then suddenly realises that we have these weight path instructions. (UA2Pr4).

Especially in special health care the dominance and authority of doctors as information providers and their knowing about medical issues over other professional groups appears to prevail. In interviews, this is confirmed. One nurse expresses, “...we always ask a lot from the doctors” (UA1Sp). A medical doctor states, “I think that it is the doctor’s responsibility to find out about the health condition. We take a look at the laboratory results, check that the sugar levels are ok, see how the blood fats are, blood pressure, waist circumference and weight percent” (UA2Sp).

Public health care as a whole can be perceived as an intermediate institution at the meso level in the theory of information worlds. The integrated care pathway which is established to enable connections and practises between primary and special health care is at the same time a meso level construction, a social network, and a small world of its own in the public sphere. However, in UA1 only one of the six interviewed health professionals in special health care identified him/herself as an actor of the ICP.

I am actually not so aware of the issues of the integrated care pathway: I think that I do not actively work in the integrated care pathway; I just do my work here even if it is connected with the ICP. (UA1Sp4).

Well, I am not particularly—the requests come with other issues. I have not been a member of a team or anything like that. (UA2Sp5).

In UA1 primary health care only two of the four public health nurses had a vague idea of the integrated care pathway and they did not perceive themselves as actors in the ICP. They thought that they are outsiders even though in principle every health care professional is an actor of the network.

8.2.3 Information value

In this subchapter, information value is discussed and described from the perspective and perceptions of health care professionals, and after that from the families’ perspective. Information value (Jaeger & Burnett, 2010) substitutes Chatman’s slightly problematic concept “worldview” (Chatman, 1991, 1999, 2000). In the health care professionals’ interviews, health appears to be a value per se. Biomedicine is the best solution to health problems and the activities of
health care lead to better health. The main concern about childhood obesity of the interviewed health care professionals was health and especially health risks of obesity in the future.

...we try to find those who have a disease and those who clearly have risks for complications. They have disturbances in sugar or fat metabolism and problems with blood pressure or something like that...Then we always talk about these risk factors: what kinds of problems are expected if we cannot get a grip on obesity now. (UA1Sp3).

In health care the basis of actions and procedures is evidence-based medicine, care which is verified with scientific research. Biomedical medicine relies on objective measurements and this trend can be identified in the interviews of health care professionals: “Basically the first appointment is with the doctor and with the nurse and the meaning of that visit is to look into the somatic health status and labs...” (UA1Sp2). The instructions of the organisation fortify these practises: “According to the instructions the children should be measured every year. If you do not have time to do anything else, weight and height must be taken” (UA2Pr2). All the care path instructions determine the measurements and laboratory tests which should be made for children with overweight or obesity problems (see Appendix 12).

Furthermore, health care professionals use the results of the measurements to inform and to motivate patients and their parents.

We take a look at the weight curves and then I tell which are the boundaries for being underweight and I tell that most of the children are at zero level and then we compare this with his/her own situation. (UA1Pr3).

Many times it is so that lay people find laboratory tests important. For example, if they are informed that cholesterol levels are high and then we talk about the risks, I have noticed many times that these have an effect... (UA2Pr2).

Ascending weight curves and abnormal laboratory results entitle the health care professionals to remind of health risks and to interfere with the lifestyle of the patients.

The percentages of the height-weight relationship are there and the instructions how to proceed. (UA1Pr1).
These criteria are based on the Current Care guidelines and they are quite strict. If you think that overweight is plus 20, so many people do not think that it is obesity, but if the child is young it shows already and it is based on Current Care. (UA2Pr4).

The prevalence of biomedicine reflects in the attitudes of health care professionals. This, in turn, appears in lifestyle counselling which has so far been very factual and clinical: “It is more or less talking about facts: what it is about...” (UA1Sp2). However, one professional recognises this as a problem—obesity is a multifaceted and complicated problem and the treatment is not simple:

Maybe it was all over Finland and maybe even worldwide that the approach to obesity treatment was factual. Health care professionals must give the families instructions and some advice, but it is not at all like that. (UA2Sp2).

From the perspective of health care professionals, the main challenges for lifestyle counselling appeared to be firstly the sensitive nature of obesity and overweight and secondly the children’s and families’ lack of motivation to make lifestyle changes in order to lose or to manage weight. Especially if the parents also have weight problems it can be difficult to bring up the issues of weight management because the parent can find this insulting:

For some families it is a sensitive issue, especially if they all have overweight. They do not necessarily want - some can even refuse. They do not want to discuss these issues so that the child can hear them, they do not want to bring them up. (UA1Pr4).

As discussed in Subchapter 4.3.1, health care organisations can be seen as a meso level institution that ensures that information flows through different small worlds. This aspect of an intermediate institution can be identified as a justification to interfere with the lifestyle of individuals based on health care’s goals of health promotion and prevention of diseases. The goals of public health care are defined by the Health Care Act (MSAH 2010) which defines as one objective the “[promotion] and [maintenance of] the population’s health and welfare, work ability, and functional capacity...” Thus informing the families about the health risks of obesity are an obligation of health care professionals even if the families sometimes find this insulting and interfering with their privacy. When bringing up the child’s weight as a problem, the boundary between the private small worlds of the families and the outside society is crossed.
I think that it often arouses negative feelings and that the parents do not even necessarily understand that the child is obese; they think that the child is quite normal. And when the public health nurse interferes, well, I have a feeling that it is not so pleasant. (UA1Sp1).

Maybe the parents criticise that we stare at the curves when they discuss these issues at the sandpit. I have heard that they ask each other, “Did your child reach the curves?” or something like that. I think that they perceive it a bit negatively... (UA2Pr1).

The national, regional and organisational weight path instructions justify the health care professionals’ interference with childhood obesity as a risk of future health problems:

I am a precise professional and I feel that it is so much easier for me to act when we have a plan. It is also so much easier to bring up the issue when you have a tool to do so. It clarifies everything. I think it is very good to have these weight path instructions. (UA1Pr12).

All 18 primary health nurses and doctors reported that they had sometimes encountered resistance and denial from parents when interfering with the child’s overweight. Some families apparently perceive lifestyle and eating habits as private and personal issues so they want to maintain their boundaries:

For example I have seen such situations that the parent has called saying this letter has hurt him/her or that the letter stigmatises children even if that is not the purpose. I cannot know what kind of dynamics there are in the family and why it is like that. So parents do not understand why we interfere. (UA2Pr2).

However, there are also parents whose attitudes toward health professionals’ interference are more neutral:

Most of the parents are willing to consider what issues they could change and somebody may have already noticed that the weight has increased and that they have already paid attention to these treat days at home. (UA1Pr4).

In special health care the child’s obesity problem has already been recognised and some efforts to change lifestyle have been made before referring to special health care. To motivate children and families to make lifestyle changes is sometimes a challenge in special health care, too.
Motivation. To provide information is easy, but how to motivate people and how to support the motivation, that is the real challenge. (UA1Sp3).

Patients’ and families’ information value

Information value for the patients and the families was identified from the three interviews of the mothers in UA1 and from the family questionnaire in UA2. From the different aspects of information value the concerns about the content and perception could be identified in the mothers’ interviews.

All three interviewed mothers in UA1 were satisfied with the content of counselling both in primary and special health care and they did not have any further wishes. The third mother did have some thoughts about the information content: “You hope that you would get some practical tips and I think that we have got them too” (C1M3). Her biggest concern was that the obese child would not feel somehow different than the other children in the family. Restricting one child’s portion sizes and denying extra portions is a challenge in a big family. Thus the information value is related with the perception of information which is useful for the receiver.

However, if the family does not find that the child is overweight or obese, lifestyle guidance is not perceived relevant for them. In other words, the information value of health is not relevant for the families. The values in health care are defined with objective measurements as weight curves and weight indexes, but about one-third of the interviewed health professionals brought up that the families do not consider these issues relevant for them.

…a grandparent can live nearby and older people have different perceptions about healthy children and how they should look. A chubby child is a healthy child… (UA1Sp2).

But then parents easily can say that this child does not look fat. You get used to seeing things. And actually the child does not necessarily look so fat, but the weight curves can indicate as much as plus 35% weight. (UA2Pr11).

I have a feeling that people do not care so much anymore. I have to work really hard to get people to understand why it would be so important to pay attention to the nutrition. The attitudes have changed. (UA2Pr4).

Lifestyle changes require determination and motivation. Motivation is thus related with information value. The patient and family interviews in UA1 indicated that
the most important motivating factor for weight management was health in a lifelong perspective: “It is of course that you do not get any diseases at older age” (UA1M1). Physical and mental welfare were also important issues: “The child should feel good now and in adulthood both physically and mentally and have good self-esteem” (UA1M3).

These findings of the importance of health are confirmed with the family survey in UA2 (see Appendix 10). The families were asked about the motivation for weight management by asking if health, coping in everyday life, or approval of friends and other social environments are important issues for the family. All these issues are significant for most of the families (see Table 15).

| Families’ perceptions about the importance of the child’s or adolescent’s weight management (N=13). |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Fully agree | Partly agree | Do not agree or disagree | Fully disagree | Cannot say |
| Good health at the moment | 12 | 1 | 0 | 0 | 0 | 0 |
| Good health in the future | 12 | 1 | 0 | 0 | 0 | 0 |
| Coping in everyday life at the moment | 13 | 0 | 0 | 0 | 0 | 0 |
| Coping in everyday life in the future | 12 | 1 | 0 | 0 | 0 | 0 |
| Acceptance of the environment and/or friends at the moment | 9 | 2 | 1 | 0 | 1 | 0 |
| Acceptance of the environment and/or friends in the future | 9 | 2 | 1 | 0 | 1 | 0 |

Moreover, one mother wrote: “normal weight increases self-confidence” (F7) and is thus extremely important for an adolescent. The same mother describes that “the siblings tend to call him FAT. It is so irritating for him and it causes anger and quarrel with the siblings” (F7). The acceptance of the environment is thus also important.

All families perceived that health as well as coping in everyday life at the moment and in the future are important reasons for weight management. These issues came up in the UA1 interviews also: “Most of all you think about health, both physical and mental health” (UA1M3). For eleven families, social acceptance was important but it was interesting that this was not a significant aspect for two families. It is also interesting that the findings of health professionals’ perceptions and families’ responses are contradictory. About one-
third of the interviewed health professionals thought that health and prevention of
diseases are not motivating factors for children or for their families.

But with these adolescents I feel that they do not think about their future
health which is our biggest concern. It is such a distant affair for the child
that if I start talking about it, the temptations which are here and now are so
much nearer to them. (UA1Pr5).

Definitely I think that the child or adolescent is not worried if we say that
when you are in your fifties you have arthritis or when you are forty you can
get type 2 diabetes. It is unimportant for them when they are so young.
(UA1Sp2).

The health professionals’ frustration of the poor results of weight management
becomes visible in these quotations. Although the families say that health and
well-being is a value and motivating factor for them, this does not show in the
results of weight loss or weight management. In other words, health professionals
do not think that health and facts of risks of obesity are valuable information for
the families. In these cases it can be assumed that the information value of the
families’ small worlds differs from the information value of health care’s small
worlds.

8.2.4 Summary of organisational culture in the ICP of childhood
obesity

The common norms in health care and the integrated care pathway are expertise,
collegiality, ethical principles of care, independent work and respect to other
professionals’ work and expertise. The dominance of medical knowledge is
visible in the doctors’ role as decision-makers both in primary and in special
health care. For example, the main tie between primary and special health care is
managed by the doctors through the referral-epicrisis system.

The boundary between primary and special health care is evident in the
findings. The norms and practises in health care confirm this boundary. The
norms also seem to keep up the boundaries between different professional groups.
However, these boundaries are not very strong. The nurses who are responsible
for the functioning of the weight clinic in UA2 and for the endocrinological
outpatient clinic in UA1 in both university hospitals are brokers between the
small worlds of medical doctors and of the care staff. In primary health care the
public health nurses work independently but they collaborate with the doctors in child and in school clinics.

The content of information value in the health care professionals’ interviews emphasises health as a value which is not challenged and the dominance of biomedicine. Furthermore, health care professionals consider that the activities of health care and modern western medicine with its evidence-based foundations are able to create better health. In other words, the control of health information is based on the “official” medical knowledge. The main value in health care is disease prevention and healing of diseases. Thus the information value of scientific evidence-based medicine, measurements, and tests is indisputable. The measurements determine the health status of the patient and they are used as motivational factors also for the patient and the family.

From the families’ point of view, information value is related with their conceptions about the health risks of childhood obesity. This, in turn, is related with their motivation to change lifestyle towards healthier nutrition and to more active living habits. Motivation is related to the perceived value of counselling. If the family does not recognise the child’s obesity as a problem which should be treated, they can find health information patronising and irritating.

8.3 Information and knowledge processes

Information behaviour in the theory of information worlds refers to all the uses (or non-uses) of information within a small world. Information behaviour includes thus the aspects of people’s information seeking, searching, sharing, avoiding, and using (Jaeger & Burnett 2010). Within a small world information behaviour is regulated by social norms which define what kind of information behaviour is appropriate. In this study individual information behaviour is reflected through information and knowledge processes at the organisational and network levels in the next subchapter.

As outlined in Figure 5 (p. 100), the organisational information and knowledge processes of the ICP take place in the interpersonal social networks and in the technological networks. In this section, the information processes which mainly take place through information technology are identified first. The target and content of the processes in technological networks are information and therefore I use the term information processes instead of knowledge processes.

Secondly, the knowledge processes in interpersonal relationships between the health care professionals are described. Thirdly, the information and knowledge
processes between the health care professionals and the patients and their families are scrutinised. Sharing, creation, and use of knowledge take place in interpersonal relationships and in this study those processes are perceived as knowledge processes. However, in the process of knowledge use, information is also significant and the process can be seen as both an information process and as a knowledge process. The types of knowing as suggested by Blackler (1995) in the information and knowledge processes are identified. The participation of the patients and their families in knowledge and information processes is scrutinised and the relationship of network structure and organisational culture with the processes is discussed.

8.3.1 Information processes through information technology

The information processes through information and communication technology networks are collection, transfer, and storing of information. In Figure 12 these processes are marked with ICT (see Figure 12).

Fig. 12. Information processes through information technology.
However, these information processes are intertwined with each other. Furthermore collection and transfer of information also take place in interpersonal relationships and collection of information is intertwined with the process of use of information and knowledge. Those processes are described in Subchapter 8.3.5.

Collection of information

In the context of health care in general and in the care of obese children in particular, health care professionals acquire and collect information from various sources. Firstly, information about the patient is required. Secondly, health professional’s knowledge must sometimes be completed by seeking and collecting information about the subject matter or treatment procedures to make appropriate care decisions. Thirdly, health care professionals need information about the organisational, regional, and national practises of the care of the patients.

Collection of patient information

In patient care, health care professionals must be familiar with the previous medical history of the patient and also be aware of the family’s medical history in order to evaluate risks and hereditary tendencies for medical problems. Patient information which is mediated and situated knowing is most often available in the electronic patient record systems in medical records, laboratory results and x-rays, in referrals to special health care, and in care feedbacks to primary health care.

In primary health care all interviewed health care professionals were content with the issue that patient information is easily available in the EPR in child health clinics, school health clinics and in health care centres: “We can see the child’s weight curves and all these even in the consulting room so that information transfer is now better” (UA1Pr2). In principle, all patient information in the EPR is available for all health care workers involved with the care of the patient: “…you can find the information there” (UA1Pr2).

With obese children, growth charts with height and weight information are essential in both primary and special health care.

I check from the EPR what has been before. Especially the public health nurses have written quite nicely what has been discussed before so that I can get a general picture. And I check the weight curves. (UA1Pr6).
[name] is our EPR system and there are the laboratory results which have been taken in the region of [name]...And then in [name of the EPR system] we see all the texts of the special fields in our hospital...And of course the care personnel and the doctors use these care reports... (UA2Sp4).

For example, laboratory results and height and weight measurements are numeral codified data, which is mediated knowing. The health care professionals are content with the availability and accuracy of laboratory results and weight charts in the EPRs. The significance of mediated knowing is an indication of the dominance of biomedicine and its information value in health care.

Inaccurate or lacking notes and instructions can cause information gaps and hinder other professionals’ work. Information gaps cause insufficient creation of collective knowing.

The information, when it is mediated through many people and if I do not have time to go to the ward round, it is oral and there are not any texts of the doctor in the EPR. Then you must try to find the doctor in many cases. (UA1Sp5).

In special health care the referrals from primary health care are the principle sources of patient information alongside laboratory results and growth charts. According to the interviewed health professionals in special health care the contents of the referrals vary. It is not always clear, what kind of care is needed in special health care: “In some cases it remains an open question that when the referral arrives, you do not exactly know what it is about” (UA1Sp3). Referrals and their content are discussed in more detail later in this subchapter.

Patients’ and their families’ involvement in the process of collection of patient information is dual. Firstly the patient is an object of examination, measurements, and tests. The results are coded into the patient records. Patient information which is available in EPR and other documents is not enough, however. In addition to the records of earlier visits to health care and the encoded test, measurement and laboratory results’ current information about the patient is needed.

Patient information can be collected from the patients also by questionnaires which the patient and their family have filled in. Health care professionals ask direct questions or discuss issues concerning lifestyle with the patient and the family at the appointment. The patients and their families are active partners in this event and participate in the production of mediated and situated knowing. At
the same time the health care professional observes the family and its reactions in
the interaction which increases the professional’s understanding about the
contested knowing of the family. These issues are discussed more in Subchapter
8.3.3.

Collection of medical knowledge and information

In patient care a professional’s own knowledge and knowing is needed. If there
are some information gaps for example about the subject of weight management
or organisational practises, the professional can acquire relevant information from
“...literature, journals, Internet, and of course we talk with our colleagues”
(UA2Pr9). Health care professionals are eager to keep up with new research:
“This requires quite a lot of independent studying” (UA1Sp1). This can be
perceived as a norm in health care but on the other hand knowledge updating is
also mandated by the law (MSAH, 1994).

Medical knowledge in health portals and databases and guidelines such as
Current Care (Käypä hoito) and an organisation’s own care path instructions are
mediated and situated knowing. Practical instructions are also pragmatic explicit
knowing. All health care professionals used those sources of medical information
which have been evaluated to be trustworthy and based on EBM. The information
value of biomedical knowledge dominates. An often used source is
“Terveysportti”, a Finnish portal of medical information for health care
professionals: “We have this Terveysportti, so we can seek for information”
(UA1Pr4). Another commonly used source is Current Care (Käypä hoito): “...we
have tried to act according to these Current Care instructions” (UA1Sp3). The
families in UA2 also thought that health professionals’ counselling was competent
(in primary health care 6/13 and in special health care 12/13) (see Tables 18 and
19, pp. 207–208).

All thirty health professionals mentioned that they often use competent
colleagues and co-workers as information sources. Structure of the social network,
opportunities to meet colleagues and co-workers, and organisational culture are
related to this sharing of information. The dominance of a doctor’s factual
medical knowledge can be identified in the expressions of the nurses in special
health care: “We nurses, we always ask a lot from the doctors” (UA1Sp), and of
the public health nurses in primary health care: “Or then to our doctor. She is my
nearest professional manager. The doctor will surely have an opinion”
(UA2Pr11).
Likewise, other professionals both in special and primary health care rely on the situated knowing of doctors.

...sometimes I do not look at the referral if the patient has already seen our doctor and the doctor has written good and thorough texts. (UA2Sp2).

I see in my consulting room what has been measured at the school and then I see the comments of our paediatricians if the child has had an appointment there. (UA2Pr3).

The texts of the public health nurses and of nurses in special health care usually describe more issues of lifestyle than just medical facts:

...The nurse makes these entries of measures and blood pressures and so on and she also writes about these life situations and about lifestyle. She uses this as her personal record so that she can find the information but also the doctor can see it. (UA2Sp4).

The nurses’ entries thus also contain contested knowing about the families. One public health nurse doubted whether the doctors read their notes in the EPR.

We have always wished that the doctors would have a look at our pages too. In some cases I have written to the YLE [general practise] page to have a look at the papers of the child welfare clinic, if there has been something special. (UA1Pr5).

This expression is an implication of the dominance of medical knowledge and doctors in health care.

Collection of organisational information

Organisational information refers to instructions about practises of the ICP for obese children. Thus in the care of obese children care path protocols are needed if the practises are not clear for the professional beforehand.

In [name of the municipality] school health care we have in the EPR those instructions. There are also some about the treatment of obesity, a care pathway. It is about the weight-height percentages and the instructions how to proceed. I have found it there and printed it for myself. (UA1Pr1).

All four health care centres of this study and the two university hospitals had established guidelines for the care of obese children. The guidelines contain
mediated and provisional knowing by defining the division of tasks of different health care professionals. The document analysis of the care path instructions (see Appendix 12) indicates that all the documents have very similar contents although the form (text, table, or flow chart) varies. The care path instructions are an indication of the division of work tasks in health care organisations. For example, the instructions in one of the municipalities in UA2 determine that:

*If the weight increases still → contact home and make a referral to the clinical nutritionist → control after 3 months by the public health nurse or by the clinical nutritionist.* (Care path instructions UA2Pr, Municipality 4).

Division of work tasks and responsibilities is at the same time a social norm, a practise, and an issue which is strictly ruled by the laws (MSAH 1994). The individual care path instructions are parallel to the national Current Care guidelines.

*We have our own weight path here which we follow and it has been built on the national weight path. And then we talk about these issues with the parents and call the children for follow-ups according to the instructions.* (UA2Pr11).

Moreover, careful following of orders and instructions is an indication of the prevailing social norms of obeying instructions and recommendations in public health care. The instructions can be seen as mediated, situated, provisional, and contested knowing. They contain elements of medical knowledge about the subject matter, organisational routines and practises, and about the justification of health care to interfere with the problem. One public health nurse describes this justification of interference as follows: “That it is not just something that the public health nurse has pulled out of the hat. That she is not just too fussy” (UA2Pr12).

In primary health care the public health nurse meets the child most frequently and the care path instructions are especially relevant for her. The care path instructions define the critical weight percentages when the child should consult a primary care doctor. One-third of the interviewed public health nurses especially mentioned the instructions as a useful tool in their work.

*Well, let’s say that a year or two after the implementation of the weight path the public health nurses were very content that they had a clear model how to act. That was just the important thing! If we cannot get them to lose any*
weight we still have clear instructions how to proceed and at which point we can give up trying. (UA2Pr4).

All the instructions contain recommendations of weight (and growth) controls for follow-ups and they define what laboratory tests should be taken for the purposes of health risk evaluation and differential diagnosis. Furthermore, the care path instructions take a stand on the issues which should be brought up in counselling. In all the instructions these are rhythm of everyday life and meals, exercise habits, constitution of the diet, snacks, and drinks. An example of the care path instructions of a municipality in UA1:

Second visit:
- Inspection of the food diary
- parents’ role
- family meals
- treat days
- use pictures to demonstrate:
  - energy content of foodstuff
  - the plate model and frequency of meals
  - the amount of vegetables
  - portion size (Care path instructions, UA1Pr, Municipality 1).

However, there are not detailed instructions about the content of counselling. The instructions contain thus mediated, situated, and provisional knowing, but explicit pragmatic knowing is missing. Health care professionals use their competence and knowing in their individual way. This independent work and autonomy can be perceived as a norm in health care which, along with its practices, fortify this tradition: “We all work alone in our rooms and when you want to go to ask for something or to share some thoughts there is always a patient also” (UA1Pr3).

Transfer of information

Patient information within health care organisations is nowadays transferred mainly through IT in electronic patient records. EPR is at the same time a medium to transfer patient information and an information reserve of the health care organisation. The processes of information transfer and storing are simultaneous and overlapping. In this subchapter, the health care professionals’ perceptions of the EPRs are discussed in more detail although these issues...
concern also the processes of collection and storing of information. Referrals and epicrisis between primary and special health care are transmitted electronically through secure electronic interfaces. Among the different municipal health care centres the information must be transmitted as printed documents because there are no interfaces between the systems.

Intraorganisational transfer of information: Electronic patient records

As discussed in the subchapter Collection of information, the type of knowing in the patient record systems in patient documents is mediated and situated. Provisional knowing about organisational routines and practises is also evident. Transfer of explicit mediated knowing inside health care organisations is basically plain and easy through information technology if the systems and information networks function as they should: “the information is easily transferred now when we have this [name of the EPR] system” (UA1Pr2).

Electronic patient records (EPR) in the health care centres of this study had been used on average for about 10–12 years and health care professionals have already overcome most of the difficulties of learning the ways to make entries and to use computers: “Yes, you have developed your own routines. I always write the reason why the patient has come and the current situation and how the development of the weight is” (UA2Pr10). Provisional knowing, namely routines and practises of using EPRs, has been established on individual and on organisational levels.

The interviewed health care professionals perceived that inside the organisations the EPR serves its purpose well enough. Regardless of the system, health professionals have learned to use them in their everyday work. All of the interviewees in primary health care were fairly content with the EPR in use despite occasional problems.

Yes, it has been good enough for me, because I use only the basic features. For my own work it has been enough. Some people have criticised it; they say that it is slow and clumsy and the doctors always say that it does not work and sticks and everything else. But all the problems are not due to [name of the EPR system], we have had problems with the network connections at least here in the southern district. (UA2Pr2).

Individual health care workers’ skills to use information technology are also provisional knowing; updates in EPRs require learning of new routines: “I think
that it functions well. However we are waiting for the new weight curves, because we know that there are some new editions coming but we do not have them yet…” (UA2Pr5).

Easy access to laboratory results, x-rays and growth charts is appreciated: “The laboratory tests which have been taken in most of the health centres can be seen in our system too” (UA1Sp2). Patient information can be used wherever it is needed: “Everything that has been recorded into the electronic system, yes, we can see it” (UA2Sp5). Electronic patient records can even improve the accuracy and usability of various kinds of measurements for example by helping to draw charts automatically: “…this system draws the curves automatically when we feed the information into the system. You do not have to do it by hand which is a good feature” (UA2Pr11).

In primary health care public health nurses work alone at schools. They often use the telephone or message functions of the EPR as a medium to consult colleagues and transfer information.

Of course you can telephone the colleagues and ask: “Listen, what do you think about this and this”, so it is possible… (UA2Pr2).

Or this message function in the EPR is very good. You can use it to consult, if you do not reach by telephone or you cannot meet personally… (UA2Pr5).

The main problem with the EPRs seems to be the time required to make the entries. The notes must be accurate and careful recording can take a long time: “Yes, it takes time. Of course we public health nurses have personalities so that one can write very accurately her texts and the other less” (UA2Pr12). Even in hasty situations the entries have to be made: “We try quickly to write into the care plan what we have been talking about” (UA1Sp4).

Sometimes there is not enough information about previous visits to health care due to the inaccuracies of the entries. Moreover, reading the previous texts requires time: “I think that it has enabled better transfer of information, if you only have got time to open the files and read them” (UA2Pr5).

Three health professionals brought up the problem of the difficulty to write about delicate patient issues. The entries are permanent and they can even influence other professionals’ attitudes beforehand towards the patient.

An oral report would be appropriate especially with the problematic cases. So that you could talk about the background, because nowadays you must be very careful about what you write into the EPR. (UA1Pr3).
Sometimes the texts must be read “between the lines” to catch their meaning:

The issue that often is missing—and we have discussed if you can record it—is the question about the resources and the motivation of the family. Most often there is nothing about them...Because on the other hand you know that when you write something it affects the behaviour. If you write that “they are not at all motivated”, it is there permanently. (UA2Sp2).

Delicate issues may be information about parents’ mental problems, substance abuse, alcoholism, domestic violence, or a difficult and quarrelsome divorce. These are all issues which can emerge in confidential counselling situations.

The doctor’s text is sometimes extremely clinical. There can be that “the liver is in the lateral line” but there is missing something like “there has been a quarrelsome divorce last year and then this and that happened”. (UA1Sp2).

The type of knowing which concerns delicate issues of the family’s private life is situated and partly also contested; it describes the situation and resources of the family. However, the term contested knowing is not quite suitable to describe completely all the social and emotional aspects which emerge and are significant in health care work which deals with people, their feelings and emotions in their social environment in everyday life.

**Information transfer between health care organisations: referrals and epicrises**

Referrals and care feedbacks or epicrises between primary and special health care which contain mediated and situated knowing are transferred through secure interfaces. From some municipal health centres, additional patient information such as laboratory results can be transferred across organisational boundaries of primary and special health care:

The referrals can be transferred electronically...And the growth charts and laboratory results, that information is also transferred electronically. (UA1Sp3).

[Name] is our EPR system and there we can find all the laboratory results which have been taken in the [name] region. [Name] is a laboratory consortium so that if they are taken in a health centre and the results are not in the referral we can see the results anyhow. (UA2Sp4).
In the ICP of childhood obesity, 10 of the 12 interviewees in special health care were fairly satisfied with the content of the referrals. National instructions of the minimum content of referrals to special health care have been published: “We have these national guidelines for unhurried referrals...they define what should be included in the referrals” (UA2Sp4). However, there were some deficiencies in the referrals; essential facts were sometimes missing. The doctor in primary health care must sometimes write the referral without actually meeting the patient or the referral is written based on a short encountering. The practise of doctor’s referral does not support transfer of situated and pragmatic knowing from primary health care to special health care in those cases: “It varies so much. Some of the referrals have been written according to the recommendations, but some are not so good” (UA1Sp3).

Eight of the twelve professionals in special health care perceived that the information in referrals is sufficient and that the factual information such as laboratory results and growth charts are the most important content of the referrals. Information value of factual encoded knowledge is relevant especially for the doctors. Those professionals who take up more with counselling (e.g., nurses and clinical nutritionists) would like to receive more situated and pragmatic knowing; that is, for example, a description about the counselling, used methods and efforts which already have been made to manage or to lose weight in primary health care: “I have never seen a referral which would describe how the family has been guided or if it’s been guided in some way” (UA1Sp).

The practises of epicrises and care feedback from special to primary health care are different in the two ICPs. In the first unit of analysis the epicrises are always sent electronically and addressed to the doctor who had written the referral. The epicrises contain mediated and situated knowing but also provisional knowing as the recommendations for further follow-ups in primary health care: “...what has been examined here and what kinds of conclusions have been made and of course a bit about the care plan and how to proceed then...” (UA1Sp2).

In UA2 the nurse in special health care also mails printed documents of the child’s and the family’s visits in special health care to the public health nurse who has been working with the family. Health care professionals in special health care consider that the information they send is sufficient. However, they are not sure how the feedback is received in primary health care: “I do not know how well it works. It can be busy and somebody can feel that this is her own strong field, so I do not know how they take this” (UA2Sp1). The practises in primary health care are not familiar with the professionals in special health care: “...if the information
is transferred to the public health nurse, but I try to set down the distribution and to define what should be checked in school health care so that the information is in writing” (UA2Sp6). The printed documents transfer pragmatic knowing in addition to mediated and situated knowing by describing the detailed contents of the visits to the hospital.

The main problem with the epicrisis or care feedbacks from special health care to primary health care appears to be the fact that the message about the electronic epicrisis goes to the doctor who has written the referral. All the public health nurses mentioned this as a concern.

The epicrisis comes from the doctor and it is available in [name of the EPR system]. But if you have not written the referral yourself, you cannot keep up when the epicrisis from special health care arrives. If I am not active myself, I do not see the epicrisis. (UA1Pr3).

In primary health care the turnover of the doctors is usual and the public health nurse who should be responsible for the follow-up measurements of the child does not necessarily notice the epicrisis in the patient records. This is a significant gap in information transfer and an indication of the boundary between primary and special health care.

And then when the epicrisis comes from special health care, it is situated in the child’s health records and the doctor gets a message about the arrival of the epicrisis, but the message does not come to us public health nurses. (UA2Pr5).

...if you think that I have 400 children in child welfare clinics and 300 children in school health care on my responsibility I certainly do not check the child’s health records often and I see the text only then when I open the child’s files next time if I have an appointment with her. (UA2Pr1).

Health care professionals in primary health care thought that epicrisis and care feedbacks were informative.

The basic issues are there. The reason of the care, how the care has proceeded and plans for further care. If weight controls are needed more often than in the usual pace of once a year, it is mentioned there. (UA2Pr7).

However, one public health nurse in primary health care was more critical. The epicrisis which contain mostly provisional knowing about the recommended
follow-ups contain insufficient situated and pragmatic knowing to continue the care of the child in primary health care:

...but I think that the child is transferred to primary health care with light instructions. The emphasis is on the follow-ups and measurements and I think that the living habits of the family do not change by constant weighing. We often think here that weighing does not lose weight; it comes down to totally different things. (UA2Pr5).

One public health nurse describes her uncertainty as follows: “Sometimes I feel that when they have gone through the weight path and they have gotten no results there, what can I do here” (UA2Pr9)?

One problem with the epicrises is that sometimes the parents want to take care of the feedback to primary health care themselves, but they do not always do so.

...sometimes it is, but fortunately only seldom, on the responsibility of the parents. Parents do not always deliver us the epicrises. (UA2Pr5).

If the parents do not contact me or somebody does not call me or contact me otherwise, I do not receive the information that the child should be weighed for example once a month. The parents should be made more responsible for these things but this also shows if they are motivated or not... (UA2Pr1).

The patients and their families participate in the process of information transfer in these cases: “…we do not contact them. The epicrisis goes to primary health care or the family itself contacts the public health nurse…” (UA1Sp4). However, the most common way is to transfer the epicrises electronically from special to primary health care and in the UA2 university hospital also the care documents are mailed to public health nurses.

The boundary between primary and special health care and the insiders and outsiders of these organisations is evident in the ICP. The main tie between these organisations is the weak electronic tie. One professional in special health care perceived that primary health care actors find the actors of special health care busy and difficult to approach: “Somehow it seems that special health care is so busy, that people there are so busy. You cannot call them and if you call, they never answer and you have a feeling that you never are able to contact them” (UA1Sp1). Furthermore, there are no communication channels to contact the actors of the other organisation: “And e-mail: you cannot send any messages via
e-mail because you should have secured connections and maybe there is no way to contact easily” (UA1Sp1).

Communication between special and primary health care professionals is sometimes mediated by short notes which are carried by the patients. Factual information about weight and other measurements is transferred, but other types of knowing are missing.

...for example it has been agreed that the child goes to a weight control...they always come with a note with the weight on it, but usually only the weight and nothing else... (UA1Sp4).

On the other hand, some professionals in special health care do not yearn for additional information from primary health care; they rely on their own and the organisation’s expertise.

We cannot communicate with the electronic records in primary health care; we do not see what is there. We can only see what is in the referral. And then, if we need some information, we must ask for it and it arrives as paper prints. But very seldom we need to ask for information about the visits to primary health care. (UA2Pr4).

If some patient information is missing, it is easier to use the resources of one’s own organisation. The boundary between primary and special health care seems to be strong.

We do not see the health records in primary health care. I see only the referral. But if the information is insufficient for me, I contact our doctor here and ask what he/she has thought. (UA1Sp6).

This boundary is structural (based on the network structure with weak electronic ties) and also cultural. The information value from one’s own organisation’s small world and its insiders is more relevant than that from the outside.

The families in UA1 family interviews were asked about their conceptions of the information transfer between primary and special health care. The interviewed mothers in UA1 did not perceive any significant gaps in information transfer: “Yes, I think that the information transfer has been okay, I cannot criticise it” (UA1M2). The responses in UA2 family questionnaires were parallel with this conception (see Table 16). The families found that transfer of the child’s previous medical history from primary to special health care was mostly sufficient; only
one family reported that they always had to give the same information about the child in special health care as in primary health care.

Table 16. Families’ perceptions about information transfer between primary and special health care.

<table>
<thead>
<tr>
<th>Information about the child’s previous medical history in primary health care</th>
<th>Always</th>
<th>Mostly</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was available in special health care</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Was not available in special health care, the same issues had to be told</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Was not available in special health care, the same tests and examinations were made in primary and special health care</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

The families were apparently not aware of all the tests and examinations which had been made in health care because three families answered “cannot say” to the question about the tests and examinations. However, one family wished for better information transfer between different outpatient clinics of the hospital.

Our adolescent was depressed and she goes to psychiatric clinic to controls. I would hope for better information transfer between the psychiatric and the weight clinic so that the adolescent could be regarded as a whole. Weight management requires resources and if there are no resources it is not going to work. (F1).

Other media for information transfer: e-mail, intranet, documents and personal interaction

Information about practises and regulations in and between organisations is transferred through e-mail, intranets, and some of them are available on the Internet. All this information is mediated knowing. However, the messages can contain also situated knowing.

This message function is—I do not know if the other EPR systems have got one—but I think that it is very usable. You cannot always contact by phone, but the message function alerts you when a message arrives and it is my habit to check the messages every day. (UA2Pr5).
Patient information cannot be transferred via e-mail: “We use e-mail very seldom in these patient issues; patient confidentiality must be secured. I do not dare to send any patient information via e-mail” (UA1Pr1). Furthermore, e-mails can cause stress and frustration because of information overload.

It is more like too much information via e-mail. General information comes in so much that I do not have time to read it. The e-mails just hang there, I do not have time for them and I can miss something important when I do not have any time. (UA1Pr4).

The amount of information sometimes causes difficulties in finding the instructions, for example about the care pathways. In UA2 primary health care, four interviews were conducted in one of the municipalities and all four interviewees found it difficult to trace the instructions.

I must seek for it...I have not needed it for a long time and I cannot find it at once. (UA2Pr1).

Would I remember it? I have not had time to collect it here yet. (UA2Pr2).

In primary health care the EPRs do not communicate between different municipalities. When the family moves from one municipality to another, the health records must be printed and mailed to the new health care centre. Moreover, the transfer of patient documents and the mediated and situated knowing in them requires the permission of the patient based on Finnish law (MSAH 1992).

The high intention was that we would get rid of the papers, but no! Not likely! When we need to transfer information we take paper copies and mail them with the permission of the parents. (UA2Pr11).

We receive the papers and they have to be stored into the EPR. (UA2Pr1).

...we can have them scanned so that they are available in the EPR. But we cannot scan them all, because there can be so many pages. (UA2Pr8).

Some information transfer takes place also in interpersonal communication. Information transfer and knowledge sharing are overlapping concepts and they cannot be comprehensively separated in these findings. Interpersonal communication is discussed in Subchapter 8.3.3.
Storing of information

Patient information is nowadays stored almost solely into the electronic patient records. Guidelines, instructions and other information of organisational practises are also stored in the EPR, in organisational intranet or some other knowledge reserve which is based on IT: “And we have this information in the V-drive on the computer, so that we all can use it to support the work” (UA2Pr1).

In the course of the treatment, patient information is documented into the EPR. Entries like weight and height measures were perceived to be easier and more accurate electronically.

I can type wrongly but clearly some typical mistakes disappear and the computer program brings out if I make silly mistakes, so that wrong alerts about abnormal growth emerge less than before. (UA2Pr5).

The type of knowing in the documents is mediated and situated. The texts of health and care reports vary; some professionals describe the health condition of the patient and their own observations, measures, and actions very widely and accurately, while others make only short notes.

Sometimes it is very informative and sometimes very imprecise. It depends on the person who makes the entries, how accurate he is. (UA1Pr4).

Documentation and the minimum contents of the patient records are regulated by law (MSAH 1992) and furthermore some information is used for administrative purposes. The entries of individual health care professionals also form a knowledge reserve for other professionals in the health care organisation. A vast amount of data is stored in the electronic knowledge reserves daily. Writing down the notes requires time which, however, is limited.

You are sometimes so busy. You should consider how you write, though, because if there is someone else coming tomorrow, he/she can understand what has happened and what is the plan. (UA2Pr7).

Patient information which is stored in the EPR is principally a knowledge reserve which can support organisational learning. However, statistical analysis of trends such as the development of weight and height of children and adolescents requires great effort and manual work (Mäki et al. 2012). Thus for example, evaluation of the results in special health care is mainly based on individual cases. In UA2 the
children and their families are invited to the hospital for a follow-up visit, but not all families come.

…it entails five visits and one visit after one year…after one year we see the child again. He/she comes in and we measure the height and weight and the results tell us if weight management has succeeded. (UA1Sp1).

In an individual patient case the information in the EPR can thus give clues how to proceed with the treatment: “I take a look at the weight curves before the child comes and I always hope that if there is something that the family has successfully made and we can support it here” (UA1Pr6).

8.3.2 Summary of information processes through information technology

The processes of collecting, transferring, and storing concern mediated and explicit situated knowing which in Information Studies is generally defined as information. Thus collecting, transferring, and storing through information technology are information processes, not knowledge processes.

Information is collected from three main sources. Firstly, patient information, namely the previous medical history of the patient and results from examinations, measurements and tests are available in the (electronic) patient records. Secondly, current information about the patient’s condition and lifestyle is collected with questionnaires, interviews, and medical examinations. Patients’ food and exercise diaries and filled-in questionnaires concerning issues of lifestyle are also mediated knowing for the health care professionals but at the same time they mediate the patient’s contested knowing, namely knowing about the family’s life situation and environment. Patient interviews and observation in consultations complete this information and give the health care professionals indications of how to proceed with counselling and clues about the motivation and resources of the family to make lifestyle changes (to be discussed in more detail in Subchapter 8.3.5).

Thirdly, care decisions require also the professionals’ own situated knowing, knowing of the substance matter which is based on both factual knowledge and work experiences. Additional factual medical information can be collected from a variety of information sources such as professional databases, organisational guidelines, handbooks or professional journals, and from colleagues and co-workers. This type of knowing is mediated and situated. Provisional knowing
about the practises in health care organisations is also needed; organisational and
regional care path instructions contain mediated, situational and provisional
knowing.

Transfer of patient documents (patient information) inside health care
organisations is easy through electronic patient record systems. Transfer of patient
records between the organisations is more complicated. Patients’ permission to
transfer medical records is needed and the different patient record systems do not
communicate with each other. When transferring patient documents between
different municipal health care centres or between primary and special health care,
patient records must be printed and mailed to other organisations.

The prevailing type of knowing in knowledge transfer is explicit mediated
knowing. However, the transferred patient documents contain also situated
knowing of health care professionals. The referrals and epicrises contain mediated
and situated knowing and they are actually the main contact between the
organisations. Some health care professionals in special health care wished for
more information about counselling in primary health care. In other words
pragmatic knowing is not transferred in the referrals. The epicrises of special
health care contain also provisional knowing; they give recommendations of
weight controls. However, pragmatic knowing is missing from the electronic
epicrisis or care feedback.

All information transferred via electronic patient records is at the same time
stored into them. Thus this transferred information remains as a collective explicit
knowledge reserve of the organization (see Figure 4, p. 85). The type of knowing
which is stored into the patient records is mostly mediated and situated knowing.
Electronic patient record systems can also have separate modules for storing of
other organisational knowledge. For example, care path and referral instructions
which are partly provisional knowing, are stored in these resources. Furthermore,
organisational intranets contain organisational knowledge; mostly administrative
knowledge. Electronic patient records can support organisational learning:
unsuccessful treatment methods do not have to be repeated.

Patients and their families are involved mainly in the process of collection of
information. The completed questionnaires about exercising and eating habits
represent mediated knowing. Conversations with the health care professionals
provide situated and also contested knowing. Sometimes the families are
responsible for information transfer between primary and special health care.

Organisational culture in health care becomes visible in the processes of
collection, transfer, and storing of information. Factual information is emphasised
in patient records and in the referrals between primary and special health care. The organisational boundary between these organisations is evident.

The information processes which are mediated through IT provide common knowledge reserves for health care organisations. These knowledge reserves are available for all health care workers inside the organisations and thus enhance learning of individual professionals and organisational learning. However, since transfer of information between the organisations is incomplete, the knowledge reserves do not support individual or organisational learning in the whole integrated care pathway. This can hinder creation of value in the ICP.

8.3.3 Knowledge processes in interaction among health care professionals

Interpersonal interaction in the ICP of childhood obesity takes place among the individual health care professionals and among the patients and their families (see Figure 13). Interaction is a mutual activity between individuals or groups. These interactions form social networks in the ICP in which knowledge sharing, creation, and use take place. As previously discussed in Subchapter 8.3.1, collection and transfer of information take place also in interpersonal relationships between health care professionals in addition to the information collection and transfer in electronic networks and these issues are discussed next.
Fig. 13. Knowledge processes in personal interaction among health care professionals.

However, in interpersonal interaction, face-to-face communication and telephone conversations are reciprocal and can be regarded more as knowledge sharing than information transfer. The processes of sharing and creation of knowledge are seen as knowledge processes in this study.

Collection and transfer of patient and medical information in interaction among health care professionals

Health professionals prefer human information sources when collecting or seeking medical information. The information needs in health care are complex and the information must be interpreted and applied to individual patient cases. For example, when asked about more information needs, one interviewee answered as follows: “Well, at first there is our own clinical nutritionist” (UA2Pr12). Plain factual information or mediated and situated knowing is not sufficient, the expertise and pragmatic knowing of another professional is needed to find the best solution for the patient case. This also seems to be an indication of one social norm in health care: health care professionals respect other professionals’ expertise: “…I call our clinical nutritionist or I can call [clinical nutritionist in special health care]. Or then our doctor” (UA2Pr11).
Knowledge sharing in interaction among health care professionals

As discussed in Subchapter 5.7.1, the verb *sharing* in this study refers to a mutual activity in interpersonal relationships. Furthermore, knowledge sharing leads to the creation of new knowledge or understanding. Knowledge sharing and knowledge creation processes are thus overlapping. Sharing of pragmatic knowing (see Table 6, p. 94) especially requires personal interaction. For example, when a novice observes the work of an experienced professional, he or she can learn implicitly how to encounter the patient in counselling and what kinds of utterances and persuasion methods to use.

Pragmatic knowing is based on education and work experiences. Skills develop gradually in the course of the work and also through private life experiences. Sharing of emotional work experiences in counselling supports the professionals’ competence to encounter the patients’ and families’ feelings and to deal with them.

> And then in addition to the content of counselling if we perceive that some situations are difficult you must always think if your own actions have been purposeful. It is so comforting that when I have a feeling that I cannot proceed with a family and some other professional has had the same experience. It reduces unnecessary self-blaming. (UA2Sp2).

Sharing of information, knowledge and knowing is more common within one’s own professional groups, in small worlds. This may be due to common language and use of terms and similar education, and thus also a similar basis of knowing and competence. For example, in both university hospitals the special health care doctors attended the doctors’ meetings regularly but the weight clinic team meetings in the UA2 hospital were not so significant for them.

> I myself think that the meeting on Wednesday mornings concentrates on the medical aspects because the doctors are there—we do not talk about such things as does the child get enough exercise—we focus on the medical problems such as high blood sugar levels and how to handle those problems. It is for me a meeting where I can see the medical aspects and the meeting in the afternoon is more of nursing. (UA2Sp).

The most important factor which hinders interpersonal communication during the work day is lack of time and lacking opportunities to meet colleagues and co-workers due to busy schedules in both primary and special health care. Personal
interaction requires time from all the participants. Furthermore, structure of the social network, physical distance and lacking opportunities to meet colleagues and co-workers make sharing of knowledge and knowing challenging.

However, professional boundaries are crossed in close collaboration. The school doctor who visits the school clinic maybe once or twice a month is a valuable source of information and support for school health nurses: “And then I can ask the doctor, if he has some new information...” (UA1Pr4).

The boundary between primary and special health care seems to be a barrier for the sharing of knowledge. Four public health nurses and two doctors in primary health care mentioned that sharing of knowledge and knowing between primary and special health care could be enhanced with care meetings among actors from special and primary health care and with the family.

Or then, I do not know if it would be good to have a common meeting to transfer information about what has been planned. (UA1Pr4).

All information is not transferred and it is not in the papers and epicrisis. It would be better to share information personally so that there would be a common meeting with the family and the employees from both primary and special health care. (UA2Pr3).

This could be an ideal way to set goals for the patient’s future weight management.

**Knowledge creation**

Sharing of knowledge cannot fully be separated from knowledge creation. In the context of childhood obesity prevention and care, the main outcome of creative knowledge processes is the actual counselling work which is discussed in Subchapter 8.3.5. Work experience, individual or collective learning from previous patients and families, and suitable updating training can lead to new approaches in counselling. Development of the collaboration and practises of the integrated care pathway are another outcome of the creative knowledge processes.

One role of the UA1 childhood obesity work group is to develop the practises in special health care. The document analysis of the meeting agendas and memos between the years 2009 and 2012 (see Appendix 13) indicates that in three meetings out of ten the issues of development have been on the meeting agenda.
(see Table 17). However, ideas for development have been discussed in several meetings although they have not been written into the memos.

Table 17. Themes and subjects of the UA1 integrated care pathway of childhood obesity work group meetings from 2009 to 2012.

<table>
<thead>
<tr>
<th>Theme or subject in the meeting</th>
<th>Date of the meeting</th>
<th>Frequency (10 meetings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of the ICP practises</td>
<td>16.2.2009</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>16.8.2010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30.11.2010</td>
<td></td>
</tr>
<tr>
<td>Current problems with the ICP practises</td>
<td>11.5.2009</td>
<td>1</td>
</tr>
<tr>
<td>Presentations of research concerning the ICP</td>
<td>10.2.2009</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>15.3.2010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.8.2010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.2.2011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23.9.2011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.2.2012</td>
<td></td>
</tr>
<tr>
<td>Planning of regional updating training</td>
<td>23.9.2012</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>10.2.2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.5.2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td>28.8.2012</td>
<td></td>
</tr>
<tr>
<td>Updating the ICP protocol</td>
<td>16.2.2009</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>10.2.2012</td>
<td></td>
</tr>
<tr>
<td>Report of recent activities</td>
<td>30.11.2009</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>15.3.2010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.2.2011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23.9.2011</td>
<td></td>
</tr>
</tbody>
</table>

Solving of problems and planning of the regional training can also be seen as knowledge creation. Furthermore, presentations of research concerning the ICP have produced new ideas for future development and new practises and collaboration between primary and special health care. Two academic dissertation processes and one thesis for an upper degree at polytechnics have been in process between the years 2009 and 2012.

In the health care professionals’ interviews, the development of the ICP of childhood obesity is an example of provisional knowing in this context: “For example this development of the integrated care pathway is one part of development work” (UA1Sp1). The practises of the UA2 weight clinic are evaluated about once a year in a meeting to develop activities which can lead to their improvement.
But we have also these meetings which concentrate on the planning of the weight clinic and those meetings I do attend to. We have them once or twice a year and we make these definitions of policy: what changes should be made and how to develop the actions further. (UA2Sp).

Changing environment should lead to changes in practises. One significant environmental change in childhood obesity in recent decades has been the increase of the problem. All health care professionals thought that childhood obesity has been increasing and that some children are even severely obese.

...childhood obesity has been increasing all the time and the amount of severely obese children has also been increasing. It has been increasing in all age groups and the degree of difficulty has been increasing...If I think about the situation ten years ago, I think it has become so much worse. (UA1Sp1).

When I think that earlier when I made check-ups as a school doctor there was maybe one slightly chubby child in the class...now I have a feeling that there are maybe two or three in normal weight. (UA2Pr).

Some changes in practise can be implicit or tacit (see, Gherardi et al. 1998). Members of an organisation unconsciously start to act in a certain way and these practises do not automatically transfer to all actors in the organisation. This type of provisional knowing is partly also contested knowing. Newcomers are outsiders in health care organisations and all knowledge is not shared with them. One health professional in primary health care had experienced this:

I have shifted from a small organisation to a big one and I have not been here very long, so that the change can affect my perception of collaboration. But sometimes it is quite chaotic when one person tries to contact everyone and I have not found the right channels yet. (UA1Pr6).

8.3.4 Summary of knowledge processes in interaction among health care professionals

Knowledge sharing involves all types of organisational knowing. One type is mediated knowing, which in this study is seen as information that can easily be shared and the processes of transferring and sharing mediated knowing are overlapping. The second type is health care professionals’ situated knowing and explicit parts of pragmatic knowing are shared in interaction. For example,
meetings offer an opportunity to increase situated knowing even if they in the first place are aimed at information transfer. Furthermore, provisional knowing is at the same time constructed and shared in collaboration and communication. Organisational culture which in this research is perceived as a significant manifestation of contested knowing is also constructed in interaction. Newcomers are socialised into the existing culture in practise, collaboration, and communication.

Sharing of knowledge and knowing is separated from information transfer: sharing requires interpersonal communication whereas information transfer can also occur through a medium. Sharing and creation of knowledge and knowing are partly overlapping collective knowledge processes. However, creation of knowledge and knowing can also be regarded as an individual process in social context. All types of organisational knowing are involved in these processes.

The outcomes of sharing and creating knowledge and knowing increase both individual and organisational situated and pragmatic knowing. This can be regarded as individual and organisational learning. The value for health care organisations is better competence to help families with obese children. However, at the same time, provisional and contested knowing is created and established into organisational practises. The boundaries of the organisational subcultures are related to the practises of knowledge sharing both in special and primary health care. The boundary between primary and special health care appears to be strong which hinders knowledge sharing and creation of knowledge and knowing.

8.3.5 Knowledge and information processes in interaction among health care professionals and the families

Knowledge and information processes which take place in interaction among the families and health care professionals are collecting information, sharing, and creating knowledge, and using knowledge and information in counselling (see Figure 14). Lifestyle counselling is the main treatment for childhood obesity, and the knowledge and knowing, which are the outcomes of the other knowledge processes, are used in counselling. In this section, health care professionals’ use of knowledge and knowing and the patients’ and their families’ role as actors of the value network are scrutinised.
Patients and their families participate in the knowledge and information processes of collecting patient information; they share knowledge and information about their lifestyle and environment. Health care professionals use their personal and organisational knowledge, knowing, and information in interaction with the patients and their families in counselling situations. The processes of use and creation of knowledge and knowing are intertwined. However, health information can also be mediated through other media such as leaflets which can be seen as information transfer. The process of knowledge use in counselling entails knowledge, knowing, and information. In interaction among the patients, their families, and the health care professionals, both knowledge and information are involved and thus the term information and knowledge process is used.

**Collection and sharing of knowledge and information among health care professionals and the patients**

Current information about the patient is acquired at the health care professional’s appointment by direct questions or in conversation with the patient and the family. This patient information is mediated, situated and pragmatic knowing which is
constructed together in the interaction among the family and the health care professional.

I interview them and I discuss with the parents about the eating habits and what they do eat, about the frequency of meals and treats and how they exercise and so on. (UA1Pr2).

I discuss with the child about the eating habits. Are the meals regular, what kind of fats do they use, do they consume sugary treats and then we discuss about the exercising habits... (UA2Pr2).

Clinical examination, evaluation of laboratory results and measurements of height and weight are also essential. The health care professionals’ situated knowing is needed to encode the results into health records and to interpret them to the patients.

...we check the results of the laboratory tests, see if the blood sugar levels are in order, the blood lipids, waist circumference and the weight percentage... (UA2Sp6).

In the UA2 university hospital a printed questionnaire which the family fills in concerning nutrition and exercise is used as the foundation of lifestyle conversation and counselling: “Our weight path includes mapping of the lifestyle. It is a printed questionnaire which I give to the family or to the child to be filled in for the next time” (UA2Pr1). This information is mediated knowing and it mediates the family’s situated and pragmatic knowing of frequency of meals, quality of nutrition, and exercise habits.

The families fill in the lifestyle questionnaire. They get it at the first visit and it is with the patient documents as anamnesis for all the other health professionals. (UA2Sp1).

I have also a questionnaire, a lifestyle questionnaire. The nurse gives it at the first visit and the family fills it in at home. There are questions about the daily rhythm and in addition of the usage of food and I can get the general outlines from it. (UA2Sp).

Sometimes food and exercise diaries are used. One public health nurse in UA1 primary health care mentioned a food diary as a means to collect information:
And before that I use a food diary so that for a few days they follow how they eat and is there something that could be fixed or changed and made lighter. (UA1Pr4).

The physiotherapists in both university hospitals used exercise diaries with some patients to outline their daily exercise but also to motivate the children or adolescents to exercise more: “...and we have this exercise diary so that you can mark one line for one hour of exercise” (UA2Sp). These are mediated knowing but they represent the family’s situated knowing about nutrition and exercise and also the family’s cultural issues or contested knowing: what kind of food is preferred? Are there regular meals or is the diet based more on frequent snacks or fast food? Does the family or child have hobbies which include exercise or are the hobbies sedentary?

In one municipality in UA2 primary health care, information about the lifestyle of families is collected in interaction with the family. The form concerning the family’s lifestyle is completed together with the public health nurse at the child welfare or school clinic. The reciprocal interaction is likely to bring out more pragmatic and contested knowing of the family than the form that has been filled out beforehand. In other words, issues of the cultural environment of the family related to its information world emerge in personal communication.

I make also these lifestyle mappings if the family is willing to do it. It concerns the diseases of the family and of the near relatives, nutrition, frequency of meals, fats, sugars, snacks, treats—everything about nutrition. And exercise, use of alcohol and tobacco, the family’s common exercise habits... (UA2Pr7).

A family is not always an entity with two parents and their biological children. The relationships can be very complex.

It is quite a field nowadays, because there are so many kinds of families. There are all kinds of blended families and to keep oneself up-to-date who lives in which household...It is something which has changed. (UA2Pr7).

Moreover, cultural issues emerge when encountering immigrant families.

Cultural background can also be a considerable factor and you notice it with these issues of the diet...eating habits can be very different in other cultures. (UA1Pr1).
Along the same lines, the reasons of obesity are not always the same in every family.

Often you think that obesity is always the same issue. The child may look the same but the backgrounds can vary. There are some families which really know a lot and they can tell that when the parents quarrel it can be seen as the child’s increasing body mass. And sometimes you see that the whole family enjoys eating but they do not have any big problems otherwise...

(UA2Sp2).

Observation of the child and the family often gives clues of how to proceed in counselling. The health care professional’s intuition gives suggestions about the family’s contested knowing and about their information world, the type of information which could be valuable for them: “Often in the beginning I get a feeling what the family wants” (UA2Sp2). Likewise, it is important to observe how the family reacts to the health information.

I see from the parent’s facial expressions how it goes. I can then take the conversation to an easier level if the child is very sensitive. Some people are ready to receive information, but I try to figure out how they perceive it.

(UA1Pr5).

Health professionals’ use of knowledge and information

Knowledge use in health counselling is intertwined with knowledge creation. In the treatment of childhood obesity health care professionals use their own medical knowledge and situated and pragmatic knowing. Knowledge and information about the patient, the patient’s current health status, and information about the family’s situation, social environment, resources, and motivation to make changes are used to construct care plans. Since the main treatment of childhood obesity is lifestyle counselling, the outcomes of knowledge creation are used to give the family instructions and advice that can help in weight management. The family then applies (or chooses not to apply) these instructions in everyday life.

Use of knowledge and information in counselling

All fourteen public health nurses described that they use factual information to bring up the issue of the child’s weight in counselling, for example by showing
the weight curves and interpreting laboratory results for the family: “I show the curves for the child and for the parents so that they can see—in a way I bring the realities to their eyes” (UA2Pr2). Thus the information value of biomedical facts in health care is mediated to the families. Most families seem to accept the factual information as a motivational factor to make changes in lifestyle.

Maybe these laboratory issues are a motivating factor. When you present that the weight has increased and say that it would be good to check the blood lipids and cholesterol, they are perhaps such concrete issues and the parents can think that it would be good to check them and this increases motivation. (UA1Pr1).

And parents are interested in how the curves are shown on the computer. (UA2Pr11).

The document analysis of care path instructions (see Appendices 11 and 12) indicates that in all four primary care centres the instructions offer recommendations for the content of counselling. For example, the instructions can suggest that the first visit should concentrate on bringing up the problem and discussing health risks of overweight and obesity:

First visit
- theme: mapping of motivation, general information
- content: discussion about motivation and about health risks of overweight, measurements of blood pressure, height and weight, general status of the child, inspection of weight curves, discussion. (UA2Pr, Municipality1).

Eating habits and nutrition recommendations are handled at the second visit and the role of exercise in weight management at the third visit.

Health information in counselling should be based on evidence-based medical knowledge which is one of the basic values in health care. The health care professionals use Current Care guidelines and guidance material which has been produced either in their own organisation or by national health organisations.

...I found now this information from my computer and then I remembered that our clinical nutritionist has made very good material for the counselling of overweight children. (UA2Pr1).

...we have tried to act according to these Current Care guidelines. (UA2Sp3).
These criteria are based on the Current Care guidelines and they are quite strict. So we have a clear protocol how to proceed and you do not have to figure out in each individual case: what should I do now? (UA2Pr4).

For example the counselling material “Resourceful family” (“Neuvokas perhe”), produced by the Finnish Heart Association, was used in nearly all primary health care centres of this research. The leaflets contain mediated and situated knowing:

I use pictures as guidance material, they are so concrete. In the “Resourceful” (“Neuvokas”) file I have good pictures about sugars and fats and the children are also interested in them. I use them. (UA2Pr1).

Also, the health care professionals use health information leaflets which have been made in their own organisation or provided by an association of public good to promote health.

We have these leaflets. We have this “Active and tasteful weight management” (“Liikunnallista ja maukasta painonhallintaa”) and this “Fix your meal rhythm” (“Ateriarytmi kuntoon”) and “Snack guide” (“Välipalalla on välälä”). (UA2Pr8).

I use these “Magnificent children” (“Mahtavat mukut”) or “Great youngsters” (“Suurenmoiset nuoret”) materials. They are published by the Finnish Association for Clinical Nutritionists and then also some material of the Finnish Diabetes Association. (UA2Sp2).

Children and families are different and the ways to provide lifestyle counselling must be adapted according to the family. The experiences from one family can be used when treating other families with similar characteristics: “...I have learned so much through work experience—what works well and what does not” (UA2Sp1). Moreover, all the information about weight management (e.g., weight path instructions) that has been sought and collected for one patient case can be applied in other cases: “I have been reading literature and articles about obesity and then of course through work experience I have learned a lot” (UA1Sp3).

Work experience is an important source of knowing in counselling. Moreover, the experiences from personal life and from earlier success or failures in lifestyle counselling shape the attitudes of health care professionals towards patients and counselling methods. The boundaries of health care professionals’ small worlds in private life and professional environment can be crossed. It was surprising that four professionals told about their own experiences: “I myself used to be fat, so it
brings excellent extra information in this subject matter” (UA1Sp). Some offered their families’ conceptions: “I know because I have got two children and they both like different kind of exercise than I” (UA1Sp6). These experiences and observations were sometimes used in counselling, indicating that weight management and eating and exercising habits are complicated issues which are connected with living circumstances, culture, and emotions.

Contested knowing is constructed collectively in organisational interactions. Different professionals meet the patient mostly separately and thus every professional hears a slightly different patient narrative and constructs the conception of the patient and his/her problem from their own professional point of view. These different conceptions may even lead to conflicts in collaborative care.

At the moment the system is such that the doctor dictates what has been perceived and no further plans are made. (UA1Sp1).

The doctor can have a different view about effective counselling than the other team. The doctor’s view is based on giving information and instructions. (UA2Sp2).

Sometimes when I read the doctor’s texts I think how he has been able to make the status and ask for the anamnesis of the family and to give instructions in twenty minutes. The child has been severely obese for ten years and the instructions are that “daily exercise is recommended and eating of treats should be minimised”. Yes, that is the solution! (UA2Sp2).

Each patient who has been treated in health care increases knowing of the individual health care professionals and competence of the health care organisation. This knowing is embedded in the health care professionals’ experiences often as tacit knowledge or in Blackler’s (1995) typology of knowing as situated and practical knowing: “I have been working as a [profession] for over twenty years and I have got so much knowledge and knowing through experience” (UA1Sp2).

Health care professionals can use earlier experiences and apply them into practise in new situations: “But then I noticed that they have got the same joints and everything else only in a smaller size. I did not have to start from point zero, I was able to use my old knowledge” (UA2Sp3). Furthermore, individual characteristics and life experiences of the health care professional can influence the success of counselling: “We all use our own personality in the work” (UA1Pr5).
All health care professionals who work with the same children and families in long-term care relationships learn to know the patients, the families and their health history relatively well. For example, public health nurses in child welfare clinics and at school clinics can build good relationships with the families:

But it helps if you have been able to work with the same family for a long time, because the family is familiar to you—it helps a lot. If I meet a family which I have never seen before, the premises are quite different. (UA1Pr1).

When you learn to know the family it is much easier to inform them, when you know what kinds of issues you can discuss with them, how they accept the information and how much other people are needed to support them. (UA1Pr4).

...if you have been working for a long time at the school, it varies according to the child and to your work situation. But also to the needs of the family and to their motivation. (UA2Pr1).

Health care workers in every professional group brought up that interfering with the families’ lifestyle is not easy and simple. Lifestyle counselling is more than just giving information about nutrition and exercise; it is also support and encouragement. Counselling is demanding; it requires sensitivity and skills to build up a trustworthy situation: “At the first visit I try to create such an atmosphere that it is safe to talk about these issues without tensions” (UA2Sp1).

Sharing of experiences with peers is important:

Counselling is so difficult; you are never fully trained in it. How you can succeed in the situation—it is extremely demanding. We all are individuals. We talk a lot about counselling, we all here, because that is what we do here. (UA2Sp3).

...and then if you must put your mind on it, you can for example in a meeting discuss common practises, so this is also needed every now and then... (UA2Pr1).

On the other hand experiences from previous patient cases can be negative. The results of the care can be poor and the health care professionals’ frustration can influence guidance in future cases.
...in my experience obesity treatment is extremely frustrating...I do not know what could help in it. I am quite desperate about it...Of course, you can try and it is worth to try... (UA1Sp2).

...I can say right away that the results are very poor. I have had no results. It is extremely hard for them to lose weight, extremely hard... (UA1Pr5).

Good counselling requires sensitivity how to approach the child or the family when interfering with the family’s lifestyle: “We went to these courses of motivational interviewing which gave us tips how to handle the patients...” (UA2Pr5). The impression of the family dynamics, wishes, and resources is often tacit and based more on intuition than facts.

...this is something that you learn by years of experience so that you can figure out during a short visit what the family is like. You see how their relationships are and do the parents have any motivation or understanding to support the child. And often the parents are also overweight and they are challenged to change their own lifestyle. If they are not willing to do it, supporting the child is difficult. (UA1Sp4).

...you always have to consider how to say things so that you do not offend and you must remember the positive aspect and pay attention to that. (UA2Pr1).

Childhood obesity is not a neutral condition for all families, it involves many emotional issues. Dealing with feelings and emotions is demanding for health care professionals.

...it is about dealing with emotions. Many times the adolescents can burst into tears, especially young girls, because they feel so bad to talk about those things. (UA2Sp1).

...If there is a more neutral thing, the family comes to have a diagnosis. But obesity is not always. It is a very sensitive issue. Even the terms, someone can find it offending if we talk about obesity. Some parents are offended, some can wake up. (UA2Sp2).

The issues of overweight and obesity raise strong emotions which can appear as the child’s or parents’ resistance, denial or even anger towards the health care professionals.
There are of course those people who say that we eat like this and we do not want to make any changes. (UA1Pr2).

Many parents do not react at all. The child can be very chubby and my follow-up are as good as nothing because I only talk with the child and I cannot reach the parents. (UA2Pr2).

In counselling, health professionals need not only situated knowing (medical knowledge about the problem) and pragmatic knowing (counselling skills), but also skills to deal with emotions and to support and encourage the families.

**Patients and their families as actors in the ICP networks**

All the health professionals regard the children and especially their families as essential actors of the network: “On the first place are these patients—or actually they are not patients yet, they are pupils. And of course the family or grandparents or other family—where ever the child lives” (UA1Pr3). Health professionals recognise the importance of the parents’ or other family’s involvement with the child’s life and lifestyle: “I don’t discuss these issues with the child alone further, because I find it is useless. I contact the mother and we make an appointment with her and with the child” (UA1Pr4).

The patient interviews indicate that the three mothers in UA1 perceived themselves to be active partners in special health care: “Yes, I have such a feeling that our situation has been taken well into account” (UA1M3). However, in primary health care the families did not always receive the needed services. This seemed to be due to restricted resources: “Here you cannot get an appointment if you need one. Here in [name of the municipality] the situation is so bad that you have to fight to go to the health centre” (UA1M1).

In the family questionnaire in UA2 the families were asked about their conceptions of the possibilities to influence the care of their children or adolescents in health care. This question was aimed at finding out about the families’ perceptions of being active members in the ICP network and in the knowledge processes. Six of thirteen families thought that they were able to influence the child’s care a lot, for example by arranging visits to special health care according to the wishes of the family because of long distances. Three families thought that they had slight or some influence over the care.
I made an appointment with the school doctor myself. Before that it was impossible to get treatment anywhere. (F5).

I asked for follow-up visits to support the weight path and this came true after one year. In that time the weight had increased beyond control. Our family was abroad for one year and the unhealthy eating at school did its job. (F8).

Families’ perceptions about interaction in counselling

Good interaction among health professionals and families is an essential factor related to the success of lifestyle counselling. The interviewed mothers in UA1 emphasised the aspect of good interaction:

What I liked in [name of the hospital] was that they did not try to be so strict which is good at his age, because otherwise it arouses resistance immediately. We talked about eating habits quite easily; about what he should eat and how to eat. (UA1M1).

...they can so nicely and professionally tell about these things. (UA1M3).

In the UA2 family questionnaire, the thirteen families who returned the questionnaire were for the most part quite content with the counselling which they had received in primary health care (see Table 18). Eight families perceived the counselling as friendly. However, the supportiveness of counselling was not perceived so well.

Table 18. Families’ perceptions about counselling in primary health care (N=13).

<table>
<thead>
<tr>
<th>The family’s perception about the counselling in primary health care</th>
<th>Fully agree</th>
<th>Partly agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Objective</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Friendly</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reproachful or making to feel guilty</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Practical</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Too general</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Too theoretical</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Difficult to understand</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Supportive and reinforcing to changes</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Just right for the family</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Difficult to apply in everyday life of the family</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
Three families perceived that counselling in primary health care had to some extent been reproachful or made feel guilty. In special health care none of the families had this perception; families found the counselling objective, friendly, practical, and supportive (see Table 19).

Table 19. Families’ perceptions about counselling in special health care (N=13).

<table>
<thead>
<tr>
<th>The family’s perception about the counselling in special health care</th>
<th>Fully agree</th>
<th>Partly agree or disagree</th>
<th>Do not agree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Objective</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Friendly</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Reproachful or making to feel guilty</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>1</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Too theoretical</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Difficult to understand</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Supportive and reinforcing to changes</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Just right for the family</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Difficult to apply in everyday life of the family</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

In the open-ended questions seven families wrote extremely positive comments about the care and the personnel in special health care: “The personnel of the weight clinic has been very friendly; they have not been reproachful or made you feel guilty. It has been so nice to go there although the weight issue has been so sensitive for the adolescent” (F5).

Furthermore it is important that the families have an opportunity to ask about the issues which concern them; the counselling situation should be peaceful. Patients can thus participate in the knowledge process of creation and use of information and knowledge. Health care professionals in primary health care thought that lack of time was the main obstacle for good counselling. Public health nurses are responsible for so many issues related to the child’s health that they do not have enough time to put their time to weight management.

It is only one part, although an important one, this weight management in my work. Nowadays you have all kinds of other things: problems with behaviour and learning, posture problems and so on. (UA1Pr3).

In special health care the situation is totally different. Since obesity is the reason the child and the family have been referred to special health care, the family is
already aware of the problem and different professionals can concentrate on counselling in their own special field. However, time is limited in special health care: “...but the first visit to us is also very short. In half an hour you must bring up the problem and there are some feelings involved” (UA1Sp1).

8.3.6 Summary of the information and knowledge processes in interaction among the health care professionals and the families

In patient counselling all types of organisational knowing are involved. Health care professionals’ situated knowing is needed to interpret the mediated knowing in health records. Patients and their families fill in questionnaires about their lifestyle. This information helps the health care professionals figure out the main issues which need to be handled in lifestyle counselling. The questionnaires contain mediated and situated knowing of the family. The health care professionals use their situated knowing to interpret the content of questionnaires and also the encoded information, from measurements and laboratory results, for example. This information is also completed in the conversation between the professionals and families which construct situated and contested knowing.

Pragmatic knowing in the care of obese children refers to counselling skills. Provisional knowing about the practises in the ICP is needed as well to store patient information into the patient records. These skills are both provisional and pragmatic. Information leaflets which may be given to patients and families are categorised as mediated and situated knowing, often also as pragmatic knowing such as food recipes. Contested knowing is constructed in interaction among the health professionals and the families. This type of knowing in health care manifests in the attitudes towards the obesity problem and in the norms and information value of health care. Furthermore, the family’s reactions to counselling are an indication of contested knowing in the family’s small world.

8.4 Value for the patients and their families

The patients and the families achieve the goals of health and well-being by making lifestyle changes, supported by the family’s perceived quality of counselling. However, the changes are not easy and may mean costs or sacrifices for the families. Changes require efforts and resources; they involve the whole family and the family’s lifestyle. Value for the patient is thus constructed from the
balance between the costs and benefits. Counselling is the means to achieve the goals of health and well-being and firstly the elements of good counselling are identified from of the families’ and health professionals’ perspectives (see Figure 2, p. 41. Secondly, the elements of patient value are identified based on the health professionals’ interviews in both UAs, on the patient and family interviews in UA1 and on the family questionnaire in UA2.

8.4.1 Counselling in interaction

The elements of counselling were identified from the patient and family interviews in UA1. The main identified elements were good interaction and communication, and trustworthiness of health information which relies on the competence and expertise of the health care professionals. Also appreciated were support, encouragement and taking into account the family’s resources and situation in life: “Yes I have a feeling that they have taken our situation into account” (UA1M3). Fourthly, concrete tips to cope with situations related with weight management in everyday life were regarded as important: “You hope that you would get some practical tips and I think that we have got them too” (UA1M3).

Ten health professionals brought up the same issue: general knowledge is not enough in weigh management.

I am sure that the adolescents and parents know in theory what should be made and they have heard all these lifestyle and nutrition instructions many times but they are so frustrated with that repetition and they do not have a trick how to do it. (UA1Sp2).

I have noticed that the more concrete the instructions are the better they are received. Knowledge about nutrition—well ok—but rather like this: that this is the plate and you put this and this on the plate. The plate model is good, I always use it. (UA1Pr5).

Moreover, seven of the twelve interviewed health professionals brought up families’ lack of motivation to make any lifestyle changes and found counselling very frustrating in these cases.

Of course there are some children and families which are not at all motivated. They find it difficult to come here, they are not interested, and we shift those patients away. (UA1Sp3).
In special health care many professionals were concerned about possible contradictions or overlap in counselling because they did not know what kind of information the child and the family have already received in primary health care and from other personnel in special health care.

*It is an enormous gap if you consult a clinical nutritionist and you have got no idea what kind of counselling the child or the family has already received... (UA1Sp).*

*I have thought that it would be interesting to know what different professionals have said to a patient. We have this care protocol as a document but does it come true like that? Are there some gaps regarding some family, which nobody has mentioned? Or are there overlapping issues and do they confirm the message or are they frustrating? How much contradictory information do we provide? (UA2Sp2)*

The interviewed families appreciated peacefulness of consultations in special health care.

*There has been well time in [name of the hospital]. They have always asked if we have any questions and it has not been like that you should hurry to go. (UA1M1).*

In the UA2 family survey, two families (N=13) responded that there was always enough time at the visits to primary health care to pose questions, five families reported that this was usually possible and two families were never or very seldom given the opportunity to ask more information about the care. One mother reported that her daughter had visited the school nurse alone and the mother was thus not able to answer the question. In special health care, 10 families (N=13) reported that there was always time to pose questions, and 3 reported that this possibility was given often. Only one family answered that they never had time to ask any questions.

The competence and expertise of the health care professionals both in primary and special health care was perceived as high, though there were slight differences in favour of special health care. The main perceived differences between primary and special health care were the supportiveness of counselling and in the practical tips which the families perceived to be better in special health care (see Tables 18 and 19, pp. 207–208). In addition, the counselling seemed to
meet the needs of the families since none of the families found that the instructions were difficult to apply in everyday life.

The amount of information in counselling in primary health care seemed to be fairly sufficient. The parents would have liked to get slightly more information about nutrition and exercise and interestingly the largest information need was about heredity in issues of weight (see Table 20).

Table 20. The families’ wishes about additional information in primary health care (N=13).

<table>
<thead>
<tr>
<th>The families’ wishes for additional information in primary health care</th>
<th>A lot more information</th>
<th>More information</th>
<th>Somewhat more information</th>
<th>Slightly more information</th>
<th>No more information</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>About nutrition</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>About exercise</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>About the relationship between rest and sleep in weight management</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>About heredity in weight issues</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Ten health care professionals thought that lack of information or knowledge about weight management is not the cause of the obesity problem; the solution is somewhere else: “I know that they do know. It is not about that. It is about how they can realise it. There should be some other way. I do not believe that our way is so good. I do not believe” (UA1Pr5). One family’s answer in the UA2 patient survey is in accordance with the health care professionals’ opinion.

It is not about lack of knowledge. We parents have gone to many weight management courses. Everyday life is sometimes rough and when you are tired weight management does not succeed. (F1).

Information in counselling in special health care was perceived to be sufficient (see Table 21). However, it must be noted that the families who have been referred to special health care have received information about weight management already in primary health care so that these issues are not quite new to them. The parents would have liked to get only slightly more information about nutrition and exercise. The families were also asked separately if the instructions were easy or difficult to apply in everyday life. All families replied that the instructions were easy to apply although one family answered both yes and no.
Fifteen health care professionals brought up the problem of possible information overload in counselling.

There are so many things which would be nice, but you cannot include so many issues into one meeting. Rather there should be one theme and you should not overload the family with information. (UA2Sp2).

Table 21. The families’ wishes about additional information in special health care (N=13).

<table>
<thead>
<tr>
<th>The families’ wishes for additional information in special health care</th>
<th>A lot more information</th>
<th>More information</th>
<th>Somewhat more information</th>
<th>Slightly more information</th>
<th>No more information</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>About nutrition</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>About exercise</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>About the relationship between rest and sleep in weight management</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>About heredity in weight issues</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

The families were asked if they sought information about weight management in addition to the health information they received from the health care professionals in counselling. Mass media—newspapers, magazines, television, and radio—seem to be fairly important sources of additional information about weight management. Seven families sought information from these sources a lot and twelve a little or somewhat. This may of course be due to the fact that the obesity problem its health consequences, and the issues of weight management have been widely discussed in the media (See Table 22).

Table 22. The families’ other sources of weight management information (N=13).

<table>
<thead>
<tr>
<th>The families’ other sources of weight management information</th>
<th>Often used source of information</th>
<th>Fairly used source of information</th>
<th>Sometimes used source of information</th>
<th>Little used source of information</th>
<th>Not at all used source of information</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Magazines, newspapers</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Television, radio</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Health information sites on the Internet</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>News groups on the Internet</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Friends, relatives,</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>
The families do not seem to actively seek additional health information which is consistent with the answers to the question in the survey about further information needs in counselling. Most families reported that they did not need additional information in special health care about nutrition and exercise. However, counselling in primary health care did not seem to be so comprehensive, because only two families answered that they did not yearn for more information about these issues. Interestingly though, the families would have liked to receive more information about heredity and the relationship between sleep and rest and weight management both in primary and in special health care.

The families were also asked about further wishes for counselling and other activities in primary health care (see Table 23). The results show that seven families would like to have more practical advice and eight families more support and encouragement. Club activities for children and family exercise were also wished for. On the other hand, the parents do not seem eager to discuss issues about weight problems either face-to-face or online with other similar families. Perhaps the families do not want to be labelled as “families with obese children” by joining discussion boards or clubs with peers.

Table 23. The families’ wishes for counselling and other activities in primary health care (N=13).

<table>
<thead>
<tr>
<th>Families’ wishes for counselling and other activities in primary health care</th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>More practical advice</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Support and encouragement</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>A possibility for family exercise</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A cooking course</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>A discussion group for parents</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>A club for overweight children</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>A discussion group on the Internet</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>A possibility to ask expert advice on the Internet</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
The same wishes were asked about special health care (see Table 24). The results indicate that most families did not have any special wishes for special health care. Surprisingly, seven families were interested in a club for obese children while five other families were of quite the opposite opinion and strongly disagreed with this idea. In addition, one family desired more visits to the weight clinic in order to maintain the child’s motivation better.

*The guidance which we have received has been objective. However, the visits are so seldom that the child and we easily “lose our way”. The most important thing is to get the child to understand and to control his own eating.* (F7).

**Table 24. The families’ wishes for counselling and other activities in special health care (N=13).**

<table>
<thead>
<tr>
<th>Families wishes for counselling and other activities in special health care</th>
<th>Fully agree</th>
<th>Partly agree or disagree</th>
<th>Do not agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>More practical advice</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Support and encouragement</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>A possibility for family exercise</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>A cooking course</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>A discussion group for parents</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>A club for overweight children</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>A discussion group on the Internet</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>A possibility to ask expert advice on the Internet</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

**8.4.2 Benefits of counselling**

Benefits of counselling in this study cannot be measured objectively, for example with weight curves or laboratory results. The benefits are intangible and are the patient’s and the families’ own estimation about the changes which they have made in living habits after their counselling.

The three interviewed mothers and children in UA1 tried to make some recommended changes. For the first family the main cause of the child’s increased weight was excessive eating. The boy described the instructions as follows:
They told me to eat more in the morning than in the evening and during the last visit they told me to cut down the portion sizes. Maybe it has succeeded a bit better than earlier. (Ua1Ch1).

In the second family the basics of nutrition seemed to be in order but the child was not eager to exercise.

I should exercise more, get into exercising...On the trampoline, a bit of football and I have fetched some firewood—you get exercise there too. (UA1Ch2).

The third child had problems with excessive eating and even eating in secrecy with insufficient exercise. The mother had taken the child with her for walks. She contacted the school as well and asked that they give the child smaller portions at school lunches. At home the mother did not bake as much as before.

The findings of the family survey in UA2 indicate that most of the families did not make major self-reported lifestyle changes after the visits to primary health care. The families reported that only slight changes had been made both with nutrition and eating habits as well as with exercise habits (see Table 25).

Table 25. Changes in lifestyle after counselling in primary health care (N=13).

<table>
<thead>
<tr>
<th>Changes in lifestyle after counselling in primary health care</th>
<th>A lot of changes</th>
<th>A fair number of changes</th>
<th>Some changes</th>
<th>Only slight changes</th>
<th>No changes</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of nutrition</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Frequency of meals</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Portion size</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Exercising habits</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

However, 12 families made some self-reported changes in lifestyle issues after counselling in special health care. They answered that they had changed the quality of nutrition and they had made changes with the frequency of meals and portion sizes. One family did not answer this question (see Table 26).
The families were asked open-ended questions about which instructions were easy to apply in everyday life and which proved to be difficult. The variety of answers points out that every family has its own challenges. Most of the families (n=8) perceived that it was easy to make changes in nutritional issues. For example, restricting sweets and other treats and changing soft drinks to water seemed easy. The families replied that the easiest instructions to apply to everyday life were, in one case, “no high-energy drinks, sweet days—the child realised this better when an outsider told them so” (F8). Another mentioned, “drinking water before meals” (F2).

For three families it was easy to increase physical activity in everyday tasks through “exercise, more every day exercise” (F4). Another family replied: “More exercise, the possibilities to exercise are good in the countryside” (F6). One family mentioned that the instructions are easy because the motivation is high.

The mothers in UA1 and the families in UA2 were also asked about future weight controls in special and primary health care. All three mothers and families were aware of the check-ups in the future. Continuity of care is one element of value, as one mother describes, “so that you know that you are not alone with this problem” (UA1M3).

### 8.4.3 Costs or sacrifices of lifestyle changes

The patient and family interviews in UA1 indicated that lifestyle changes are not easy although the families find the counselling good.

...he does not like all foods. Some salads and root vegetables—he does not want to eat them. So that we have not been able to realise all the instructions because I cannot get him to eat them. (UA1M1).
Not so much. It depends on [child’s name] also, I cannot make him exercise by force. (UA1M2).

The findings of the family survey in UA2 indicate that every family has its own challenges in weight management. For some families the challenges are with changes in nutrition and for others adding exercise to everyday life is difficult. In this sample the biggest challenges seemed to be making changes in the quality of nutrition. Nine families reported that increasing fruits and vegetables into the diet and avoidance of sweet or salty treats was a challenge for them. The portion sizes were a problem for eight families but the frequency of meals did not seem to cause so many difficulties. Four of the thirteen families found it difficult to restrict portion sizes, especially when the child complains of hunger after the meal. On the questionnaire the families answered the question, “What seems to be difficult?” as follows: “To interfere with the portion sizes when the child complains about being still hungry” (F3). Also: “Managing portion sizes. I do not want to remark about this when the siblings hear it” (F7).

Eight families found it difficult to restrict the child’s or adolescent’s television or computer time. Seven families could not find time to exercise. Two families answered: “to combine the long school days and exercise” (F2), and “the school days with the traveling lasts from 7a.m. to 4 p.m. Then there is no energy left” (F12).

Interestingly as many as seven families reported that lack of motivation on the child’s part is an obstacle in weight management. Six families perceived that lack of a peer support group was also a possible hindrance to the weight management of the child (see Table 27).

Table 27. The biggest challenges for the families in the issues of weight management (N=13).

<table>
<thead>
<tr>
<th>The biggest challenges for the families in the issues of weight management</th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning frequency of meals</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Learning portion sizes</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Increasing fruits and vegetables into the diet</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Avoidance of sweet or salty treats</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>The price of healthy food</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>The time required to shop for groceries and/or prepare meals</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
The biggest challenges for the families in the issues of weight management

<table>
<thead>
<tr>
<th>The biggest challenges for the families in the issues of weight management</th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of opportunities to exercise</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Difficulties finding a suitable form of exercise</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Finding time to exercise</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Financial costs of exercising</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Family or friends do not support weight control</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Lack of child’s or adolescent’s own motivation</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lack of a peer support group</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Restriction of TV or computer time</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Something else</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

One parent describes the challenging situation at home as follows:

*The child has a difficult and rough puberty. Lack of social relationships led to the computer and to game addiction. When the mother remarked about the eating habits it led to resistance. The child eats the treats, snacks, and chips in secrecy and the wrappers are found here and there. The mother stopped remarking when she saw how difficult the child’s situation was and because the reaction was opposite. The child eats because he feels bad about himself and just for the joy of eating. Nice and motivating support is missing—there is only the computer.* (F7).

One family perceived that weight management requires too much of the family’s resources and that it is also frustrating. Health care professionals also know that making lifestyle changes is not easy and simple.

*The most challenging thing in counselling is the fact that it is so difficult to make lifestyle changes. It depends on so many things. The family’s financial situation, education, resources, situation in life and so on...* (UA2Sp5).

Health professionals have met different families during their long work career and they know that families and their dynamics have changed in recent years.

*The child can have two parents who live at different places, they can have new partners and there are so many different opinions about the food issues. The child’s life is affected by so many people that if they do not think in the same way, the situation can be very challenging.* (UA2Sp5).
But now when I think about these two children, because I still know them, I know that their situation is even now difficult. Obesity is many times so difficult to treat. (UA2Pr1).

During these years I have become a bit cynical. When we inform the patients and make clear plans and then it is so difficult to apply them in everyday life, in practice, so it is actually the biggest challenge to make the changes. (UA2Pr1).

Maybe it is more about parental attitudes. I do not know. Somehow I feel that they do not want to do anything about it, they do not want a change. Because in order to make changes they should completely change their lifestyle and they are not ready to do it. (UA2Pr4).

...quite many people say that yes, I have got knowledge, I know what should be done. But how do I realise it? (UA2Pr8).

Health care professionals thought that the most prominent costs or sacrifices of lifestyle changes for the families are to carry responsibility for the child’s eating: “With these weight issues it is mainly about setting boundaries for the child and if this is a problem it is a big challenge for the parents” (UA1Pr4).

8.4.4 Summary of the elements of value for the patients in the ICP of childhood obesity

The value for health care organisations in this research is defined as health and welfare of the population. For the organisations this stands for increased organisational competence to treat obese children to help them and their families in weight management and to achieve permanent favourable changes in lifestyle. From the perspective of the health professionals the main benefits were health and welfare of the child and the whole family. Health professionals thought that the families’ costs or sacrifices were taking responsibility for and control over the child’s eating and exercising. These require resources and motivation and the family may need continuous support.

For the families the main benefits of the child’s or adolescent’s weight management are health and welfare of the child in present and in future. Although the counselling in primary health care is perceived as good and in special health care as excellent, the application of the instructions in everyday life is not easy. The costs and sacrifices seem too big for the families. Every family has its own
challenges in weight management. For some families the quality of food, getting the child eat more fruits and vegetables, is difficult. In some families, decreasing the portion sizes is the greatest challenge. The easiest change in nutrition seems to be restricting the use of sweets, other treats and soft drinks. Some families do not have time to exercise or do not find a fitting type of physical exercise for the child.
9 Discussion and conclusions

In this chapter the main findings are discussed in relation to the research questions set. The validity and reliability and limitations are considered. Finally, the study’s contribution to Information Studies is discussed and practical implications and ideas for future research are presented.

The aim of the study was to increase understanding about value creation in the context of prevention and care of childhood obesity. The purpose was to examine value-creating information and knowledge processes, the patients’ and their families’ involvement in these processes, and factors which are related to these processes. This was done through a research setting in a multiprofessional integrated care pathway of childhood obesity in Finnish public health care.

Based on earlier research, the value-creating information and knowledge processes were divided into six sequences: collecting, transferring and storing information, sharing and creating knowledge, and using knowledge and information. However, the processes proved to be overlapping and simultaneous. In health care organisations, the processes of collection, transfer, and storage of information take place for the major part through IT systems, whereas sharing and creating knowledge require personal interaction. Use of information and knowledge and sharing and creating knowledge refer to counselling in which the health professionals and patients and their families interact.

The main research question was set as follows: How do the information and knowledge processes in the integrated care pathway for childhood obesity create value for the patients and their families and for the health care organisations?

It was divided into five subquestions:

1. How is the structure of the integrated care pathway (ICP) related to the information and knowledge processes of the ICP?
2. How is organisational culture in the ICP related to the information and knowledge processes of the ICP?
3. What types of knowing are involved with the information and knowledge processes?
4. How are the patients and their families involved in the information and knowledge processes and in creation of value in the ICP?
5. How do patients and their families perceive value?
9.1 The outlined network structure of the ICP and its relationship with information and knowledge processes

The structure of the integrated care pathway was outlined based on the interviews of the health care professionals. It must be noted that the structure of the network outlines only a general picture of the actors and their relationships but is not able to reveal the true nature of the relationships or the context in which the network exists (Hersberger 2003, Bishop & Waring 2012). Network structure in health care organisations is constructed of the practises of the organisations. These practises, in turn, are regulated by national laws and decrees. However, personal relationships are also significant. Bishop and Waring (2012) point out that cultural issues and interpersonal trust are major factors in clinical practice (see also Lee et al. 2011). Strong ties are built on long-term collaboration and sharing of professional knowledge and information is easier with trusted colleagues which also came up in this study.

The structure of the ICP network indicates that the process of information transfer between primary and special health care is observable. All the other knowledge processes, namely collecting, storing and using information and knowledge, and sharing and creating knowledge take place only inside the primary and special health care organisations.

In primary health care organisations the social networks are determined mainly by the local practises of health care in each municipality. Public health nurses at school clinics work independently and alone for most of the time. The school public health nurses and doctors form dyads in the social network, because the doctor visits the school a few times a month. Although the tie is not frequent, it is significant and strong, especially if the work relationship has been long and mutually affective and cognitive trust has been established (see, e.g., Granovetter, 1973).

Child health clinics of this study were located in municipal health centres. Public health nurses had strong ties within their own professional groups. The tie with the doctor was also relatively strong because both professional groups treat the same patients. In small health centres, public health nurses’ and doctors’ interpersonal contacts with other professional groups (e.g., clinical nutritionists and physiotherapists) were more frequent than in larger work communities. This finding is parallel with Keating’s and her colleagues’ (2007) perception that location and schedule are related with sharing of information with colleagues in primary care practise. The spaces in these small health care centres are often
small and the different professionals are likely to meet during the work day, for example during the lunch hour or coffee breaks. Familiarity which has been created in social relationships facilitates communication with professional concerns. Informal social relationships affirm affective trust and facilitate also talking about more complicated work problems. Thus informal social networks are preferred. This finding is parallel with the observations of Tagliaventi and Mattarelli (2006) and Jackson and his colleagues (2007).

In special health care, ties among professional groups are strong. This finding supports the suggestion of McPherson and his colleagues (2001) that homophily is likely to establish strong ties. Employees tend to have strong ties with those who occupy the same job. People discuss professional matters by choice with those similar to themselves (see, i.e., Cunningham et al., 2013). However, nurses also have ties to both doctors and other professional groups. This is mainly due to the practises of the endocrinological outpatient clinic in UA1 and the weight clinic in UA2 because the nurses are co-ordinators of the patient care.

The main tie in the ICP network between primary and special health care is the electronic referral-epicrisis system. Personal meetings between primary and special health care are rare. The regional updating training sessions which special health care arranges are so far the only opportunities to meet colleagues from the other organisation. These training sessions are infrequent and technical problems to remote hospitals or health centres can hinder open communication; thus sharing of information is difficult.

Information transfer through IT is in principle effective. Nohria and Eccles (1992) claim that relationships which are based only on IT are weak; they serve best for mediating simple codified messages. The referrals and epicrisis transfer this kind of mediated knowing. Although the referral and epicrisis documents are managed mainly by the doctors of the ICP they are stored into the organisations’ EPRs for access by all other actors of the network. The referral-epicrisis system and the documents are thus boundary objects (see, Star & Griesemer 1989, Kimble et al. 2010) and the doctors in primary and special health care can be regarded as brokers. The role of the brokers in this case is determined by organisational rules and practises and furthermore fortifies the dominant position of the doctors in health care.

The main difference between the network structures of the two units of analysis were due to the practises in special health care. In UA2 special health care, the professionals work as a team with weekly team meetings. Although the paediatrician and the doctor in training did not usually attend the team meetings,
the nurse met them weekly in the meeting of the children’s endocrinological outpatient clinic meetings. The nurse was thus a broker between the care personnel and the doctors.

The structure of the value network is related with opportunities to meet colleagues and co-workers in the ICP. Lack of time is a significant factor which hinders discussions and informal meetings with colleagues and co-workers both in primary and in special health care. A health care professional must also sometimes skip the formal work meetings because of other duties. Huysman and De Wit (2002) and Riege (2006) state also that time restrictions and timing (Widen-Wulff 2007) restrain sharing of information in organisations. Timing of a need, such as consulting a colleague or co-worker, is a significant challenge in health care. When a colleague is occupied with a patient it is impossible to disturb him/her with his/her work because patient confidence must be maintained.

9.2 Organisational culture in the ICP of childhood obesity and its relationship with information and knowledge processes

In this study the main concepts of the theory of information worlds (Jaeger & Burnett 2010), namely social norms, social types, boundaries, and information value, are used to describe the features of organisational culture in the ICP for obese children. Health care can be seen as an entity from the integration perspective or from the differentiation perspective with the aspect of occupational subcultures (see, Meyerson & Martin 1987). Both perspectives are discussed in this subchapter.

Organisational culture in the ICP becomes visible in the processes of collection, transfer, and storing of information. Factual information is emphasised in the patient records and referrals between primary and special health care. The organisational boundary between these organisations is evident.

Social norms seemed to be slightly different in primary and special health care. However, the common norms of the ICP could be identified as expertise, collegiality and respect of other professionals, and as division of work tasks which also emphasises independent work. This finding is in accordance with Lehtomäki’s (2009) study which indicated that in health centres, the independent working culture and individual decision making is typical (see also Sirviö 2006; Saarelma & Kokkinen-Jussila 1993).

Keeping up with new knowledge seemed to be a norm for all the interviewed health professionals. The findings indicated that the public health nurses reported
sharing their knowledge and experiences with colleagues. The medical doctors who were their closest co-workers were mostly consulted in problematic situations. The doctors were thus more information sources than partners of knowledge sharing. According to Lehtomäki (2009), especially the culture of medical doctors stresses the importance of continually updating of knowledge and knowing. The doctors are responsible for patient care by law and thus must be aware of advances in medicine (MSAH 1994).

The multiprofessional team in the second university hospital used the team meetings as a place to share their experiences and their personal feelings of challenging situations in counseling. Long work relationships have affirmed cognitive and affective trust in the care team in UA2 which enables this kind of sharing. Trust is embedded in organizational culture and is one factor which is related to sharing of knowledge and information in organizations (Davenport & Hall 2002, Hall 2003, Ipe 2006, Parviainen 2006, Riege 2006, McAllister 1995, Sonnenwald 2004, Holste & Fields 2010).

Factual knowledge is the foundation of medical care which was evident in the health care professionals’ interviews. The strong dominance of biomedical knowledge fortifies the doctors’ position in the hierarchy. Earlier studies have indicated that in hospitals the medical doctors are on top of the hierarchy (Eriksson-Piela 2003, Coombs & Ersson 2004, Currie & Suhomlinova 2006). Allen (1997) argues that medical diagnosis is the responsibility of the doctor, which also defines the nurses’ work. Although multiprofessional collaboration has been discussed for many years in health care, the professional boundaries, respect of another professional’s knowledge and competence, and the tradition of working independently are norms which actually shift the idea of collaboration more to the division of work tasks.

The pediatrician and the doctor in training seldom attended the team meetings in UA2, because they perceived their role as experts of scientific medical knowledge and not as providers of lifestyle guidance. This finding supports earlier research evidence. Although medical doctors’ roles in obesity treatment is important (Rippe et al. 2001), they provide insufficient guidance which can be due to their inadequate counselling skills and confidence (Demak & Becker 1987, Huang et al. 2004). Moreover, Foster and his colleagues (2003) claim that physicians have doubts about the effects of lifestyle guidance and that they see obesity as a problem with stereotypical attitudes about obese people.

The findings indicate that information value of scientific evidence-based medicine and measurements and tests is appreciated in health care. This is in
accordance with the findings of Coombs and Ersser (2004) and of Lehtomäki (2009). Lehtomäki (2009) states that health professionals presume that their own and their colleagues’ actions are based on evidence-based medicine and on recommendations. This study indicates that the measurements determine the health status of the patient and the professionals use them as motivational factors for the patient and the family. The professionals justify their interference with the child’s increasing weight with risks of obesity in later life even if the family does not recognise the child’s obesity as a problem. Vuorela (2011) notes that if the parents do not view it as a problem, the health professionals’ duty is to use their expertise to inform them. Scott and his colleagues (2004) also perceived that doctors initiate weight loss counselling by “medicalising” it as a problem in itself or as a risk for future health. National and regional guidelines support this interference.

The information value from the families’ point of view was difficult to trace in this research. Only one mother mentioned her need of practical tips as information content. More extensive qualitative data might have revealed more about this aspect.

The findings of this study indicate that basic assumptions (Schein 1991) in the health care professionals’ interviews emphasise health as a value which is not challenged. The main goal is prevention and healing of diseases which at the same time entails the ethical principle of working for the benefit of the patients (see, e.g., Tagliaventi & Mattarelli, 2006). The Finnish act on health care professionals (MSAH 1994) rules as an obligation on health professionals’ activities that the aim is to “promote and maintain health, to prevent illness, to cure those who are ill and to alleviate their suffering”. It seems thus that health professionals have internalised this regulation as a common value. Eight of the twelve interviewed public health nurses had a long work history as nurses in various duties and an aspect of nursing as a vocation reflected their attitudes towards patients in the study interviews.

The common values of healing and disease prevention which establish the norms of expertise, keeping up with latest scientific and technical development, and goal-orientation represent the integration perspective of organisational culture (Meyerson & Martin 1997). Motivation to share knowledge is closely related to the evaluation of the risks and benefits of sharing knowledge because knowledge is a competitive advantage (Riege 2006, Wilson 2010). In this study in public health care the competitive aspect was invisible. Van Beveren (2003) remarks also that public health care organisations are not driven by increasing profits or
competition, because their funding does not depend on the outcomes. In this study, the interviewees did not bring out any reasons of why not to share knowledge. Common goals were clear for every health professional and they are likely to diminish competition. Kasila (2007) indicated that organisational culture in another field of public health care, namely oral health care, is goal-oriented, role-dependent and task-centred, and common goals are emphasised. In this study the findings were similar.

Some features of professional subcultures can be identified but it is challenging to identify if the boundaries between subcultures are based on cultural constructions or on organisational practises. However, the differentiation perspective can be seen in this study (Meyerson & Martin 1997). The doctors are able to discuss emerging medical problems and complicated patient cases with their colleagues either in doctor’s meetings or more informally because of their larger number, especially in special health care. West and her colleagues (1999) perceived that the doctors’ dense professional social networks fortified their professional identity and thus also the boundaries between the professional small worlds.

This study indicates that sharing of professional dilemmas is more common within one’s own professional groups whenever it is possible. For example, the public health nurses in primary health care frequently keep in touch with their colleagues. Organisational culture in Finnish health care has been found to have strong subcultures of professional groups, specialities, and units in primary and special health care (Kinnunen 1990, Viitanen 1997, Wiili-Peltola 2005, Eriksson-Piela 2003, Lehtomäki, 2009). However, unlike Ferlie and his colleagues’ (2005) claim, the professional boundaries are not so strong that they would inhibit the spread of new practises. For public health nurses in individual patient cases, their “own” doctor is the most likely co-worker to consult.

In both primary and special health care, special employees (the clinical nutritionists and physiotherapists) are such small professional groups with their own specialised fields that they do not have the possibility to meet their colleagues and discuss patient concerns on a daily basis. However, sharing of knowledge and experiences with colleagues can take place in professional meetings, trainings, and conferences. Hernes (2003) notes that social boundaries are connected with a sense of identity, perception of “sameness” and “otherness”, and they create trust which enables sharing of thoughts. This kind of professional identity is constructed in meetings with colleagues.
The boundary between primary and special health care is a result of the historical development of Finnish health care (Kerosuo 2006, Saarivirta 2012, also Murphy & Eisenberg 2011). Special health care and especially university hospitals have the status of high competence, specialised physicians, and specialised care. According to Saarivirta and his colleagues (2012), the special care environment offers opportunities for joint research between specialists in different fields of medicine which increases professional knowing and knowledge. Furthermore, training of medical students upholds organisational knowledge and knowing with new scientific and clinical research and discoveries. Knowing in university hospitals is highly respected which is likely to confirm the boundary between primary and special health care. Allen (1997) remarks that boundaries are negotiated and they can range from tacit understandings to explicit contracts. The statement, "What is not said is as important as what is said" (Panteli 2003, 87), suggests that the invisible culture has a role in the social construction of boundaries.

The findings of this research indicate that organisational practises define the boundary between special and primary health care but social norms are also involved. This supports Paane-Tiainen’s (2013) claim about the deeply rooted distinction of Finnish primary and special health care organisations. The boundary between primary and special health care is both structural and cultural and sustained by organisational practises. Also Yu (2012) suggests that boundaries of an individual’s information world are defined on his/her information practises, not on social norms.

9.3 Types of knowing involved in the information and knowledge processes

Information and knowledge processes in this study were identified firstly as sequences of collection, transfer, and sharing of information which take place mostly through IT between health professionals and health organisations. Secondly, the processes of sharing and creation of knowledge between health care professionals were identified, and thirdly the process of knowledge use was located in the interaction between health professionals and the patients and their families in counselling.

Patient information and medical information are collected from three main sources. Firstly, the previous medical history of the patient and results from examinations, measurements, and tests are available in the (electronic) patient
records. Secondly, current information about the patient’s condition and lifestyle is collected with documents and interviews. Patients’ food and exercise diaries and completed questionnaires concerning issues of lifestyle are mediated knowing for health care professionals, but at the same time they mediate the patient’s contested knowing, namely knowing about the family’s life situation and environment. Patient interviews and observation in consultations complete this information and give the health care professionals indications of how to proceed with counselling and clues about the motivation and resources of the family to make lifestyle changes.

Thirdly, care decisions also require the professionals’ own situated knowing, knowing of the substance matter which is based on both factual knowledge and work experiences. Additional factual information (mediated and situated knowing) can be collected from a variety of information sources such as professional databases, organisational guidelines, handbooks or professional journals, and from colleagues and co-workers. In this study the nurses in special health care and the public health nurses reported that they often turn to the doctors in more complicated patient cases. The systematic review of Cunningham and his colleagues (2013) indicated also that health professionals seek information from higher-status professionals. This type of knowing is mediated and situated. Provisional knowing about the practices in health care organisations is also needed. Organisational and regional care path instructions contain mediated, situational, and provisional knowing and the health professionals appreciated these instructions as a good tool to apply common practices. Reddy and Spence (2008) also remark that health care professionals need organisational knowledge and knowledge about practices, alongside patient information and plan of care in order to co-ordinate the care of the patient.

Transfer of patient documents (patient information) inside health care organisations is easy through EPR systems. Transfer of patient records among the organisations is more complicated. Patients’ permission to transfer medical records (MSAH 1992) is needed and the different patient record systems do not communicate with each other. When transferring patient documents between different municipal health care centres or between primary to special health care, patient records must be printed and mailed to other organisations. The findings support the results of Winblad et al. (2010), Viitanen et al. (2011), and Hyppönen et al. (2014) concerning medical doctors’ perceptions about the usability of EPRs in Finland.
The prevailing type of knowing in knowledge transfer is explicit mediated knowing. However, the transferred patient documents also contain situated knowing of health care professionals. The referrals and epicrises contain mediated and situated knowing. Some health care professionals in special health care wished for more information about counselling in primary health care. In other words, pragmatic knowing is not transferred in the referrals. The epicrises of special health care contain also provisional knowing; they give recommendations of weight controls. However, health professionals in primary health care thought that the epicrises do not provide enough pragmatic knowing. More specific instructions about the future treatment of the obese child was needed. Moreover, the notification of the epicrises does not always reach the public health nurses who are responsible for the child’s weight controls. This study supports earlier studies in Finnish health care which indicate that information flow between primary and special health care has some deficiencies (Brander 2003, Dunder 2003, Saaren-Seppälä 2004, Ensio & Ryynänen 2007, Mertala 2011).

Knowledge sharing involves all types of organisational knowing. Firstly, mediated knowing, perceived as information in this research, can easily be shared. The processes of transferring and sharing mediated knowing are overlapping. Secondly, health care professionals’ situated knowing and explicit parts of pragmatic knowing are shared in interaction. Experiences are shared through patient narratives which entail also contested knowing (Patriotta 2003, Geiger 2010). Patient narratives concern individual patient cases and often, as Geiger (2010) remarks, narratives are completed with factual argumentations so that they can be more generalised. Thus narratives and argumentation are closely interlinked in knowledge sharing. Candy (2007, viii) points out that sharing of stories has been “a fundamental part of medical practice since the very beginning”, which can be seen as the early phase of KM in health care.

Public health nurses and primary and special health care doctors of this study often consulted their colleagues. For clinical nutritionists and physiotherapists, this was more difficult because they often were the only representatives of their profession in the health care organisation. The review of Gorman (1995) indicates that health care professionals prefer human information sources in collecting or seeking medical information, because the information needs in health care are complex and the information must be interpreted (see also Leckie et al. 1996, Case 2012).

Furthermore, provisional knowing (routines and practises) is at the same time constructed and shared in collaboration and communication. Organisational
culture which in this research was perceived as the most significant manifestation of contested knowing is also constructed in interaction. Newcomers are socialised into the existing culture in practices, collaboration, and communication. Implementation of IT in health care has diminished the need for work meetings for the purposes of sharing topical organisational information. On one hand, information transfer via e-mail and other electronic media is efficient and time-saving but on the other hand the opportunities to meet colleagues and co-workers face-to-face have become infrequent. Sharing of knowledge and knowing requires personal interaction, and perhaps even a common strong organisational culture with its norms and rules is not any more constructed. Eleven of the eighteen interviewed health professionals in primary health care had a work history of over 20 years and they brought up the issue that young newcomers to the organisation seem to have different values and goals in their work.

Sharing and creation of knowledge and knowing are simultaneous collective knowledge processes (e.g., van den Hoof & Huysman 2009). However, creation of knowledge and knowing can also be regarded as an individual process in social context. All types of organisational knowing are involved in these processes. The boundaries of organisational subcultures are related to the practices of knowledge sharing both in special and primary health care and the boundary between the organisations appears to be significant.

On an individual level, knowledge creation is an essential part of health care work. Patients and families differ in multiple ways and the counselling approaches should be tailored for the families’ needs and expectations. However, creation and use of knowing and knowledge cannot be separated entirely. de Lusignan and Robinson (2007) argue that deductive reasoning, which has been the traditional approach to medical problem solving is not enough. The psychosocial factors of the patient must also be taken into account.

Medical work and treatment of patients also include tacit knowledge, namely pragmatic and provisional knowing, which cannot be transferred through or stored into electronic or other documents. Sharing and creating of pragmatic and provisional knowledge and knowing require personal interaction and communication.

In patient counselling all types of organisational knowing are involved. Health care professionals’ situated knowing is needed to interpret the mediated knowing in health records. Patients and their families fill out questionnaires about their lifestyle. This information helps health care professionals figure out the main issues which need to be handled in lifestyle counselling. These questionnaires
contain mediated and situated knowing of the family. Health care professionals use their situated knowing to interpret the content of forms and also the encoded knowledge from procedures like measurements and laboratory results. This information is completed in the conversation between the professionals and the families which constructs situated and contested knowing.

Pragmatic knowing in the care of obese children refers to counselling skills. Provisional knowing about practises in the ICP is needed as well as skills to store patient information into the patient records. These skills are both provisional and pragmatic. Information leaflets may be given to patients and families, and contain mediated and situated knowing, and often pragmatic knowing such as food recipes.

Contested knowing in health care manifests in the attitudes towards the obesity problem and in the norms and information value of health care. Obesity is seen as a medical problem and this medicalisation of obesity has led to the dominance of biomedicine in the treatment of weight management. However, the problem seems to be more complicated. The infrastructure of modern society does not enhance everyday exercise, work, and children’s school work and free time favour sedentary behaviour. The hasty pace of life increases the use of ready-made meals and fast food, which often are rich in energy and full of calories. Especially medical doctors in this study brought up the fact that treatment of childhood obesity has not been very effective, which confirms the findings of Foster and his colleagues (2003). Furthermore, the family’s reactions to counselling are an indication of contested knowing in the family’s small world.

Information and knowledge processes in value creation

The findings of this research indicate that knowledge and information processes in health care are overlapping and simultaneous and they take place also in social networks, not only through IT systems. Sharing and creating pragmatic and provisional knowing especially require personal interaction and communication.

Electronic patient records can support organisational learning. EPR is a tool to transfer information and a collective organisational knowledge reserve from which information can be sought and collected. Berg (1996) states that medical records are a form of organisational memory, though it must be noted that this memory is never complete: some parts are always missing. For example, the record may consist only of structural data if the record does not allow entries of unstructured information (Berg 1996).
Health professionals in this study perceived that EPRs enable the use of patient information well inside their own organisations. However, time to acquaint oneself with previous entries is often restricted if the patient is new. Myllärniemi and his colleagues (2012) also point out that health care information systems at present collect vast amounts of data and should be developed to enhance information usability (see also Hyppönen et al. 2014). Viitanen et al. (2011) indicate that clinical ICT systems in Finland do not support the documentation and retrieval of patient data; the systems lack the appropriate features allowing the review of patients’ treatment charts.

The processes of transferring and storing medical, organisational and patient information produce mediated, situated and pragmatic knowing. Collection of information is intertwined with the process of the use of information and knowledge. EPR systems can also have separate modules for storing other organisational knowledge. For example, care path and referral instructions which are partly provisional knowing, are stored in these resources. Also, organisational intranets contain organisational information, mostly administrative.

The information processes which are mediated through ICT provide common knowledge reserves for the health care organisations. These knowledge reserves are available for all the health care workers inside the organisations and thus enhance the learning of individual professionals and organisational learning. The findings are supported by Lee and her colleagues (2011), who indicate that service performance of health care organisations is improved by organisational and individual memory. However, since transfer of information between the organisations is incomplete, the knowledge reserves do not support individual or organisational learning in the whole integrated care pathway. This can be seen as an obstacle for creation of value in the ICP.

Knowledge use in this research refers to the use of collected medical, organisational, and patient information and use of the knowledge and knowing of the health care professional in lifestyle counselling. According to Kelo (2013), children and their parents perceive nurses’ competence in counselling as nurses’ medical knowledge about the disease and its management. Furthermore, counselling competence entails the nurses’ ability to teach children and their parents as a process and ability to keep up a dialogue with the family. In this study, the families’ perceptions of counselling in both primary and special health care emphasised these same elements. Up-to-date health information, friendliness, and good interaction skills were appreciated.
Every patient and family increases the experiences of individual health care professionals and shared experiences increase also the competence of the work community. This type of knowing is mostly pragmatic and situated. However, provisional and contested knowing are also constructed in interpersonal relationships. The health professional’s constructed knowing of counselling and its impact on the patients’ health behaviour can also shape professionals’ negative attitudes towards their understanding of lifestyle changes by guidance. Learning in organisations can be learning of wrong or useless knowledge, or in this case, despair about the impact of counselling (see, Rashman et al. 2009). This can diminish the enthusiasm of putting one’s mind into counselling and creating new methods and approaches in this work. Cynicism and frustration emerged quite often in the health professionals’ interviews. Four of the thirty interviewed professionals brought up this aspect themselves and a certain degree of frustration, though not openly expressed, was distinguished in other interviews also. Demak and Becker (1987) argue that physicians’ low expectations of the efficacy of preventive care and patients’ expectations of “treatment” from health care leads to a “vicious circle” in which both patients and physicians are dissatisfied. Physicians feel that their authority is threatened and patients respond with hostility and rejection; the counselling situation becomes a power struggle (Demak & Becker 1987).

In disease prevention, the roles of the health professional and of the patient change: changes in lifestyle require the patient’s voluntary co-operation and assumption of responsibility (Demak & Becker 1987). Health professionals’ possibilities to achieve the common goal of healing and preventing diseases is thus limited, which came up in the interviews. The increased competence of counselling skills enhances creation of value but the poor results so far can have a negative impact on the professionals’ attitudes towards counselling. It was also somewhat surprising that three of the public health nurses and one primary care doctor thought that primary care doctors do not think highly of work at child health clinics and school clinics. Health check-ups and preventive care are not as interesting and rewarding as diagnosing diseases and finding cures for them.

The outcomes of sharing and creation of knowledge and knowing increase both individual and organisational situated and pragmatic knowing. This can be regarded as individual and organisational learning. The value for the health care organisations is better competence to help families with obese children. At the same time, provisional and contested knowing is created and established into the organisational practises. For the organisations, the outcomes of care could be a
way to evaluate the effectiveness of the actions. However, the outcomes are not easy to measure, which came up in the interviews.

9.4 The patients’ and their families’ involvement in the information and knowledge processes in the ICP

The health care professionals perceived that families are essential partners in the care of obese children. The role of the family and the family’s lifestyle as an important factor which influences the child’s weight has become self-evident for the health professionals by work experience. However, health professionals thought that this is also a challenge. Parental involvement is necessary but it is not always easy to motivate them to make lifestyle changes. These problems have been reported also in earlier studies (e.g., Gerards et al. 2012, Isma et al. 2012). The three interviewed mothers in UA1 and the families in UA2 also thought that they were involved with the care of their children or adolescents.

The findings of this study indicate that the patients and their families’ participation in the value-creating knowledge processes in the ICP remains fairly modest. The families are sources of patient information by filling out questionnaires and answering lifestyle questions, and they are receivers of guidance in counselling. The health care professionals try to apply activating methods such as motivational interviewing to get the patients and their families to participate in planning lifestyle changes. It may require time to change the attitudes of both health professionals and the families to become more equal actors in the value network, however.

The patients and their families are involved mainly in the process of collecting patient knowledge and information. This finding supports Pitta and Laric’s (2004) description of patients’ participation in the health care value chain. They present that the patients’ role in value creation is the input of describing the symptoms and the process of following the treatment regimen. In this study the filled questionnaires about exercising and eating habits are mediated knowing which at the same time represent the families’ situated and provisional knowing. The conversations with the health care professionals provide situated and also contested knowing. Face-to-face interaction brings out more detailed information about the family’s resources, culture and environment than the filled questionnaires. The processes of information collection and sharing of knowledge are overlapping in interpersonal interaction among health professionals and the families. However, the data analysis did not bring out how active the patients and
the families actually are as partners in the care. The cognitive imbalance between
the patients and professionals is likely to affect the nature of the relationships.

Sometimes the families are responsible for information transfer between
primary and special health care. The health care professionals in primary health
care found that this can hamper their work because the families do not always
remember to deliver the messages from special health care to primary health care.
Moreover, if the messages are oral, the interpretation of the family affects the
information content.

9.5 Patient-perceived value

The families thought that the main benefits of the child’s or adolescent’s weight
management are health and well-being of the child in present and in future.
Organisational learning, which improves organisational and individual health
professionals’ competence to treat obese children and to provide lifestyle
counselling supports this creation of patient-perceived value. Most successful
creation of value in counselling also changes the contested knowing of the family.
The goal is that a healthy lifestyle could be an indisputable value for the families.

Although the families thought that counselling in primary health care was
good and in special health care even excellent, the application of the instructions
in everyday life was not easy. This finding is in accordance with Porter’s (2010,
Suppl. App.: 6) statement about patient satisfaction: “Though the service
experience can be important to good outcomes, it is not itself a health outcome”
(see also Teperi et al. 2009).

The costs and sacrifices of required lifestyle changes seem to be too big for
the families so that they would act according to the instructions. Every family has
its own challenges in weight management. Health professionals thought that the
most important costs or sacrifices of the families were taking responsibility for
and control over the child’s eating and exercising. These require resources and
motivation. Health professionals expressed that the families’ attitudes and lack of
motivation were the main challenges in counselling and they assumed that these
were also the main reasons why lifestyle changes proved to be so difficult. In
other words, contested knowing of the families and their social networks and
environment are not easy to affect.

Some families brought up that getting the child eat more quality foods like
fruits and vegetables was difficult. In some families, decreasing portion sizes was
the greatest challenge. The easiest change in nutrition seemed to be restricting the
use of sweets, other treats, and soft drinks. Some families did not have time to exercise or did not find a fitting type of physical exercise for the child.

The families wished for concrete instructions. They expressed that they already know the basic things about weight management but it is difficult to make changes in everyday life due to various reasons. They need pragmatic knowing how to prepare healthier meals and how to cope with challenging situations at home, for example, when the child wants to have bigger portions.

The environment does not always support healthy behaviour. Demanding work life and parents’ long work days lead to exhaustion, and preparing healthy meals and supporting and encouraging the child to exercise require resources. Also Virtanen (2012) argues that families need more support in their everyday life on weight control-related matters from health care. She claims that the hectic pace of life increases children’s uncertainty which may be seen as excessive eating and diminishes families’ resources to adapt a healthier lifestyle.

These findings support the idea of Holttinen (2010). She points out that a product or service itself has got no value; value is created in use. Furthermore, she claims that value is socially constructed and created in practise. Consumers seek functional and emotional benefits and meanings in their practises. Functional benefits in this study refer to factual knowledge about the health risks of obesity, which is mediated and situated knowing. Emotional benefits of counselling are support and encouragement and the health professionals’ ability to encounter the child’s and the family’s feelings in the counselling situations. Additionally, the child and the family should be able to construct meaning for the efforts of weight management. If they are able to do this, they are motivated to do lifestyle changes and to commit to these changes even if they require major new living habits and struggle. Thus Figure 3 (see p. 54) describes well the elements of patient value. The environment is the context in which the families’ socially constructed practises take place and actual value is created.

9.6 Validity and reliability of the study

Quality criteria of research have been described with a variety of terms (Savin-Baden & Major 2013). Yin (2009) describes four tests of reliability and validity which are generally used in social research and according to him, they are also relevant to case studies. These are construct validity, internal validity, external validity and reliability. Validity refers to the study’s ability to measure the subject variables and reliability suggests that the measurements should be consistent and
repeatable (Savin-Baden & Major 2013). According to Saaranen-Kauppinen and Puusniekka (2006), in qualitative research validity gets more attention than reliability. However, the findings of qualitative research are always the interpretation of the researcher, one mode to represent reality through a certain framework.

Miles and Huberman (1994) suggest that quality of qualitative research should be discussed with the terms of confirmability to describe objectivity of research, credibility referring to internal validity, transferability instead of external validity, and dependability to describe reliability of research. Since the metatheoretical approach of this research is collectivism, these terms are used to reflect the quality of research as suggested by Savin-Baden and Major (2013).

**Confirmability**

Case studies have been criticised based on two basic problems. Firstly, the internal validity of a case study cannot be assured because the research setting is biased. There is no control group and the researcher can have “feelings” for the subject of the study. Secondly, the findings are not generalisable because external validity cannot be measured. However, all research requires interpretation of the data to get some results; the researcher bias exists also in quantitative studies. Also, a case study can analyse causative relationships more effectively than cross-sectional quantitative research (Stoecker 1991).

Confirmability is related to the role of the researcher and to objectivity of the research process. Basically another researcher should be able to repeat the study and come to similar conclusions (Miles & Huberman 1994). The research process and the findings were presented in detail in Chapters 7 and 8 to make the process visible. The researcher has a long work experience in Finnish public health care which provided pre-understanding of municipal health centres as a work environment, of different professionals’ roles, and of some common practises. However, the researcher’s work experience is from a field other than care and prevention of childhood obesity in child health clinics and school clinics, which provided a neutral approach to the subject.

In the health professionals’ interviews, the researcher took the role of a researcher of Information Studies and not of a health professional. Some interviewees asked about the researcher’s professional status because both degrees (MA, DDS) were marked on the information leaflets for the interviewees, but this issue did not cause any confusion. Furthermore, the researcher
consciously avoided expressing her own visions of the practices in health care organisations but was able to ask some specifying questions.

An important point to be taken into account during the analysis phase of a qualitative study is that the pre-understanding of the researcher can affect the choice of certain kinds of statements from the data. However, being aware of this possible bias, the analysis was made carefully, trying to avoid this selectiveness of the interviewees’ statements. Discussions with the supervisors of the thesis about the findings and their meanings also diminished this bias. The analysis of the data was made twice because the researcher was not able to do the research as a continuum. The first analysis was performed immediately after the collection of the interview data of the health professionals. Returning back to the data after almost one year in other duties brought new insights which did not emerge in the analysis immediately after the data gathering. During the second round of analysis the researcher checked the transcriptions again from the interview recordings and was able to find some new aspects for data analysis.

**Credibility**

Credibility, which is parallel to internal validity (Yin 2009), is linked to the authenticity of the data. This means that the data represents the features of the phenomena under study. The most appropriate methods for data collection should be selected to establish credibility. The use of multiple sources of evidence and establishing a chain of evidence increases the construct validity of a case study research. The data collection phase of the research must thus be careful and data analysis determines the credibility of a case study research (Yin 2009).

Semi-structured interviewing was a relevant method to collect information of collaboration, sharing, transferring, and using of information and knowledge in primary and special health care. Interviewing was chosen for data gathering, because the research area was new and had not been studied before. Interviewing is used typically in research which concerns unexplored subjects, so the questions can be modified during the interview in order to deepen and clarify the information given by the respondent (Hirsjärvi & Hurme 2001). Open-ended questions are used when the researcher does not want to predetermine the answers of the respondents (Patton 2002).

In UA1, all the interviews were conducted face-to-face at the informants’ workplaces. The familiar work environment empowered the professionals so that they could appear as specialists in their own field. However, since the interviews
were made during the work day, time was limited and may have influenced some interviewees so that they kept their expressions fairly short. The health care professionals were free to express their perceptions about information practices in their organisation. They were also permitted to bring up other aspects beyond the interview guide about organisational information practices and about counselling of obese children and their families. All the interviews were conducted by the researcher who was familiar with the theoretical framework of the study. Besides theoretical knowing, the researcher’s long work experience in public health care made asking clarifying questions in the interviews easy.

The three patient and family interviews in UA1 were made via telephone. In telephone interviews the dynamics of interaction between the interviewer and the interviewee is different than in personal face-to-face interactions. In personal encounters, pauses and gaps in conversation are normal and usually filled with gestures or facial expressions; in telephone interviews these features lack and gaps can even be uncomfortable. Furthermore, the connection can be interrupted, audibility can be poor, or the interview may encounter other technical problems (Savin-Baden & Major 2013). In patient and family interviews there were no technical problems but interviewing people you have never met via telephone is challenging. Yet the three interviewed mothers appeared quite relaxed in the situation and they were willing to speak. With the children, telephone interviewing was more difficult. The children’s answers to the questions were short and the whole situation must have been new and exciting for them. A face-to-face interview could have been more relaxed and would have provided more information about the children’s own thoughts.

Five of the eighteen health care professionals’ interviews in UA2 were made via telephone. The informants answered the phone at their workplace which made the interviewing situation almost as similar as in face-to-face interviews. In only one of the interviews the phone call was disconnected because of some technical problem, but this caused only a short interruption in the interview. All the interviews were transcribed and the transcriptions were checked by the researcher, increasing the credibility of the research. The field notes of the interviews were used to highlight the core parts of the interviews for further analysis. Sometimes the health professionals brought out an interesting point after the recorder had been switched off and these inserts were entered into the field notes.

To ensure the construct validity, multiple sources of evidence were used as described in Chapter 8. The findings of the children’s and mothers’ interviews in
UA1 were validated with a family questionnaire which was conducted in UA2. Internal validity of a survey is highly dependent on the operationalising of the concepts. Thus, content validity is related to construct validity of the research. Operationalising the main concepts for the questionnaire is described in Subchapter 7.4.5. Methodological triangulation is considered to confirm the findings of a study by revealing different aspects of the context which was also evident in this research. Furthermore, document analysis of the care path protocols, the ICP work group meeting agendas and memos, and the field notes of the interviews and meetings confirmed the health professionals’ descriptions of the practises in the ICP.

Transferability

Transferability or fittingness (Miles & Huberman 1994) or external validity (Yin 2003) of research refers to generalisation, which is especially problematic in case study research. Stake (2005) remarks that the generalisation of the results of a case study always remains an open question. Some aspects of the results can be generalisable while others remain typical features of the case involved. The researcher should provide enough information for the reader to determine if the findings can be applied in another context.

Yin (2009) states that in case study research, transferability is a contribution to theory. The generalisation of the findings is analytical and not statistical. The findings are reflected upon a broader theory which generates credibility to the research. Furthermore, multiple case studies in one research increase the external validity of the findings because the contexts of the cases always differ to some extent (Yin 2009).

The theoretical framework of this study was constructed on the basis of earlier research literature and establishes transferability to this research. The framework proved to be applicable to the research of collaboration and information and knowledge processes in and between health care organisations. Furthermore, the case study was compiled of two embedded units of analysis. In the second UA, the interviews in primary health care were conducted in three municipalities which represented different populations and environments. The interview guides in both units of analysis were the same, entailing the core themes of the study. The individual health professionals’ interviews varied in length, but the main themes were handled in every interview. The findings indicated that the information and knowledge processes in both units of analysis were similar and
the main concepts of the theory information worlds could be identified in both UAs.

The only differences were in the structures of the value networks in special health care due to the different practises of the university hospitals. It must be noted, however, that the similarities concern only the integrated care pathways which are established for obese children and cannot be generalised to all ICPs. In the Finnish health care system an ICP is always constructed on the basis of a diagnosis and the practises vary respectively.

Dependability

According to Miles and Huberman (1994, 278), in qualitative research the terms dependability or auditability are more appropriate than the term reliability, describing “whether the process of the study is consistent, reasonably stable over time and across researchers and methods”. Reliability of research can be ensured by using a careful study protocol with documentation of the study process. Thus the study can be repeated and the findings can be verified (Yin 2009).

The data of this research are described in detail in Subchapter 7.4. The research process is reported so that the reader can follow each phase of the study. Dependability is ensured by using multiple citations from the data to confirm the researcher’s conclusions. The main categories and subcategories were mostly derived from earlier research literature.

9.7 Limitations of the study

Some limitations of this study must be considered. A methodological limitation is that the structures of the social networks in the two embedded units of analysis could not be outlined using social network analysis (SNA). The method in this study to sketch the structures of the networks is not based on quantitative measures; the purpose was to sketch a general outline of the main relationships between the actors of the ICP.

Figure 11 (p. 149) is inaccurate in two major points. Firstly, the actors of the network are not named individuals. The health professionals identified the other network actors and their mutual relationships only with a professional title such as “a clinical nutritionist”, “a nurse”, “a paediatrician”, etc. Thus the relationships in the figures do not describe the actors’ ties in reality, only on a general level. Also,
the number of the interviewed professionals was restricted, covering only a part of the whole value network in each unit of analysis.

Only three patients and their mothers were interviewed in UA1. Recruiting the patients to the interviews was more difficult than predicted and the recruitment had to be made by proxy with the kind help of the nurses at the hospital’s outdoor patient clinic. Childhood obesity is a sensitive problem for the families which may have influenced their willingness to participate in the research. Kokkonen (2012) argues that childhood obesity is viewed as a result of “bad” parenting and especially the mothers are blamed for this which can be one reason for the interview refusal. Furthermore, the three telephone interviews were too short and true interaction between the interviewer and the interviewee is difficult to create via telephone if you have never met the conversation partner. Consequently, in UA2 a questionnaire was chosen for the data collection method.

A questionnaire has its limitation in qualitative research. Operationalising of abstract concepts is ambiguous. The main concept of this study, namely value, was operationalised based on the patients’ and their mothers’ interviews in UA1. These interviews indicated that the elements of patient value, namely benefits, costs, and sacrifices, were different in every family and richer interview data perhaps would have added some elements or at least confirmed the ones which were identified from the data. Thus the elements of value were completed with the findings of customer value in earlier research in business and marketing.

Thirteen of the forty questionnaires were returned to the researcher. Short and easy-to-complete questionnaires reduce the time and thus the costs of responding, which may increase the response rate (Dillman et al. 2009). The questionnaire in this study was quite long, because the study entailed families’ perceptions about counselling both in primary and in special health care. This can be one reason why more questionnaires were not returned.

9.8 Conclusions

The research introduces a new approach in Information Studies to investigate knowledge management in the health care context. KM aims at capturing, organising, and storing information, knowledge, and experiences of employees of an organisation. This information can then be made available to others in the organisation. The goal of organisations is to create value for all the stakeholders. In health care, value for all stakeholders is better health and improved welfare. Creation of value in social networks brings out the patients’ perspectives in the
value-creating knowledge processes. The metatheoretical approach of social constructivism (Talja et al., 2005) was well suited to this study.

The structure of an integrated care pathway is a network with two isolated clusters: the primary and the secondary health care. The tie between these clusters is a weak electronic tie. However, the specialised doctors in primary health care can have occasional personal relationships with the actors in special health care and are thus brokers in the network. The referrals and epicrises are boundary objects which are available for all the network actors.

Organisational culture which was identified with the concepts of the theory of information worlds is related with knowledge processes in the ICP. Information value of biomedical knowledge prevails in the whole ICP. The boundary between primary and special health care is based on the structure and historical development of the Finnish health care system but is also cultural and defined by norms and social types. In special health care professional boundaries exist although teams can diminish these boundaries. In primary health care the professional boundaries are not so strong. However, one’s own professional group is preferred when sharing information and knowledge.

The flow of information in the ICP is dual. Inside the health care organisations information is stored, transferred, and accessed in electronic patient record systems which can be regarded as an information network. Between the organisations only selected information is transferred. Information processes (mainly information transfer) take place as a chain. Collaboration between primary and special health care regarding the care of obese children is rare. Organisational learning and health professionals’ individual learning takes place both in primary and in special health care which increases the organisations’ competencies to create value for the patients. The identified knowledge processes of collecting, transferring, and storing of information, sharing and creating knowledge, and using of information and knowledge create value for the organisations and further for the patients. However, information practises in the ICP do not support learning of the ICP as an entity.

The findings indicate that knowledge management in Finnish health care organisations represents the first generation KM with the emphasis on implementing and developing IT-based systems to manage patient information. Knowledge management in health care is thus human resource management and management of information flows as Huotari and Iivonen (2004) suggest. Sharing and creation of knowledge are not supported which is explained by the lacking resources and hasty work schedules. Dalkir (2011) states that formal documents
are not rich enough to support knowledge work. Sharing of knowledge would enhance organisational learning and this could enhance the efficacy of the care, not only productivity and efficiency. In other words, more value could be created for the health care organisations and patients.

The typology of knowing by Blackler (1995) was applicable in the context of health care organisations (see also Askola et al. forthcoming). However, the types of knowing are overlapping, which made the analysis quite challenging. The most astonishing finding of the study was that caring of childhood obesity deals so much with emotions. The families may feel shame, guilt, and uncontrollability and failure of life if the child is obese. This may lead to denial of the problem and unrealistic expectations towards health care. The sensitivity of the subject for the families has been shown in earlier studies (see, e.g., Gerards et al. 2012, Isma et al. 2012). However, the finding that this also has an impact on the health professionals’ willingness to interfere with the problem was new. Another surprising finding was that the families are not always willing to accept the treatment the health care provides for them. The health professionals thought that this can partly be due to denial of the problem and partly because the family does not want their lifestyle is affected.

In Blackler’s typology of knowing, the emotional aspects do not quite fit into any category although contested knowing includes some of these tacit aspects. Thus in health care an additional type of knowing, empathetic knowing, could be added to cover emotions, health care professionals’ sensitivity, empathy, and supportive and caring skills. This type of knowing is tacit, individual, and near to the knowledge type of ethical and emotional patient knowledge suggested by Zhou and Nunes (2012). Empathy is defined as “the action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts and experience of either the past or present without communicated in an objectively explicit manner” (Merriam-Webster Online Dictionary 2013). This definition covers well the emotional and human aspects of care.

Creation of patient value is much more complicated than patient satisfaction and fulfilling customer needs, as the literature in business and marketing suggests. Furthermore, the value creation logic of preventive care is different than treating a curable disease. The models of care delivery value chains (Porter & Teisberg 1996, de Korne et al. 2009) cannot be applied in the treatment of childhood obesity, because the care is life-long and must be implemented in everyday life. Thus, continuity of care and participation in the knowledge processes of the value network is one element of patient value. The family should be aware of whom to
contact with health problems and specific concerns. The benefits, namely health and well-being, cannot be purchased; the costs are the efforts of lifestyle changes.

The impact of preventive care and health information becomes visible in the everyday life of the children and their families; value is created in practises of knowledge processes (Holttinen, 2010). Motivational interviewing and other tools which aim at empowering patients to participate in the knowledge processes are available. While these are a step forward, the embedded conceptions of the health professionals’ savant role and the patients’ role as a receiver of health information and care are still deeply rooted. The patients and the families were content with the counselling but lifestyle changes require support from the environment. Thus the role of primary health care after the treatment period in special health care is the most important part of the value network. Furthermore, schools, child day care, municipalities’ social and family work, and sports and exercise services could be the real value-creating network which enhances health and well-being of the population.

Value for the patients and their families in the long term is created as a life-long project aiming at good quality of life. The costs/sacrifices model combined with the means/ends model applied in this study is more applicable when thinking of value in health care in the treatment of diseases which do not require life-long lifestyle changes. Value of preventive health care is created in the patients’ and the families’ practises which are supported by the knowledge and information processes in the ICP value network and in the social networks of the families’ environment.

9.8.1 Implications for practice

Information transfer between primary and special health care through the referral-epicrisis system seemed to be efficient, but not sufficient. The doctors in special health care thought that the information content of referrals was fairly good whereas the clinical nutritionists would have wished for more information about previous counselling. The referral instructions could also entail this aspect. Most of the public health nurses and doctors in primary health care thought that the content of the care feedback was good. However, the main problem with the epicrisis is that they do not reach all the professionals who treat the child. The message of the coming epicrisis arrives only to the doctor who has written the referral, and the public health nurse who should make the regular weight controls does not receive this information automatically. This is a clear flaw in information
transfer and should be fixed. The processes and practises should be the starting point when planning information systems in health care. Since the public health nurses are mainly responsible for the follow-ups they should receive the necessary information.

Moreover, the communication channels between different health care organisations could be improved with secured message channels which can be attached to the EPR systems. Some pilot projects have been conducted in Finnish health care to enhance organisational communication and the user experiences have been positive and encouraging (Kytke-hanke 2012).

Some health professionals brought up that it would be good to have a meeting with the family and with the personnel of special and primary health care at the end of the treatment period in special health care. This would be an opportunity to increase value through patient involvement. The health professionals could share thoughts about the main challenges and successes in the care and set goals and agree about means for the child’s weight management in the future together with the family. Modern technology such as videoconferencing can make this possible even to more remote places. The family could be in the home municipality’s health centre, for example, with the public health nurse and perhaps also with some other health professionals (doctor, clinical nutritionist, physiotherapist) and discuss about the treatment plans with the personnel in special health care.

The interviewed health professionals emphasised the importance of the early prevention of childhood obesity. Prevention of obesity is easier than treating excessive weight. Small changes in early childhood in nutrition and exercise habits are easier to achieve than complete turns in later childhood or adolescence. Moreover, treatment in special health care is expensive and some municipalities can even advise health care professionals to restrict the number of referrals to special health care. Early detection of ascending weight curves takes place in primary health care in child health clinics and at school clinics. The public health nurses must therefore be ready to interfere with the problem as early as possible. This study indicates that public health nurses do not have enough time for preventive counsel. The resources are limited and the work has become more demanding. However, long-term relationships among health professionals and the families are important so that trust can be built and also more difficult issues can be dealt with. Gray and his colleagues (2003) argue that preventive care requires continuity. Moreover, Saha (2009) emphasises the meaning of trust in the care of adolescents with weight problems.
Lifestyle counselling is the main treatment of childhood obesity and the families’ involvement in early childhood in the adoption of healthy nutrition and active lifestyle cannot be overemphasised. However, counselling is demanding. It requires good interaction skills, up-to-date knowledge, enough time and sensitivity to sense how much and what kind of information the family is ready to receive and internalise. The delicate nature of the issues of overweight and obesity make lifestyle counselling even more demanding. The health professional must be prepared to encounter strong emotions and even negative feelings and attitudes.

In health care, the tradition of working and coping alone as an expert is still strong. Multiprofessional collaboration means working side by side restricted to one’s own field and sharing of knowledge between professional boundaries is rare. Sharing knowledge and experiences among professional groups is more common but often restricted because of limited resources and lack of time. However, sharing patient narratives and experiences which cannot be codified into patient records would be important in order to support health professionals in weight counselling. Sharing these feelings could diminish frustration and cynicism which often emerges when counselling does not seem to influence the patients’ and families’ health behaviour. Sharing negative and difficult experiences and failures is not easy, however. Sharing requires both cognitive and affective trust and creating trust requires time and an organisational culture which encourages openness.

The health professionals brought up that one reason for the parents’ denial and negative attitudes towards lifestyle counselling was their own weight problem. The families’ attitudes towards obesity as a shameful condition are reinforced by the public media. Obesity is presented as a state which must be changed into “normal measures” as quickly as possible (Harjunen 2009, Leipämää-Leskinen 2011). The child’s obesity is perceived as a result of “bad” parenting and especially the mothers are held responsible if the child does not fit into “normal” measures (Kokkonen 2012). It must be noted that obesity itself is not a health problem but it can be related to health risks because excessive weight can reduce exercise probability, which has been indicated to cause many health problems (Virtanen, 2012, Jimenez-Pavon et al. 2013, Bellavia et al. 2013). Objective health information which is not judgmental or does not make one feel guilty is needed from public health authorities so that childhood obesity can be discussed matter-of-factly. Thus the families might be empowered to participate in the care and value-creating information and knowledge processes more actively.
Moreover, the families’ resources to attain a healthy lifestyle should be supported by the whole environment. The value-creating network of health promotion should entail other public organisations such as children’s day cares, schools, municipalities’ exercise and sports activities, social work, and sports and gymnastic associations.

9.8.2 Ideas for future research

The value network of this study consisted of health care professionals and the patients and their families of an integrated care pathway of childhood obesity in Finnish public health care. The role of the patients and their families as actors of the value network of health care is a novel approach which should be scrutinised more in future studies. The theoretical framework of the creation of patient value could be tested in integrated care pathways of other diseases.

The research data from the families were collected from those families which had been referred to special health care. Value, however, was defined as health and well-being in the long term. Thus it would be important to study the patients’ and their families’ perceptions of their care after the treatment period in special health care. This kind of research would reveal if the care path of the patient has been seamless and whether the care in primary health care continues as planned. For example, focus-group interviews of the families would provide interesting data of the families’ perceptions and experiences.

The operationalising of the patient participation concept in care and knowledge processes into the semi-structured family interviews and into the family questionnaire proved to be extremely challenging. Furthermore, the health professionals’ descriptions about their counselling were also self-reported. Observation of counselling situations would provide more rich qualitative data. Observation and focus-group interviews could reveal some new aspects of counselling situations and information and knowledge processes in health care. Focus-group interviews of health professionals could also provide new insights for their counselling work.

Implementing the care instructions into everyday life appeared to be challenging for the families. To manage or to lose weight the families and the children must make choices every day, e.g., regarding food. It would be interesting to study if the parents’ and the children’s health information literacy (HIL) is related to their nutrition and exercise habits with a HIL tool which has been developed recently (see, Niemelä et al. 2012).
Furthermore, the citizens of Finland will soon be able to look at parts of their own health records on the Internet. Under the act on electronic patient information processing in social and health services, public healthcare organisations are obliged to enter patient records in a nationally centralised electronic archive (Kanta). This big and expensive effort is aimed at improving the accessibility, quality and cost-effectiveness of social and healthcare services. It would be interesting to examine whether the citizens’ access to their own health records will change their health behaviour and if so, how the changes will be. Moreover, another research subject would be whether this national archive changes the knowledge processes in health care.


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Appendices

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Appendix 1. Interview guide for the interviewer in special health care (UA1 & UA2)

The questions of this interview concern the treatment of childhood obesity, multiprofessional collaboration in health care, information transfer in your own organisation, and information transfer between primary and special health care.

Background information
Occupation, birth year, year of (professional) graduation, work history, current position (for how long?), main work tasks

Childhood obesity
- Do you think that childhood obesity is a problem nowadays?
- Have you perceived any differences in the prevalence of childhood obesity in recent years?
- What kind of lifestyle counselling do you give?
- How do the children/families react?
- What are the major challenges in counselling and in the care of childhood obesity?

Integrated care pathway of childhood obesity
- How is the treatment of obese children managed in the hospital?
- Which professionals are involved with the care? How many times do the families come here?
- How are the referral and epicrises practises?
- Who is responsible for the care plan?

Information transfer in your own organisation
- How does the electronic patient record system work? What are the advantages of it? Are there any problems with the EPR?
- What are the other channels of information transfer in your organisation (e-mail, meetings, telephone…)? Do they work well?
Information transfer between the organisations
- How is patient information transferred between primary and special health care?
- Are there any problems?
- Other collaboration with primary health care?

Expertise
- What is the foundation of your own expertise (in the care of childhood obesity)?
- Where do you seek information if you need it?

Information transfer and sharing of knowledge in and between professional groups
- Are there work meetings in your organisation/at your work place? How often?
  Who attends these meetings? Are the meetings multiprofessional/for only one professional group?
- Do you have any other opportunities to share information and thoughts with your colleagues and/or co-workers?

Do you want to say something more about:
- the treatment of childhood obesity,
- multiprofessional collaboration, or
- information transfer in health care?
Appendix 2. Interview guide for the interviewer in primary health care (UA1 & UA2)

The questions of this interview concern the treatment of childhood obesity, multiprofessional collaboration in health care, information transfer in your own organisation and information transfer between primary and special health care.

Background information
- Occupation, birth year, year of (professional) graduation, work history, current position (for how long?), main work tasks

Childhood obesity
- Do you think that childhood obesity is a problem nowadays?
- Have you perceived any differences in the prevalence of childhood obesity in recent years?
- How are the practises of the children’s growth controls?
- If you think that the child is overweight or obese, what do you do?
- Are there some organisational instructions?
- What kind of lifestyle counselling do you give?
- How do the children/families react?
- What are the major challenges in counselling and in the care of childhood obesity?

Integrated care pathway of childhood obesity
- Are you familiar with the ICP of childhood obesity?
- Do you remember meeting some children in your work who have been referred to special health care because of obesity? What kinds of experiences do you have about collaboration with special health care?
- How does the referral process go? How are the practises?
- Have you been in personal contact with the employees in special health care?
Information transfer in your own organisation

- How does the electronic patient record system work? What are the advantages of it? Are there any problems with the EPR?
- What are the other channels of information transfer in your organisation (e-mail, meetings, telephone…)?

Information transfer between the organisations

- How is patient information transferred between primary and special health care?
- How is patient information transferred between different municipal health centres?
- Are there any problems?

Expertise

- What is the foundation of your own expertise (in the care of childhood obesity)?
- Where do you seek information if you need it?

Information transfer and sharing of knowledge in and between professional groups

- Are there work meetings in your organisation/at your work place? How often?
  Who attends these meetings?
- Do you have any other opportunities to share information and thoughts with your colleagues and/or co-workers?

Do you want to say something more about:

- your thoughts about the treatment of childhood obesity,
- multiprofessional collaboration, or
- information transfer in health care?
Appendix 3. A notice for the guardians about the research (UA1)

Dear Parents/Guardians of the child!

I am a doctoral student of Information Studies at the University of Oulu and the theme of my dissertation is multiprofessional collaboration in health care and transfer of information and knowledge between the actors in primary and special health care and within these organisations. The subject of my dissertation in “The value-creating network in preventive health care”. Value in this context means the benefits for the patient which are created in collaboration between themself and the health professionals. My study is a subproject of the “Health Information Practises and its Impact” (HeIP) research initiative at the University of Oulu (funded by the Academy of Finland from 2008 to 2011).

I conduct my pilot in the integrated care pathway of [name] university hospital and in primary health care. The study started in summer 2009 with interviews of health professionals. In the second phase I would like to interview some patients and their families. The patients are chosen in collaboration with the employees of [name] hospital. The purpose is to find out about transfer of information in health care, about the participation of the patients in their own care, and about the benefits of care for the patients.

I shall agree on the time and place of the interviews with you personally. Children who are over 10 years are interviewed with or without parents according to your wishes. The interviews are recorded and they take from 30 to 60 minutes. The interview concerns your experiences about lifestyle guidance in primary and in special health care.

The findings from the interviews are reported so that individual interviewees or other persons who have been mentioned in the interviews cannot be recognised. The interviews are transcribed to text files and the names are replaced with codes and the original names are destroyed. The recordings are destroyed when the transcription has been checked. The data is used only for the purposes of this research and the material is destroyed after the publication of the findings. Participation in this research is voluntary and assent or refusal do not affect your or your child’s care now or in the future.

The medical doctor who is responsible for the research [name], [title], [contact information]
The researcher DDS, MA, Helena Känsäkoski
University of Oulu, Information Studies, PL 1000, 90014 University of Oulu
tel.08 5533426, helena.kansakoski@oulu.fi
Appendix 4. Consent form for the guardians (UA1)

I and my child have been asked to participate in an interview study. The purpose of the study is to inspect transfer of information in health care, health care professionals’ knowledge sharing, the participation of the patients in their own care and the possible benefits of this participation for the patients. The research is a preliminary study of a dissertation project in the field of Information Studies. The name of the dissertation is “The value-creating network in preventive care”. Value in this context refers to the benefits of the care for the patient. I have been informed about the research and I have had an opportunity to pose additional questions and discuss them. To my mind I have received enough information about my rights, the purpose of the research, and about the participation in it.

I know that I have the right to refuse to participate in the research, and that later if I want I can cancel my consent and I do not have to declare any reason for this refusal. I know that my refusal or cancellation to participate in the research do not influence my care now or in the future. I know that my data will be handled in confidence, will not be given to outsiders, will be used only for the purposes of the research and that it will be destroyed when the research is finished.

I agree to participate in the interview research.

Name of the child and year of birth_______________________
Place and date__________________________________________
Signature of the guardian_________________________________
Name in block letters____________________________________
Guardian’s contact information to agree on the time and place of the interview
Address_________________________________________________
Telephone_________________________________________________
Signature of the person who receives the consent form_________
Name in block letters____________________________________
Address_________________________________________________
Telephone_________________________________________________

The medical doctor who is responsible for the research
[name], [title], [contact information]
The researcher DDS, MA, Helena Känsäkoski
University of Oulu, Information Studies, PL 1000, 90014 University of Oulu
tel.08 5533426, helena.kansakoski@oulu.fi

This document has been made in two (2) identical copies. One is for the interviewee and the other is for the person who receives the consent.
Appendix 5. A notice for the children and adolescents about the research (UA1)

Hello!

I am a doctoral student of Information Studies at the University of Oulu and I am preparing a dissertation about collaboration and transfer of information and knowledge between the health professionals who are treating you. I study how information is transferred in health centres and in the hospital, how the professionals who treat you share knowledge with each other, how you take part in your care, and how this participation is useful for you. The name of my dissertation is “The value-creating network in preventive health care” and value in this study means the benefits for you and for your family.

I made preliminary research in the integrated care pathway of [name] university hospital and in primary health care. In summer and in autumn 2009 I interviewed health professionals who participate in your care. Now I would like to interview you and some other children who have been treated in the integrated care pathway of childhood obesity. The patients are chosen in collaboration with the employees of [name] hospital.

I shall agree on the time and place of the interviews with you personally. The interviews are recorded and they take from 30 to 60 minutes. If you are under 10 years, the interview will be conducted with you and your parents. If you are older, you can choose whether you want to be interviewed alone or with your parents. I will ask questions about your experiences about the instructions and guidance in the school clinic and in the hospital.

Your name or other personal information will not show in the research report. The interview recordings will be written into text form, your name replaced with a number, and the original recordings will be destroyed. The data is used only for the purposes of this research and the material is destroyed after the publication of the findings. The participation in this research is voluntary and assent or refusal do not affect your care now or in the future.

The medical doctor who is responsible for the research [name], [title], [contact information]
The researcher DDS, MA, Helena Känsäkoski
University of Oulu, Information Studies, PL 1000, 90014 University of Oulu
tel.08 5533426, helena.kansakoski@oulu.fi
Appendix 6. Consent form for the children and adolescents (UA1)

I have been asked to participate in an interview study. The purpose of the study is to inspect transfer of information between the professionals who treat me, their knowledge sharing, my own participation in my care and the benefits of this participation for me and my family. The research is a preliminary study of a dissertation project in the field of Information Studies. The name of the dissertation is “The value-creating network in preventive care”. Value in this context refers to the benefits of the care for the patient. I have been informed about the research and I have had an opportunity to pose additional questions and discuss them. To my mind I have received enough information about my rights, the purpose of the research, and about the participation in it.

I know that I have the right to refuse to participate in the research, and that later if I want I can cancel my consent and I do not have to declare any reason for this refusal. I know that my refusal or cancellation to participate in the research do not influence my care now or in the future. I know that my data will be handled in confidence, will not be given to outsiders, will be used only for the purposes of the research and that it will be destroyed when the research is finished.

I agree to participate in the interview research.

Name and year of birth_______________________________________
Place and date_______________________________________________
Signature __________________________________________________
Name in block letters_________________________________________
Signature of the person who receives the consent form_______________
Name in block letters_________________________________________
Address____________________________________________________
Telephone__________________________________________________

The medical doctor who is responsible for the research
[name], [title], [contact information]

The researcher DDS, MA, Helena Känsäkoski
University of Oulu, Information Studies, PL 1000, 90014 University of Oulu
tel.08 5533426, helena.kansakoski@oulu.fi

300
This document has been made in two (2) identical copies. One is for the interviewee and the other is for the person who receives the consent.
Appendix 7. Interview guide for the interviewer in guardian/parent interviews (UA1)

This interview concerns your experiences as a parent (or guardian) in the care of your child in the child welfare clinic or at the school clinic and in the hospital.

Background information
- Age and gender of the child, number of siblings

Primary health care
- When did someone pay attention to your child’s weight for the first time? Who was it?
- What kind of counselling did you get? How did you perceive the counselling?
- Did you make any changes in the child’s diet or exercise habits after the counselling?
- Who suggested the referral to special health care (to the hospital)?

Special health care
- Which professionals have you met in the hospital?
- What kind of counselling did you get? How did you perceive the counselling?
- Have you made any changes in the child’s diet or exercise habits after the counselling?

Information transfer between primary and special health care
- Do you think that information about your child’s condition has been transferred between primary (school clinic) and special (the hospital) health care?
- Have there been some overlapping tests or examinations?
- How are your child’s follow-ups now arranged?
The counselling

- Have you received new information in counselling? Was the information sufficient? Enough? Too much?
- How did you perceive the interaction with health professionals?
- Has there been enough time for your questions?
- Why do you think that the child’s weight management is important?
- Do you have any wishes about the counselling?
- Is there anything else you would like to say?
Appendix 8. Interview guide for the interviewer in children’s and adolescents’ interviews (UA1)

I will ask you some questions about the counselling which you have received from the school nurse and in the hospital

- Why do you think that weight management is important for you?
- Has the counselling been okay for you? Have you received too much/enough/too little information?
- Have you had time to ask about something if you have wanted to?
- How have you followed the instructions?
- Do you want to say anything else about these issues?
Appendix 9. A notice for the guardians about the research (UA2)

Dear Parents/Guardians of the child!

I am a doctoral student of Information Studies at the University of Oulu and the theme of my dissertation is multiprofessional collaboration in health care and transfer of information and knowledge between the actors in primary and special health care and within these organisations. The subject of my dissertation is “Value creation in the care of childhood obesity”. Value in this context means the benefits for the patient which are created in collaboration between themself and the health professionals. My study is a subproject of the “Health Information Practices and its Impact” (HeIP) research initiative at the University of Oulu (funded by the Academy of Finland from 2008 to 2011).

In my study I interview the employees of the weight clinic in [name] University Hospital and some employees in primary health care. Because the participation of the patients is important in value creation, I also conduct a family questionnaire for the patients and the families who have been in care in the [name] weight clinic. The patients are chosen in collaboration with the employees of [name] weight clinic. The purpose of the questionnaire is to find out about the transfer of information in health care, the participation of the patients in their own care, and about the benefits of care for the patients.

Please be kind enough to complete the questionnaire and return it in the enclosed envelope by mail or put it the marked box in the waiting room. The questions concern your experiences of lifestyle guidance in primary and in special health care.

The questionnaire is anonymous. Individuals cannot be identified in the results. The answers are handled statistically and the open questions are analysed by content analysis according to the principles of qualitative research. The data is used only for the purposes of this research and the material is destroyed after the publication of the findings. Participation in this research is voluntary and assent or refusal do not affect your or your child’s care now or in the future.

The medical doctor who is responsible for the research
[name], [title], [contact information]
The researcher DDS, MA, Helena Känsäkoski
University of Oulu, Information Studies, PL 1000, 90014 University of Oulu
tel.08 5533296, helena.kansakoski@oulu.fi
Appendix 10. A questionnaire for the patient’s families at [name] University Hospital weight clinic (UA2)

This questionnaire concerns your experiences of information transfer in health care, of the counselling, of your own participation in the care of your child or adolescent, and of the benefits of this participation for your child/adolescent and for your family. The first part of the questionnaire concerns the treatment in primary health care (in the child welfare clinic or school health care) and the second part concerns the treatment in the [name] hospital.

This questionnaire is a part of my dissertation with the subject “Value creation in the prevention and care of childhood obesity”. Value in this context means the benefits for the patients which are formed in collaboration between themselves, their families, and the health care professionals. My research is a subproject of the “Health Information Practice and its Impact” (HeIP) research initiative at the University of Oulu. HeIP was funded by the Academy of Finland from 2008 to 2011. If you want to participate in the drawing of 2x2 movie tickets, please include a separate sheet with your contact information and add it to the envelope with your completed questionnaire. All questionnaires are handled with confidentiality and separate from your contact information.

The questionnaire takes about 10 minutes to fill out. Put the completed questionnaire in the included envelope and mail it or put it in the box in the waiting room. The postage is already paid.

Thank you for your effort and time!

Helena Känsäkoski, researcher, Information Studies, University of Oulu

Answer by writing on the line or by making a cross.

Age of the child/adolescent ___ years
Gender ___ girl ___ boy
Number of siblings ______

We have visited the [name] weight clinic for
___ less than 6 months
___ 6 to 12 months
___ over 12 months
1. The child’s or adolescent’s weight was brought up for the first time in the year_____
   ___ at the child welfare clinic or school health care
   ___ somewhere else
   If somewhere else, where?_____________________

2. We have received guidance about weight management at the child welfare or school clinic
   about nutrition ___yes ___no
   about exercise ___yes ___no
   about something else___
   If about something else, what?_______________________

3a. The counselling at the child welfare or school clinic was

<table>
<thead>
<tr>
<th>Competent</th>
<th>Objective</th>
<th>Friendly</th>
<th>Reproachful or making to feel guilty</th>
<th>Practical</th>
<th>Too general</th>
<th>Too theoretical</th>
<th>Difficult to understand</th>
<th>Supportive and reinforcing of changes</th>
<th>Just right for the family</th>
<th>Difficult to apply in the everyday lives of the family</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully agree</td>
<td>Partially agree</td>
<td>Partially disagree</td>
<td>Fully disagree</td>
<td>Partly disagree</td>
<td>Fully disagree</td>
<td>Cannot say</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   If something else, what?_______________________

3b. We had enough time to pose questions in the counselling at the child welfare or school clinic
   ___ always
   ___ mostly
   ___ seldom
   ___ never
4. We made changes after the counselling in

<table>
<thead>
<tr>
<th></th>
<th>A lot of changes</th>
<th>A fair number of changes</th>
<th>Some changes</th>
<th>Only slight changes</th>
<th>No changes</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of meals</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portion sizes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise habits</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If something else, what?______________________________

5. In addition we would have liked the child welfare or school clinic to provide

<table>
<thead>
<tr>
<th></th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>More practical advice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support and encouragement</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities for family exercise</td>
<td></td>
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<td></td>
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<tr>
<td>A cooking course</td>
<td></td>
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<tr>
<td>A discussion group for parents</td>
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<tr>
<td>A club for overweight children</td>
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<tr>
<td>A discussion group on the Internet</td>
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<td></td>
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<tr>
<td>An opportunity to ask expert advice on the Internet</td>
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<td></td>
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</tbody>
</table>

If something else, what?______________________________
6. We would have liked the child welfare or school clinic to have more information about

<table>
<thead>
<tr>
<th></th>
<th>A lot more information</th>
<th>More information</th>
<th>Somewhat more information</th>
<th>Slightly more information</th>
<th>No need for additional information</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The relationship</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>between rest and</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>sleep in weight</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>management</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Heredity in weight</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>issues</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If about something else, what?

[______________________]

7. The initiation of the referrals to the [name] weight clinic came
   ________ from us
   ________ from the public health nurse
   ________ from the doctor at the child welfare or school clinic
   ________ from somebody else

If from someone else, from whom? [______________________]

8. We think the child’s/adolescent’s previous medical history has been in the [name] hospital and

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Mostly</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was available in special health care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was not available in special health care, the same issues had to be told</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was not available in special health care, the same tests and examinations were made in primary and special health care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. We have met at the [name] weight clinic

<table>
<thead>
<tr>
<th>Professional</th>
<th>Every time</th>
<th>Several times</th>
<th>Seldom</th>
<th>Once</th>
<th>Never</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A nurse</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>A doctor</td>
<td></td>
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</tr>
<tr>
<td>A clinical nutritionist</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A physiotherapist</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Some other professional</td>
<td></td>
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</tr>
</tbody>
</table>

10a. The counselling at the [name] weight clinic was

<table>
<thead>
<tr>
<th>Quality</th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Not agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Friendly</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Reproachful or making to feel guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too general</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Too theoretical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult to understand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supportive and reinforcing of changes</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Just right for the family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficult to apply in the everyday lives of the family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If something else, what?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10b. We had enough time to pose questions in the counselling session at the [name] weight clinic

___always
___mostly
___seldom
___never
11. We made changes after the counselling at the weight clinic in

<table>
<thead>
<tr>
<th>Qualities</th>
<th>A lot of changes</th>
<th>A fair number of changes</th>
<th>Some changes</th>
<th>Only slight changes</th>
<th>No changes</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of meals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portion sizes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise habits</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If something else, what? __________________________________________

12. In addition we would have liked the [name] weight clinic to provide

<table>
<thead>
<tr>
<th>Services</th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>More practical advice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support and encouragement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An opportunity for family exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A cooking course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A discussion group for parents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A club for overweight children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A discussion group on the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An opportunity to ask expert advice on the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If something else, what? __________________________________________
13. We would have liked the [name] weight clinic to provide more information about

<table>
<thead>
<tr>
<th>A lot more information</th>
<th>More information</th>
<th>Somewhat more information</th>
<th>Slightly more information</th>
<th>No need for additional information</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>between rest and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sleep in weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heredity in weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If about something else, what?


14. The guidance at the [name] weight clinic has been easy to apply in everyday life

___yes____ no

15. What has been easy to implement?

........................................................................................................................................................................

Why?........................................................................................................................................................................

What has been difficult?............................................................................................................................................

Why?........................................................................................................................................................................
16. We think that weight management of the child/adolescent is important, because it increases

<table>
<thead>
<tr>
<th></th>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good health at the moment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good health in the future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping in everyday life at the moment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping in everyday life in the future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acceptance of the environment and/or friends at the moment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acceptance of the environment and/or friends in the future</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If something else, what? _____________________________________________
17. The biggest challenges for our family in the weight management of the child/adolescent are

<table>
<thead>
<tr>
<th>Fully agree</th>
<th>Partly agree</th>
<th>Do not agree or partly disagree</th>
<th>Partly disagree</th>
<th>Fully disagree</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning frequency of meals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning portion sizes</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Increasing fruits and vegetables in the diet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance of sweet or salty treats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The price of healthy food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The time required to shop for groceries and/or to prepare meals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of opportunities to exercise</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties finding a suitable form of exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finding time to exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The costs of exercising</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The family or friends do not support weight control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of child’s or adolescent’s own motivation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lack of a peer support group</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Restriction of TV or computer time</td>
<td></td>
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</tr>
</tbody>
</table>

If something else, what?

18. Do you think you have had opportunities to influence the care of your child in health care?

<table>
<thead>
<tr>
<th>___</th>
<th>___</th>
<th>___</th>
<th>___</th>
<th>___</th>
<th>___</th>
</tr>
</thead>
<tbody>
<tr>
<td>a lot</td>
<td>a fair amount</td>
<td>somewhat</td>
<td>a little</td>
<td>not at all</td>
<td>cannot say</td>
</tr>
</tbody>
</table>

Give an example if you’d like: _____________________________________
19. The follow-ups of the child’s/adolescent’s weight are
   __controls at the [name] hospital
   __regularly__ when needed
   __controls in the child welfare or school clinic
   __regularly__ when needed

20. In addition to the counselling in health care we seek information about weight management from

<table>
<thead>
<tr>
<th>A lot</th>
<th>A fair amount</th>
<th>Somewhat</th>
<th>A little</th>
<th>Not at all</th>
<th>Cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magazines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Television, radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health information sites on the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News groups on the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends, relatives, acquaintances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If other information sources, what or whom?
_____________________________________________________________________

21. If you’d like to state something more about the weight management
    counselling or care in health care, write it here (use the back of the paper if
    needed): _____________________________________________________________

    Thank you for your answers!
Appendix 11. The care path instructions in UA1 and UA2

<table>
<thead>
<tr>
<th>Health care organisation</th>
<th>Name of the document</th>
<th>Date (if available)</th>
<th>Form of the document</th>
<th>Number of pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA1 special health care</td>
<td>The regional integrated care pathway for obese children</td>
<td>14.4.2009</td>
<td>text</td>
<td>8</td>
</tr>
<tr>
<td>UA1 primary health care</td>
<td>Treatment protocol in the care of overweight, obesity and severe obesity</td>
<td>24.5.2007</td>
<td>table</td>
<td>4</td>
</tr>
<tr>
<td>UA2 special health care</td>
<td>Care path of the patient at the weight clinic</td>
<td>12.1.2011</td>
<td>table</td>
<td>10</td>
</tr>
<tr>
<td>UA2 primary health care 1</td>
<td>Weight path of small children and school children—early prevention and care of obesity</td>
<td>No date, printed 8.6.2011</td>
<td>flow chart</td>
<td>4</td>
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<tr>
<td>UA2 primary health care 3</td>
<td>Weight path for an overweight child (elementary school)</td>
<td>No date, printed 9.6.2011</td>
<td>text</td>
<td>2</td>
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</tbody>
</table>

Total 31 pages
### Appendix 12. Analysis of the themes in care path instructions
#### UA1 and UA2

<table>
<thead>
<tr>
<th>Theme</th>
<th>Subcategory</th>
<th>Main category</th>
<th>Frequency</th>
<th>Type of knowing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Foundations of weight management</td>
<td>Motivation for health professionals</td>
<td>UA1Sp, UA2Sp, UA2Pr1, UA2Pr3</td>
<td>mediated, situated</td>
</tr>
<tr>
<td>the definitions of overweight and obesity, description of health risks</td>
<td></td>
<td></td>
<td>UA1Sp, UA2Sp, UA2Pr1, UA2Pr3</td>
<td>mediated, situated</td>
</tr>
<tr>
<td><strong>Main principles of care:</strong></td>
<td>Instructions for follow-ups in primary/special health care</td>
<td>Division of tasks between primary and special health care</td>
<td>UA1Sp, UA1Pr, UA2Sp, UA2Pr1</td>
<td>mediated, situated</td>
</tr>
<tr>
<td>1. early diagnosis/diagnosis in primary health care</td>
<td></td>
<td></td>
<td>UA1Sp, UA2Sp, UA2Pr1</td>
<td>mediated, situated</td>
</tr>
<tr>
<td>2. if obesity: doctor’s referral to special health care</td>
<td></td>
<td></td>
<td>UA2Pr2, UA2Pr3</td>
<td></td>
</tr>
<tr>
<td><strong>Description of measurements, health status, family health history, laboratory tests</strong></td>
<td>Medical examinations Anamnesis</td>
<td>Recommended medical examinations and mapping the family’s lifestyle</td>
<td>UA1Sp, UA1Pr, UA2Sp, UA2Pr1, UA2Pr2, UA2Pr3, UA2Pr4</td>
<td>mediated, situated</td>
</tr>
<tr>
<td>Mapping the lifestyle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Setting the goals</strong></td>
<td>The main contents of the counselling</td>
<td>Counselling and motivating the patients and the families</td>
<td>UA1Pr, UA2Sp, UA2Pr1, UA2Pr2, UA2Pr3</td>
<td>mediated, situated</td>
</tr>
<tr>
<td>Means to achieve the goals</td>
<td>Follow-up recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other general instructions (for example no motivation – return to the issue later)</strong></td>
<td>Evaluation of need of follow-ups or further care</td>
<td>Evaluation of the results</td>
<td>UA1Sp, UA2Sp, UA2Pr2</td>
<td>mediated, situated</td>
</tr>
</tbody>
</table>
### Appendix 13. ICP work group documents in UHD1

<table>
<thead>
<tr>
<th>Date</th>
<th>Document material</th>
<th>Number of pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.2.2009</td>
<td>Meeting agenda</td>
<td>1 + 2</td>
</tr>
<tr>
<td></td>
<td>Field notes of the meeting</td>
<td></td>
</tr>
<tr>
<td>30.11.2009</td>
<td>Meeting agenda</td>
<td>1 + 2 + 12</td>
</tr>
<tr>
<td></td>
<td>Meeting agenda</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field notes of the meeting</td>
<td></td>
</tr>
<tr>
<td>15.3.2010</td>
<td>Meeting agenda</td>
<td>1 + 3</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td>16.8.2010</td>
<td>Meeting agenda</td>
<td>1 + 2 + 3</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field notes of the meeting</td>
<td></td>
</tr>
<tr>
<td>(30.11.2010)</td>
<td>Meeting agenda</td>
<td>1 + 2</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td>10.2.2011</td>
<td>Meeting agenda</td>
<td>1 + 3 + 3</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td>23.9.2011</td>
<td>Meeting agenda</td>
<td>1 + 4</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field notes</td>
<td></td>
</tr>
<tr>
<td>(10.2.2012)</td>
<td>Meeting agenda</td>
<td>1 + 4</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td>15.5.2012</td>
<td>Meeting agenda</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
<tr>
<td>(28.8.2012)</td>
<td>Meeting agenda</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Meeting memo</td>
<td></td>
</tr>
</tbody>
</table>

8 meeting agendas, 24 memo pages, 18 pages of reports and other material, 2 pages of field notes, total 42 pages

318
### Appendix 14. Age and work experience of the interviewed health professionals in UA1

<table>
<thead>
<tr>
<th>Workplace</th>
<th>Age in years</th>
<th>Total work experience in years</th>
<th>Work experience in current position or similar task in years</th>
</tr>
</thead>
<tbody>
<tr>
<td>sp1</td>
<td>50</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>sp2</td>
<td>52</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>sp3</td>
<td>42</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>sp4</td>
<td>52</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>sp5</td>
<td>41</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>sp6</td>
<td>48</td>
<td>27</td>
<td>18</td>
</tr>
</tbody>
</table>

Mean (special health care) 47.5 21 13.2

<table>
<thead>
<tr>
<th>Workplace</th>
<th>Age in years</th>
<th>Total work experience in years</th>
<th>Work experience in current position or similar task in years</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr1</td>
<td>30</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>pr2</td>
<td>55</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>pr3</td>
<td>51</td>
<td>31</td>
<td>25</td>
</tr>
<tr>
<td>pr4</td>
<td>51</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>pr5</td>
<td>44</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>pr6</td>
<td>50</td>
<td>26</td>
<td>6</td>
</tr>
</tbody>
</table>

Mean (primary health care) 46.8 18.5 9.2

Mean (special and primary health care together) 47.2 20.1 11.2
Appendix 15. Age and work experience of the interviewed health professionals in UA2

<table>
<thead>
<tr>
<th>Workplace</th>
<th>Age in years</th>
<th>Total work experience in years</th>
<th>Work experience in current position or similar task in years</th>
</tr>
</thead>
<tbody>
<tr>
<td>sp1</td>
<td>52</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>sp2</td>
<td>52</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>sp3</td>
<td>62</td>
<td>33</td>
<td>20</td>
</tr>
<tr>
<td>sp4</td>
<td>49</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>sp5</td>
<td>46</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>sp6</td>
<td>34</td>
<td>7</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Mean (special health care)</td>
<td>49.2</td>
<td>22.8</td>
</tr>
<tr>
<td>pr1</td>
<td>42</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>pr2</td>
<td>63</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>pr3</td>
<td>53</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>pr4</td>
<td>43</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>pr5</td>
<td>54</td>
<td>27</td>
<td>21</td>
</tr>
<tr>
<td>pr6</td>
<td>52</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>pr7</td>
<td>60</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>pr8</td>
<td>47</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>pr9</td>
<td>48</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>pr10</td>
<td>42</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>pr11</td>
<td>62</td>
<td>38</td>
<td>24</td>
</tr>
<tr>
<td>pr12</td>
<td>55</td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Mean (primary health care)</td>
<td>51.8</td>
<td>22.4</td>
</tr>
<tr>
<td></td>
<td>Mean (special and primary health care together)</td>
<td>50.8</td>
<td>22.5</td>
</tr>
</tbody>
</table>
Appendix 16. Background information of the patients of the weight clinic in UA2

<table>
<thead>
<tr>
<th>Age of the child/adolescent</th>
<th>Gender</th>
<th>Time visited at the weight clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>female</td>
<td>less than 6 months</td>
</tr>
<tr>
<td>11</td>
<td>female</td>
<td>less than 6 months</td>
</tr>
<tr>
<td>11</td>
<td>female</td>
<td>less than 6 months</td>
</tr>
<tr>
<td>10</td>
<td>male</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>13</td>
<td>male</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>16</td>
<td>female</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>10</td>
<td>female</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>16</td>
<td>female</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>11</td>
<td>male</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>15</td>
<td>female</td>
<td>6 to 12 months</td>
</tr>
<tr>
<td>10</td>
<td>male</td>
<td>over 12 months</td>
</tr>
<tr>
<td>8</td>
<td>female</td>
<td>over 12 months</td>
</tr>
<tr>
<td>9</td>
<td>male</td>
<td>over 12 months</td>
</tr>
</tbody>
</table>

Mean age of the children/adolescents

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11 years, 4 months</td>
<td>8</td>
<td>&lt;6 months 3</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6-12 months 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;12 months 3</td>
</tr>
</tbody>
</table>
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