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PAIN ASSESSMENT IN INFANTS IN 1B WARD IN LÄNSI-POHJA CENTRAL HOSPITAL

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Pain is a subjective and individual experience, and no objective tests exist to measure it Especially pain assessment is challenging in preverbal children. There is no single universal pain assessment tool. Many pain assessment tools have been created, but most of them are not in frequent practical use.The purpose of this thesis research is to observe the methods and tools used in pain assessment in infants 0-1 years in 1B ward.

The aim of this thesis research is to find out methods and tools used in pain assessment in infants 0-1 years and assess reasons for using or rejecting different pain assessment methods in 1b department in LPKS. Research task in this thesis is the following: how pain is assessed in infants in 1b in LPKS. The qualitative research method was used in this study. Personal interviews were conducted with four nurses from 1B ward Länsi-Pohjan central hospital during the spring of 2017. Qualitative content analysis was used to analyze the data collected through the interviews. The findings of this qualitative research were created based on the data analysis, the main issues appeared around the subjects of pain assessment methods, difficulties of pain assessment in infants, parents role and trainings for nurses. Further research of this topic is needed. Research permit and contract from hospital are also added in this thesis as appendix.

Key words: pain, infants, nursing

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Toimeksiantaja Länsi-pohjan keskussairaala

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Kipu on subjektiivinen ja omakohtainen kokemus ja ei ole olemassa objektiivista testiä mitata sitä. Varsinkin kivun arviointi on haastavaa puhekyvyttömillä lapsilla. Ei ole olemassa yhtä universaalista tapaa tehdä sitä. Kivun arviointiin on tehty monta eri työkalua, mutta useimmat niistä eivät ole käytössä. Tämän opinnäytetyön tarkoitus on tarkkailla tapoja ja välineitä, joita käytetään kivun arviointiin imeväisikäisillä 0-1 vuotiailla lapsilla ja käsitellä syitä miksi joitakin kivun arviointimenetelmiä käytetään toisten sijasta 1b-osastolla Länsi-pohjan keskussairaalassa. Tutkimustehtävä tässä opinnäytetyössä on seuraava: Kuinka kipua arvioidaan imeväisillä 1b-osastolla Länsi-pohjan keskussairaalassa. Tässä tutkimuksessa käytettiin laadullista tutkimusmenetelmää. Henkilökohtaiset haastattelut tehtiin neljän eri sairaanhoitajan kanssa 1b-osastolta länsi-pohjan keskussairaalassa keväällä 2017. Laadullista sisällönanalyysiä käytettiin analysoimaan dataa haastatteluista. Pääongelmat olivat seuraavien aiheiden ympärillä: vaikeus imeväisikäisen kivu narvioinnissa, vanhempien rooli ja valmennus sairaanhoitajille. Lisää tutkimusta tästä aiheesta tarvitaan. Tutkimuslupa-ja sopimus ovat myös opinnäytetyössä liitteenä.

Avainsanat: Kipu, imeväiset, hoitotyö

CONTENT

1 INTRODUCTION

Pain is a subjective and individual experience, and no objective tests exist to measure it (American Pain society 2009). It is impossible to see pain in others but health care professionals can observe how a person responds to the experience of pain (Solodiuk & Curley 2003, 295). The existence and intensity of pain are usually measured by the patient's self-report, abiding by the clinical definition of pain which states, ‘*‘Pain is whatever the experiencing person says it is, existing whenever he/she says it does”* (Herr, Coyne, McCaffery, Manworren & Merkel 2011, 230). Unfortunately, some patients cannot provide a self-report of pain verbally, in writing, or by other ways (Herr et al. 2011, 230). “*Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage”* (Mathew & Mathew 2003, 438). Perception of pain in pediatrics is complex, and entails physiological, psychological, behavioral, and developmental factors (Mathew & Mathew 2003, 438; Srouji, Ratnapalan & Schneeweiss 2010, 1).

There are a lot of problems in assessing and treating pain in children. Although the principles of pain management apply across the human lifespan, infants and children present unique challenges that necessitate consideration of the child's age, developmental level, cognitive and communication skills and previous pain experiences (Srouji et al. 2010, 1-2). Pain assessment in infants and young children is difficult and more challenging than in adults (James, Nelson & Ashwill 2013, 319). One more problem is that there is no single universal pain assessment method for infants. There simply is not enough research of this subject to create one. The problem is also pain assessment methods complicative design for using in clinical work. (Sailo & Vartti 2000, 154.) Additionally in spite of consistent necessity of using pediatric pain assessment tools it is not always seen among pediatric nurses (James et al. 2013, 317).

Pain management has been increasingly studied in the infants, but there is much debate about the quality and accuracy of the tools and methods that are most

frequently utilized (Hillman, Tabrizi, Gauda, Carso & Aucott 2015, 128). Increased interest and understanding importance of pain management in infants have led to significant increases in academic literature, research studies, and practice guidelines. However, improvements are still needed in the following areas: research on nurse-physician collaboration, nurse-parent collaboration in paediatric pain management, new reliable tools and methods for pain assessment for infants. (James et al. 2013, 318.) Pain assessment in very young children is frequently complicated by the limited ability of children to self-report their pain experiences, particularly because patient self-report is considered to be the most reliable indicator of the existence and intensity of pain (Franck, Greenberg & Stevens 2000, 487).

There are lot of different tools and methods for assessing pain in small children. Duhn and Medves (2004, 1-26) found 35 pain assessment tools for neonates and infants. However, despite pain scales for neonates are available, health care professionals use them rarely in clinical practice. For example, Akuma and Jordan 2011 survey, only 2.5% clinicians used pain assessment tools. In a Finnish survey by Pölkki at. al in 2009 similar results were found: pain assessment was unsystematic and only a few nurses used the pain assessment tools pediatric wards. (Pölkki, Korhonen, Axelin, Saarela & Laukkala 2014, 1586-1587.)

There are many different classifications of stages of growth and development of children which depends on author and culture. In this thesis “infant” means a child from birth till 1 year old. According to finnish classifications it is “imeväinen”. Therefore, in this thesis, infant and imeväinen are children from birth till 1 year old. Infants are particularly vulnerable age group for inadequate pain assessment and accurate pain assessment for infants is very challenging for nurses. More research on this subject is needed due to the fact that it is such a new subject. Before 1987, health care professionals were sure that infants are not able to feel pain, as a result they do not need painkillers and muscle relaxants. (Silvennoinen & Kaataja 2016.)

Pain assessment is significantly important, because "*adequate recognition of pain is essential to properly address the needs of each infant to allow safe and compassionate care*" (Hillman et al. 2015, 129). Pain assessment should be part of a holistic approach to the child; the nurse should be able to take the information provided by the child and interpret it with skill (Trigg & Mohammed 2006, 265-267; James et al. 2013, 318). Based primarily on animal studies, researchers have speculated that pain experiences of neonates may result in long term emotional, behavioural, and learning disabilities (James et al. 2013, 320). There is also concern that prolonged exposure to pain or severe pain may increase neonatal morbidity (Mckinney, James, Murray, Nelson & Ashwill 2013, 971).

The purpose of this thesis research is to observe the methods and tools used in pain assessment in infants 0-1 years in 1B ward in LPKS
The aim of this thesis research is to help to develop pain assessment in infants 0-1 years in 1B ward in LPKS by giving them the results of the research

As future nurses we can use information that we collected about pain assessment in infants to improve quality of pain assessment in infants. It can be useful for teachers to improve the education of pain management for nurses. According to Pölkky´s articles many nurses don't use pain assessment tools in spite of amount of different pain assessment tools. It is important to find out the realization of pain assessment at hospitals.

2 PAIN ASSESSMENT IN NEONATES AND INFANTS

2.1 Pain

There are many definitions of pain. *"Pain is a complex biobehavioral phenomenon still not fully understood by researchers and clinicians alike"* (Arif-Rahu, Fisher & Mastuda 2012, 157). Pain results from the interaction of multiple factors which include physical, emotional, cognitive, behavioural and contextual (Browne et al. 2007, 59). In commonly accepted definition, "*pain is whatever the person experiencing the pain says it is, existing whenever the person says it does*" (Herr et al. 2011, 230).

All these definitions work to underscore the fact than pain is complex, multidimensional, subjective and personal (James et al. 2013, 318). Two aspects of pain affect an individual response to a painful stimulus – pain threshold and tolerance. Pain threshold is closely associated with the point at which a nociceptive stimulus is perceived as painful. (Porth 2011, 871.) The pain threshold varies among individuals (James et al. 2013, 317). Pain tolerance relates to the total pain experience; it is defined as the maximum intensity or duration of pain that a person is willing to endure before the person wants something done about the pain (Porth 2011, 871).

Nursing assessment and interventions vary on the basis of the nature of the pain. People may have chronic or acute pain. Acute pain usually has a sudden beginning and is present for a limited time. Acute pain appears in acute phases of chronic diseases, after surgery, after trauma, after invasive procedures. Chronic pain continues for an unpredictable period beyond the expected recovery period, unlikely to resolve quickly, and may adversely affect daily life. (James et al. 2013, 318.)

"*Human responsiveness to painful stimuli begins in the neonatal period and continues through the lifespan*" (Porth 2011, 870). Assessing pain in infants and young children is more challenging than in adults (James et al. 2013, 319). Pain assessment scales usually incorporate one or more of the following:

- Behavioural assessment
- Physiological assessment
- Self-reported techniques

The behavioural assessment involves looking at how a child behaves in response to pain. Types of distress behavioural, for example facial expression, cry and body movements have been associated with pain. (Trigg & Mohammed 2006, 268.)

Physiological assessment includes vital signs data collection such as heart rate, blood pressure, respiratory rate and oxygen saturation (James et al. 2013, 319). However, these physiologic signs are also affected by other factors such as illness, fever and medications, and there is little evidence to support using changes in vital signs to assess pain (Herr et al. 2011, 238). Physiological responses to pain appear more obvious in infants and neonates. As pain is a subjective experience, self-reporting techniques are admitted as the most accurate indicators of pain. (Browne et al. 2007, 60.) However, they rely on children having the relevant language skills for their age and development and the ability to describe their pain in appropriate way (Trigg & Mohammed 2006, 266). As a result it is not possible to use self-reporting techniques in children in an intensive care setting, in neonates, in infants and preverbal toddlers.

Some pain assessment tools are available to help the professional to assess the pain in small children. These children may be unable to express their pain verbally or behaviourally (Trigg & Mohammed 2006, 267). Carter, McArthur, Cunliffe (2002, 451-452), found that parents used various strategies to identify their child's pain based on their in-depth knowledge of their child.

2.2 Infants 0-1 years

The infancy period begins with the newborn period and end at 1 year. During this time infants grow and change significantly. Length doubles and weight triples from moment of birth. First teeth of infant also develop and some learn first word or take their first step. Physical and motor skills development depends on certain infant and certain environment. Neonatal reflexes start to move away at 3-4 months and body control increases. At 4-6 months age baby starts to rolling from stomach to back and is able to move different toys. In 6-9 month baby can crawl, sit without support and can use all fingers. At 9-12 months infant can stand without support and start walking. (Koistinen, Ruuskanen & Surakka 2009, 59.)

During infancy period social skills develop rapidly month by month.

0-3 month old infants entirely dependent on caregivers. Their main way of communication is crying, but from 6 weeks infants are able to smile and respond to human faces and to stimuli. Infants behavior is dominated by reflexes.

3-6 months infants are interested in other people and learn to recognize primary caregivers. Infants feel comfort with familiar adults. They enjoy making sounds, smiling and laughing aloud. Infants are more likely to initiate social interaction, respond to voices, to touch, pay attention to own name.

At 6-9 months infants show a wider emotional range, display an obvious preference for caregivers, and stranger anxiety occurs as sign of cognitive development. Most can express several differentiated emotions, they respond actively to language and gestures, show displeasure at the loss of a toy. 6 months old infants can imitate sound and call for help.

10-12 months infants are able to quiet themselves. They can say 2 or more words, respond to ”No,”, understand and obey simple commands. Symbol recognition is developing. Near one year infants can also mimic simple actions, imitation and self-regulation play important role. (Koistinen et al. 2009, 61; James et al. 2013, 79.)

2.3 Pain in neonates and infants.

The fact that the neonates and infants have immature central nervous system (lack myelinisation of pain fibers) has led health care professionals in the past to believe that they are incapable of perceiving pain (James et al. 2013, 320). Frank, Greenberg and Stevens 2000, as cited Mathew & Mathew 2003, 438 found out the difference between the nociceptive process for infants and adults: *"infants may actually have a lower pain threshold and perceive pain more intensely than older children and adults because of immature control mechanisms in the nervous system that limit their ability to modulate the pain experience*". The anatomical, physiological, and biochemical prerequisites for pain perception are present by the early part of intrauterine life. Therefore, even preterm infants can perceive pain in the similar way as older children. In addition, newborn babies have a well developed endocrine system which releases cortisol and catecholamines in response to painful stresses resulting in biochemical and physiological alterations that make it possible to objectively assess response to pain. These factors are believed to make infants feel pain more severely than older children and adults. (Mathew & Mathew 2003, 438.)

Young children have difficulties discriminating between the sensory experience of pain and the distress or fear of pain as well as distressing symptoms (Herr et al. 2011, 237). Neonates cannot communicate by verbal report so they are totally dependent of caregivers to recognize that they are in pain. Physiological and behavioral signs should be observed and interpreted as an indication of pain being present. (Trigg & Mohammed 2006, 268.) Although the physiological and behavioral responses are very sensitive indicators of pain, they have poor specificity and can occur with stress related to disease and discomfort (Mathew & Mathew 2003, 239). Neonates who are experiencing prolonged or persistent pain may not express pain same way as neonates who are experiencing acute pain. Instead they tend to exhibit signs and symptoms of energy conservation. (Herr et al. 2011, 237.) Despite these drawbacks, assessment of behavioural and

physiological response remains as the most readily available and reliable method of assessing pain in infants (Mathew & Mathew 2003, 439).

Pain is associated with physiological alterations and these changes are summarised in Table 1:

Table 1: Responses of infants to pain. Source: Mathew & Mathew 2003, 440.

Table 1 Responses of infants to pain

Physiological changes	Behavioural changes	Biochemical changes
Increase in: • Heart rate • Blood pressure • Respiratory rate • Oxygen consumption • Mean airway pressure • Muscle tone • Intracranial pressure Autonomic changes[10 11]: • Mydriasis • Sweating • Flushing • Pallor	Change in facial expression[12]: • Grimacing • Screwing up of eyes • Nasal flaring • Deep nasolabial groove • Curving of the tongue • Quivering of the chin Body movements[13]: • Finger clenching • Thrashing of limbs • Writhing • Arching of back • Head banging	Increased release of: • Cortisol • Catecholamines • Glucagon • Growth hormone • Renin • Aldosterone • Antidiuretic hormone Decreased secretion of: • Insulin

2.4 Pain assessment tools

A variety of scales have been made for neonates and infants. Duhn and Medves (2004, 1-26) found 35 neonatal pain assessment tools but nurses might experience difficulties when using them in practice because lot of them were designed for research purposes. (Pölkki, Korhonen, Axelin, Saarela & Laukkala 2014, 1586.) The subjectivity and multidimensional nature of pain requires special approach in which healthcare professionals use a combination of a child's verbal report, behavioural observation and physiological measures to assess pain. Recognizing, treating, and reassessing are essential components of pain assessment. To provide effective pain management in children, healthcare professionals should use pain assessment tools according age and developmental stage of a child.

(Reaney 2007, 180.) Pain assessment tools that include asking the patient to describe their pain using a numerical or picture scale can be used for adults and older children. Preverbal children (younger than 36 months of age) cannot verbally describe their pain, leaving them at risk for prolonged and unrecognized pain. (Vael & Whitted 2014, 302.)

The COMFORT scale consists of behavioural and physiological components. The behavioural measures include alertness, calmness, muscle tone, movement, facial expression, respiratory response. Physiologic measures include arterial pressure, heart rate, heart rate variability, and arterial pressure variability. 1-5 points for each score. Score 8-40. (Arif-Rahu, Fisher & Mastuda 2012, 165.) Form for pain assessment is available in appendix 2 (page 44).

The Adapted COMFORT scale is a variation of the COMFORT scale, which can be used for preterm infants with less than 35 weeks of gestational age. It uses all items of the original scale, except the evaluation of invasive blood pressure. (Melo, Aguiar Lélis, Moura, Cardoso, Silva 2014, 399.)

The COMFORT-B is one more variation of Comfort-scale. The main difference is excluding the two physiological parameters (heart and invasive arterial pressure), keeping only behavioral indicators which are state of alertness, agitation, respiratory reaction, movements, muscle to and facial expression. (Melo et al. 2014, 399.)

NIAPAS (Neonatal Infant Acute Pain Assessment Scale) pain scale was developed in close collaboration with nurses based on their expertise. This tool was made by Pölkki, Korhonen, Axelin, Laukkala, Saarela. It is sensitive to needs of infants in neonatal intensive care units. Also multidimensional approach was used. NIAPAS includes 8 pain indicators: 5 behavioral (Alertness, facial expressions, crying, muscle tension, reaction to handling) and 3 physiological indicators (breathing,

heart rate and SaO2). (Pölkki et al. 2014, 1587-1593.) Form for assessment is in appendix 3 (page 45)

PIPP consists of seven indicators including: 1) contextual indicators: assessment gestational age and behavioural state; 2) physiological indicators: heart rate and oxygen saturation; 3) behavioural indicators: facial actions-brow bulge, eye squeeze, and nasolabial furrow. PIPP creates a score from 18 to 21 depending on gestational age, with 0-6 reflecting no pain, 6-12 reflecting mild-moderate pain, and above 12 indicating severe pain. (McNair, Ballantyne, Dionne, Stephens & Stevens, 2004, 537; Duhn & Medves 2004, 20, Srouji et al. 2010, 2.)

The neonatal pain, agitation, and sedation scale (N-PASS) has become one of the 5 most commonly used measures of pain in neonates. It was designed for evaluating chronic and procedural pain. This tool uses 5 parameters scored 0, 1, or 2 in each category. The categories include crying/irritability, behavior state, facial expression, extremities/tone, and vital signs (heart rate, respiratory rate, blood pressure and oxygen saturation). (Havidich 2015, 4.) Additional information can be found in appendix 4 (pages 46-47)

The Neonatal Facial Coding system (NFCS) identifies specific pain facial actions among newborns undergoing procedures. The NFCS assesses discrete facial actions using video played back in real time with stop-frame capability. An expert coder identified total facial activity and cluster specific facial features (brow bulge, eye squeeze, nasolabial furrow and open mouth) that have been shown to be significantly associated with acute and postoperative pain in infants. (Duhn & Medves 2004, 5; Arif-Rahu et al. 2012, 163; Srouji et al. 2010, 2.) Scoring of NFCS and facial pain expression example can be found in appendix 5 (page 48)

NIPS scale is composed of facial expression (0/1 point), cry (0/1/2 points), breathing pattern (0/1 point), position of arms (0/1 point), position of legs (0/1

point), and state of alertness (0/1 point) (Arif-Rahu et al. 2012, 164; Srouji et al. 2010, 2). Details and scoring of NIPS pain scale are in appendix 6 (page 49)

CRIES (Crying Requires increased oxygen administration Increased vital signs Expression Sleeplessness) includes indicators such as crying, oxygen requirements, increases in heart rate or blood pressure, facial expression and sleep behaviour. CRIES creates a score from 0 to 10, similar to self report or observational tools. (McNair et al. 2004, 537, 540; Srouji et al. 2010, 3.)

The Objective Pain Scale (OPS) is used to assess blood pressure, crying, movement, agitation, posture, and verbalization. Each indicator is scored 0, 1, or 2, with high scores indicating increased distress. This pain assessment tool is important because it includes a cardiovascular parameter in the assessment of postoperative pain. Many healthcare professionals are fond of using cardiovascular parameters as the most objective measures of the pain response in preverbal children. However their use is limited because other causes of distress may significantly change these parameters. Despite the fact cardiovascular parameters are insufficient as the only means of assessing pain in this patient population, they may be helpful. (Havidich 2015, 4.)

Among the several multidimensional pain scales for children and infants, the most used are the Neonatal Facial Coding System (NFCS); the Neonatal Infant Pain Scale (NIPS) and the Premature Infant Pain Profile (PIPP) (Melo et al. 2014, 396).

2.5 Parental role in pain assessment

Family centered approach is a key of pediatric nursing. A nurse takes care of a child in context of whole family because family provides protection and promotion of children's health and development. Family centered care is based on cooperation of children, family, nurses and doctors. (James et al. 2013, 23.) Family-centered approach also should be used for pain management. Parents play

an important role in ensuring their child´s effective pain management (Liossi & Franck In: Macintyre, Walker & Rowbotham 2008, 318).

Parental roles in child's pain management should be clearly defined by healthcare staff. Parents are valuable part of health care team, they know their child's unique behavior, and can help in the effective and accurate pain assessment and management for their child. Moreover, parents have strong motivation to help, to comfort and to support when they are experiencing pain. There are noteworthy benefits of parental participation in child's pain management for both the child and the parents. These include a positive effects on the emotional well-being of the child, as well as an impact on the child's anxiety, pain levels and sleeping pattern. (Best Practice: evidence-based information sheets for health professionals 2012, 2-3; Heikkonen 2005, 14.)

Nurses are in key position to transfer pain assessment and pain management knowledge to parents (Wood 2002, 33). In a study by Pölkki, Pietilä, Vehviläinen-Julkunen, Laukkala, Ryhänen (2002, 276) nurses reported that parents usually get enough information about pain management strategies from healthcare professionals. But Simons, Franck & Roberson (2001, 591) found out only 23% of surveyed parents felt they had a clear pain care role. It is important to notify since many parents report high levels of stress and anxiety when they are uncertain about role in pain management (LaMontagne, Wells, Hepworth, Johnson & Manes 1999, 3). One of the reasons of stress is the lack of the knowledge how to assess pain of child. It is necessary to improve communication between nurses and parents to reduce stress and anxiety, whereas parent behaviour strongly affects to child's distress and pain coping. According to Mahoney, Ayers, Seddon (2010, 991), parent behaviour may influence more than healthcare professionals behaviour.

Several studies have concluded that professional nurses have tendency to underestimate pain of nonverbal children and parents tend overestimate it. This

may lead to inadequate pain management. They also showed that sometimes parents come much closer to actual pain level of their child. (Hla, Hegarty, Russel, Drake-Brockman, Ramgolam & Sternberg 2014, 1131; Brudvik, Moutte, Baste & Morken 2016, 5.) In treatment process parents help nurses during different procedures to calm the child and therefore make pain level assessment easier.

On the other hand sometimes parents can cause child to act more resistant due to infant showing worry and pain to its caretaker more openly than to a nurse. (Kankkunen 2003.) Parents also use verbal reassurances to comfort their child such as ”don’t worry” and ”it will be quick”. This can lead to child’s increased distress since these reassurances focus attention on the pain experience. Reassurances can also serve as warning that something bad will happen soon. (McMurtry, McGrath & Chambers 2006, 560.)

Nurses and parents collaboration in assessing pain of infants can provide more effective pain management. Nurses need to find out the best way of communication between healthcare professionals and parents.

3 PURPOSE, AIM, RESEARCH TASK, RESEARCH METHOD, DATA COLLECTION AND METHODS, DATA ANALYZING METHOD

The purpose of this thesis research is to observe the methods and tools used in pain assessment in infants 0-1 years in 1B ward in LPKS

The aim of this thesis research is to help to develop pain assessment in infants 0-1 years in 1B ward in LPKS by giving them the results of the research.

Research task in this thesis is the following:

How pain is assessed in infants in 1b in LPKS

In this study qualitative interview with paediatric nurses was used. Personal interview is a method of qualitative research. There are two approaches to research: qualitative and quantitative. This research require qualitative approach. Qualitative research may be used to seek out issues such as the views and experiences of healthcare staff (Moule & Goodman 2009, 171). Qualitative approaches focus on understanding social settings; in nursing area it can be the ward or community environment (Polit & Beck 2012, 487). According to that, interview is the most appropriate method for getting personal experience of paediatric nurses.

Three qualitative approaches: phenomenology, ethnography and grounded theory - there are the most frequently used in nursing research. (Polit & Beck 2012, 487.) In phenomenological research a number of methods of data collection can be used: interviews that are in-depth and focus on the experience that is being explored (Moule & Goodman 2009, 209). From the researcher's points of view phenomenology approach can be selected, because researchers want to explore the experience of nurses. For generating knowledge induction approach was used. "*Induction is a process of starting with the observations and details of an experience, our observations of something that are used to develop a general understanding of phenomena.*" (Moule & Goodman 2009, 173.)

Qualitative interview is a term used to indicate a family of interviews that share the common purpose of studying phenomena from the perspective of the respondent. (Parahoo 1997, 286.) The main purpose of the qualitative interview is to find out the participant's perception, experiences and opinions, and it allows the participant to drive the interview direction (Moule & Goodman 2009, 297). Personal interviews concern as the best method of collecting survey data because of the quality of information (Polit & Beck 2012, 265).

This method is the most suitable for this study, because "*individual nurses vary in their ability to assess pain; some of these differences have been linked to the lack of or inaccurate clinical knowledge regarding pain, inappropriate stereotyping of patients who require treatment for pain, and lack of nursing experience*" (James et al. 2013, 317). Additionally, paediatric nurses do not always use pain assessment tools consistently (James et al. 2013, 317).

This study contains descriptive level of material. At the descriptive level, the aim of the research is to describe phenomena about which little is known (Parahoo 1997, 143). A descriptive study can be a part of quantitative method or qualitative method (Polit & Beck 2012, 505), but qualitative researchers are likely to be focused on perceptions and experiences as a way to understand and explain behavior. In nursing research an interpretivist position would be used to describe people's experience of care, trying to understand the individual and social interactions (Moule & Goodman 2009, 173).

"Content analysis is the process of organizing and integrating material from documents" (Polit & Beck 2012, 723). This process involves labeling the data for retrieval (Moule & Goodman, 2009, 349). Different researchers use different approaches of the process of coding (Moule & Goodman 2009, 346). Major data sources in qualitative studies are audiotaped interviews and field notes (Polit & Beck 2012, 532). The most common analyzing method of qualitative data is to structure them in themes of categories (Parahoo 1997, 354). Researches whose

aims are primarily descriptive usually use categories that are fairly concrete. Data management in qualitative research is reductionist in nature: it involves converting loads of data into smaller, manageable segments. By contrast, qualitative data analysis is constructionist: it involves combining segments into meaningful conceptual figures. (Polit & Beck 2012, 14.)

4 DATA ANALYSING

4.1 Participants characteristics

In this thesis research six nurses from 1B ward LPKS participated in interviews. 1B is a children's ward for 8 patients, it is divided into 3 parts: infection and “clean” and ICU for newborns (vauvala). Interviews were accomplished with permission of lead nurse.

One test interview was conducted with the help of 2 nurses in group interview in march of 2017. After test interview questionnaire was changed according to our findings of missing subjects and unclear questions for improving final interview. Questions about parental role were added. Questions in test interview were focused on tools and its usage. Findings of test interview showed that nurses do not use many pain assessment tools. Therefore questions about methods of pain assessment in general were added. Also order of questions was changed for avoiding double questions. A question about hospital as a provider of additional training was included as well. Also we removed a question regarding nurses development of skills in pain assessment for its difficulty in answering.

Four nurses participated in final individual interviews July of 2017. One nurse from participants was from intensive care unit of newborn. Three nurses worked primarily in ward. All participants answered to the same questions. Interviews lasted 10-15 minutes, they were conducted in privacy. All participants were interviewed in Finnish and they were informed that collected data will be deleted. Nature of study, goal and aim were described for participants.

4.2 Analysis

Interviews were recorded and data was transcribed in exactly the same words as were used originally. Transcripts were read multiple times. Afterwards collected data was coded by labelling relevant words, phrases and sentences. Then the most important codes were combined and categories were found. Next categories were created: challenge of pain assessment, inability of infants to speak, crying

does not mean pain, benefits of pain assessment for infants, using own experience in pain assessment, using NIPS, physical behavioral reactions, parents are expert of their own child, guiding parents about basics of pain assessment, constant using of parents in pain assessment, training not at hospital, enough skills for pain assessment, uncertainty of pain assessment. This approach helped to find significant but less obvious interconnections in relevant data. This method also allowed to analyse variations of perspectives and experiences while still allowing for anonymity. Next step of analysing was searching for connection between categories and describing the connection. Next global themes were then generated from the categories obtained describing the experience of pain assessment by nurses: Pain assessment and methods, Parents role, Self evaluation and training for nurses.

Table below contains excerpts from interviews, subthemes (the most important codes) and categories from which global themes were generated.

Categories	Subthemes	Excerpts
Pain in infants	● Challenging ● Importance ● Inability to speak ● Enough painkillers ● Benefits for infants	● *“Its challenging but important”* ● *“You need to learn how to “read” the child”* ● *“Pain can increase babies stress and affect even its future”* ● *“Limitations in medicines is also a challenge”* ● *“You need to assess from childs movements and behavior that pain”* ● *“You need to know the signs of pain”* ● *“Baby has gotten enough painkillers when its condition is better, it stops crying and when baby relaxes both from face and body”* ● *“Benefits of painkillers should be visible”* ● *“When baby can relax and fall asleep”*
Methods of pain assessment in infants	● Infants reactions ● Own experience ● NIPS	● *“By notifying expressions, movements, sounds, crying and changes is them”* ● *“Crying is the simplest way”* ● *“If infant´s body is tense it usually*

		means it's in pain" ● *"Pain assessment forms are not in frequent use here. Facial recognition is more in use here"* ● *"With experience you can more reliably assess pain without pain assessment tools"* ● *"NIPS is convenient pain assessment tool but i don't really think about certain pain assessment tool but i monitor the baby"*
Parental Role	● Are experts of their own child ● Frequency of cooperation ● Basics of pain assessment	● *"Parents know their own child"* ● *"Parents can recognize behavioral changes in their child"* ● *"Parents evaluation is important and their presence is pain management in itself"* ● *"I discuss with parents as much as possible"* ● *"We use parents in every shift"* ● *"We instruct parents in basics of pain assessment"* ● *"Parents are important expert of their child when they learn to know their child and are brave enough to evaluate pain by themselves"*
Own skills and additional training	● Training not at hospital ● Wishes in pain assessment training ● Enough/Not enough skills	● *"There has not been training in hospital for this subject"* ● *"There has been training for this subject elsewhere but not in hospital"* ● *"There are forms for pain assessment in vauvala but there has not been training for using them"* ● *"NIAPAS would be good to be trained with"* ● *"Some form for pain assessment for infants would be good ´to be trained with"* ● *"Less for infants"* ● *"Good. With years of experience in this subject you don't need to think about specific assessment tools"* ● *"Well. Subject is difficult but i have experience on it. I always ask also parents or colleagues assessment"*

5 FINDINGS

In this study about the pain assessment in infants in 1B ward in LPKS by nurses the findings were formed into three main categories about pain assessment and methods, parent's role in pain assessment and self-evaluation and training for nurses. Direct quotations also were used for giving clear picture of pain assessment in 1B ward.

5.1 Pain assessment and methods

Pain assessment in infants plays important role in effective pain management. All interviewed nurses considered it as essential and challenging for simple reason that infants cannot express their pain verbally. The most obvious expression in infants is crying, but it does not always mean pain. Nurses mentioned problems in pain management that makes further pain assessment difficult for example limited types of medicines and small amount of medicines that can be used for infants. Interviewed nurses shared the same opinion that effective pain assessment benefits infant's condition in various ways. Pain assessment gives opportunity to provide high quality care, for example, it helps to give right amount of medication in right time. Infant can easily relax and fall asleep if pain assessment is correct and amount of given medication is also correct.

> *"Benefit of painkillers should be visible. Infant is, for example, calmer and he/she breaths better, eats better and does not cry so loudly."*

All interviewed nurses mentioned infants reaction as the main pain assessment method. These reactions include behavioural changes such as crying, body tension and movements, restlessness and facial expression; physiological changes include saturation, pulse and colour of skin. Many interviewed nurses use their own experience in pain assessment instead of certain method, one of interviewee told

that pain assessment tools are useful for young nurses who do not have knowledge or experience in this area. More experienced nurses can simply look at and hold an infant and assess pain and come to the conclusion about pain level.

> *“When you gain experience, you can assess pain without tools.”*

Discussion of certain methods was quite short with nurses, most of them mentioned NIPS (Neonatal Infant Pain Scale) as one being used frequently by nurses in 1B ward. Nurses also emphasised teamwork with co-workers such fellow nurses and doctors. Parents of infants were also seen as vital help in pain assessment.

5.2 Parental role

All interviewed nurses shared the opinion that parents are experts of their own child and they should be actively involved in their child’s care. Interviewees consider that pain assessment by parents is an important part of pain assessment in common because parents are able to recognize behavioural changes more reliably than nurses. Moreover parents care and presence are pain treatment by itself, all children feel safer when their parents are next to them, and infants need parents’ support and company even more. For these reasons nurses use parents help in pain assessment as much as possible.

> *“As parents learn to know their child, they become experts and they can help in pain assessment and even evaluate pain by themselves.“*

This utilization of parents comes possible through parents knowledge of their child, but it is the nurse's job to help and support parents with newborns since parents are not experts yet especially if baby is their first child. Interviewed nurses

explained how they can instruct parents, usually it is basics of care and some special issues such as pain assessment.

> *"We discuss with parents what they need to notify regarding pain assessment in their child."*
> *"I tell parents what they can do to assess their child and how to understand types of crying."*

Instructions include how to monitor infant, how to notify pain, how can parents help with pain (swaddling, breastfeeding). Instructions always go case by case since all parents and all children are different.

5.3 Self-evaluation and training for nurses

This research was carried out in cooperation from the ward 1B in LPKS and permission for research and interviews was received from ward. Interviewed nurses were active in participating and were interested in this topic. Nurses mentioned that the ward is small and most patients are older than infant age.

> *"Infants as a patient group are minority in the ward"*

Also interviewed nurses mention ICU for newborns in discussion many times, since main age group of patients are infants. As a result nurses in vauvala are more experienced with infants even if they do not have so much experience in pediatric nursing. All interviewed nurses told that they did not receive any training at hospital, but most of them had additional training somewhere else. Moreover, nurses mentioned about meetings in ward where they discussed methods as experience exchange. All interviewed nurses work in pediatric nursing minimum for 5 years and they are familiar to this topic. They evaluated their own skills in pain assessment, in spite of experience some nurses want to get more information for improving their skills in pain assessment in infants.

Nurses expressed desire to have additional training, especially they would like to know more about some usable methods, which are simple and usable, also about NIAPAS, it could help to refresh their skills and improve quality of pain assessment in infants in 1B ward.

6 DISCUSSION

6.1 Discussion of the findings

This thesis studied the experiences of nurses from 1B LPKS. This thesis started with theoretically presenting the pain assessment in infants. The participants shared their experiences on the pain assessment in infants. In the interviews the nurses did not clearly talk about the theory of pain or using any tools in pain assessment. The main issues appeared around the subjects of pain assessment methods, difficulties of pain assessment in infants, parents role and trainings for nurses.

In the experiences of the interviewees in this research, the pain assessment in infants is challenging, but important. It correlates with James et al 2013 (see section 1). Also nurses prefer to use their own experience and knowledge rather than certain method. These findings correlate with previous studies from Finland by Pölkki and from Canada by Duhn and Medves (see section 3.4).

Interviewed nurses told they use help of parents as much as it possible and they give sufficient information and instructions case by case. But it contradicts previous studies by Pölkki et al. 2002, Hallström et al. 2002 (see section 3.5) that parents do not get enough information from care providers and they helplessness in unusual environment for them. As a results It needs more detailed research to evaluate satisfaction of communication between parents and healthcare professionals.

Interviewed nurses mentioned they did not get proper trainings in pain assessment from hospital, during discussion they often referred to ICU for newborns, that nurses usually take care of infants there comparison with nurses who work just in ward. This leaves question what about remaining 11 months of infancy. For example, if newborn was sent to home and he/she becomes sick, infant cannot return to ICU for newborns since infant got pathogens from home environment,

parents with a child should go to ward, all nurses should be ready to take care of such a small child and know how to assess pain.
Also additional training benefits young nurses, who do not have so much experience and have not found suitable method, but they still must be part of multiprofessional team.

The interviews and the results of the research were experiences of four nurses and any conclusions about the results being applied outside the nursing science cannot be drawn. It is possible to conclude the nurses´ experiences to larger group but there can also be exceptions. (Brinkmann 2013, 53)

6.2 Ethicalness and credibility of the study

Credibility refers to confidence in the truth of the data and interpretations of them. Qualitative researchers must strive to establish confidence in the truth of the findings for the particular participants and the contexts in the research. Question for self-scrutiny: what steps can I take to have confidence that participants' experiences and context are represented in a believe way? (Polit & Beck 2012, 582-589.) A number of steps can be taken that support claims for credibility. These can include the use of triangulation in data collection and prolonged engagement in the field. Researchers can also employ expert review process and member checking, asking participants to review the analysis and interpretation. (Moule & Goodman 2009, 188.) In this study member checking will be used, the head nurse of children's department at hospital points to register nurses, who have experience in pain assessment.

When humans are used as study participants, care must be exercised to ensure that their rights are protected (Polit & Beck 2012, 162). In this study participants are not subjected to unnecessary risks of harm of discomfort. Participants was assured that their participation cannot be used against them. The researcher described the nature of the study, goals, the researcher's responsibility. Moreover

the participation in this study was voluntary. This research was not more intrusive than it needed to be, all collected data will be kept in confidence, but this information can be used in nursing publications and presentations. The researcher respects the participant's' right for privacy, all collected data will be deleted after analyzing. In this right will be ensured through the anonymity. In this study, high-risk groups such as children, mentally or emotionally disabled people, the terminally ill patients, pregnant woman, were not participating.

6.3 Thesis process and suggestions for further study

Thesis process lasted for slightly over a year. Thesis advanced according to schedule with little changes. Major problems were avoided but aim and purpose of thesis were changed a few times during writing process. Searching for theoretical base was not difficult, there are a lot of articles and magazines about pain. Most of them were in english but it was possible to find some of them in finnish. On the other side huge amount of material made analyzing difficult. Also searching for a good article was challenging, Most significant problem with finding new and relevant information about our subject was that even newer articles and researches use material from older sources because pain is not new topic . Planning phase was longer than expected and it was necessary to take breaks in writing due to studying and practical trainings. Test interview was done during spring 2017 and final interviews were done during summer 2017. Reliability of the interviews were confirmed by making sure the no one else apart from thesis writers were allowed access to them. Also direct citations can not reveal person's identity. Translation is also useful tool to make sure answers cannot be traced back to interviewed persons. Interviews were deleted instantly after data collection from them. Nurses took active participation to interviews and they were interested in the topic. Interviews were done in finnish for data analysing they were carefully translated.

Supervisors gave support and information when it was necessary. With this interview new potential studies were considered. In our mind aim and purpose were completed. We found out how nurses in 1b ward in LPKS complete their work

despite difficulties regarding infants. We also discovered importance of parents in pain assessment and understood how we can potentially improve pain assessment in 1b ward in LPKS. It should be hospital's duty provide training for nurses instead of relying on nurses experience for improving quality of pain assessment and care in general. As said previously we intend to give results of this thesis to 1b ward so they can see potential way to improve pain assessment. Also our thesis contains blank forms of different pain assessment tools (in appendixes), it makes our thesis more useful, pain assessment should not be just in theory and it should have practical implementation, blank forms help to understand to a student or a nurse how certain pain assessment tool can be implemented to practical use.

Interviewed nurses mentioned a lot about pain assessment in infants which was seen challenging but important. It is essential to continue studies and improve pain assessment quality. Maybe providing practically useful and convenient method could be advantageous for patients, their parents and healthcare stuff. Moreover it could help to improve quality of communication between nurses, between doctors and nurses, also improve pain management.

Another research suggestion could be that there are many different pain assessment methods, but nurses do not use them a lot. Future study can evaluate reasons of overlooking methods and it would help to create “ideal” pain assessment tool for infants.

Nurses also told about parents role in pain assessment as being an essential part of pain management. So it could be useful to study further parents training in this area, how much are parents satisfied with amount and quality of information what they receive.

One more possibility of future studies is researching what kind of training nurses receive at hospitals and what do they find most useful type of training.

7 CONCLUSION

In this study, four nurses from 1B LPKS were interviewed. The purpose of the research was observe the methods and tools used in pain assessment in infants 0-1 years in 1B ward. And the aim of this thesis research was to help to develop pain assessment in infants 0-1 years in 1B ward in LPKS by giving them the results of the research.

Result of this research show that nurses have experience and knowledge in pain assessment, but infants are one of the most challenging type of patients for pain assessment. Nurses use everything that can help them to do it as accurately as possible, include their experience, parents, doctors, but they do not use certain tool.

Results was translated to Finnish and sent to 1b ward LPKS. Hopefully, it reminds nurses importance of pain assessment and improves quality of pain assessment. Also it encourages managers of hospital to provide training in pain assessment in infants for healthcare staff.

Despite the fact that some of findings correlate with previous studies conducted both in Finland and abroad, more research should be done about pain assessment in infants.

8 LIST OF REFERENCES

American Pain Society. 2009. Principles of analgesic use in the treatment of acute pain and cancer pain, 6th ed. Glenview, IL: American Pain Society.

Afir-Rahu, M., Fisher, D. & Matsuda, Y. 2012. Biobehavioral Measures for Pain in the Pediatric Patient. Pain Management Nursing Vol. 13 No 3, 157-168.

Best Practice: evidence-based information sheets for health professionals. 2012. Parental involvement in their children's postoperative pain management in hospital. Joanna Briggs institute Vol. 16 No 3, 1-4.

Brinkmann, S. 2013. Qualitative interviewing. Oxford University Press. New York USA. E-book: Ebrary database. Accessed 13.02.2017.

Browne, N. T., Flangan, L. M., McComiskey, C. A. & Pieper, P. 2007. Nursing care of the pediatric surgical patient. Jones and Bartlett Publishers. Chapter 5. Care of children with acute pain: operative, procedure, traumatic. Wendy Lord Mackey, Renee C.B. Manworren.

Brudvik, C., Moutte, S-D., Baste, V. & Morken, I. 2016. Comparison of pain assessment by physicians, parents and children in an outpatient setting. Emergency Medicine Journal Vol. 0, 1-7.

Carter, B., McArthur, E. & Cunliffe, M. 2002. Dealing with uncertainty: parental assessment of pain in their children with profound special needs. Journal of Advanced Nursing Vol.38 No 5, 449-457.

Duhn, L. J. & Medves, J. M. 2004. A systematic integrative review of infant pain assessment tools. Advanced Neonatal Care Vol. 4 No 3, 5-26.

Franck, L.S., Greenberg, C.S. & Stevens, B. 2000. Pain assessment in infants and children. Paediatric Clinics of North America Vol. 47 No 3, 487-512.

Gold, J., Townsend, J., Jury, D., Kant, A., Gallardo, C. & Joseph, M. 2006. Current Trends in Pediatric Pain Management: from Preoperative to the Postoperative Bedside and Beyond. Seminars in Anesthesia, Perioperative Medicine and Pain Vol. 25 No 3, 159-171.

Habich, M. & Letizia, M. 2015. Pediatric Pain Assessment in the Emergency Department: A Nursing Evidence-Based Practice Protocol. Pediatric Nursing Vol. 41 No 4, 198-202.

Havidich, J. 2015. Perioperative Pain Management in Newborns. Accessed January 16, 2015. http:/emedicine. medscape.com/article/980222-overview.

Heikkonen, S. 2005. Lasten kroonisen kivun psykologinen hoito. Kipuviesti Vol. 3, 13- 15.

Hillman, B.A., Tabrizi, M.N., Gauda, E.B., Carson, K.A. & Aucott, S.W. 2015. The neonatal pain, agitation and sedation scale and the bedside nurse's assessment of neonates. Journal of Perinatology Vol. 35 No 2, 128-131.

Herr, K., Coyne, P.J., McCaffery, M., Manworren, R., Merkel, S. 2011. Pain assessment in the patient unable to self-report: position statement with clinical practice recommendations. Pain management nursing Vol. 12 No 4, 230-250.

Hla, T. K., Hegarty, M., Russel, P., Drake-Brockman, T. F., Ramgolam, A. & Sternberg, B. S. 2014. Perception of pediatric pain: a comparison of postoperative pain assessments between child, parent, nurse and independent observer. Pediatric Anesthesia Vol. 24, 1127-1131.

Huguet, A., Stinson, J.N. & McGrath, P. J. 2010. Measurement of self-reported pain intensity in children and adolescents. Journal of Psychosomatic Research Vol. 68, 329-336.

Hummel, P. A., Puchalski, M. L., Creech, S. D. & Weiss, M. G. 2004, N-PASS: Neonatal Pain, Agitation and Sedation Scale – Reliability and Validity, Anestesia Pediatricia e Neonatale Vol. 2 No 6.

James, S., Nelson, K., Ashwill, J. 2013. Nursing care of children: principles and practice. 4th edition. St. Louis, MIssouri: Elsevier.

Kankkunen, P. 2003. 1-6-vuotiaiden lasten leikkauskipu kotona päiväkirurgisen toimenpiteen jälkeen. Kuopion yliopisto. Hoitotieteen laitos. Väitöskirja.

Koistinen, P., Ruuskanen, S. & Surakka, T. 2009. Lasten ja nuorten hoitotyön käsikirja. Suomi: Sanoma Pro Oy.

Kohut, S.A. & Riddel, R.P. 2009. Does the neonatal facial coding system differentiate between infants experiencing pain-related and non-related distress. The journal of Pain Vol.10 No 2, 214-220.

LaMontagne, L. L., Wells, N., Hepworth, J. T., Johnson, B. D. & Manes, R. 1999. Parent coping and child distress behaviors during invasive procedures for childhood cancer. Journal of Pediatric Oncology Nursing Vol.16 No 1, 3.

Macintyre, P. E., Walker, S.M. & Rowbotham, D. I. 2008. Clinical Pain Management: Acute pain, 2nd edition. Chapter 16. Liossi, C. & Franck, L. S. Psychological interventions for acute pediatric pain, 309 - 323.

Mahoney, L., Ayers, S. & Seddon, P. 2010. The association between parent's and health care professional's behavior and children's coping and distress during venepuncture. Journal of Pediatric Psychology Vol. 35 No 9, 985-995.

Mathew, P.J & Mathew, J.L. 2003. Assessment and management of pain in infants. Postgraduate Medical Journal Vol. 79**,** 438-443.

McKinney, E. S., James, S. R., Murray, S.S., Nelson, K. A. & Ashwill, J. W. 2013. Maternal-Child Nursing. Canada: Elsivier.

McMurtry, C. M., McGrath, P. & Chambers, C. 2006. Reassurance can hurt: Parental behavior and painful medical procedures. The Journal of Pediatrics Vol. 148 No 4, 560.

McNair, C., Ballantyne, M., Dionne, K., Stephens, D. & Stevens, B. 2004. Postoperative pain assessment in neonatal intensive care unit. Archives of Disease in Childhood. Fetal and Neonatal Edition Vol. 89, 537-541.

Melo, G. M., Aguiar Lélis, A. L. P., Moura, A. F., Cardoso, M. V. M. L. & Silva, V. M. 2014. Pain assessment in newborns: interactive review. Revista Paulista De Pediatria Vol. 32 No 4, 395-402.

Morton, N. 1997. Pain assessment in children, Paediatric Anaesthesia Vol. 7 No 4, 267–272.

Moule, P. & Goodman, M. 2009. Nursing research. An introduction. Great Britain, Hampshire: SAGE Publications Ltd.

Nursing guidelines, COMFORT pain scale, assessed 1.4.2017, http://www.olchc.ie/Files-Uploaded/Nursing-Guidelines/Pain-Docs-Comfort-Scale.pdf

Parahoo, K. 1997. Nursing Research: principles, process, issues. Great Britain: Palgrave Macmillan.

Pasero, C. & McCaffery, M. 2005. No self-report means no pain-intensity rating. The American Journal of Nursing Vol. 105 No 10, 50–53.

Pasero, C. & McCaffery, M. 2011. Pain assessment and pharmacologic management. St.Louis: Mosby.

Polit, D. F. & Beck, C. T. 2012. Nursing research: generating and assessing evidence for nursing practice. 9th edition. Philadelphia: Wolters Kluwer/Lippincott/Williams & Wilkins Health.

Porth, C.M. 2011. Essentials of Pathophysiology: concepts of altered health states. 3rd edition. Wisconsin: Lipincott: Williams & Wilkins.

Pölkki, T. 2001. Nurses' perceptions of parental guidance in pediatric surgical pain relief. International Journal of Nursing Studies Vol. 39, 319-327.

Pölkki, T., Korhonen, A., Axelin, A., Saarela, T. & Laukkala, H. 2014. Development and preliminary validation of the Neonatal Infant Acute Pain Assessment Scale (NIAPAS). International Journal of Nursing Studies Vol. 51, 1585-1594.

Pölkki, T., Korhonen, A., Axelin, A., Saarela, T., Laukkala, H., Palomaa, A-N., Heikkinen, U. & Miettinen, S. 2016. NIAPAS- kipumittari tehohoidossa oleville vastasyntyneille: mittarin kehittäminen ja luotettavuuden arviointi. Hoitotiede Vol. 28, 66-77.

Pölkki, T., Pietilä, A-M., Vehviläinen-Julkunen, K., Laukkala, H. & Ryhänen, P. 2002. Parental views on participation in their child's pain relief measures and recommendations to health care providers. Journal of Pediatric Nursing Vol. 12 No 4, 270-278.

Reaney, R. 2007. Assessing Pain in Children. Anaesthesia & Intensive Care Medicine Vol. 8 No 5, 180-183.

Silva, Y. P., Gomez, R. S., Máximo, T. A. & Silva, A. C. S. 2007. Pain evaluation in neonatology Vol. 57 No 5, Doi http://dx.doi.org/10.1590/S0034-70942007000500012

Simons, J., Franck, L. & Roberson, E. 2001. Parent involvement in children's pain care: Views of parents and nurses. Journal of Advanced Nursing Vol. 36 No 4, 591.

Sailo, E & Vartti, A-M. 2000. Kivunhoito. Kustannusosakeyhtiö Tammi, Helsinki.

Silvennoinen, S. & Kaataja, E-M. 2016. Kivunhoito vastasyntyneiden teho-osastolla. Kuopion Yliopistollinen sairaala. Valtakunnallinen koulutus 13.05.2016.

Solodiuk, J. & Curley, M. 2003. Pain Assessment in Nonverbal Children with Severe Cognitive Impairments: the Individualized Numeric Scale (INRS). Journal of Pediatric Nursing Vol. 18 No 4, 295-299.

Srouji, R., Ratnapalan, S. & Schneeweiss, S. 2010. Pain in Children: Assessment and Nonpharmacological Management, International Journal of Pediatrics Vol. 2010, 1-11. Assessed 8 April 2017 http://dx.doi.org/10.1155/2010/474838

Trigg, E. & Mohammed, T. A. 2006. Practices in Children's nursing: Guidelines for Hospital and Community. 2nd edition. Edinburgh: Churchill Livingstone.

Vael, A. & Whitted, K. 2014. An Educational Intervention to Improve Pain Assessment in Preverbal Children. Pediatric Nursing Vol. 40 No 6, 302-306.

Voepel-Lewis, T., Merkel, S., Tait, A.R., Trzcinka. A. & Malviya, S. 2002. The reliability of face, legs, activity, cry, consolability observational tools as a measure of pain in children with cognitive impairment. Anaesthesia and Analgesia Vol. 95 No 5, 1224-1229.

Williams, C. & Asquith, J. 2000. Paediatric Intensive Care Nursing.

Wood, C. 2002. Introducing a protocol for procedural pain. Paediatric Nursing Vol. 14 No 8, 30-33.

9 APPENDICES

Appendix 1 Questionnaire

Appendix 2 COMFORT pain scale
Nursing guidelines, COMFORT pain scale, assessed 1.4.2017

Appendix 3. NIAPAS pain scale
Pölkki, Korhonen, Axelin, Saarela, Laukkala, Palomaa, Heikkinen, MIettinen 2016, 71.

Appendix 4. N-PASS pain scale
Hummel, Puchalski, Creech & Weiss 2008

Appendix 5. NFCS pain scale
Table 1 Silva., Gomez, Máximo & Silva, Pain evaluation in neonatology 2007
Table 2 Source: Arif-Rahu, Fisher & Mastuda, 2012, 164

Appendix 6. NIPS pain scale
Table 1 Silva, Gomez, Máximo & Silva, Pain evaluation in neonatology 2007
Table 2 Source: Salanterä, Hagelberg, Kauppila & Närhi 2006, 193

Appendix 7 Timetable plan

Appendix 8 Opinnäytetyön toimeksiantosopimus ja tutkimuslupahakemukset
Appendix 9 Toimeksiantajan arviointi.

Appendix 1 Questionnaire

Page 1(2)

1. What can you tell about pain assessment in infants?
What challenges it poses?
2. How do you assess pain in infants? What methods of pain assessment in infants do you know?
Which of them are practical to use and which method do you use?
How do you know they are reliable?
3.How do evaluate that the infant needs or does not need more painkillers?
4. How can parents help with evaluation of pain in infants?
How often do you use parents with pain assessment in infants?
How do you guide parents how assess pain in infants?
5. How can you describe your skill with pain assessment in infants?
6.Have you ever had additional training with pain assessment in infants?
If yes: What kind of additional training did you have? How did it help you to improve your skills?
If no: What kind of training would you like to have?
7. Has hospital provided you with forms or guidelines to different pain assessment methods?

1.Mitä ajattelet kivun arvioinnista imeväisikäiselle (0-1v)?
-Mitä haasteita se esittää?
2.Kuinka arvioit kipua imeväisikäisille?
-Mitä keinoja tiedät kivun arviointiin imeväisikäisille?
-Mitkä niistä ovat käytännöllisiä ja mitä itse käytät?
-Kuinka tiedät että ne ovat luotettavia?
3. Miten arvioit että imeväisikäinen tarvitsee tai ei tarvitse lisää kipulääkkeitä?
4. Kuinka vanhemmat voivat auttaa kivun mittaamisessa imeväisikäisellä?

Appendix 1

Page 2(2)

-Kuinka usein käytätte vanhempia apuna imeväisikäisten kivun arvioimisessa?

Kuinka ohjeistatte vanhempia kivun arvioinnissa imeväisikäiselle?

5. Kuinka arvioisit kykyjäsi mitata kipua imeväisikäiselle?

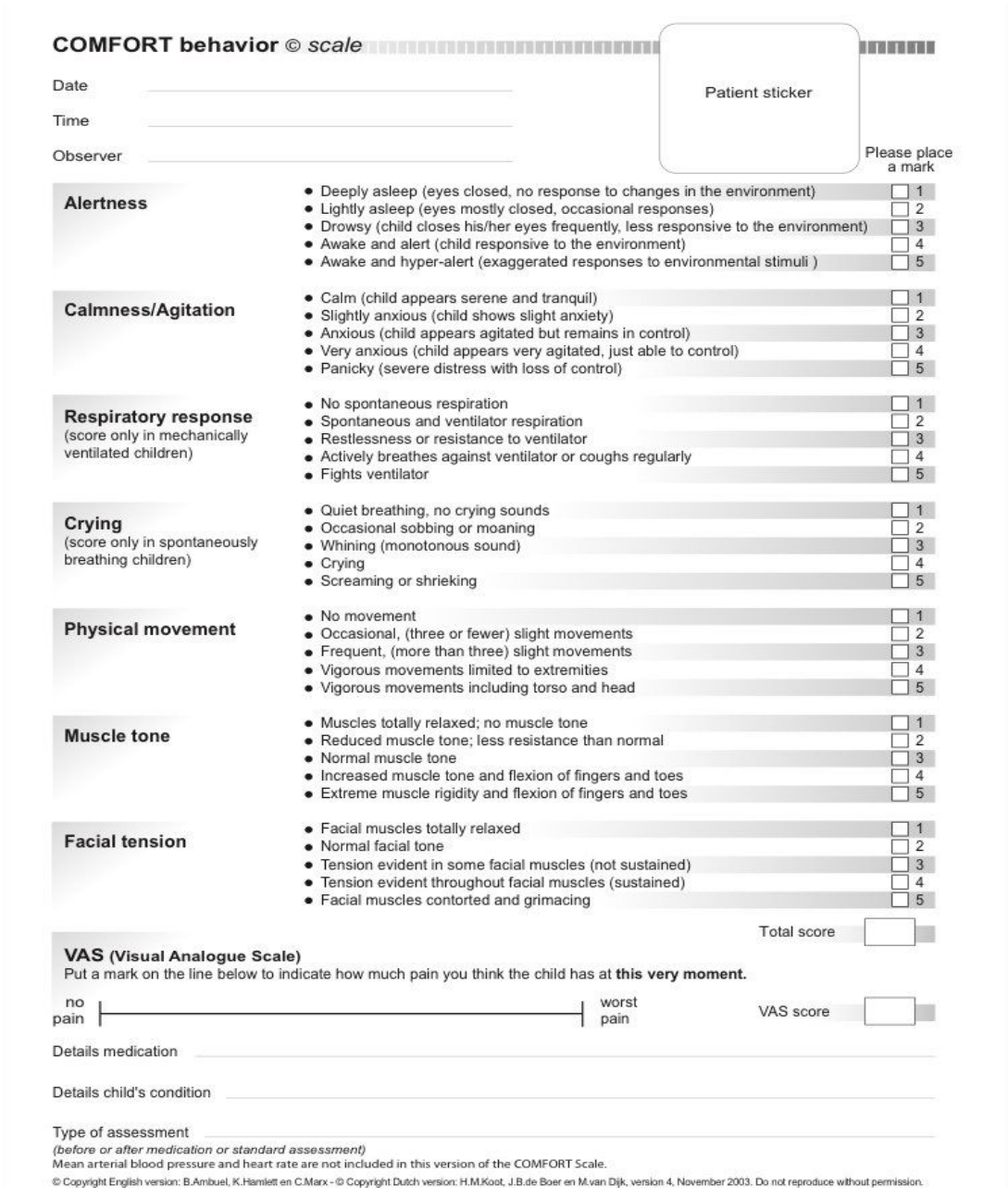
6.Oletko koskaan saanut valmennusta kivun mittaamiseen imeväisikäisille?

Kyllä: Millaista valmennusta sait? Kuinka se auttoi sinua parantamaan taitojasi kivun mittaamisessa?

Ei: Millaista valmennusta haluaisit, jos sitä tarjottaisiin?

7. Onko sairaala toimittanut teille erilaisia kivun arviointikaavakkeita ja ohjeita niiden käyttöön imeväisikäisille?

Appendix 2 COMFORT.



COMFORT behavior © *scale*

Date

Time

Observer

Patient sticker

Please place a mark

Alertness	• Deeply asleep (eyes closed, no response to changes in the environment)	☐ 1
	• Lightly asleep (eyes mostly closed, occasional responses)	☐ 2
	• Drowsy (child closes his/her eyes frequently, less responsive to the environment)	☐ 3
	• Awake and alert (child responsive to the environment)	☐ 4
	• Awake and hyper-alert (exaggerated responses to environmental stimuli)	☐ 5
Calmness/Agitation	• Calm (child appears serene and tranquil)	☐ 1
	• Slightly anxious (child shows slight anxiety)	☐ 2
	• Anxious (child appears agitated but remains in control)	☐ 3
	• Very anxious (child appears very agitated, just able to control)	☐ 4
	• Panicky (severe distress with loss of control)	☐ 5
Respiratory response (score only in mechanically ventilated children)	• No spontaneous respiration	☐ 1
	• Spontaneous and ventilator respiration	☐ 2
	• Restlessness or resistance to ventilator	☐ 3
	• Actively breathes against ventilator or coughs regularly	☐ 4
	• Fights ventilator	☐ 5
Crying (score only in spontaneously breathing children)	• Quiet breathing, no crying sounds	☐ 1
	• Occasional sobbing or moaning	☐ 2
	• Whining (monotonous sound)	☐ 3
	• Crying	☐ 4
	• Screaming or shrieking	☐ 5
Physical movement	• No movement	☐ 1
	• Occasional, (three or fewer) slight movements	☐ 2
	• Frequent, (more than three) slight movements	☐ 3
	• Vigorous movements limited to extremities	☐ 4
	• Vigorous movements including torso and head	☐ 5
Muscle tone	• Muscles totally relaxed; no muscle tone	☐ 1
	• Reduced muscle tone; less resistance than normal	☐ 2
	• Normal muscle tone	☐ 3
	• Increased muscle tone and flexion of fingers and toes	☐ 4
	• Extreme muscle rigidity and flexion of fingers and toes	☐ 5
Facial tension	• Facial muscles totally relaxed	☐ 1
	• Normal facial tone	☐ 2
	• Tension evident in some facial muscles (not sustained)	☐ 3
	• Tension evident throughout facial muscles (sustained)	☐ 4
	• Facial muscles contorted and grimacing	☐ 5

Total score ☐

VAS (Visual Analogue Scale)

Put a mark on the line below to indicate how much pain you think the child has at **this very moment.**

no pain ——— worst pain

VAS score ☐

Details medication

Details child's condition

Type of assessment

(before or after medication or standard assessment)

Mean arterial blood pressure and heart rate are not included in this version of the COMFORT Scale.

KAIKILLE LAPSILLE TEHTÄVÄ ARVIO (pisteet 0–14)			LISÄKSI MONITORISSA OLEVALTA LAPSELTA (pisteet 0–4).		
SIKIÖIKÄ (seuranta-hetkellä)	0 = 37 vk tai enemmän 1 = 32 vk – 36 vk ja 6 pv 2 = 28 vk – 31 vk ja 6 pv 3 = alle 28 vk		**PULSSI**	0 = Normaali 1 = Lievä muutos 2 = Selkeä muutos	- syke laskee / nousee 0–5 lyöntiä lähtötasosta - syke laskee / nousee 6–20 lyöntiä lähtötasosta TAI syke on 170–189 lyöntiä /min. - syke laskee/nousee > 20 lyöntiä lähtötasosta TAI syke on ≥ 190 lyöntiä /min.
VIREYSTILA	0 = Levollinen/hiljainen 1 = Rauhaton 2 = Huomattavan levoton	- levollinen, hiljainen, nukkuu/herteillä - rauhaton ja hosuva vähän/ajoittain, rauhoiteltavissa - rauhaton ja hosuva lähes jatkuvasti, uni katkonaista	**SaO_2**	0 = Normaali 1 = Lievä muutos 2 = Selkeä muutos	- lisähapen tarpeessa ei muutoksia TAI max. 5 prosenttiyksikön lisäys ennakoivasti - saturaatiotaso pysyy asetetuissa rajoissa 6–10 prosenttiyksikön hapenlisäyksellä - saturaatiotaso laskee lisähapen nostamisesta huolimatta < 80
ILMEET	0 = Rentoutuneet 1 = Tyytymätön 2 = Irvistys	- levolliset kasvot, luonnollinen ilme - kulmat kurtussa/tyytymätön ilme, nirpistys, virnistys - tiukat kasvolihakset, kulmat, posket ja leuka jännittyneet, irvistää	**PÄÄTÖKSENTEKO (max. pisteet 18)** **Pisteet 0 – 5** Ei kipua / lievä kipu (lääkkeettömät menetelmät) **Pisteet 6 – 9** Koltalainen kipu (lääkkeettömät menetelmät ja harkitse kipulääkkeen tarve) **Pisteet ≥ 10** Kova kipu (lääkkeettömät menetelmät ja kipulääke)		
ITKU	0 = Ei itke 1 = Epämukavaa oloa osoittava äännähdys 2 = Valitus/vaimea itku 3 = Kova itku	- hiljainen, ei itke - nyyhkytys/ähkäisy/puraHdus/vinkaisu/inahdus/ muu vastaava äännähdys - valittaa/vaimea itku - kova itku/äkillinen nouseva, kimeä itku tai kova huuto Arvioi myös respiraattorissa itkua, vaikka ääntä ei kuulu			
LIHAS-JÄNTEVYYS	0 = Ei muutoksia 1 = Muuttunut	- gestaatioiän mukainen lihasjäntevyys, saumaisia raajojen liikkeitä - kokonaisolemus jäykkä/veltto, jäykät raajat ja/tai nopeat ojennukset, koukistukset	**Huomioi päätöksenteossa:** 1. Merkitse pisteet jokaiselta osa-alueelta sen mukaan, havaitsetko kyseisen ominaispiirteen. Tulkinta kivusta tehdään yhteispisteiden saamisen jälkeen. 2. Lääkkeettömiä menetelmiä suositellaan käytettäviksi aina vauvan kivunlievityksessä, koska kipulääke ei ole suositeltavin vaihtoehto lyhytaikaisen toimenpidekivun hoidossa.		
HENGITYS Respiraattorissa/ nasaaliylipaineessa oleva vauva	0 = Vaivaton 1 = Muutoksia hengityksessä 0 = Sopeutuu 1 = Ei sopeudu	- tämän lapsen luonnollinen tapa hengittää - sisäänhengitys epäsäännöllinen, tavallista nopeampi, rajoittunut /pidättää hengitystään - lapsi on rauhallinen - hengitys epäsäännöllistä, vetää / haukkoo säätöjen välin			
REAGOINTI KÄSITTELYYN	0 = Ei käsittelyarka 1 = Kivulias/käsittelyarka 2 = Erittäin ärhäkkä/ reagoimaton	- sietää käsittelyä/pitää kosketuksesta - ärhäkkä, kärsii hoidoista, käsittelyarka/vaisu, väistöliikkeitä, häiriintyy käsittelystä - erittäin ärhäkkä ja käsittelyarka, ei siedä käsittelyä lainkaan/ reagoimaton			

Appendix 4. N-PASS

Page 1(2)

N-PASS:
Neonatal Pain, Agitation, & Sedation Scale

Pat Hummel, MA, RNC, NNP, PNP & Mary Puchalski, MS, RNC

Assessment Criteria	Sedation		Normal	Pain / Agitation	
	-2	-1	0	1	2
Crying Irritability	No cry with painful stimuli	Moans or cries minimally with painful stimuli	Appropriate crying Not irritable	Irritable or crying at intervals Consolable	High-pitched or silent-continuous cry Inconsolable
Behavior State	No arousal to any stimuli No spontaneous movement	Arouses minimally to stimuli Little spontaneous movement	Appropriate for gestational age	Restless, squirming Awakens frequently	Arching, kicking Constantly awake or Arouses minimally / no movement (not sedated)
Facial Expression	Mouth is lax No expression	Minimal expression with stimuli	Relaxed Appropriate	Any pain expression intermittent	Any pain expression continual
Extremities Tone	No grasp reflex Flaccid tone	Weak grasp reflex ↓ muscle tone	Relaxed hands and feet Normal tone	Intermittent clenched toes, fists or finger splay Body is not tense	Continual clenched toes, fists, or finger splay Body is tense
Vital Signs HR, RR, BP, SaO_2	No variability with stimuli Hypoventilation or apnea	< 10% variability from baseline with stimuli	Within baseline or normal for gestational age	↑ 10-20% from baseline SaO_2 76-85% with stimulation – quick ↑	↑ > 20% from baseline $SaO_2 \leq 75\%$ with stimulation – slow ↑ Out of sync with vent

Premature Pain Assessment
- + 3 if < 28 weeks gestation / corrected age
- + 2 if 28-31 weeks gestation / corrected age
- + 1 if 32-35 weeks gestation / corrected age

Assessment of Sedation
- Sedation is scored in addition to pain for each behavioral and physiological criteria to assess the infant's response to stimuli
- Sedation does not need to be assessed/scored with every pain assessment/score
- Sedation is scored from 0 → -2 for each behavioral and physiological criteria, then summed and noted as a negative score (0 → -10)
  - A score of 0 is given if the infant's response to stimuli is normal for their gestational age
- Desired levels of sedation vary according to the situation
  - "Deep sedation" → score of -10 to -5 as goal
  - "Light sedation" → score of -5 to -2 as goal
  - Deep sedation is not recommended unless an infant is receiving ventilatory support, related to the high potential for apnea and hypoventilation
- A negative score without the administration of opioids/ sedatives may indicate:
  - The premature infant's response to prolonged or persistent pain/stress
  - Neurologic depression, sepsis, or other pathology

Assessment of Pain/Agitation
- Pain assessment is the fifth vital sign – assessment for pain should be included in every vital sign assessment
- Pain is scored from 0 → +2 for each behavioral and physiological criteria, then summed
  - Points are added to the premature infant's pain score based on their gestational age to compensate for their limited ability to behaviorally or physiologically communicate pain
  - Total pain score is documented as a positive number (0 → +10)
- Treatment/interventions are indicated for scores > 3
  - Interventions for known pain/painful stimuli are indicated before the score reaches 3
- The goal of pain treatment/intervention is a score ≤ 3
- More frequent pain assessment indications:
  - Indwelling tubes or lines which may cause pain, especially with movement (e.g. chest tubes) → at least every 2-4 hours
  - Receiving analgesics and/or sedatives → at least every 2-4 hours
  - 30-60 minutes after an analgesic is given for pain behaviors to assess response to medication
  - Post-operative → at least every 2 hours for 24-48 hours, then every 4 hours until off medications

Pavulon/Paralysis
- It is impossible to behaviorally evaluate a paralyzed infant for pain
- Increases in heart rate and blood pressure may be the only indicator of a need for more analgesia
- Analgesics should be administered continuously by drip or around-the-clock dosing
  - Higher, more frequent doses may be required if the infant is post-op, has a chest tube, or other pathology (such as NEC) that would normally cause pain
  - Opioid doses should be increased by 10% every 3-5 days as tolerance will occur without symptoms of inadequate pain relief

Appendix 4 Page 2(2)

Scoring Criteria

Crying / Irritability

-2 → No response to painful stimuli, e.g.:
- No cry with needle sticks
- No reaction to ETT or nares suctioning
- No response to care giving

-1 → Moans, sighs, or cries (audible or silent) minimally to painful stimuli, e.g. needle sticks, ETT or nares suctioning, care giving

0 → Not irritable – appropriate crying
- Cries briefly with normal stimuli
- Easily consoled
- Normal for gestational age

+1 → Infant is irritable/crying at intervals – but can be consoled
- If intubated – intermittent silent cry

+2 → Any of the following:
- Cry is high-pitched
- Infant cries inconsolably
- If intubated – silent continuous cry

Behavior / State

-2 → Does not arouse or react to any stimuli:
- Eyes continually shut or open
- No spontaneous movement

-1 → Little spontaneous movement, arouses briefly and/or minimally to any stimuli:
- Opens eyes briefly
- Reacts to suctioning
- Withdraws to pain

0 → Behavior and state are gestational age appropriate

+1 → Any of the following:
- Restless, squirming
- Awakens frequently/easily with minimal or no stimuli

+2 → Any of the following:
- Kicking
- Arching
- Constantly awake
- No movement or minimal arousal with stimulation (inappropriate for gestational age or clinical situation, i.e. post-operative)

Facial Expression

-2 → Any of the following:
- Mouth is lax
- Drooling
- No facial expression at rest or with stimuli

-1 → Minimal facial expression with stimuli

0 → Face is relaxed at rest but not lax – normal expression with stimuli

+1 → Any pain face expression observed intermittently

+2 → Any pain face expression is continual

Facial expression of physical distress and pain in the infant

Extremities / Tone

-2 → Any of the following:
- No palmar or planter grasp can be elicited
- Flaccid tone

-1 → Any of the following:
- Weak palmar or planter grasp can be elicited
- Decreased tone

0 → Relaxed hands and feet – normal palmar or sole grasp elicited – appropriate tone for gestational age

+1 → Intermittent (<30 seconds duration) observation of toes and/or hands as clenched or fingers splayed
- Body is *not* tense

+2 → Any of the following:
- Frequent (≥30 seconds duration) observation of toes and/or hands as clenched, or fingers splayed
- Body is tense/stiff

Vital Signs: HR, BP, RR, & O_2 Saturations

-2 → Any of the following:
- No variability in vital signs with stimuli
- Hypoventilation
- Apnea
- Ventilated infant – no spontaneous respiratory effort

-1 → Vital signs show little variability with stimuli – less than 10% from baseline

0 → Vital signs and/or oxygen saturations are within normal limits with normal variability – or normal for gestational age

+1 → Any of the following:
- HR, BP, and/or RR are 10-20% above baseline
- With care/stimuli infant desaturates minimally to moderately (SaO_2 76-85%) and recovers quickly (within 2 minutes)

+2 → Any of the following:
- HR, BP, and/or RR are > 20% above baseline
- With care/stimuli infant desaturates severely (SaO_2 < 75%) and recovers slowly (> 2 minutes)
- Infant is out of synchrony with the ventilator – fighting the ventilator

We value your opinion.
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Appendix 5. NFCS

Table 1

Table I – Neonatal Facial Coding System

Facial actions	O point	1 point
Brow bulge	Absent	Present
Eye squeeze	Absent	Present
Deepening of nasolabial furrow	Absent	Present
Open lips	Absent	Present
Mouth stretch (horizontal our vertical)	Absent	Present
Tongue tautening	Absent	Present
Tongue protrusion	Absent	Present
Chin quiver	Absent	Present

Maximal score of 8 points, considering pain ≥ 3.

Table 2

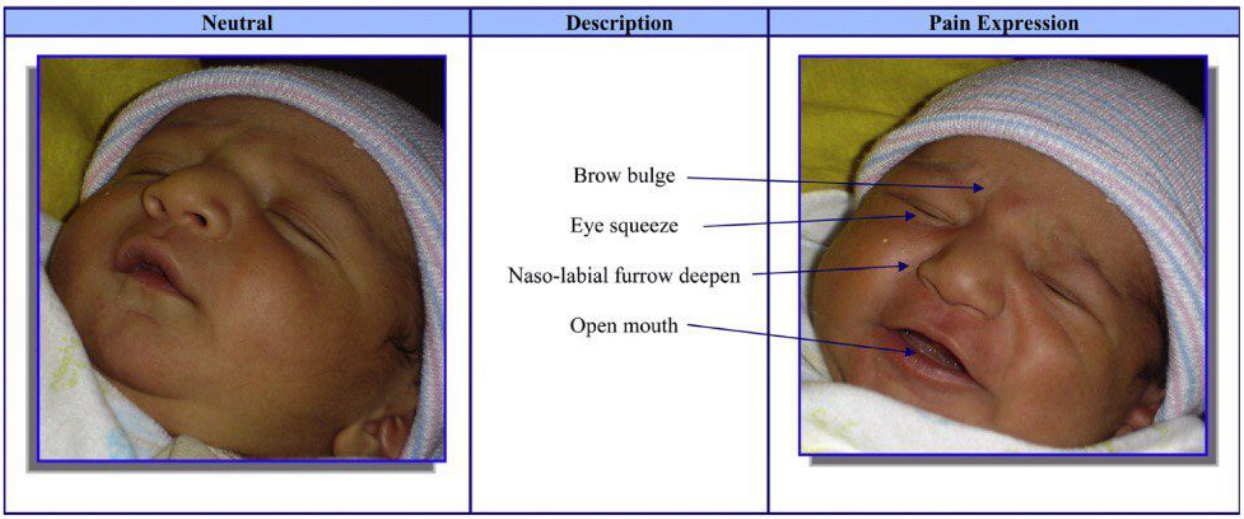

Figure 1. ■ Facial expression correlated with pain using the Neonatal Facial Coding System.

Appendix 6. NIPS

Table 1

Table II – Neonatal Infant Pain Scale

NIPS	0 point	1 point	2 points
Facial expression	Relaxed	Contracted	–
Cry	Absent	Mumbling	Vigorous
Breathing	Relaxed	Different than basal	–
Arms	Relaxed	Flexed/stretched	–
Legs	Relaxed	Flexed/stretched	–
Alertness	Sleeping/calm	Uncomfortable	–

Maximal score of seven points, considering pain ≥ 4.

Table 2

NIPS-MITTARI

Tutkimus nro:	Nimi:	Syntymäaika:	
Diagnoosi:	Gv:	Ikä:	Pvm:
Näytteenottokerta (1/3):	Näytteet:		

ILMEET
0 - Rentoutuneet lihakset — levolliset kasvot, luonnollinen ilme
1 - Irvistys — tiukat lapsen kasvolihakset, kulmat, posket ja leuka rypyssä (kielteinen kasvojen ilme)

ITKU
0 - Ei itke — hiljainen, ei itke
1 - Valitus — vaimea valitus, ajoittanen
2 - Kova itku — kova huuto, nouseva, kimeä, jatkuva

HENGITYS
0 - Rento — tämän lapsen luonnollinen tapa
1 - Muutoksia hengityksessä — sisään hengitys epäsäännöllinen, tavallista nopeampi, rajoittunut, pidättää hengitystään

KÄDET
0 - Rennot, hallitut — ei lihasjännitystä, satunnaisia käsien liikkeitä
1 - Koukistuneet / ojentuneet — jännittyneet, suorat kädet, jäykät ja / tai nopeat ojennukset, koukistukset

JALAT
0 - Rento, hallitut — ei lihasjännitystä, satunnaisia jalkojen liikkeitä
1 - Koukistuneet, ojentuneet — jännittyneet, suorat jalat, jäykät ja / tai nopeat ojennukset, koukistukset

VIREYSTILA
0 - Nukkuu / on hereillä — hiljainen, rauhallinen, nukkuu tai on hereillä
1 - Touhukas / hosuu — pirteä, levoton, ja potkiva

YMPYRÖI OIKEA VAIHTOEHTO	2 min. ennen näytteenottoa	näytteenoton aikana	2 min. näytteenoton jälkeen
ILMEET	0 1	0 1	0 1
ITKU	0 1 2	0 1 2	0 1 2
HENGITYS	0 1	0 1	0 1
KÄDET	0 1	0 1	0 1
JALAT	0 1	0 1	0 1
VIREYSTILA	0 1	0 1	0 1

Appendix 7. Timetable plan

Data collection:
autumn 2016 – spring 2017

Data analysis:
spring 2017 - autumn 2017

Description of the results:
autumn 2017

Test interview
8.3.2017 10:30

Plan approved
29.5.2017

Interviews
13.7.2017

Appendix 8 Opinnäytetyön toimeksiantosopimus ja tutkimuslupahakemukset

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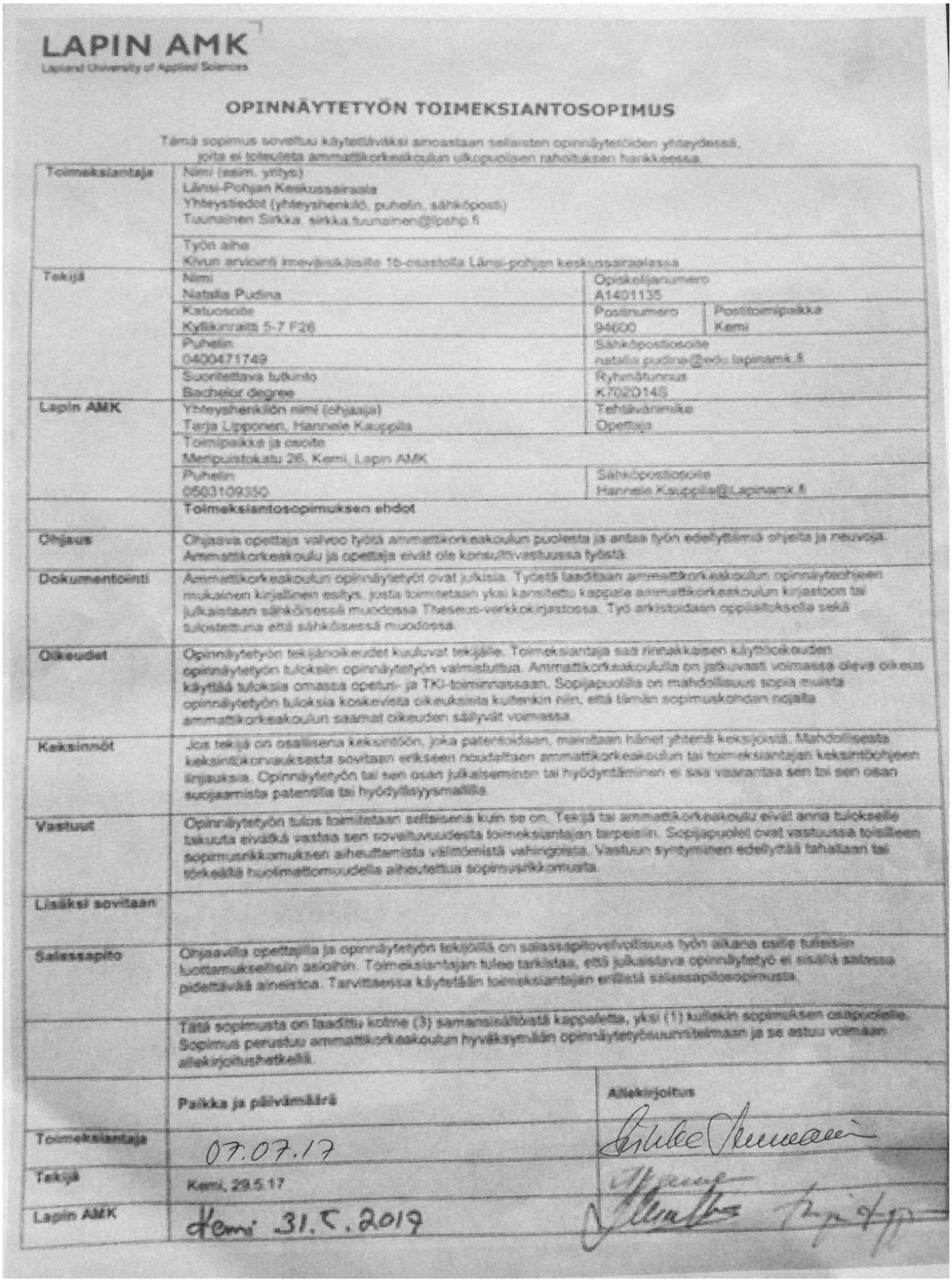

LAPIN AMK
Lapland University of Applied Sciences

OPINNÄYTETYÖN TOIMEKSIANTOSOPIMUS

Tämä sopimus soveltuu käytettäväksi ainoastaan sellaisten opinnäytetöiden yhteydessä, joita ei toteuteta ammattikorkeakoulun ulkopuolisen rahoituksen harkkeessa.

Toimeksiantaja	Nimi (esim. yritys) Länsi-Pohjan Keskussairaala Yhteystiedot (yhteyshenkilö, puhelin, sähköposti) Tuunainen Sirkka, sirkka.tuunainen@lpshp.fi		
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	Toimeksiantosopimuksen ehdot		
Ohjaus	Ohjaava opettaja valvoo työtä ammattikorkeakoulun puolesta ja antaa työn edellyttämiä ohjeita ja neuvoja. Ammattikorkeakoulu ja opettaja eivät ole konsulttivastuussa työstä.		
Dokumentointi	Ammattikorkeakoulun opinnäytetyöt ovat julkisia. Työstä laadittaan ammattikorkeakoulun opinnäytetöihjeen mukainen kirjallinen esitys, josta toimitetaan yksi kansitettu kappale ammattikorkeakoulun kirjastoon tai julkaistaan sähköisessä muodossa Theseus-verkkokirjastossa. Työ arkistoidaan oppilaitoksella sekä tulostettuna että sähköisessä muodossa.		
Oikeudet	Opinnäytetyön tekijänoikeudet kuuluvat tekijälle. Toimeksiantaja saa rinnakkaisen käyttöoikeuden opinnäytetyön tuloksiin opinnäytetyön valmistuttua. Ammattikorkeakoululla on jatkuvasti voimassa oleva oikeus käyttää tuloksia omassa opetus- ja TKI-toiminnassaan. Sopijapuolilla on mahdollisuus sopia muista opinnäytetyön tuloksia koskevista oikeuksista kuitenkin niin, että tämän sopimuskohdan nojalta ammattikorkeakoulun saamat oikeuden säilyvät voimassa.		
Keksinnöt	Jos tekijä on osallisena keksintöön, joka patentoidaan, mainitaan hänet yhtenä keksijöistä. Mahdollisesta keksintökorvauksesta sovitaan erikseen noudattaen ammattikorkeakoulun tai toimeksiantajan keksintöohjeen linjauksia. Opinnäytetyön tai sen osan julkaiseminen tai hyödyntäminen ei saa vaarantaa sen tai sen osan suojaamista patenteilla tai hyödyllisyysmalleilla.		
Vastuut	Opinnäytetyön tulos toimitetaan sellaisena kuin se on. Tekijä tai ammattikorkeakoulu eivät anna tulokselle takuuta eivätkä vastaa sen soveltuvuudesta toimeksiantajan tarpeisiin. Sopijapuolet ovat vastuussa toisilleen sopimusrikkomuksen aiheuttamista välittömistä vahingoista. Vastuun syntyminen edellyttää tahallaan tai törkeällä huolimattomuudella aiheutettua sopimusrikkomusta.		
Lisäksi sovitaan			
Salassapito	Ohjaavilla opettajilla ja opinnäytetyön tekijöillä on salassapitovelvollisuus työn aikana esille tulleisiin luottamuksellisiin asioihin. Toimeksiantajan tulee tarkistaa, että julkaistava opinnäytetyö ei sisällä salassa pidettäviä aineistoa. Tarvittaessa käytetään toimeksiantajan erillistä salassapitosopimusta.		
	Tätä sopimusta on laadittu kolme (3) samansisältöistä kappaletta, yksi (1) kullekin sopimuksen osapuolelle. Sopimus perustuu ammattikorkeakoulun hyväksymään opinnäytetyösuunnitelmaan ja se astuu voimaan allekirjoitushetkellä.		
	Paikka ja päivämäärä	**Allekirjoitus**	
Toimeksiantaja	07.07.17		
Tekijä	Kemi, 29.5.17		
Lapin AMK	Kemi 31.5.2019		

Appendix 8
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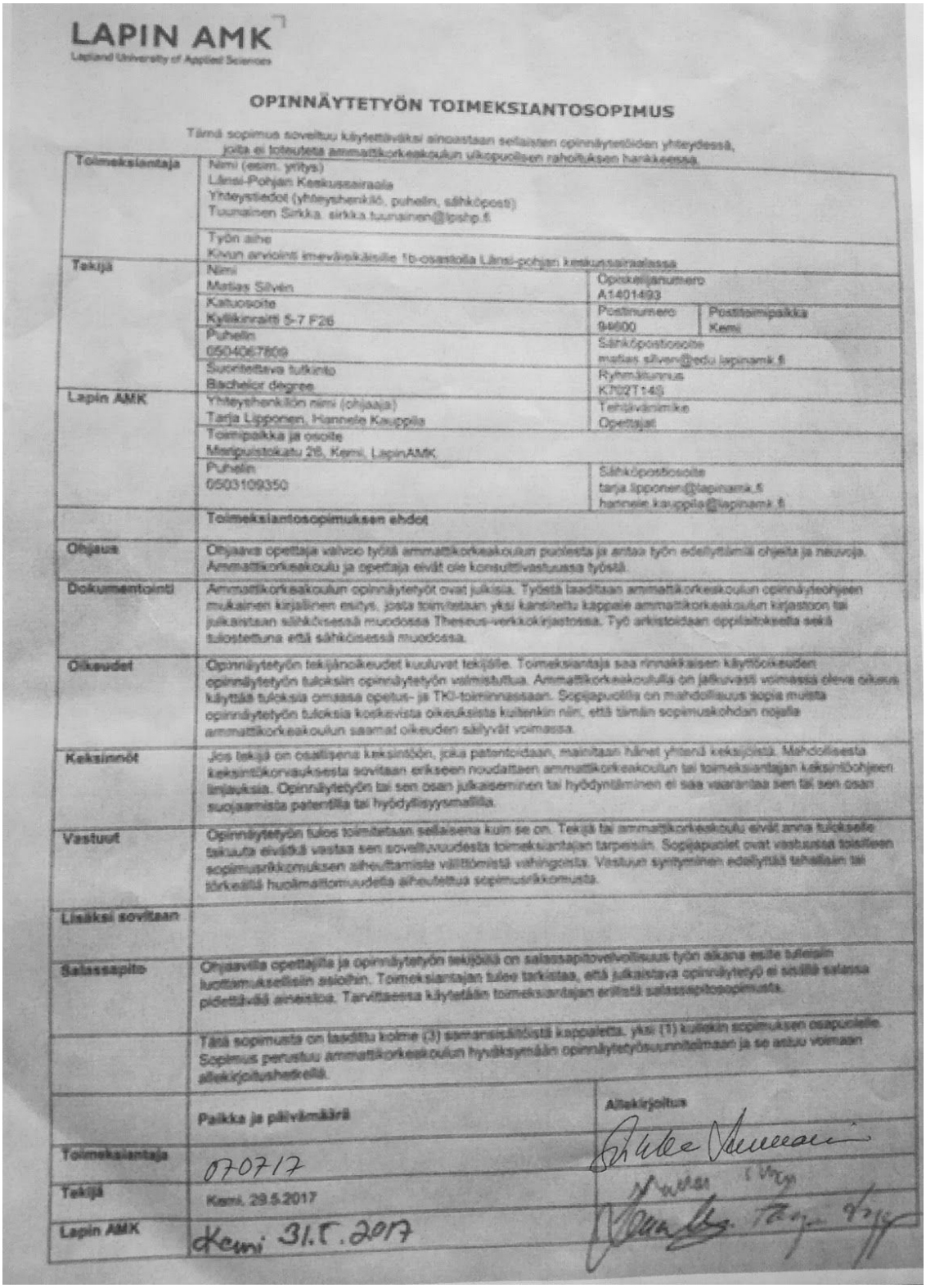

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	Työn aihe Kivun arviointi imeväiskäsille 1b-osastolla Länsi-pohjan keskussairaalassa		
Tekijä	Nimi Matias Silvén	Opiskelijanumero A1401493	
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	Suoritettava tutkinto Bachelor degree	Ryhmätunnus K702T149	
Lapin AMK	Yhteyshenkilön nimi (ohjaaja) Tarja Lipponen, Hannele Kauppila	Tehtävänimike Opettajat	
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	Toimeksiantosopimuksen ehdot		
Ohjaus	Ohjaava opettaja valvoo työtä ammattikorkeakoulun puolesta ja antaa työn edellyttämiä ohjeita ja neuvoja. Ammattikorkeakoulu ja opettaja eivät ole konsulttivastuussa työstä.		
Dokumentointi	Ammattikorkeakoulun opinnäytetyöt ovat julkisia. Työstä laaditaan ammattikorkeakoulun opinnäytteohjeen mukainen kirjallinen esitys, josta toimitetaan yksi kansitettu kappale ammattikorkeakoulun kirjastoon tai julkaistaan sähköisessä muodossa Theseus-verkkokirjastossa. Työ arkistoidaan oppilaitoksella sekä tulostettuna että sähköisessä muodossa.		
Oikeudet	Opinnäytetyön tekijänoikeudet kuuluvat tekijälle. Toimeksiantaja saa rinnakkaisen käyttöoikeuden opinnäytetyön tuloksiin opinnäytetyön valmistuttua. Ammattikorkeakoululla on jatkuvasti voimassa oleva oikeus käyttää tuloksia omassa opetus- ja TKI-toiminnassaan. Sopijapuolilla on mahdollisuus sopia muista opinnäytetyön tuloksia koskevista oikeuksista kuitenkin niin, että tämän sopimuskohdan nojalla ammattikorkeakoulun saamat oikeuden säilyvät voimassa.		
Keksinnöt	Jos tekijä on osallisena keksintöön, joka patentoidaan, mainitaan hänet yhtenä keksijöistä. Mahdollisesta keksintökorvauksesta sovitaan erikseen noudattaen ammattikorkeakoulun tai toimeksiantajan keksintöohjeen linjauksia. Opinnäytetyön tai sen osan julkaiseminen tai hyödyntäminen ei saa vaarantaa sen tai sen osan suojaamista patentilla tai hyödyllisyysmallilla.		
Vastuut	Opinnäytetyön tulos toimitetaan sellaisena kuin se on. Tekijä tai ammattikorkeakoulu eivät anna tuloksille takuuta eivätkä vastaa sen soveltuvuudesta toimeksiantajan tarpeisiin. Sopijapuolet ovat vastuussa toisilleen sopimusrikkomuksen aiheuttamista välittömistä vahingoista. Vastuun syntyminen edellyttää tahallisen tai törkeällä huolimattomuudella aiheutettua sopimusrikkomusta.		
Lisäksi sovitaan			
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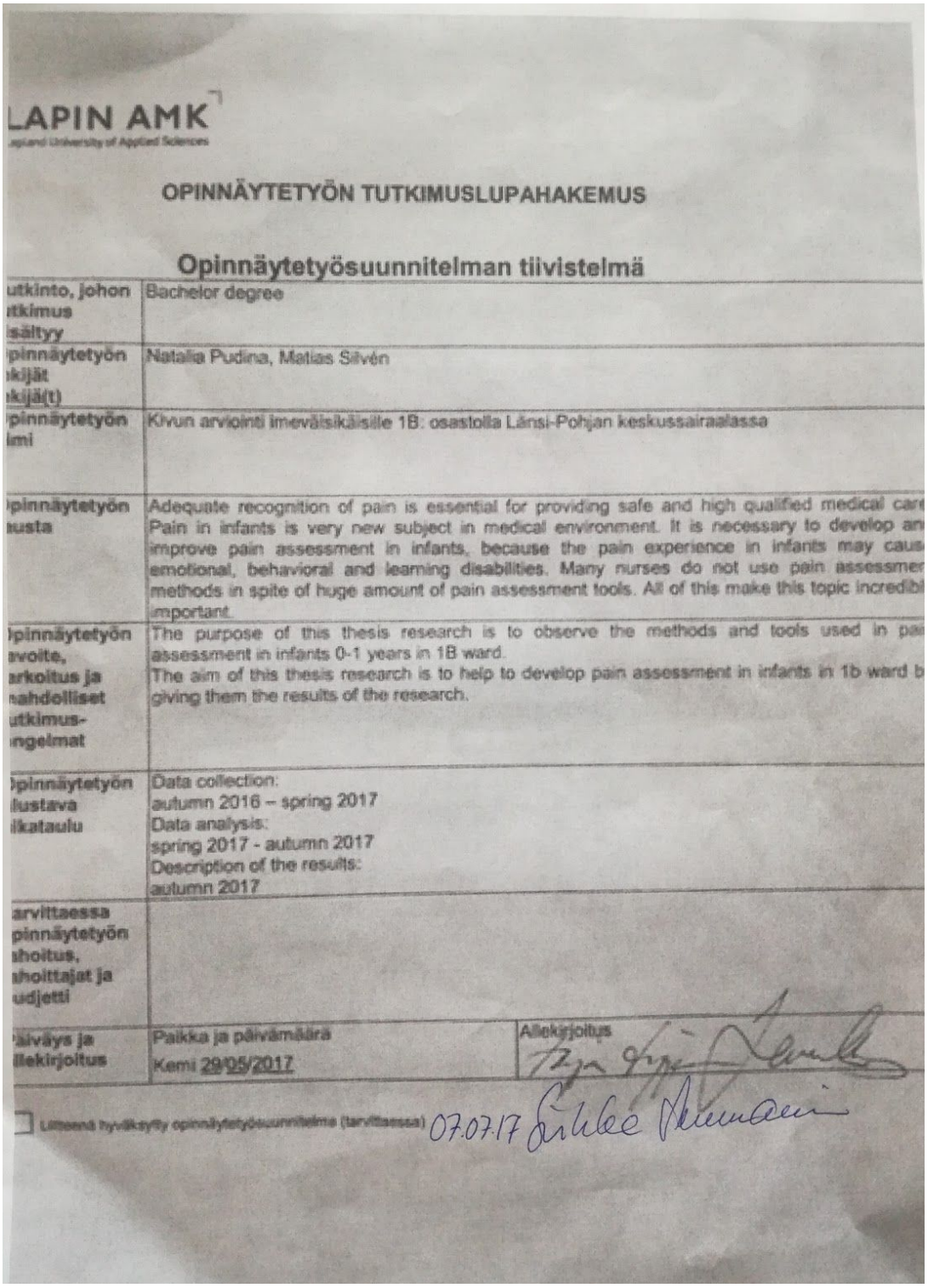
	Tästä sopimusta on laadittu kolme (3) samansisältöistä kappaletta, yksi (1) kullekin sopimuksen osapuolelle. Sopimus perustuu ammattikorkeakoulun hyväksymään opinnäytetyösuunnitelmaan ja se astuu voimaan allekirjoitushetkellä.		
	Paikka ja päivämäärä	**Allekirjoitus**	
Toimeksiantaja	070717		
Tekijä	Kemi, 29.5.2017		
Lapin AMK	Kemi 31.5.2017		

Appendix 8
Page 3(3)



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Lapland University of Applied Sciences

OPINNÄYTETYÖN TUTKIMUSLUPAHAKEMUS

Opinnäytetyösuunnitelman tiivistelmä

utkinto, johon tkimus sältyy	Bachelor degree
pinnäytetyön kijät kijä(t)	Natalia Pudina, Matias Silvén
pinnäytetyön imi	Kivun arviointi imeväisikäisille 1B: osastolla Länsi-Pohjan keskussairaalassa
pinnäytetyön usta	Adequate recognition of pain is essential for providing safe and high qualified medical car Pain in infants is very new subject in medical environment. It is necessary to develop an improve pain assessment in infants, because the pain experience in infants may caus emotional, behavioral and learning disabilities. Many nurses do not use pain assessmer methods in spite of huge amount of pain assessment tools. All of this make this topic incredibl important.
pinnäytetyön rvoite, rkoitus ja hdolliset utkimus- ngelmat	The purpose of this thesis research is to observe the methods and tools used in pai assessment in infants 0-1 years in 1B ward. The aim of this thesis research is to help to develop pain assessment in infants in 1b ward b giving them the results of the research.
pinnäytetyön lustava ikataulu	Data collection: autumn 2016 – spring 2017 Data analysis: spring 2017 - autumn 2017 Description of the results: autumn 2017
arvittaessa pinnäytetyön hoitus, hoittajat ja udjetti	
äiväys ja llekirjoitus	Paikka ja päivämäärä Kemi 29/05/2017 — Allekirjoitus

☐ Liitteenä hyväksytty opinnäytetyösuunnitelma (tarvittaessa) 07.07.17

Appendix 9 Toimeksiantajan arviointi.

LAPIN AMK
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OPINNÄYTETYÖ
Toimeksiantajan arviointi

Toimeksiantaja	Länsi-Pohja central hospital ward 1B
Opiskelija	Natalia Pudina, Matias Silven
Koulutus	Nurse
Opinnäytetyön aihe	Pain assessement in infants in 1Bward Länsi-Pohja central hospital

Toimeksiantajan edustajana annan lausunnon opinnäytetyöstä huomioiden erityisesti seuraavia osa-alueita

Tavoitteiden saavuttaminen
Tavoitteet hyvin saavutettu.
Tulosten käytettävyys
Tutkimus kertoo tämänhetkisen tilanteen käytännön menetelmistä ja vahvistaa käsitystä kivun arvioinnin haasteellisuudesta imeväisikäisillä. Tämä työ osoittaa myös hoitajien koulutustarpeesta tästä aiheesta.
Tekijän vastuullisuus
Aiheeseen on perehdytty kattavasti ja käytetty laajasti lähteitä. Haastattelut tehtiin hienotunteisesti, vastuullisesti, ja luottamuksellisesti. Mielenkiintoinen aihe , lisää hoitajien omaa innostusta perehtyä tähän aiheeseen lisää.
Tekijän vuorovaikutteisuus
Asiallista ja hyvää.
Muita kommentteja
Kokonaisuudessaan erittäin hyvä ja mielenkiintoinen lopputyö.

Yhteistyön kehittämiseksi Lapin ammattikorkeakoulu pyytää Teiltä vielä ajatuksia seuraaviin

	1 = täysin eri mieltä.... 4 = siltä väliltä....7 = täysin samaa mieltä
Aion jatkaa yhteistyötä Lapin AMKin kanssa.	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7x☐
Suosittelen yhteistyötä Lapin AMKin kanssa omille kumppaneilleni.	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7x☐
Ehdotuksia yhteistyön kehittämiseksi	
Eri aiheista lopputöitä.	
Ideoita ja ajatuksia opinnäytetöiksi, projektitöiksi jne.	
Potilasesitteitä / ohjeita eri kielillä .	

Lapin ammattikorkeakoulu kiittää yhteistyöstä!

Paikka Kemi Aika10. 11 2017

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Allekirjoitus Ulla Knuutinen aoh, Satu Kiviharju sh, Länsi-pohjan keskussairaala osasto 1B