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Nurses' contradictory hygiene practices in an infection ward

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Laurea-ammattikorkeakoulu **Tiivistelmä**
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Hoitajien ristiriitaiset hygieniakäytännöt infektio-osastolla

Vuosi 2015 Sivumäärä 43

Opinnäytetyön tarkoituksena oli selvittää miksi ristiriitaisia hygieniakäytäntöjä esiintyy hoitotyössä. Tavoitteena oli saada aikaan keskustelua ja esittää opinnäytetyön löydökset osastolla.

Kirjallisuushaku osoitti että merkittävimmät tekijät, jotka johtivat ristiriitaisiin hygieniakäytäntöihin, olivat bakteerien esiintyvyys, hygieniahoitaja, koulutus ja perehdytys, opiskelijat, saatavilla olevat välineet, sairaalan budjetti, aika rajoitukset, hoitajan oma vastuu noudattaa hygieniakäytäntöjä ja sairaalan suunnittelu.

Opinnäytetyö suoritettiin pääkaupunkiseudulla olevassa sairaalassa, sairaalan akuutilla infektio-osastolla. Laadullista tutkimusmenetelmää käytettiin ja viittä hoitajaa haastateltiin kahdessa puolijäsennetyssä ryhmäkeskustelussa. Kerättyä tietoa analysoitiin deduktiivisesti.

Opinnäytetyön löydökset vastasivat kirjallisuutta. Vastaajat kertoivat, että aika on rajoittava tekijä työskenneltäessä infektiopotilaiden kanssa ja että sairaalan suunnittelulla oli suuri rooli niin kuin myös hygieniahoitajallakin oli kyseisellä osastolla. Koulutus ja sairaalan budjetti mainittiin myös tekijöinä. Yhtä tekijää, jota painotettiin molemmissa haastatteluissa, oli hoitajan omavastuu ylläpitää hygieniakäytäntöjä.

Lisätutkimuksia ristiriitaisiin hygieniakäytäntöihin voitaisiin tehdä sillä tavoin että hygieniakäytännöt muutettaisiin virtaviivaisemmaksi tehostetummalla tavalla. Toinen mahdollinen tutkimus voisi olla että tutkittaisiin ristiriitaisia hygieniakäytäntöjä hoitotyön opiskelijan näkökulmasta.

Asiasanat: ristiriitaiset hygienia toimenpiteet, hoitajat, infektio-osasto

Laurea University of Applied Sciences **Abstract**
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Nurses' contradictory hygiene practices in an infection ward

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The purpose of this study was to find out why there are contradictory hygiene practices in the field of nursing. The aim of this study was to create discussion and present the findings to the ward.

The literature search conducted revealed that the major factors affecting contradictory hygiene practices are incidence of the bacteria, hygiene nurse, education and orientation, students, available equipment, hospital's budget, time constraints, nurses' own responsibility to uphold hygiene practices and hospital design.

The study was conducted in a hospital in the capital area in an acute infection ward. A qualitative approach was taken and a total of five nurses were interviewed in two semi-structured group interviews. The data analysis was deductive content analysis.

The findings corresponded with the literature search. Respondents stated that there are time constraints when working with infectious patients and that hospital design played a significant role as did the hygiene nurse in this particular ward. Education and hospital budget was also mentioned as a factor. One factor which was emphasized in both interviews was the nurse's own responsibility to conform to hygiene practices.

Further studies into contradictory hygiene practices could be done by streamlining the guidelines in a more effective way. Another form of studying this phenomenon could be to explore the contradictory hygiene practices from a nursing student's perspective.

Keywords: contradictory hygiene practices, nurses, infection ward

Sisällys

1 Introduction

In the nursing field one can encounter hospital bacteria such as MRSA (methicillin-resistant staphyllococcus Aureus), ESBL (Extended spectrum Beta-Lactamase) and Clostridium Difficile. The nursing degree includes microbiology which is intended to provide future nurses with the information they will need for their work when they encounter patients infected with these bacteria. Despite this education there are still gaps in knowledge in the working environment. Occasionally the staff has contradictory practices regarding quarantine methods related to these infections. (Kelcíkova, Skodova, Straka, 2011.)

Research has shown that possible causes for contradictory practices could be lack of resources in terms of training, hospital design and overall lack of personnel. It is also possible that nurses have insufficient information regarding quarantine methods concerning different hospital bacteria. This could be due to older nurses' outdated education and overall low incidence rate in Nordic countries. (Mamhidir, Lindberg, Larsson, Fläckman & Engström, 2010.)

The writers have observed these contradictory practices in placements. For example, allowing significant others to enter quarantined patient's room without following protocol or a nurse telling a nursing student to do as she sees fit in terms of following quarantine guidelines. There has also been lack of information within the ward on who is quarantined and what kind of quarantine it is. Hygiene nurse is often consulted on these matters however she is not present on the ward for the majority of the time.

The study was conducted in a hospital in capital area of Finland to discover in the nurses' point of view what the reasons behind the contradictory practices are. The hospital is an acute cohort ward which means that there are patients with kidney disease, congestive heart failure, symptoms stemming from old age as well as isolation rooms that can house four patients with an infectious disease.

The purpose of the study is to find out the reasons for contradictory hygiene practices in infection wards; the point of reference being MRSA, ESBL and Clostridium Difficile. The reason for choosing said bacteria is that these are the most common ones found in hospitals and which the writers of this thesis have frequently come into contact with. The bacteria have similar qualities but also distinct differences in behaviour. This allows for comparisons between the different levels of quarantine needed for each bacteria and the reasons for contradictory practices related to them.

2 Infections and the healthcare professionals

A healthy person is protected by its microbial flora from invading pathogens. The microbial flora is mostly bacteria and fungi. It includes resident flora which re-establishes itself if disturbed and transient flora which may be part of the host for several hours or weeks but does not establish itself as part of the host permanently. (Beers, Porter, Jones, Kaplan & Berkwits, 2006)

The host's defenses protect against infections. These defenses include natural barriers such as the skin, nonspecific immune responses such as phagocytic cells and their products, and specific immune responses such as antibodies and lymphocytes. (Beers et. al. 2006)

An infectious disease is born when a microbe causes damage to the body and the body attempts to fight against it and its effects. The microbe causing the infection can originate from outside the body, for example from a person suffering from the disease or from within when a microbe that is part of the body's normal flora travels to another part of the body where it does not belong. For example, a microbe that travels to the bladder causing a bladder infection. (Mäkelä & Mäkelä, 1994)

To fight these infections there are antimicrobial medications. However, problems often arise when the bacteria alters its form and is no longer affected by the medication. This is how antibiotic resistant bacteria are born. The more the medication is used the more resistant the bacteria becomes to that medication. Therefore the overuse of antibiotics is actually harmful for society. (Mäkelä & Mäkelä, 1994)

2.1 Hygiene practices

In the last decades the opportunity to take care of the sick has improved. This is why it is easy to forget that the risk of infection still exists in hospitals. It is estimated to be on average six percent. Current hospital workers can find it hard to believe how dangerous hospitals were 150 years ago. (Mäkelä & Mäkelä, 1994)

When Florence Nightingale began working as a nurse, she took note that there are many factors, not just medicine that can improve and maintain the health of the patient. She noticed that the environment, nurse and client are all affected by each other. She noted that influences such as light, fresh air, nutrition, social interactions and personal hygiene were important. Another note of hers was, that nurses should wash their hands frequently during the day and even better if she washes her face as well. A nurse must not only take care of the hygiene of the patient but also take care of her own hygiene. (Brotherus, 1964)

While for years now handwashing has been a part of personal hygiene, the link between handwashing and the spread of infections had not been made until the last 200 years. Ritualistic handwashing was part of religious and cultural practices but cleaning the hands was more about the aesthetics rather than preventing the spread of infections. However, handwashing as an intervention to prevent the spread of infection was not a common practice until the last few decades and there were no written guidelines for hand hygiene. Formal written guidelines for handwashing in hospitals were published by the CDC in 1975 and 1985 (Ellis, 2005).

It is the responsibility of the Health care professionals to enhance the well-being of the person without causing harm. Decreasing the risk of infection plays an important role in this. Hospital infections are also expensive. (Mäkelä & Mäkelä, 1994)

All practices must be questioned critically and fixed if the health professionals are to decrease infections. The changes may seem insignificant, making the work more difficult and tedious, but it has been proven that this is the only way to decrease the risk of infection. With efficient hygiene practices we can prevent at least half of hospital infections. Preventing the spread of infections is the responsibility of all that come into contact with the patient. (Mäkelä & Mäkelä, 1994)

In healthcare facilities hand hygiene is critical. The aim is for the healthcare worker to either wash their hands or disinfect their hands before and after every contact with a patient. With the improvement of hand hygiene the number of infections has decreased significantly. If we do not see the importance of washing our hands or keep a good standard of hand hygiene, we simply will not. (Huovinen, 2012)

Aseptics is the name we give to give to all interventions that prevent the spread of infection-causing microbes. This was not considered important until the 1850s which was a determining factor. Depending on the facility, the term has various degrees of strictness. However, cleaning as a means of decreasing infection is common in every place. Various surfaces and equipment in a hospital must be cleaned which forms the basis of aseptic. This can be either done by disinfecting or sterilizing. (Mäkelä & Mäkelä, 1994)

2.2 Nurses' role in multi-professional team and infection ward

Nurses' are probably the health care professionals best known by the public as they "care for people with actual or potential health problems in hospital, nursing home and community"

(Huss, Schiller & Schmidt, 2013). This can be said to be the general role of the nurses: to care. Nurses are involved with several different professions or supportive departments in their everyday work which form the multi-professional team (Huss, Schiller & Schmidt, 2013).

In multi-professional team, the goal is to "meet their patient's needs" (Ward, 2013). The most important aspect of this team is the relationship between the doctor and the nurse. The doctor is the one who "orders necessary intervention, and the nurse or therapist is responsible for carrying it out" (Ward, 2013). As such, nurse is the one in the team who implements the needed care according to what doctor has ordered. Nurse, as well as other members of the team, are then responsible for sharing any changes in patients' health situation regardless it being improvement or deterioration (Ward, 2013). Depending on the situation, the doctor may need to be called in to check on the patient. When nurse is involved in the multi-professional team and "functions as part of a unit, and when they act as part of a team, the job itself is easier and more efficient. Moreover, overall patient care is enhanced" (Ward, 2013).

In relation to infectious diseases, the nurses' have their own role to fill in multi-professional team in setting where infections can spread. Overall the nurses' are responsible for implementing patient care practices for infection control (WHO, 2002). As such "nurses should be familiar with practices to prevent the occurrence and spread of infection, and maintain appropriate practices for all patients throughout the duration of their hospital stay." (WHO, 2002) Practical aspects of this role include training of other nursing staff, monitoring adherence to policies regarding infection control, monitoring aseptic techniques, initiating patient isolation when needed and so on (WHO, 2002). It can be said that nurse is responsible for cutting the spread of infection from patient to nurse and from nurse to another patient. They are also responsible for preventing infection from patient to patient by using isolation as one nursing intervention.

Infection wards are wards that treat "severe, acute infectious diseases." (HUS, 2014) Infectious wards are supposed to accommodate patients "with infectious illness who are known to be potential source of infection." (Cairns, 2010) The patients are kept in the ward until the infection has passed. The patients are brought to isolation ward in order to minimize their contact with other patients and other staff within the hospital. Due to this control, the use of correct hygiene practices is emphasized in infection wards as nurses are still potential spreaders of infections within the hospital itself.

2.3 Contradictory hygiene practices

In nursing field there are several guidelines regarding correct hygiene practices which are expected to be followed as stated in Hygieniaraportti 2013 (Pakarinen, 2013) The practices used by nurses become contradictory when they do not follow these guidelines for one reason or another thus increasing the risk of infection. In order to prevent contradictory hygiene practices from occurring it is important to find out reason why guidelines are not followed. For this literature and statistics have given several different reasons, all of which can be worked on.

In Nordic countries the low incidence of MRSA-infections is partly due to small number of antibiotic prescriptions and intensive infection control system (Mamhidir, et. al., 2010). Because of the low incidence it could be assumed that nurses in Finland do not encounter this infection on a regular basis which could contribute to a deficiency in information. The writers have observed during clinical practices and in working life that the registered nurses had insufficient information on infections control and preventative methods. This has caused the writers to question what the reasons behind this insufficient information are. From the literature search it was found out that one reason might be lack of knowledge as Mamhidir, et. al. (2010) discussed about nurses that "their grasp of knowledge/medical facts concerning several aspects of MRSA and particularly ESBL was deficient, and this was also true of various aspects of hygiene preventive measures."

The insufficient information could be due to lack of education in nursing degree but it could also be because of clinical tutors' own erroneous practices as it has been researched that the hand hygiene practices of nursing students decline from the first year till the third year (Lusardi, 2007). From this one might be lead to believe that tutors pass on the outdated practices that they have been using year after year. Nursing student may also be unable to present the new ideas and practices to the tutor in fear of it being dismissed.

In terms of compliance, a lack of time to perform correct hygiene practices could be one reason why nurses do not perform them as often and as accurately as they should (Lusardi, 2007). This could be contributed to lack of resources and a matter which management should find solutions for. Even though hospitals offer lectures on aseptic measures the lack of incentives could influence the rate of attendance and therefore compliance. For example, a nurse may have day off on lecture day and thus sees no need and no motivation to attend even if she is aware of her lack of knowledge on the topic.

Compliance to hygiene practices may be reduced due to insufficient time and the discomfort associated with wearing the protective gear. It takes twice the time to take care of a patient

in isolation than for a nurse to take care of a patient who is not quarantined. Wynn and Peter (2003) stated “medical and nursing procedures were difficult and awkward and took much longer to perform safely and correctly.” Nurses have also stated that the protective gear hinders social interaction with the patients and is also uncomfortable (Wynn & Peter, 2003). Some nurses would rather wear less protective gear than compromise patient interaction. This could be seen when “Bott (1999) revealed that rural midwives were more discriminatory in their practices as they felt that wearing gowns and gloves conflicted with their need to create a homely environment” (Gammon & Gould, 2005).

Another problem that arises in infection control are the guidelines themselves. For example there are no universal guidelines for ESBL prevention and control (Jalava, Rintala & Lytikäinen, 2013). This could cause contradictory practices as there are no clear guidelines on what, how and when it should be done. For MRSA the guidelines are well-known and usually well followed. It is considered to be under control as an infection. Clostridium Difficile has guidelines as well but it appears when antibiotics are used by the patient. The bacteria itself is able to survive on surfaces for several days. (THL, 2014) This makes it hard to contain and difficult to fight against; for example patient with dementia could move around in wheelchairs and contaminate rest of the surfaces in the hospital.

Even though the wards are in touch with a hygiene nurse who reports the newest guidelines to control and prevent infectious diseases the nurse is not at the ward for most of the regular work week. Therefore it is the responsibility of the ward sister to stay in contact with this nurse and to report to her employees of the newest guidelines. There are also problems in information flow when patient is placed in quarantine. Sometimes information on why, how long and in what kind of quarantine the patient is in. Nurses have shift schedule and may be coming back to work from holiday and be unaware of the changes that have taken place while she/he was gone. For this reason accurate documenting and reporting is crucial in infection control. Another variable are people coming to work for one shift and not receiving crucial information on the quarantine therefore possibly being liable for spreading the disease.

Resources could also be one cause for contradictory practices. One aspect of resources is the amount of nurses during one shift. The wards can be overcrowded due to the aging population. The amount of nurses does not match this change in age structure of the population causing lack of personnel on several wards. The lack of personnel shows in hand hygiene compliance as there is “distinct and significant loss of nursing staff compliance with hand hygiene guidelines as a result of workload and a lack of qualified nursing staff...” (Knoll, Lautenschlaeger & Borneff-Lipp, 2010). Lack of compliance due to resources can also include lack of proper equipment and facilities. Knowledge and compliance can be improved with equipment that is easy to access and which have better design (Gammon & Gould, 2005). There

are several types of equipment such as different face-masks, varied gloves and disinfectants but due to lack of monetary resources these may not be available for certain wards. Hospital design can also affect the available resources and disease control via hand-washing stations and bathrooms. It has been studied that small aspects such as one bathroom per patient and several hand washing sinks reduce infections acquired in hospitals by seventy percent (Köhler, 2013).

Based on this literature search it can be stated that the aspects that influence contradictory hygiene practices and thus are the themes this thesis focuses on are: incidence of the bacteria, hygiene nurse, education and orientation, students, available equipment, hospital's budget, time constraints, nurses' own responsibility to uphold hygiene practices and hospital design.

2.4 MRSA, ESBL and Clostridium as hospital bacteria

Methicillin Resistant Staphylococcus Aureus (MRSA) is a strain of staphylococcus-bacteria that is resistant to several antibiotics, not just methicillin despite its name. The Methicillin portion of its name is derived from the Methicillin antibiotic which was in popular use in the 1960s. The antibiotic is no longer used to treat infections but the name has remained (Levola, 2005). It is one of the most common multi-resistant bacteria that is mainly hospital acquired. Extended Spectrum Beta-Lactamase (ESBL) is not a bacteria in itself but a property of several bacteria. Bacteria that produce this type of beta-lactamase are able to decompose antibiotics making them ineffective. The bacteria that most commonly have this property are the Klebsiella-specis and Eschericia coli. These bacteria present themselves in a person’s intestines but also in nature (Levola, 2005). How MRSA and ESBL spread depends on where the infection is. Usually touch quarantine is needed unless patient has bleeding or is coughing or sneezing. Clostridium Difficile is the most difficult diarrhea causing bacteria (Kurki & Pammo, 2010). It is associated with the use of antimicrobial-medication and is generally hospital-acquired (Beers et. al 2006). The bacteria itself is part of the colon's natural flora and only becomes a problem when bacteria hindering its growth are destroyed by medication. Which deteriorates health and prolonges hospital stay. Clostridium Difficile is spread by spores via touch and these spores are able to survive on surfaces for several days (Hygieniatoimikunta, 2012). In order to prevent spreading via spores and touch, Helsinki City Hygieniatoimikunta (2012) has given guidelines on most common precautions which states how often nurses should disinfect their hands and wash them. These guidelines state that hands should be disinfected whenever you come to the ward and leave it, before and after every single patient encounter, prior to donning protective equipment and after removing them and also in situations where you touch nursing environment of the patient. Hands should be washed when they

are visible dirty and after taking care of patient infection in GI-tract (Hygieniatoimikunta, 2012).

Different methods of quarantine include touch and droplets (= kosketus- ja pisaraeristys). Touch quarantine is the most used one and is most commonly used in antibiotic resistant infections. It constitutes normal protective measures such as using gloves but also using gowns when in close contact and single rooms. More than one patient can be in the room if they suffer from the same condition. Droplet quarantine is used if patient is coughing, sneezing or has any other respiratory symptoms and during close contact. Droplet quarantine includes the same protective measures as touch quarantine however face mask is required due to droplets in the air and single patient rooms are necessary (Hedman, Heikkinen, Huovinen, Järvinen, Meri & Vaara, 2010). If there are several infected patients with the same infection in the same room, the beds should be placed at least one meter apart (Kurki & Pammo, 2010).

The incidence of some of these infectious diseases are more common than others. The incidence of Clostridium difficile last year (2013) was almost 6000 in Finland. In the past three years prior, the incidence had remained under 6000 people. (Jaakkola, Lyytikäinen, Rimhanen-Finne, Salmenlinna, Savolainen-Kopra, Pirhonen, Vuopio, Jalava, Toropainen, Nohynek, Toikkanen, Löflund, Kuusi, Salminen, (toim.), 2014) The presence of MRSA or Methicillin Resistant Staphylococcus Aureus in patients has grown exponentially in the countries that do not have a uniform prevention policy. Whereas in countries where they are more prepared to fight the contagion, the incidence has been kept at bay. (Hietala, & Roth-Holtinen, 1999) In Finland the incidence has been more or less the same. In 2013 the reported number of patients found with MRSA was 1289 and in 2012 the incidence was 1283. The number of reported cases of ESBL due to the Escherichia Coli bacteria in 2013 was 4445. Another portion, a smaller portion, of ESBL cases with the Klebsiella pneumoniae in the same year was 255. The rates of incidence for both of these bacteria were lower the previous year and half of them were found in urine. (Jaakkola, et al. 2014)

3 Purpose and aim of the study

The purpose of this study is to find out the reasons for contradictory hygiene practices in an infection ward.

The aim of the study is to create discussion of why there are contradictory hygiene practices.

Research question(s): Why are there contradictory hygiene practices in an infection ward?

4 Study design

The objective of this study was to gather information based on experiences, feelings, unquantifiable findings of the subject of study. “Qualitative data are not the exclusive domain of qualitative research. Rather, the term can refer to anything that is not quantitative, or rendered into numerical form” (Thorne, 2000) Therefore qualitative research was applicable in this thesis.

Deductive research method was chosen for this study as the research question stemmed from themes derived from the literature, and the experiences of the writers which communicated that there was a problem with the adherence of guidelines to basic aseptic. Therefore the original themes from literature were tested. Information was gathered to explore the subject further. “…deductive reasoning begins with the idea and uses the data to confirm or negate the idea (hypothesis testing).” (Thorne, 2000)

Information was sought from a hygiene nurse, nurses and practical nurses during group interviews, observations the writers made while working and by researching the phenomenon through literature. Literature search included finding articles through various databases, various books and statistics from published journals. Literature was not restricted to single country and was found both in English and in Finnish. The information was sought from the hygiene nurse via e-mail exchange and the references she sent to writers can be found in the references. Writers were observing the respondents throughout the interviews for any body language that might suggest they were unwilling to divulge information concerning hygiene practices at the ward. However, despite two nurses being more silent than others, there were no significant body language signs that would suggest they were either uncomfortable or unwilling. The findings from these sources were then analysed by categorizing and sub-categorizing data according to the themes found in literature.

The interviews conducted were group interviews. One of the groups had three members of staff and the second interview had two members of staff. The interviews were conducted on the same day during the shift change, however they were conducted in two different rooms. It was a semi-structured interview where the respondents were given the opportunity to talk about their experiences and feelings on the topic. To keep structure to the interview, predetermined questions were asked to guide conversation. There were a total of ten predetermined questions and these questions were open-ended as the atmosphere was meant to be conversational and to encourage open communication between respondents.

4.1 Respondents of the thesis

The sample consisted of two group interviews with three respondents in one and two in the other. The groups consisted of three practical nurses and two nurses. One group had two practical nurses and one nurse while the other had one nurse and one practical nurse. Each nurse or practical nurse had over 5 years of work experience overall as research showed that nurses who have worked longer are the ones who most often have lapses in hygiene for various reasons. The interviews were conducted in a ward in a hospital in the capital area which is classified as an acute medical infection ward.

Each group was given 20-30 minutes of time per interview. This number was chosen due to time limitations and the extensive amount of material received from the interviews.

4.2 Data collection

The respondents consisted of two nurses and three practical nurses. The average duration of interviews was 25 minutes per interview. They were two group interviews where there were a total of three practical nurses and two nurses.

The interviews were conducted with people from the morning and evening shifts during the overlap of the two shifts. The writers, as well as the ward sister made accommodations so that the nurses were able to take part in the interview without compromising their work. The interviews were theme interviews with emphasis on finding nurses' views on the system regarding hygiene practices. A generalized question was directed at the nurses to start off the discussion as well as more specific questions concerning hygiene practices should the conversation stray off topic or not provide a fruitful discussion. Therefore it was in the form of a semi-structured group interview.

The interviews were recorded and transcribed and then analysed using deductive qualitative method. Observations and notes were also made during the interview recording the body language and other reactions. That is, everything that cannot be seen in the recording of the discussion.

The interviews were recorded by a mobile phone's recorder and they were conducted in the meeting room inside the ward where there was little to no distractions and also in the ward sister's office which was also free of distractions. Interview questions were formed in a manner that will provide answers to the research questions but in a way that does not place blame on nurses. Nor manipulate the answers the nurses gave in order to fulfill expectations. Thus the focus was on getting quality data as "…good qualitative data are more likely to lead

to serendipitous findings and to new integrations…" (Miles, & Huberman, 1994) The writers were prepared to receive information from the interviews which were not yet anticipated.

MRSA, ESBL and Clostridium were discussed as examples in regards to hygiene practices due to these interviews being conducted in an infection ward and these are the most common infections encountered in a hospital setting.

Interviews were conducted as semi-structured group interviews that is, form of theme-centered interview. "The theme-centered interview offers interview partners the opportunity to develop their special point of view in detail. More strongly than in a group discussion, the focus is on the individual person and his or her experiences and opinions concerning the topic." (Schorn, 2000) Group interview was chosen on basis that it was easier for the ward to arrange and also because group interviews gave "access to how people talk to each other". (Brikci & Green, 2007) Because of this, the analysis is not done on the level of the individual but the group thus limiting the sound of marginal groups that might have been present as they might not feel comfortable to speak in mixed group. (Brikci & Green, 2007) the writers attempted to make sure that everyone in the group got equal chance to speak and group dynamics seemed to be collegial during the interviews and the atmosphere was comfortable and relaxed. Every respondent was able to voice out their own view and personal experiences.

The semi-structured portion of this interview is the result of guiding questions however, the interview is conversational by nature. As Clifford states "semi-structured interviews are conversational and informal allowing people being interviewed to give open answers instead of usual "yes" and "no". An explanation of the topic and the procedure of the interview and the promise of confidentiality was given to the people interviewed and are then given free reigns in describing their feelings, attitudes on the subject at hand." (Clifford, French & Valentine, 2010) The interviewer keeps the interview on topic while being non-directive allowing respondents to explore the topic from as many points of view as they please. Despite questions being pre-formed to aid in awakening discussion the interview unfolds in conversational manner. While there is flexibility in the direction of the conversation, the interviewers will keep the predetermined questions ready should the topic stray or the conversation not produce discussion therefore keeping order in the interviews. (Clifford et al., 2010)

4.3 Data analysis

Data analysis can be seen as "the most complex and mysterious of all the phases of a qualitative project. ...In order to generate findings that transforms raw data into new knowledge, a

qualitative researcher must engage in active and demanding analytic process throughout all phases of the research. Understanding these processes is therefore an important aspect not only of doing qualitative research, but also of reading, understanding, and interpreting it" (Thorne, 2000) Hence data analysis can be seen as the most important aspect of the qualitative research as it is behind the new knowledge gained from research itself.

Deductive method was chosen as the method of analysis due to the literature research giving preliminary theories which could be tested, revised after which the findings could be organized based on the revised theories (Gligun, 2011) Meaning that literature gave grounds for a working themes from literature which was then tested in working life to see if the initial themes were correct or incorrect. The interviews were recorded and transcribed and then analyzed using this method of analysis.

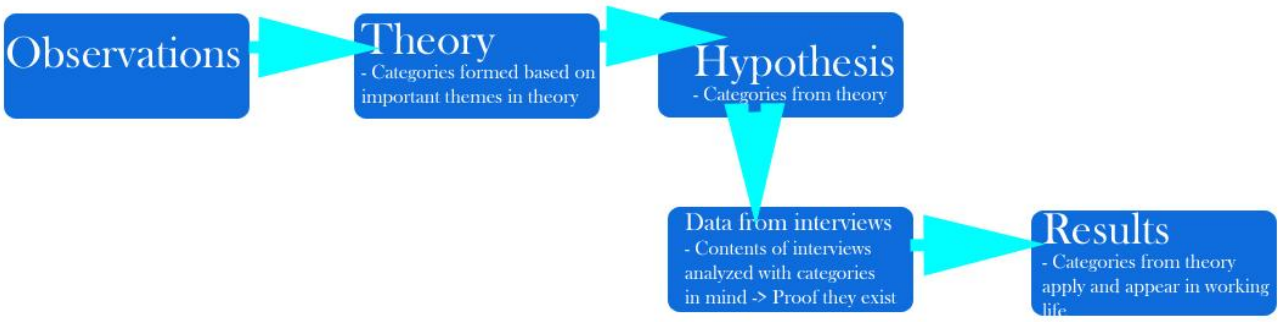

Figure 1: Deductive data analysis

The topics and themes that were found in the interviews were divided into headings and subcategories that were based on literature. The themes found in the were: incidence of the bacteria, hygiene nurse, education and orientation, students, available equipment, hospital's budget, time constraints, nurses' own responsibility to uphold hygiene practices and hospital design. These themes arose from the literature during literature research and were found to be more dominant aspects of contradictory hygiene practices than others. Figure 1 describes the deductive data analysis path taken for the thesis. Writers began by observing the phenomenon of contradictory hygiene practices during placements. Thus the general theme became contradictory hygiene practices as deductive data analysis "works from the more general to the more specific" (Trochim, 2006). These observations lead to theoretical framework of the thesis as literature was found to further explain the phenomenon. The theory involved causes of contradictory hygiene practices and from this theory arose the initial themes for the causes of the contradictory practices. Figure 2 displays the categories formed from literature that acted as the hypothesis the writers' had to test. In essence, literature acted as a means

to further narrow down the main theme in order to form the specific themes that can be tested (Trochim, 2006).

From the initial themes, which were the categories based on literature as reasons for contradictory hygiene practices, writers could “narrow down even further when we collect observations to address the hypotheses. This ultimately leads us to be able to test the hypotheses with specific data” (Trochim, 2006). Figure 1 shows this as “data from interviews”. Interviews were semi-structured with themes focusing on incidence of the bacteria, hygiene nurse, education and orientation, students, available equipment, hospital's budget, time constraints, nurses' own responsibility to uphold hygiene practices and hospital design in order to observe whether they exist outside of theory or not. Quotes from the interviews were then used to back up the research and the existence of the categories. The themes arisen were based on literature and the interviews as the themes were similar in both cases. Arguments and statements from the interviews were taken out of context but were not changed in any significant way thus allowing the frame of reference to stay essentially the same. (Tetri, Lumerto, Mammadova, 2014)

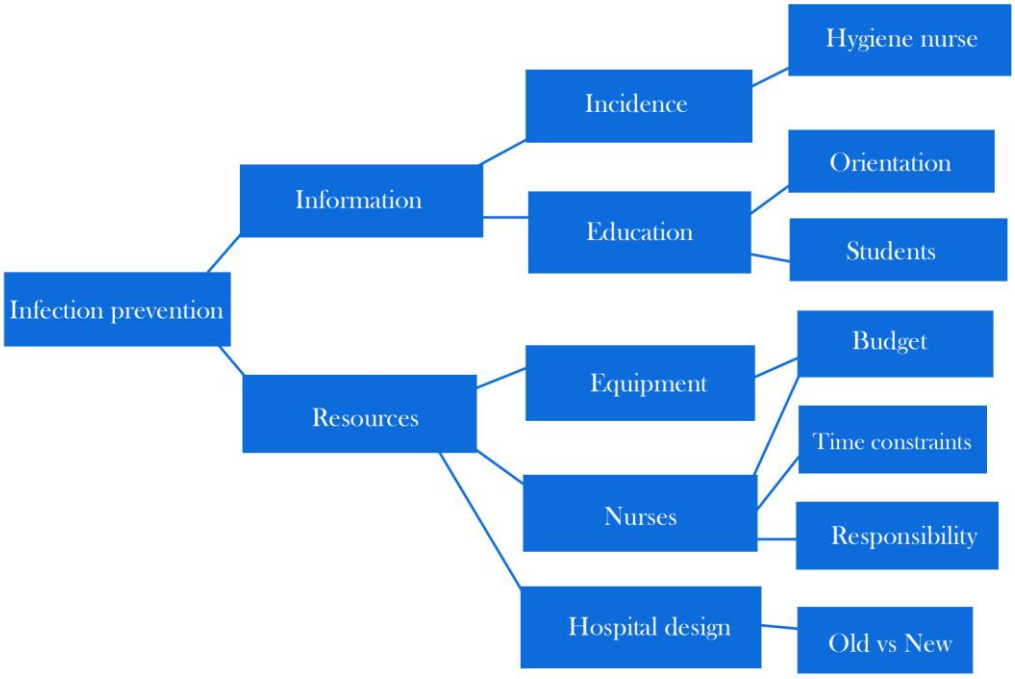

Figure 2: The categories based on literature

The categories that were formed according to literature are shown in figure 2. A set of categories was formed from literature and the findings from the interviews were used to describe and serve as proof that the categories exist and are connected to one another in a way defined by literature. A graph was formed of these categories to further illustrate the connec-

tion between the categories and to show the full scheme connected to hygiene practices that aim to prevent infections.

The main heading was chosen to be infection prevention as all contradictory practices in hygiene are hindering prevention of infections. Literature emphasized major elements of infection prevention to be information about prevention and available resources. Amount of information available for nurses about infection prevention and hygiene practices was influenced by the incidence rate of certain infections as well as amount of education provided during nursing education and after graduation including orientation (Mamhidir, et. al., 2010). Information deficit from rare incidence was strongly influenced by the role of hygiene nurse.

Available resources consisted of three elements, the equipment, nurses and hospital design. It could be seen from literature that available equipment was strongly connected to available budget and limitation it brings with it. Number of nurses was also strongly connected to budget. Other two elements making up the nurses as resource were time constraints and responsibility of the nurses themselves. Literature gave strong indication that the amount of available nursing staff strongly affected the amount of time nurses could spent with patients and how they would then comply with hygiene guidelines (Wynn & Peter, 2003). Nurse's own responsibility was also emphasized both in the literature and in the interviews. Hospital design was mostly affected by how old or new the hospital was. Older hospitals are not designed for infection control whereas new hospitals are designed with eye on the hospital acquired bacteria (Köhler, 2013).

5 Findings

The purpose of the study was to find out the reasons for contradictory hygiene practices in infection wards. What was discussed in the interviews were the themes established from the literature search which were the incidence of the bacteria, hygiene nurse, education and orientation, students, available equipment, hospital's budget, time constraints, nurses' own responsibility to uphold hygiene practices and hospital design. During the interviews all of the respondents were observed for any significant body language signs that might bring doubt to what they said or were willing to say. Overall, there were no significant observations noted during the interviews.

5.1 Old vs new hospitals

The respondents concluded that said hospital where the interviews were conducted was a well prepared and equipped hospital for the purposes of isolation in the case of infectious diseases. However, a respondent from the first interview was comparing this hospital to

another where she had previously worked. She commented on the differences in design and space.

> *” Ja tääl on hyvät tilat mut sit sielä taas on huonot tilatki. Se on niin epäkäytännöllinen vanha sairaala… Ja sit ne tilat on semmoset ettei siellä oo käsienpesupaikkoja kuin potilashuoneissa.”*

> *“And here we have good spaces but then again there the spaces are bad. It is such inconvenient old hospital…And then the spaces are such that there are not hand washing stations anywhere but in patient rooms”*

It was described by one respondent that there should be no difference in aseptic guidelines between hospitals. There could be differences in other ways, for example allocated space in hospitals but not with aseptics.

The discussion in both interviews then continued to how the isolation rooms and the passage in between the hallway and the room are kept up to date. It was pointed out that if there is a need for getting materials or equipment that was not present in the cupboards it would use up time that the nurse could be with the patient.

> *“...joskushan sieltä puuttuu, väliköstä, tavaroita. Hanskoja, essuja. Sen ajan tasan pitäminen ei oo aina sataprosentista mutta sitte pitää vaan lähtee hakemaan, mutta eiköhän me kaikki aika hyvin noudateta sitä aseptisisä ohjeita.”*

> *“…sometimes there are things missing. Gloves, aprons, keeping it up to date is not always 100% but then you just have to go and get them but we all do adhere to the aseptic pretty well.”*

One of the respondents commented that planning ahead before going into the isolation rooms was important, to use time efficiently.

> *“Pitäisi varautua etukäteen ja miettiä hyvin mitä tarvitsee että emme joudu menee kerta varastolle lähtemään hakemaan jotain mutta—Suunnitella hyvin sitten voi käydä kaikki kerralla”*

> *“One should prepare beforehand and think thoroughly what one needs so we do not have to every time go to the storage to get something - Plan well then you can do everything in on go.”*

Though the nurses concluded that one goes into the isolation rooms as much as the patient needs. Occasionally, it cannot be planed ahead and the patient cannot be taken care of in one visit, but that the patient might ring for the nurse to come multiple times in the day. There is always the possibility of asking via phone that connects to the patient's alarm system what the problem or emergency is. A nurse does not necessarily have to go into the room and can therefore always plan a bit ahead.

Everything kept in isolation rooms is considered contaminated once it reaches the room. When the patient is discharged from the hospital, all of the materials and equipment is either disposed of or sterilized. Therefore, occasionally, only small amounts of material and equipment is brought into the rooms in order to not waste materials unnecessarily. One respondent explains this phenomenon:

> *"No sinnehän pyritään viemään aina mahdollisimman vähän niitä tavaroita. Sit siinähän se on kun niitä viedään vähän että ne on aina loppu. Niinkun verensokeri näit juttujakin kun siel on se. Et pitäs niinku jokaisen kiinnittää siihen huomiota kun alkaa niinku viimenen olla et että veis sitten"*
>
> *"Well we always aim to take as little stuff there as possible. And then when we take so little there, they are always out. Kind of like the blood sugar things that are there. So everyone should pay attention that when it starts to be the last one that they bring more."*

There was also discussion about the information sheets on isolation rooms that let nurses know what kind of isolation is in use in each room. Though it was also stated that there are occasions where the need for isolation was not known beforehand and occasionally a regular patient room had to be turned into an isolation room. Therefore new arrangements have to be made. For example a sheet on the isolation must be taped to the door as there is no passage between the room and the hallway and all of the gowns and gloves must be kept outside the room. But the isolation rooms have passages between the room and the hallway with guidelines on how to dress in accordance to the isolation. It is the duty of the nurse who is taking care of the isolation rooms to keep these sheets up to date. It was stated that they are kept up to date quite well. The flow of information did not seem to be a problem.

The respondents were at a slight disagreement over some of the protocols of what to do when entering, for any reason in the isolation rooms.

“...riippuen eristyksestä et mikä siel on et onks siellä puettavat välttämättä kaikki puvut ja myssyt ja maskit ja tämmöset et jos on näistä tyypillisiä ESBL, MRSA-kantajia. Jos sä viet lääkkeet, sä et koske mihinkään sun ei välttämättä tarvii pukee ollenkaan mitään....”

“… depending on the reason for isolation, if you have to wear all the gowns, caps, face mask, and so on, if it is these typical ESBL, MRSA carriers. If you take the medication, you do not touch anything you don’t have to necessarily wear anything....”

A respondent during the same interview explained that whenever entering the patient room a nurse must have at least gloves on, for example when taking the food. And with patients with ESBL, there should be a distance of one meter otherwise a gown must be worn as well as gloves.

5.2 Time constraints

Respondents strongly emphasized the fact that everyone complied with the hygiene guidelines set by the ward. They were still able to pinpoint the largest factor, in their opinion, about why contradictory practices exists.

” Kiire. Tulee ensimmäisenä mieleen. Tietämättömyyttä se ei kyllä,niinku mun mielestä tarkoita.”

“Hurry. Is what comes to mind first. It does not mean lack of knowledge, in my opinion.”

Another one of the respondents began to ponder this more deeply:

“ Mä voin itte asiassa kuvitella et jos sä, sulla on eristyshuoneita ja sä jatkuvasti ravaat siinä, se on helppoa sillo jos sä meet sinne ja hoidat potilasta koko ajan siellä huoneessa, ei se sit oo mikää ongelma. Sä paat yhen kerran vaatteet päälle ja lähet. Sit kun sä tuut pois ja sit riisut ne.”

“I can imagine actually that if you have the isolation rooms and you are constantly coming and going, it is easy when you go into the patient room and

take care of the patient the entire time in the room, it is not a problem then, you put it all on once and leave. When you come out, you take it all off."

As the respondent above pointed out, it is no trouble to go into the patient rooms once and take care of the patient thoroughly while being there however, not everything can be done in one visit as food must be taken during every meal and medication and the daily hygiene must be taken care of.

5.3 Nurses' responsibility

There was a discussion and agreement between the respondents of adhering to the aseptic guidelines in order to not only protect oneself but as well as the others. Another explained this further, saying how everyone should be aware of the guidelines and how it affects other nurses in the working environment if guidelines are not adhered to.

"Ja se on meidän joka päiväinen työ että tää aseptinen sääntöjen noudattaminen ja - varmaan kaikki tietävät ja muistavat että se on oma vastuussa ja ihan tää oma etu että noudattaa kaikki säännöt. Ei kannata tarttua bakteereihin ja kaikkiin niihin ja sitten se nopeasti täällä omaksuvat kaikki."

"And it is our every day job this compliance with asepctic guidelines and – For sure everyone knows and remembers that it is your own responsibility and it is your own benefit to obey all rules. It is not beneficial to infect with bacteria and all of them and then here everyone absorbs that fast."

It was commented that guidelines have become tighter in terms of preventing the spread of infection. The relatives are informed as well on the hygiene practices before entering an isolation room but no one checks the compliance of these practices. It is up to a nurse's own conscious whether or not compliance to the guidelines occurs. Compliance to aseptic guidelines it not only the responsibility of the nurses and doctors but also the other hospital staff, the cleaners and the kitchen workers, who are one and the same at this ward. A reason for lack of compliance could be motivation as one nurse explains:

"...vaatia sitä omaa aktiivisuutta, voi kattoo vähän näitä jos tulee joitain erityisiä eristyksiä niin kattoo, olla ajan tassalla mistä on kysymys ja tietää että onks nää kuinka vaarallisia vai semmosia. Tai ei nyt sitte niin välttämättä

ja vaan kattoo nyt et okei, nyt sun pitää olla eristyksessä ja nyt siel on tämmönen et kai sun pitää tietää vähän enempikin siitä mahollisesta tartunnasta...”

“… you have to demand from yourself motivation and look a little these, if there’s new reasons behind isolation and keep yourself up to date and know what is going and how dangerous these are or not so much. And know that okay, there is this kind of isolation and perhaps you need to know more about a possible contagion...”

5.4 Orientation

On the orientation for the ward, the respondents all stated they had received it and that it was focused on the infection prevention and control.

“Mä oon ollut kolme päivää. Mutta en voi sanoa että tää heti tää kolme ensimmäistä päivää minä omaksuin kaikki. Kyllä se sitten työn -- Kerrottu kyllä kaikki tulovaiheessa että toiminta on ja mikä säännöt ja.”

“I have been three days. But I cannot say that absorbed everything in these three days- You do get it during work- Everything has been told when you come, what are the rules and function and.”

Another respondent added:

“Joo oli, (---) perehdytti minut silloin. Se oli se kansio vielä tai on vieläkin. Se kansio missä on nää eristyshuoneiden ohjeet ja kaikki. Joo, mä oon ainakin saannut.”

“Yes, there was, (---) orientated me back then. There was that folder or still is. That folder where you have all those guides to quarantine rooms and everything. Yes, I have at least received (orientation)”.

This orientation material included a description of the hospital as a whole, the design of the ward, daily duties of the nurse in a morning, evening and night shift and the computer programs that are used for documenting at the ward. Should a new employee come to work at this ward, there are also explanations on the work contract, the safety at the workplace and how the medications are handled there. It then goes into further detail regarding patients,

for example, how to discharge a patient, directions to files on the computer to find information on how to be with a patient in isolation and if there is a need for blood transfusions, there are also instructions for it. It concludes with the ethical principles of the hospital and the ward which are justice, safety, economical, entrepreneurship, patient-oriented and ecological. (Hakala, 2014) It also explains how the hospital coincides with the social and health services of the capital city.

5.5 Budget

There was also discussion on the budget of the hospital and how that affected the adherence to the guidelines. Naturally, it was not said to what degree but it was said that the materials were often interchangeable due to budget.

> *"Täällä tietysti vaihtelee noi eristysasut ei oo oikein johdonmukaisia en tiiä meillä on vähän eriliaisia tulee mistä sattuu, onks se sitte aina sen mukaan mikä lafka tarjoaa halvimmalla sitte kun mä oon aina nähny niin erilaisia noita meiän eristysasuja välillä että mutta varmaan siinäkin kiinnitetään huomiota taloudellisuuteen, budgetointiin...."*

> *"Here those isolation gowns of course changes, they are not so consistent, we have different ones, coming from wherever, is it always according which company offers the cheapest product. I have seen so many different kind of isolation gear that they probably take into consideration budgeting..."*

It was also mentioned how increased knowledge affected the change in the equipment itself and the adherence to hygiene guidelines and infection prevention as a whole.

> *"Et niin oli ihan tyypillistä että käytettiin niitä Mikki Hiiri-hanskoja. Kunnes, mä en tiedä missä vaiheessa ne on huomattu että nehän vissiin läpäisee. Et nythän ne on noita vinyyli ja tämmösiä."*

> *"That it was perfectly normal that we used those Mickey Mouse-gloves (=large, see-through gloves that resemble the hand of Mickey Mouse). Until, I am not sure at which point it was noticed that they apparently let through. Now they are vinyl and such."*

With changing materials also came a change in compliance, towards the positive. One nurse describes the hand disinfectant and how when it was changed to a newer one, it was much more pleasant to use.

> *"Täällähän oli se aiemmin se käsihuuhde kun käyttö väheni kato ku kaikilla alko kädet hilseilemään. Sit taas kun se vaihtu niin sithän sitä rupes taas kulumaan. Kato kun parempi tuote niin menekki oli heti suurempi."*

> *"Here was earlier that disinfectant when the usage was reduced when everyone's hands began to dry. Then when it was changed, it was being used more again. You see, better product so consumption was higher."*

5.6 Hygiene nurse

What was also discussed was the significant role of the hygiene nurse in passing new information to the nurses and the ward as a whole. This was either done in person or during four education days every year. There are lectures every Wednesday on various topics and four times a year this lecture is on hygiene practices and a change in guidelines or practices. The ward sister holds the responsibility of making sure everyone goes at least once a year. This was stated by the respondents.

> *" Hygieniahoitaja on kyllä, ohjeistaa hyvin jos tulee joku uus. Hänhän tulee tänne paikan päälle sitten antaa ohjeita. Heti jos hän huomaa et meille on tullut joku eristyspotilas tai joku tämmönen, hänhän tulee heti kertomaan. Hän on aina ajan tasalla kaikesta."*

> *"The hygiene nurse does yes guide well if there is something new. She comes here in person and then gives instructions. If she notices we have gotten some quarantine patient or something like that she comes immediately, she comes right away to tell. She is always up to date about everything."*

There are also revision courses for new employees. Overall it was stated that the hygiene nurse is very closely working with this ward as it is a cohort ward with both infectious diseases as well as other diseases. Prevention of the spread of infectious diseases is therefore critical.

The themes that were found based on literature were mentioned by the nurses at the ward. For example, the education, the budget of the hospital, time constraints, incidence and hospital design. It became clear that even a new and well equipped hospital such as this

hospital in the capitol region, mistakes are made in hygiene practices and the guidelines are not adhered to.

A question was presented at the end of the final interview. The hygiene nurse was in fact quite connected to this ward and for this reason as well as for the different infectious diseases, more attention is paid with documenting and testing for these infections.

6 Discussion

The research question of this study was "why are there contradictory hygiene practices in infection wards?" As stated in the findings, the reasons are all connected to one another and involve components such as budget, hospital design and overall education and amount of information available.

6.1 Discussion of findings

What seemed to be a common notion in the interviews was, as stated by one of the nurses, that "here we have good equipment and here we have up to date knowledge and then we also have staff that takes care of it". Despite interviews being conducted in a ward where nurses could not see problems within the ward itself, they were able to reflect on their past experiences in other hospitals and wards as well as imagine what could be the reasons behind contradictory hygiene practices.

What was common in both interviews was that the presence of the hygiene nurse was presented as a reason for correct hygiene practices. The more involved the hygiene nurse was the better the hygiene guidelines were adhered to according to respondents. What they stated was that in places where the hygiene nurse was not as much involved as she is with this ward the lapses in hygiene were more common. This can be due to lack of information on newest guidelines about hospital bacteria as they are still relatively rare in Finland and other Nordic countries (Jaakkola, et al. 2014; Mamhidir, et. al., 2010). For the respondents, the role of the hygiene nurse was stated to be that of a guide who knows what precautions need to be taken with certain bacteria and her notifying the other nurses directly was seen as highly important.

As example of how important the hygiene nurse is, the respondents spoke about their experiences in elderly care homes. They saw the presence of a hygiene nurse as crucial for proper hygiene practices and that her presence is what prevents contradictory practices. In their examples it became clear that nurses tended to not either care or were misinformed about

hygiene practices without a hygiene nurse as she is an important source of information. For example, nurses may have allowed a patient with Clostridium Difficile to move around and touch the same food as the other patients without being isolated, only washing her hands. This was connected to lack of a hygiene nurse watching over the practices and enforcing them among staff.

Despite the guidance from a hygiene nurse, even this ward had lapses in hygiene according to statistics provided by the hygiene nurse herself. What she sent was Hygieniaraportti 2013 (= hygiene report 2013) that is a collection of data from this specific hospital combined together by Laura Pakarinen. Pakarinen (2013) states that hand disinfectant should be used about 30 times a day per patient and that hand disinfectant should be used more in every single ward in this hospital; despite respondents stating that everyone uses hand disinfectant a great deal and that it is a habit. One of the respondents stated that "staff uses plenty of hand disinfectant" which, while being very good sign, also indicates that they are not aware of the recommended usage of hand disinfectant as respondents' view on enough contradicted with the amount recommended by the hygiene nurse. The ward in question is also not the ward using most hand disinfectant but instead lands in the middle ground, not using the most but not the least either.

Respondents also stated that no patient had been infected with any hospital infection while being at the ward. Statistics collected by Pakarinen (2014), contradict what was said and show that in 2013 there were two infections in total but no secondary MRSA or ESBL cases originating from the ward itself. There was one outbreak of Clostridium Difficile in the ward which required an epidemic cleaning (Pakarinen, 2014). What this seems to indicate is that the other infections are either not seen as important as MRSA and ESBL are seen or that the respondents simply forgot about these few isolated cases. Regardless of the reason, the statistics show that, despite what respondents said, the ward does have some lapses in hygiene that may also have been the reason behind the few isolated infections. What this could indicate is that nurses are aware of the hygiene practices but they also judge the ward's situation to be better than it actually is. This could be due to being accustomed to how things are done at the ward or because these few lapses are not seen as serious enough to mention. Depending on how public the records of these infections are and whether or not they are used in education could be a reason for this.

What was stated by respondents was that there is education available concerning hygiene practices four times a year with one time being mandatory. Respondents said this was monitored by the ward sister and since the same education was available four times a year, it is possible for everyone to attend at least once a year. According to the hygiene nurse, in this particular hospital the education days are aimed to keep the nursing staff's aseptic practices

up to date and to reduce the amount of infections related to nursing care (Wiik, 2014). Essentially the education days are kept so that contradictory hygiene practices do not become common and that staff is always up to date. The education days are held by hygiene nurses thus further emphasizing the importance of the hygiene nurse as a source of information and guidance. As Mamhidir et.al. (2010) stated, the amount of knowledge regarding MRSA, ESBL and various preventive hygiene methods was deficient among nurses thus indicating need for more education. Lack of knowledge cannot be fixed without further education. Even if lack of knowledge did not come up in interviews as a cause for contradictory hygiene practices it could be seen between the lines. In one interview, there was a short discussion about hygiene practices. One of the nurses stated that there is no need to wear gloves or other protective equipment when entering isolation room in certain situations. Thus, displaying the possible lack of knowledge about why those guidelines exist and why they must be adhered to.

Orientation can be seen as one aspect of education after graduation. At its core orientation to a work place aims to make the new employee familiar with the ward itself and to be then able to function as a nurse there according to guidelines set by the ward. All the respondents stated they had received orientation when they started and that in total it was three days. What they also mentioned was the orientation folder found in the ward itself that served as a guide to orientation and is available at all times. The material in the folder includes overall guide to the ward and its patients as well as to hygiene practices and duties. As the orientation itself is based on the folder, it is clear that the orientation offered at this ward is aimed directly at the ward's special nature as a cohort ward. The folder itself is made by the ward sister in co-operation with the hygiene nurse thus once again displaying how important factor hygiene nurse is in preventing contradictory hygiene practices (Hakala, 2014). There seems to be a strong connection between how much knowledge on correct hygiene practices there is and how involved the hygiene nurse is which influences how well the hygiene practices are adhered to. The less the hygiene nurse is involved, the more there is contradictory hygiene practices. This connection was made clear by the respondents but it is still a connection that could be further researched to see exactly how strong the connection is (Jaakkola, et al. 2014).

While some of the contradictory hygiene practices can be blamed on lack of information and even lack of a hygiene nurse, one of the most important factors is still the nurse and her own responsibility. This responsibility contains compliance to hygiene practices regardless of the nurse's own opinion about its need. When a nurse does not take the responsibility, contradictory hygiene practices occur. As respondents stated, nurse is responsible for following a set of guidelines and that it is not only for the benefit of the patients but also to the nurse herself and everyone else around them. One of the respondents stated clearly that there is no bene-

fit in infecting yourself implying that while correct hygiene practices protect your patients they also protect yourself.

When talking about responsibility and thus compliance to hygiene guidelines, it is good to remember that Wynn and Peter (2003) stated “medical and nursing procedures were difficult and awkward and took much longer to perform safely and correctly.” It has also been said by nurses that the protective gear hinders social interaction with the patients and is also uncomfortable (Wynn & Peter, 2003). Some nurses would rather wear less protective gear than compromise patient interaction. This is another aspect in which the nurse’s own responsibility can be seen. Nurses are meant to interact with patients and they might be the only human interaction patients have while in hospital. Respondents did not state this aspect but did state that protective equipment is not comfortable and donning it does take time and could be seen as a bothersome task. Despite the argument that protective equipment is difficult to put on and hinders interaction, it is still a nurse’s responsibility to wear the correct ones in order to protect the other patients from potential infections. One of the respondents said that nurses who do not care about correct hygiene practices are what cause most of the contradictory actions thus concluding that it is a nurse’s responsibility to adhere to hygiene guidelines regardless of their personal view on the matter and that failing to do so implies that the nurse does not care about the reason why those hygiene guidelines exist.

Sometimes causes for contradictory practices are beyond a nurse’s control. These mostly include equipment and organization of isolation rooms which both are related to available budget. Also advancements in equipment quality have improved the adherence to hygiene practices as equipment gets easier and more comfortable to use. What was mentioned by the respondents was the changes in equipment. One respondent used protective gowns as example and stated that they changed according to which provider had the cheapest price and this of course was no problem as long as they worked. Change in design would though cause problems with donning them and consume more time as designs were different and unfamiliar. In order to make sure contradictory practices do not occur when a product is changed, it would be beneficial to have as similar products as possible to make the transition to a new product easier. When there is no need to guess how something is worn, compliance to hygiene practices is better.

Another example used by respondents was hand disinfectant. They stated that an older version of it dried everyone’s hands, causing them to use less hand disinfectant but when it was changed to the current one, compliance increased and people used more hand disinfectant as it was more comfortable and an overall better product. Thus it can be said that the better the products are, the less there is contradictory practices as good products increase willingness to comply and use them. What products are in use is of course related to budget and

what can be gotten with that as limit. What should be the aim for best possible hygiene practices and infection prevention is as good products as possible with the given budget.

When it comes to equipment the isolation rooms have highly limited amount of equipment and, in most hospitals, the amount of isolation rooms is also very limited. Respondents and guidelines both state that there should be as little equipment in the isolation rooms as possible as all that is there is considered infected and will be disposed of when room itself is cleaned causing loss of funds and thus limiting the budget further if too much unused equipment is thrown away. This of course causes other problems which will be discussed later on.

Overall, isolation rooms are to be kept as empty of excessive items as possible. What can cause contradictory hygiene practices is the limited number of isolation rooms with dressing area between the corridor and the room itself referred to as clean area. This clean area serves as space between the room and hallway to store equipment needed in the isolation room itself and as area for donning and removing the protective equipment. Most hospitals only have limited amount of isolation rooms causing situations in which hygiene practices become contradictory. Respondents stated that proper isolation rooms cause the nurse to already know that they need to adhere to certain hygiene practices and what they must use in there. They then continued that when there are not enough isolation rooms and normal patient rooms are used as isolation rooms, the practices tend to become contradictory. They described feeling odd in donning their protective equipment in the hallway and also reported that occasionally the information regarding the isolation type was not clear. This caused contradictory practices to occur as there was no correct isolation room to indicate need for isolation practices nor was the isolation type clear.

What all respondents agreed with was that one cause for contradictory practices could be lack of time and hurry stemming from it. Respondents stated that they do not feel that patients in isolation rooms consume more time but they did think one contributing factor to hurry would be forgetting equipment. They described situations in which nurse forgot equipment that was needed causing nurse having to take off the protective equipment, go to storage and then return with the needed equipment and dress into the protective gear once again. The more often this occurred, the more time would be spend at isolation rooms. What they stated was that this can be prevented by good planning. This means that nurse must plan beforehand what they need to do for sure in the isolation room and prepare for it. As amount of equipment is limited, the nurses have responsibility to check that there will be enough left for the next nurse. Contradictory hygiene practices occur when lot of time is consumed in dressing and undressing the protective gear. Nurse might think that process will be faster if they do not wear every single piece or simply give reasons to why full protective equipment is not needed in this particular case. One of the respondents gave reasons why it is acceptable to

skip some hygiene guidelines in isolation room in cases such as taking medicine to patient only. While reasoning itself was correct, the second respondent quickly stepped in stating that those guidelines are meant to be adhered to and there is never a guarantee that patient only needs medication, they might need more help.

Respondents themselves stated that patients in isolation room do not require more visits or care than other patients but time consuming factor is definitely the need to dress combined with forgetting or lacking needed equipment. The respondents stated that this caused hassle and while they understood that isolation rooms must be kept as empty as possible, they also hoped for ways to have equipment more easily accessible. The aspect of missing needed equipment indeed poses a threat to correct hygiene practices as donning and removing gear consumes time in already hectic wards. But as guidelines state that isolation rooms must be kept as empty as possible, it falls to the nurses' to make sure they plan what they need to do well enough to prevent possible trips to the storage thus reducing need to spend time on dressing and undressing thus making it easier to adhere to guidelines.

Hospital design was shown to be a factor in literature as well as in the findings of this study. Two respondents had also stated this in the interviews. The hospital in which the interviews were conducted in was a newer hospital which was equipped with isolation rooms with a space in between the patient room and hallway that was a "clean" area where there was also laminated instructions, according to the need for quarantine whether it was touch or droplet, as to how one should dress before entering the patient room.

Another detail to the hospital which was stated by the respondents was a sink where nurses could wash their hands which some older hospitals did not have. The older hospitals have changed over time to meet the needs of the patients, thereby changing some wards into infection wards with isolation rooms. This is often problematic as to space and the lack of it. For example older hospitals might have narrow corridors and smaller rooms. If the room has two patients one which has a hospital bacteria such as ESBL, both patients can be assumed to be infected as there most likely isn't the one meter distance required between patient beds. One respondent during the interview brought this matter up. Infections spread more quickly due to lack of proper space.

A respondent compared the hospital where the interviews were conducted in and another older hospital where she had worked and mentioned that one would almost have to wipe the entire ambulance after bringing the patient to the hospital due to lack of knowledge, space and incidence. Hospital wards may be renovated and but generally nothing is done to the original design of the hospital which is the often root of the problem. Should an epidemic oc-

cur such as the newly found CPE-epidemic a year ago (Hakala, 2013) an older hospital may be unprepared to quarantine the patients and educate staff.

Finland has become well-versed in the nature of infectious diseases and the spread of hospital bacteria (Jaakkola, et al. 2014). This has lowered the incidence rate of hospital based infections which is both a blessing and a curse. Due to low incidence there may now be on average less knowledge of the spread of the infectious diseases. Some wards or even hospital which are specialized in taking care of patients with infectious diseases are or should be more equipped to take care of a patient with an infectious disease however, the other nurses who accidentally come across a patient with said disease may not know how to properly quarantine the patient. For example one of the writers in a clinical placement where one of the surgical patients had ESBL and the nurses were forced to scatter and ask the rest of the staff what are the precautions for this particular patient. This shows a correlation to low incidence and lack of knowledge. This could mean that the basic knowledge gathered in nursing schools is not adequate to meet the conditions of working life.

One respondent mentioned that once working in an intensive care unit, putting on gloves and wearing a mask became a routine, but this was more of a precaution than an actual necessity. Wearing gloves at the hospital where the study was conducted was said to be a “tool” for the nurses and that putting them on was also automatic. None of the respondents were aware of any-one in particular who did not adhere to the hygiene practices and the ward was praised for its hygienic environment however, the hospital comes third on the list of hospitals with containment of spread of infection.

While the incidence of hospital based infections may be low in Finland, they continue to occur and patients are still infected with MRSA and ESBL. This leads us to conclude that lack of incidence should not be a reason for lack of knowledge. As one of the respondents mentioned it is the responsibility of the nurse to gain motivation to learn more even after graduating from nursing school. A new type of hospital infection may present itself in the future and the nurses should not only rely on the hygiene nurse for information but should rather be active and seek out the information.

The nursing profession is a challenging one with many changes taking place with advancement of medical knowledge and technology. Nurses should take the initiative to keep educating themselves on new illnesses and new infections as well as new treatments. There are many aspects of contradictory hygiene practices that nurses are not in control of however, knowledge is always an aspect they can control. Hospital design and budgeting may always be a hindering factor but education is always there to be sought after.

The research question was why are there contradictory hygiene practices in infection wards?

The initial themes found from literature were: incidence of the bacteria, hygiene nurse, education and orientation, students, available equipment, hospital's budget, time constraints, nurses' own responsibility to uphold hygiene practices and hospital design. The interviews that were conducted were meant as a means of finding out if theory matched practice.

The findings showed that while in the hospital the study was conducted in had little contradictory hygiene practices, there were more often lapses in hygiene practices due to time constraints, education and motivation; motivation as a hindering factor to gaining knowledge and wearing all the necessary gear to the isolation rooms. Budget was a secondary characteristic in lapses in hygiene practices as new materials might have been unfamiliar or unpleasant to use. Hospital design was another factor that was mentioned when comparing Hospital X which is where the study was conducted in to another hospital one of the respondents had worked in previously.

Hospital design was a surprise as originally the writers had not thought of this as much of a factor. This could be due to the fact that one of the writers had become accustomed to working and being in placement in a newer hospital which was designed to hold patients with infectious diseases.

Lack of education was not stated directly but it became evident by the way the respondents were describing the orientation to the ward and the lectures. Hospitals rely heavily on on-sight education and lecture days. Time constraints came out as lack of man-power. There are often too many patients that only one or two nurses are taking care of. There was talk of re-arranging the ward and the employees if one were to avoid a sense of rush.

There were other factors that influenced contradictory hygiene practices in infection wards, however it could be concluded that these were the five main reasons: hospital design, time constraints, lack of education, motivation and budgeting.

The lapses in hygiene practices can be connected to amount of infections occurring at hospitals. In order to prevent these secondary infections from occurring the causes of the contradictory hygiene practices must be taken into account when developing care and planning organization of the ward. It is thus worth it to study this phenomenon further from point of view of administrator, entire hospitals and students. It is even possible to create leaflet which informs both hospital staff and relatives of patients in order to prevent hospital based infections.

6.2 Validity and trustworthiness

“Validity encompasses the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method.” (Shuttleworth, 2008) Due to validity being involved in the entire thesis process it is important to see what makes the thesis valid and thus trustworthy. The more valid the thesis is the more likely the community is to consider findings as acceptable. (Shuttleworth, 2008) Thus it is worthwhile to look at what makes a thesis valid and trustworthy.

Preconceptions are important factor in determining the validity of the thesis.”…identifying preconceptions brought into the project by the researcher, representing previous personal and professional experiences, prestudy beliefs about how things are and what is to be investigated, motivation and qualifications for exploration of the field, and perspectives and theoretical foundations related to education and interests.” (Malterud, 2001) Preconceptions are not the same as bias (Malterud, 2001) but rather the information the writers have before the thesis is written or before the thesis process has begun. For this thesis the preconceptions were the observations writers had made during their placements and working life about contradictory hygiene practices. The previous lectures from school regarding hygiene practices can also be considered as preconception.

Contradictory hygiene practices have been witnessed in clinical placements by both writers and feedback has been given to the writers from teachers as well as nurses in working life who believe this is a valid issue. Research has also thus far indicated that these issues occur in Finland as well as in other countries. (Jalava, Rintala & Lyytikäinen, 2013) There have also been studies that have indicated the need for further investigation into this phenomenon as most of the literature has indicated.

The study was conducted in an infection ward where these findings will also be presented. It is beneficial for them to hear whether or not the staff is following instructed guidelines and where there are lapses in hygiene practices and the causes for them. This study has also potential to be delved into even further by creating a pamphlet, or a general manual which would streamline the most common infectious diseases and their isolation requirements.

Authenticity was crucial as the writers did not want to change any responses received from the respondents nor did the writers want them to tell them what they expected to hear based on the literature search. The respondents were asked about their experiences and everything was recorded truthfully. No answers were changed to suit the needs of the writers.

There is a possibility of misinterpretation with the findings as the interviews were conducted in Finnish and then translated to English by the writers, neither of who are professional translators. This would affect the validity and trustworthiness of the findings and the study itself.

For the theoretical background articles and books were searched regarding infectious diseases, hygiene practices, aseptic guidelines and possible contradictory practices in hygiene. Almost all articles and books were from the 21st century or the turn of the 21th century and can be considered reliable as they are all published in scientific journals. Articles and books were both in English and in Finnish as both writers are bilingual.

The permission letter found in appendix 1 was written at the very beginning of the thesis and as such is out-dated in terms of some of the contents however the premise of the interviews and the ward are still the same and this letter was used to gain the permission to conduct the interviews at the ward.

The interviews only had two registered nurses while other three were practical nurses. This might have affected the results in some way as nurses and practical nurses might have different view due to possible hierarchy within the unit. There appeared to be none however, the possibility of it should be acknowledged as it could affect the conclusions of the study. The results of this thesis are only applicable to this ward and therefore cannot be generalized to other infection wards as writers had five respondents each with their own view about the hygiene practices.

Originally the interviews were meant to be conducted as individual interviews and for this, the ward sister gave her original permission. However, due to the interview day being busier than anticipated, the ward sister and writers agreed together to have group interviews instead of the planned individual interviews to better accommodate the staff. Permission for the changes was given orally by the ward sister.

In order for interviews to be as valid as possible the “interviews should be conducted in areas free from distractions and at times and locations that are most suitable for participants” (Gill, Stewart, Treasure & Chadwik, 2008) For this reason the day was planned beforehand with timing set to be in the afternoon when both morning and evening shift are present in order to secure enough time for interviews to take place. The interviews were held on the same day but at different times and in two different rooms. The first interview was in meeting room of the ward and the second in the ward sister’s office, both of which were free of distractions and were isolated from the rest of the ward. Despite the best possible planning in terms of interview timing the day overall was not the best. The day before a member of the nursing staff had passed away causing a general feeling of sadness and possibly made respon-

dents more silent as they most likely had several different thoughts running through their heads. This was an unforeseeable complication that could have also affected the trustworthiness of the findings as perhaps the respondents did not think their answers through carefully enough. Also despite accommodations from writers and the ward sister the interview took place during a busy shift therefore the respondents could have also felt rushed.

6.3 Ethical considerations

To protect the privacy of the respondents and the hospitals mentioned, the names of the nurses and the hospitals were removed from the quotes as they were extracted from transcript into findings.

There are three main ethical issues in clinical research: informed consent, determination of benefit to risk factors and privacy and confidentiality (Fry & Johnstone, 2008).

In determining the benefit-to risk factor in this study it could be said that there are more benefits than risks. The benefits would be informing the staff of the reasons of the contradictory hygiene practices and thus improving hand hygiene thereby decreasing the risk of spread of infection. The risks could be the loss of anonymity and the feeling of blame. The writers' intentions were not to point fingers or to question the nurses' professionalism but to find out the reasons for the contradictory hygiene practices.

Informed consent protects the research participant's autonomy, protects the participant from harm and aids the researcher from avoiding fraud and duress in healthcare associated research contexts (Fry & Johnstone, 2008) Before the interviews were conducted, the permission to conduct the study in the capital area hospital was given by the ward sister as well as the ethical committee of the city. The staff was informed of the study and what the interview would contain after which they were asked if they would like to participate in the study. The respondents were told once more during the day of the interview what was going to happen and what would be the topic. Only one registered nurse politely declined to take part in the study because of the time constraints.

The principle of privacy is concerned with information and the conditions in which the information has been collected and shared. In this instance, in a research context (Fry & Johnstone, 2008). In this study the possible ethical issues concerning data protection involve privacy and confidentiality of the interviewees and image of the ward itself in terms of providing safe care. To address these issues the exact ward which was interviewed was not stated or the names of the nurses interviewed. It would only be stated what type of ward and whether or not a registered nurse or a practical nurse had responded to the question. Thus, people are

respected as self-determining adults who have a right to choose whether to keep some information “secret” provided it causes no harm to others. (Fry & Johnstone, 2008). This way the anonymity of the ward and the staff can be preserved. There will be no blame for the nurses for any misconduct in hygiene practices but rather to see the problems behind the contradictory practices.

In human research ethics guidelines, researchers are reminded that they have a legal and ethical obligation not to use the information gained for any other purpose than for which it was given. And every reasonable effort will be made to protect the anonymity of the participants, such as de-identifying the information collected (Fry & Johnstone, 2008)

To preserve and protect anonymity the interview materials, such as the recording of the interviews, the answers that were transcribed from the tape and the notes that were taken during the interview will be destroyed upon the completion of this thesis.

Should the ward require the findings of this study will be presented to the staff and the ward sister.

6.4 Limitations

As with all studies, qualitative and quantitative alike, there are limitations that arise from human error and the circumstances. Some of these issues in a qualitative study are researcher bias, over-load of data, generalizations of findings, the time and effort it takes to code and process data, the small sampling size, the validity of the findings and their application in the future. (Miles & Huberman, 1994) As well as these, qualitative data is based on experiences and is not quantifiable by nature which means it is open for interpretation.

With this study it could be considered that a possible limitation would be having only two registered nurses and three practical nurses as a part of the interviews. One could argue that with a certain amount of a higher level education nurses would know more regarding aseptic practices and therefore would bring another perspective. But because the thesis is qualitative, the amount of nurses can be seen as adequate test group as a part of a qualitative research.

However, because there were both registered nurses and practical nurses, it can be said that there was a broader scope which allowed for surprises in the answers we received. This does not mean that the opinions expressed by the five nurses represent the entire ward. Had more been interviewed, a difference in opinion could have been spotted. Because of this, the results cannot be generalized to other wards or hospitals either.

Another limitation to the test groups was that not all test subjects were voicing their opinions readily. While there was discussion among the groups in the interviews it was occasionally necessary to prompt conversation and ask directed questions. Also, some members of the groups were quieter than others which presents as a risk in group interviews. The duty of the writers would be then to be more assertive in the interview process and create a safe environment for the interviews to take place.

Some limitations might have occurred due to the fact that one of the writers had previously been at the ward during a practical placement and was working there at the time of the interviews. This might have caused some oversights and some matters could have been taken for granted as it was obvious for one of the writers. However, said member was not the one presenting the questions therefore it could be seen that little oversight or bias occurred because of this.

Neither of the writers is professional researcher or interviewer. Hence, it is possible that not all sections were done exactly right and interviews might not have gone as well as they would have had either of the writers had previous experience conducting a study.
The scope of the interview was also a limitation to the research. There were only 5 test subjects and this study and its findings are only true for this particular ward.

6.5 Recommendations

Other research could be done for another ward at another hospital which has patients with infectious diseases. Alternatively, a comparative study could also be conducted with this ward and another ward at the same hospital to see if the results are similar throughout the hospital.

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Appendixes

Appendix 1: Permission letter to the ward

Hei,

Me olemme Laurean Ammattikorkeakoulun 3. vuoden sairaanhoitaja-opiskelijoita. Olemme tekemässä opinnäytetyötä, joka liittyy sairaalabakteereihin ja niiden hygieniakäytäntöihin. Tarkoituksena on selvittää onko ristiriitaisia hygieniakäytäntöjä olemassa ja, jos on, mistä ne johtuvat. Opinnäytetyön otsikko on ”The current hygiene practices and possible contradictions in them” (= Nykyiset aseptiset käytännöt ja niiden mahdolliset ristiriidat). Otsikko on tässä vaiheessa vasta alustava. Tarkoituksena on selvittää mitkä ovat sairaanhoitajien nykyiset aseptiset käytännöt ja miten ne ovat ristiriidassa käytäntöohjeiden kanssa. Tutkimuskysymyksemme ovat ”mitä aseptisia käytäntöjä sairaanhoitajat noudattavat tällä hetkellä infektio-osastolla” ja ”ovatko nämä käytännöt ristiriidassa käytäntöohjeiden kanssa”.

Haluaisimme haastatella noin viittä sairaanhoitajaa, jotka ovat olleet osastolla yli viisi vuotta. Haastattelut suorittettaisiin yksilöhaastatteluina. Tarkemmat tiedot opinnäytetyöstä ovat Thesis Contract-liitteessä.

Pyytäisimme lupaa tulla Teidän osastolle haastattelemaan halukkaita sairaanhoitajia. Mikäli tämä on mahdollista, toivoisimme että Te lähettäisitte meille tiedon sopivista ajankohdista. Kun opinnäytetyö on valmis, olemme valmiita esittämään sen osastollanne mikäli haluatte.

Ystävällisin terveisin
Kira Sellin

Sini Rantanen

Liitteet
Thesis Contract