

S T A D I A

HELSINGIN AMMATTIKORKEAKOULU

PATIENT HAND HYGIENE COMPLIANCE

in the Hemodialysis Environment

Degree Programme in Nursing
Bachelor of Nursing
Final Thesis
Autumn 2007

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Degree Programme in		Degree	
Nursing		Bachelor of Nursing	
Author/Authors			
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Title			
Patient Hand Hygiene Compliance in the Hemodialysis Environment			
Type of Work	Date	Pages	
Final Project	Autumn 2007	20 + 3 appendices	
<p>ABSTRACT</p> <p>Hand hygiene compliance of patients receiving hemodialysis treatment is a contemporary discussion topic among health care professionals in the Nephrology Clinic of Helsinki University City Hospital.</p> <p>The purpose of the Final Thesis is to review patient hand hygiene in terms of risks its lack entails and based on the evidence based findings to design an end product as a poster. The poster can be utilised in the Nephrology Clinic's nursing environment to educate and motivate patients to pay specific attention to the importance of hand hygiene.</p> <p>The method used was a systematic literature review. The most important evidence based findings were extracted from the chosen thirteen scientific articles. All articles were searched from the Cumulative Index to Nursing and Allied Health Literature electronic database. The gathered information was then used to build the content of a patient education tool that for this project was defined as a Poster.</p> <p>The findings in this study showed that transmission of bloodborne infections, like Hepatitis B or C virus can occur through a vascular access and that the consequences of this can be very fatal. Additionally, environmental surfaces such as furniture, door knobs and dialysis machine control knobs were all possible infection sources for the patient receiving hemodialysis treatment. Adherence to good hand hygiene behaviour lowered the risk for infections.</p> <p>The end product of this study is a poster that is targeted to patients undergoing hemodialysis treatment. Using a health promotion agenda in the Poster, it is hoped that patients will pay more attention to the importance of hand hygiene and that they will be more motivated to use aseptic methods such as alcohol based hand rubs in the hemodialysis setting.</p>			
Keywords			
hand hygiene, hemodialysis, health promotion, patient education			



Koulutusohjelma		Suuntautumisvaihtoehto	
Hoitotyö		Sairaanhoitaja AMK	
Tekijä/Tekijät			
Meri Sierla ja Peter Tamminen			
Työn nimi			
Hemodialyysipotilaan sitoutuminen käsihygienian toteuttamiseen			
Työn laji	Aika	Sivumäärä	
Opinnäytetyö	Syky 2007	20 + 3 liitettä	
<p>TIIVISTELMÄ</p> <p>Hemodialyysihoidon saavien potilaiden sitoutuminen käsihygienian toteuttamiseen on ajankohtainen aihe Helsingin Yliopistollisen Keskussairaalan Nefrologian klinikalla.</p> <p>Tämän opinnäytetyön tarkoituksena on tutkia mitkä ovat hemodialyysipotilaiden puutteellisesta käsihygieniasta aiheutuvat riskit ja suunnitella lopputuote julisteen muodossa. Potilaan ohjauksen ja terveyden edistämistyön apuvälineeksi tarkoitettuna julisteen kohderyhmä on hemodialyysihoidon saavat potilaat. Julisteen tarkoitus on edesauttaa hemodialyysipotilaita kiinnittämään huomio käsihygieniasta potilaalle koituihin hyötyihin.</p> <p>Aineisto koostui kolmestatoista Cumulative Index to Nursing and Allied Health Literature -nimisestä hoitotieteen ja hoitotyön kansainvälisestä elektronisesta viite- ja järjestelmätietokannasta valitusta artikkelista. Tavoitteena oli löytää tärkeimmät tieteellisen tutkimustietoon perustuvat seikat. Lopputuotteen, julisteen, sisältö perustuu näihin seikkoihin.</p> <p>Hemodialyysihoidon alentaa potilaan vastustuskykyä. Alentuneen vastustuskyvyn vuoksi hemodialyysipotilaan mahdollisuus saada infektio tai verenmyrkytys eli sepsis kasvaa. Veritien pistospaikka mahdollistaa veren välityksellä tarttuvien tautien pääsyn potilaan elimistöön. Veren välityksellä tarttuvia tauteja ovat muun muassa hepatiitti B tai C -infektio. Seurauksena saattaa olla esimerkiksi krooninen maksasairaus, munuaissiirron jälkeiset komplikaatiot tai pahimmassa tapauksessa kuolema. Mahdollisia tartunnanlähteitä ovat muun muassa ympäristön pinnat kuten pöydät, tuolien käsinojat, dialyysikoneen säätönappulat ja ovenkahvat. Tartuntariskiä voidaan pienentää hyvän käsihygienian avulla. Hemodialyysipotilaan hyvä käsihygienia edellyttää käsihuuhteen käyttöä. Hemodialyysipotilaan tulee välttää fistelin koskettelua ja käyttää käsihuuhtetta muun muassa ennen ruokailua, tullessaan osastolle, poistuessaan osastolta sekä WC-käynnin yhteydessä.</p>			
Avainsanat			
käsihygienia, hemodialyysi, terveyden edistäminen, potilaan ohjaus			

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1 INTRODUCTION

There has been ongoing discourse between healthcare professionals at HUCH Surgical Hospital's Nephrology Clinic about the consequences of poor hand hygiene among patients receiving hemodialysis treatment. General research regarding this subject matter has shown that infection-related deaths are the second leading cause of mortality in hemodialysis patients (Himmelfarb 2005: 1127). Additional research by Froio et al. (2003: 549) has highlighted that the contamination of environmental surfaces and machines are one of the possible causes of transmission of blood borne viruses among dialysis patients.

Nosocomial infections contribute directly to a substantial number of hospital deaths and extra hospital days (D'Agata et al. 2000: 1083). The end result is not only exacerbated financial and socio-economic burden on hospital resources, but for the patients themselves it can increase their levels of stress and suffering. Alleviating patient suffering is one of the four fundamental responsibilities of nurses. Alleviating suffering promotes patient good and protects the human dignity of the patient. (Fry et al. 2002:66, 98).

Hand hygiene is the most important intervention in the prevention of cross-infection in healthcare setting (Ward 2003: 39). The main repercussions of poor hand hygiene adherence at HUCH Surgical Hospital's Nephrology Clinic are MRSA, sepsis and hepatitis B virus (HBV) and hepatitis C virus (HCV) infections. The main sources of infections are from needle insertions to fistula or graft by the patient or when the patients are building up the dialysis machines themselves. (Taponen 2006). Improved hand hygiene would help to guarantee less suffering and a continuation of the quality of life as experienced by the patients.

Asepsis is required to decrease the possibility of transferring microorganisms from one place to another. According to Kozier et al. (2004: 630) asepsis is the freedom from disease-causing microorganisms. Asepsis and hand hygiene are concepts that have been widely researched in Evidence Based Practise but in relation to hemodialysis

there is still a great need for further research. The current focus of research related to asepsis and hand hygiene has concentrated specifically on the healthcare professional rather than the patient. The purpose of the Final Thesis is to review patient hand hygiene in terms of the risks its lack entails and based on the evidence based findings to design an end product as a poster. The focus is on adult patients receiving hemodialysis treatment within the hospital environment. Improved hand hygiene has an impact for patient autonomy. Improved hand hygiene compliance would enable more patients, who are able and/or willing, to independently take care of their own dialysis treatment either at home or in Nephrology Clinic's Satellite Units (Taponen 2006. Personal communication.).

The authors of the Final Thesis worked in cooperation with Nephrology Clinic's Dialysis Training Ward. The ward is located in Surgical Hospital in Helsinki. Nephrology Clinic is part of Internal Medicine Division of Helsinki University City Hospital (HUCH).

2 BACKGROUND

During summer 2006 the authors of the Final Thesis worked as Practical Nurses in Dialysis Ward and Dialysis Training Ward respectively. The wards are located in the Nephrology Clinic of Helsinki University City Hospital's (HUCH) Surgical Hospital. It was from this work experience that the idea for the Final Thesis was born, specifically from conversations with Mrs Ros-Marie Taponen who is the Ward Sister at the Dialysis Training Ward. Mrs Taponen articulated that there has been much discourse between nurses on how patient's hand hygiene compliance could be improved. Additionally, one of the physicians working in the Nephrology Clinic had stated that the lack of hand hygiene was a barrier for hemodialysis patients to transfer from a nurse-controlled environment to the outpatient clinics, so-called Satellite units. (Taponen 2006. Personal communication.)

The aim of the Dialysis Training Ward is to encourage, educate and empower patients who are receiving hemodialysis treatment to participate in their own treatment process as independently as possible and according to their own mental and physical capabilities. Patient education provided at the Dialysis Training Ward includes educating the patient to independently build up their own dialysis machine as well as prepare all the other equipment required for their hemodialysis treatment. Patients who are willing and capable to perform their treatment semi-independently are transferred to HUCH Surgical Hospital's Nephrology Clinic's Satellite Units either in Malminkartano or Soura. Another option for patients, who are capable, willing and empowered to perform their hemodialysis treatment independently at home, is to transfer from the Dialysis Training Ward to the Home Hemodialysis Unit.

The topic *Patient Hand Hygiene Compliance in the Hemodialysis Environment* is related to theme of Health Promotion as defined by Helsinki Polytechnic Stadia's Final Thesis guidelines. This project has proceeded according to the rules set out in the *5-step Process of Final Thesis Construction* as recommended by faculty supervisors of Helsinki Polytechnic Stadia. From the evidence based findings of the Final Thesis an end product in the form of a poster was produced. Both the patients and staff at the Nephrology Clinic will benefit from the poster. Nephrology Clinic's nurses will benefit from the final product (Poster) as it is a supportive tool to assist in the education of hemodialysis patients regarding hand hygiene and can also be considered as a reminder for the nurses to give patient education. Patients will benefit from the final product (Poster) as it will call their attention and remind them about the importance of appropriate hand hygiene.

The Dialysis Training Ward has a patient capacity of 17 seats spread across one large room. When a new patient comes to the Dialysis Training Ward to start his or her hemodialysis treatment the patient is allocated a named nurse. The named nurse's responsibility is to tell the patient about hand hygiene practicalities as well as introduce the hand hygiene facilities used at the ward. The importance of hand hygiene is highlighted in patient education. However, an effective tool to refresh the hemodialysis patients' memory about the importance of hand hygiene and to increase patients to take responsibility for their hand hygiene is still required. The Dialysis Training Ward is open from Monday to Saturday offering both morning and evening

treatments. Patients wait in the lobby for their treatment to begin. Most of the patients arrive by pre-fixed taxi transportations; partly because of this most of the patients arrive to the lobby well in advance of their treatment shift. Entertainment for the patients in the form of magazines and newspapers are only available in the actual treatment room. Therefore, patients have plenty of time to discuss with each other and observe the lobby environment. The waiting time the patients experience in the lobby area was the reason for the decision to produce a visual presentation of the study as a poster. The poster can also be utilised in the actual treatment room. The poster is based on the evidence based findings of the Final Thesis. Furthermore, a poster is an economical tool for the ward to educate patients.

3 KEY CONCEPTS AND DEFINITIONS

3.1 Hand Hygiene (HH)

The first concept relevant to the topic of the Final Thesis is hand hygiene (hand washing). *Hygiene* is the science of health and its maintenance (Kozier et al. 2004: 1453). *Hand hygiene* is the single most effective method of preventing the spread of health care-associated infections, a practise that encompasses both traditional handcleaning with a soap-and-water wash as well as hand decontamination using a alcohol-based hand rub (McKinley et al. 2005: 368). Problems that can arise from a lack of hygiene adherence include “nosocomial infection” and “bacteremia”. *Nosocomial infection* is an infection associated with the delivery of health care services in a health care facility (Kozier et al. 2004: 1458). Nosocomial infection is an infection acquired in the hospital that was not present or incubating at the time of hospital admission (Smeltzer et al. 2004: 2115). *Bacteremia* is the laboratory-proven presence of viable bacteria in the bloodstream (Braun et al. 2003: 118, Smeltzer et al. 2004: 2115). Bacteremia is the most common infection-causing micro-organism (Kozier et al. 2004: 1445). HH is the most important measure in the prevention of cross-infection in the healthcare setting. Improving HH compliance of nursing staff has been substantially discussed. Variation in bloodstream infection rates among

dialysis facilities has been reported. This variation may be due to factors not amenable to change, e.g. severity of patient illness. However, the variation may also be caused by modifiable factors such as differences in the application of infection control precautions. (Tokars 2002: 714)

3.2 Hemodialysis (HD)

Another concept relevant to the topic of the Final Thesis is *hemodialysis*. Hemodialysis (HD) is a renal replacement therapy. The treatment process in HD consists of circulating the patient's blood through an artificial kidney, a dialyser, to remove waste products, such as potassium and urea, and excess fluids. (Smeltzer et al. 2004). HD treatment is usually required three times a week. One treatment session usually lasts for 4-5 hours.

The patients receiving HD treatment at Dialysis Training Ward are adults aged 18 years and over. Their life situations are very diverse. Some HD patients are involved with working life while others are retired or on disability pensions. Patients from ethnic minority backgrounds also constitute a share of the Dialysis Training Ward's patient diversity. The patient education of a new HD patient in the Dialysis Training Ward emphasizes on the importance of hand hygiene. The required treatment for HD patients is complex and multifaceted. Patients may not be always aware of the risks involved regarding their treatment process. HD treatment is usually performed in a hospital environment. Sources of contamination in a hospital environment include surfaces, other patients and staff members. Moreover, because kidney failure is a chronic disease, much of the responsibility for the day to day management of that disease necessarily falls to the patients themselves. Enabling patients to learn how to get better self-management abilities would enable them a great service. (Braun Curtin et al. 2004: 378-396)

3.3 Patient Education and Health Promotion

In the HD environment, patients require education about the risk involved from the lack of appropriate hand hygiene. Patients need to be motivated, reminded and supported, their attitudes and behaviours reassessed. Therefore, concepts relevant to the topic of the Final Thesis such as *Health Promotion* and *Patient Education* have an increasing significance to the work of nurses in today's healthcare environment, and especially in the HD setting. According to Kozier et al. (2004: 1453) *Health promotion* is any activity undertaken for the purpose of achieving a higher level of health and well-being. *Patient education* is the process of providing learning opportunities for patients and their families to increase knowledge of the disease, improve skills in assisting with treatment-related tasks and aid in the development of coping mechanisms (Wingard 2005: 211).

The sustainment of the patient to the learning process is imperative, it requires patient compliance and adherence. *Compliance* is the extent of which an individual's behaviour coincides with medical or health advice (Kozier et al. 2004: 1448). Similarly, *adherence* is also the extent to which an individual's behaviour coincides with medical or health advice; commitment or attachment to a regimen (Kozier et al. 2004: 1444) *Self-care management* encompasses compliance and adherence and advocates clients being partners in their treatment, having the knowledge and skills to care for themselves, making decisions about their care, identifying problems, setting goals, and monitoring and managing symptoms. (Ricard 2006: 387)

The nursing staff of Dialysis Training Ward would like to increase patients' self-care management skills by getting the patients to pay more attention to the significance and advantages of HH and asepsis. The recommended HH method in the HD environment is hand decontamination using an alcohol based hand rub. This should take place when the patient is coming or leaving the ward, after coughing or sneezing, before meals or eating, after using the toilet and before and after touching the fistula, graft or catheter entry point on the skin. As a result, a tool to remind the HD patients' about the importance of HH is required.

4 STUDIES OF HAND HYGIENE

4.1 Hand Hygiene (HH)

In general, there has been much research where the HH of patients has been investigated. However, there have only been a few studies that have focused on hand hygiene of HD patients. According to studies HH is the single most effective method of preventing the spread of health care-associated infections and patients should be given education in the importance of hygiene at the onset of hemodialysis (McKinley et al. 2005: 368, Taylor et al. 2004: 159). Study results indicate that the reasons for patients' poor HH at healthcare situations include lack of knowledge of importance. Patients whose HH is poor at home are less likely to change their HH practise in healthcare situations. Attachment to equipment that impedes movement and physical impairment caused inability to access HH facilities. Some patients may believe that if HH was necessary after certain activities, nursing staff would encourage patients to use HH facilities. (Ward 2003: 39-40, Whiller et al. 2000: 37-38, Banfield et al. 2005: 184) According to Ricard (2006: 391) even though patient education increased patients' knowledge, interaction between patients and nurses was necessary for patients to successfully implement vascular access cleansing. Patient's chronic adherence may be a sign of emotional or psychological problems or cognitive impairment (Breiterman White 2004: 433, Banfield et al. 2005: 187)

Strategies that could be used to increase patient awareness of the importance of HH include posters highlighting the importance of patient HH (Ward 2003: 41) Most research has focused on compliance and measuring biological outcomes determined by the professionals. Overall, studies have shown that patients are not consistently meeting the goals set by professionals. Patients find the complex treatment regimen problematic. Also, patients spend energy managing professionals and the health care system to meet their needs and obtain the best care. There is evidence the professionals can restrict or hinder patients' success with self-care management. Gaps identified include lack of standardized outcome measures for self-care management, lack of client's perspective about each aspect of the treatment regimen, lack of client's and professionals' understandings of each others' perspectives and lack of partnering

between clients and professionals to set and achieve treatment goals. (Ricard 2006: 392)

4.2 Repercussions from the Lack of Hand Hygiene

Patients with end-stage renal disease (ESRD) who require hemodialysis are at extremely high risk of *Staphylococcus Aureus* bacteremia (Safdar 2005: 512). In the area of HD paying attention to HH and asepsis is especially important since there is an open access to the blood circulatory system. Study findings highlight that 3 of every 10 patients undergoing HD who develop *Staphylococcus Aureus* bacteremia will also suffer further complications (Engemann et al. 2005: 539). *Staphylococcus Aureus* bacteria are easily transmitted from patient to patient on the hands of health care providers and the patients themselves. In addition to the substantial morbidity and mortality associated with *Staphylococcus Aureus* infection, the economic cost of *Staphylococcus Aureus* bacteremia in this population is striking. (Engemann et al. 2005: 534-539) According to Nissenson (2005: 301, 306) patients with ESRD and septicemia caused by *Staphylococcus Aureus* had costly and lengthy hospitalisations, which frequently were associated with clinically and economically important complications, including hospital readmissions. Methicillin resistant *Staphylococcus Aureus* (MRSA) is the leading pathogenic cause of nosocomial infections, especially in bacteraemia and sepsis. Sepsis is a complex infection-induced syndrome characterized by a number of signs and symptoms. Along a continuum of severity, the systemic inflammatory response to a non-specific insult may lead to a generalized coagulopathy and inflammatory reaction in organs remote from the initial insult and possibly to organ dysfunction and failure. (Braun et al. 2003: 117)

When patients require long-term vascular access for HD it is important to prevent bloodstream infections since patients, whose immune system is compromised, are at increased risk of developing sepsis. Bacterial infections through vascular access, for example peripheral cannulae, are also the major cause of morbidity of hemodialysis patients (Safdar 2005: 511, Alter et al. 2001: 537, Braun et al. 2003: 378-396, Arduino et al. 2005:48). Sepsis can result from an infection in various parts of the body and although a lay understanding of sepsis might include a reference to blood poisoning,

positive blood cultures are not needed to diagnose it. About 90 percent of the cases of sepsis are caused by gram-positive or gram-negative bacteria, but sepsis can also be caused by viruses or fungi. Infection is the major reason for patient to be admitted in hospital and some patients may develop infection while in hospital or outpatient clinic. Infections can be found in any system of the body. (Braun et al. 2003: 119, Arduino et al. 2005: 44-48)

Hepatitis B and C virus (HBV, HCV) infections are common in long-term hemodialysis patients. The usual mode of transmission is percutaneous transmission. Even a small amount of blood can transmit HBV or HCV infection from a person, who has HBV or HCV, to another person who has a fresh wound. HBV is relatively stable in the environment and has been found to remain viable for at least 7 days on environmental surfaces at room temperature. Environmental surfaces in dialysis facilities include scissors, doorknobs, counter tops, furniture, dialysis machine control knobs, walls and floor. HD patients acquire HBV infections through injections by contamination of the site of injection and contact between infective material and mucous membranes or nonintact skin. (Froio et al. 2003: 546, Alter et al. 2001: 537) Hemodialysis itself is a risk factor for HCV infection (Furysuo et al. 2004: 584). HCV infection is a risk for chronic liver disease, complications in renal transplantation, and even death (Froio et al. 2003: 547, 549).

5 THE PURPOSE AND RESEARCH QUESTIONS

The purpose of the Final Thesis is to (a) review patient hand hygiene in terms of the risks its lack entails and (b) based on the evidence based findings to design an end product as a poster. This can be utilised in the Nephrology Clinic's nursing environment to educate and motivate patients to pay specific attention to the importance of hand hygiene.

Research questions:

1. What are the health-related risks regarding the lack of hand hygiene compliance of adult patients in the hemodialysis environment?
2. What should be taken into consideration when patients are trained by nurses to implement appropriate hand hygiene?

6 METHODOLOGY

6.1 Systematic Literature Review and Data Search

The method used to collect evidence was a systematic literature review. Systematic literature has been established as the most reliable and valid means of summarising previous research findings (Kääriäinen et al. 2006: 37). A computer-aided search of Cumulative Index to Nursing & Allied Health Literature (CINAHL) electronic database was chosen to find out the most relevant scientific articles that can be used as sources for creating the content of the Final Thesis and the final product (Poster). CINAHL search was limited to years 2000-2007 to ensure the relevance of scientific articles.

During the first phase of the computer-aided systematic literature review of CINAHL the aim was to find out 1) scientific studies of the hand hygiene of (hemodialysis) patients, 2) the most common health-related risks, consequences and diseases as a result from the lack of hemodialysis patients' hand hygiene and 3) an effective tool to improve patients' to pay more attention to the importance of hand hygiene.

The preliminary search via CINAHL started with very general topics like "hemodialysis" and "infection" as subject headings. As further research was made, the subject headings expanded into asepsis, hygiene, mortality, patient compliance, handwashing, patient education, sepsis, hepatitis B virus (HBV), hepatitis C virus (HCV) and kidney diseases. Keywords "nosocomial" and "cost" were used in some of

the searches. “Nosocomial” as a subject heading was not possible to use; instead the program suggested alternative subject headings and the possibility to search “nosocomial” as a keyword. Out of the searches performed 40 searches were combined searches. In CINAHL search when the keyword “hand disinfection” is used the following page shows the different subheadings to which the term can be mapped. Handwashing is one of the selectable choices available. There is no hand hygiene as the select of the choice. Therefore searches related to hand hygiene the subject heading “handwashing” has been used.

By limiting the results of the subject heading searches between years 2000-2007 the results of the searches varied between 3 and 195 scientific articles with the average figure around 37. The irrelevant sources were then weeded out and 44 scientific articles were chosen on basis of 1) heading and 2) abstract. An electronic portfolio was created in Excel format and 34 PDF versions of the chosen scientific studies were saved there. 10 chosen studies were available only as paper copies at National Library of Health Sciences - Terkko. Studies in PDF format were printed out and studies available only as paper copies were retrieved from National Library of Health Sciences – Terkko.

The authors of the Final Thesis read critically and independently the 44 sources from the preliminary search and chose the irrelevant sources to be weeded out. Next, the individually chosen articles were jointly analysed. As a result, 13 scientific source documents were chosen (Appendix 1).

6.2 Inductive Content Analysis

According to Burns and Grove (2005: 627) qualitative research is oriented towards theory construction. The transformation process used during data analysis in qualitative research is based on inductive reasoning. Developing a qualitative research report requires transforming ideas across levels of abstraction. In the transformation of ideas literature is reviewed. Hence, ideas are organised from the review, and then those ideas are again modified in the process of developing a summary of the existing body of knowledge. LoBiondo-Wood and Haber (2006: 136) define inductive

approach as a logical thought process where the researcher uses an intensive approach to collect data. The reasoning moves from particular to general and conclusions are derived from specific observations. In inductive reasoning according to Kozier et al. (2004: 246) generalisations are formed from a set of factors or observations and when viewed together, certain bits of information suggest a particular interpretation.

Inductive content analysis was chosen since the aim of the Final Thesis is to extract the most important evidence based findings from the chosen scientific articles and to use this information to build the content of the patient education tool, the final product (Poster). The selected scientific source documents cover HH of patients receiving hemodialysis treatment, HH of patients in general, Staphylococcus Aureus and MRSA, sepsis, patient education and health promotion.

7 FINDINGS

Hemodialysis continues to be an important treatment option for individuals with end-stage renal disease (ESRD). It is the primary method of treatment for long-term renal failure, and a short-term measure until renal transplantation or peritoneal dialysis can be performed. The findings of this study have highlighted risks involved to patients receiving HD treatment. HD patients are at increased risk for infection and developing sepsis since their immune system has been disturbed. Susceptible infections include Respiratory Tract Infections (RTI), Human Immunodeficiency Virus (HIV), Hepatitis infections and Gastrointestinal (GI) tract infections. Additionally, infections related to genital and urethral areas and the dermis and cartilage are also represented (Meriö-Hietaniemi 2004).

The cornerstone for a successful HD treatment process is a functional vascular access. Vascular access can be used even on daily basis and it needs to remain functional for years or even decades. Therefore the requirements for a vascular access are abundant and involve various problematic issues. (Honkanen 2006. Internet document.) Evidence shows that there is a risk of infection from HD puncture site apparatus. For

example, an invasive vascular catheter such as peripheral cannulae is also the major risk factor for the development of HD-related bloodstream infection that can lead to sepsis (Alter et al. 2001: 537-585). Central venous catheters (CVCs) indicate highest risk for infection while arteriovenous (AV) catheters are the lowest risk for infection (Taylor et al. 2004: 155, 158, Tokars 2002: 714).

Hepatitis B and C virus infection transmission within the hemodialysis environment are of particular concern. For example, HCV increases the risk for chronic liver disease, complications in renal transplantation, and death. HBV and HCV infections are acquired through injections by contamination of the site of injection and between infective material and mucous membranes and nonintact skin. HBV and HCV transmission can be prevented by strict adherence to standard infection control measures. (Froio et al. 2003: 546-547, 549). Nurses should explain this percutaneous route of transmission to HD patients and the importance and of appropriate hand hygiene to reduce the risk for infections.

Evidence based studies suggest several risk factors, including patient-to-patient transmission between patients treated on the same shift. There are direct and indirect opportunities for person-to-person transmission of infectious agents. Environmental surfaces are a possible source of contamination. Transmissions within the HD environment can be prevented by strict adherence to standard infection control measures. (Froio et al. 2003: 549, Furusyo et al. 2004: 589). Hand hygiene is considered one of the most important elements of an infection control program and in preventing contact transmission (Alter et al. 2001: 538, McGuckin et al. 2004: 235) Evidence based studies also suggest that individual dialysis facilities play a role in the rate of infections among patients receiving HD treatment. According to Tokars (2002: 714) the variation in bloodstream infection rates among dialysis facilities may be due to differences in the application of infection control precautions. Barriers to adherence may differ from institution to institution, but a multifaceted, systems-based approach with strong institutional commitment has been shown to be effective for the prevention of intravascular device-related bloodstream infections (Safdar 2005: 512). Severity of patient illness or physical or cognitive impairment may also cause variation in the bloodstream infection rates among dialysis facilities (Tokars 2002: 714).

The patients receiving HD treatment at the Dialysis Training Ward are adults from different age groups. Their life situations and educational levels are very diverse and some of the patients have an ethnic minority background. According to Wingard (2005: 214) educational goals in patient education must be geared to the needs of the patient with an educational plan that accounts for the learning style of the patient and potential barriers to the educational process to achieve desired outcomes. Nurses' role is important for successful patient education and increasing patient hand hygiene compliance (Braun et al. 2003: 117-123). Nurses should be educated regularly of up-to-date evidence-based guidelines (Alter et al. 2001: 585) as their role is crucial to the success of increasing patient hand hygiene compliance and minimizing patients' risk of getting sepsis.

The basis for successful patient education and empowerment are patient's needs, goals, wishes and previous knowledge on the matter. The requirements for successful patient education include updated evidence based practise knowledge and experience from the nurse. When messages used for improvement of health promotion behaviour emphasise advantages and gains they are relevant. During the education session the patient should have an opportunity to ask questions. Studies indicate that positive feedback from the nurses is important for patients. (Richard 2006: 392, Jenner et al. 2004: 224, Lipponen 2006) It is important to take into consideration that permanent change is typically challenging and slow. Accordingly, setbacks may occur. According to Kozier et al. (2004: 180-181, 185) a person's decision to implement health behaviours or to take action to improve health depends on such factors as the importance of health to the person, severity of the health care problems, perceived benefits of preventive or therapeutic actions, inconvenience and unpleasantness involved, degree of lifestyle change necessary, cultural consequences growing out these actions and cost. Increased amount of complications among patients receiving HD treatment means impaired ability to self-care. It also has an impact to the number of hospital admissions and lengthy and costly hospitalisations. Good patient HH might have the potential to become an important infection control measure.

8 POSTERS AND MESSAGE FRAMING

The most usual strategy employed by infection control teams to promote hand hygiene is a poster campaign (Jenner et al. 2004: 77-78). According to McKinley et al. (2005: 372) posters appeared to be moderately successful when assessing effectiveness of a hand hygiene campaign. Based on the evidence based findings of the Final Thesis an end product in the form of a Poster was produced. The Poster is targeted to HD patients who are in the lobby waiting for their HD treatments to start. The Poster will be placed on the walls opposite to the waiting chairs from where it can be easily observed by the patients. The Poster can also be utilised in the treatment room. The aim of the Poster is to motivate and remind the HD patients about the importance of hand decontamination using an alcohol based hand rub in the HD environment.

It is important to define what a Poster is and how it can be used to promote hand hygiene compliance among HD patients. Additionally, what are the elements that make a successful Poster must be clarified. According to Webster's (1994: 1123) a poster is a placard or bill posted or intended for posting in a public place, as for advertising. Posters are, by their nature, intended to be a way of exposing people to a persuasive message with the intention of bringing about change in attitudes and/or behaviour (Jenner et al. 2004: 79).

The challenge with designing a Poster is how to get the message across to the target audience. From the literature review a few interesting theories were discovered that have significance to Poster design and framing the message content. One such theory is the Protection Motivation Theory; this theory argues that any information about a health threat initiates two cognitive processes: threat appraisal and coping appraisal. People will only respond appropriately to a health threat if they perceive themselves to be at risk and the behaviour to be efficacious (Jenner et al. 2004: 80). Message Framing was another theory that was highlighted in the literature review and according to Jenner et al. (2004: 80) it is a crucial factor in influencing health-related decisions. The basic principle is that messages are framed to the intended target audience in terms of losses (loss-framed message) or gains (gain-framed message).

The message can withhold threats or fear appeals. The aim is to target individual's sense of personal responsibility and attitudes.

Current theory suggests that the most effective messages for health promotion behaviours should be framed in terms of gains rather than losses for the individual. Messages should also invoke a sense of personal responsibility and appeal to altruistic behaviour. (Jenner et al. 2004: 76)

The amount of text to in the Poster is limited. Many patients on chronic HD suffer from chronic eye disease, such as diabetic retinopathy and glaucoma, and the interaction of these diseases with the dialysis procedure can lead to worsening of vision (Evans et al. 2005: 252).

8.1 Developing the Poster

After an extended brain storming session between the authors of the Final Thesis, a basic core idea for the poster (Appendix 2) was developed. As the subject matter covers the importance of HH, it was agreed that the visual imagery in the poster should have a connection to hands without out rightly trying to state the obvious. Therefore, the image of a hand-print adorning the centre of the poster frame with supporting text would be a clear but still abstract enough to arouse the interest of our target audience.



Figure 1: A hand-print as the basic poster image

The visual message of the hand-print works on two levels. Firstly, the inner surface of an outstretched hand is commanding one to stop and to pay attention. Secondly, the hand-print signifies that we always leave a mark behind whether we realise it or not. We want our target audience to stop and consider their actions and, significantly, to pay attention to their hand hygiene by using alcohol based hand rub in the hemodialysis setting.

The hand-print would be pressed in black colour, but additionally, this poster could be developed so that some of the versions of the hand-print would be in other colours such as red and yellow. This would enhance the diversity of our message, different hands, different people but the same mark, the same consequence.

Academic nursing research guidelines, especially Burns and Grove (2005: 604), recommend that there should not be too much text used in the poster. Additionally, some of the HD patients have impaired or degraded vision and therefore having large amounts of small text on the poster would make it very difficult for them to read it.

The final poster will be printed A1 (594 x 841mm) size. Larger poster sizes than the above mentioned are not recommendable as there is only limited wall space available in the lobby area of Dialysis Training Ward. Additionally, the Poster can be utilised also in the actual treatment room. However, the environment of the Nephrology Clinic's Dialysis Training Ward is very unique, the room is divided by big curvy pillars and placing very large poster here would inhibit the tranquil atmosphere of the room.

9 ETHICAL CONSIDERATIONS AND FITTINGNESS

9.1 Ethical Considerations

The ethical considerations regarding this project were related to patient privacy and patients' rights. Firstly, there were no financial costs for the patients. Secondly,

confidentiality was guaranteed, as there was no requirement to access patient records or interview patients. The purpose of the end-product was to be an additional and supportive tool for patient education. Hence, the goal was to maintain patients' dignity and not to blame patients, or nurses who educate patients, for the lack of patient's hand hygiene compliance. Permission for this research project was granted by Elli Löflund, the Director of Nursing at the Nephrology Clinic of HUCH Surgical Hospital.

The reliability of the Final Thesis references can be guaranteed as all sources are marked with authors name(s), publication year and page number(s). If required, it will be straightforward to scrutinise the sources. The selected 13 articles do not reveal any detailed personal information like patients' gender, ethnical background or age.

9.2 Relevance to Clinical Practise

In the literature fittingness is defined as *criteria for judging the scientific rigor of qualitative research study* (LoBiondo-Wood and Haber 2006). The authors of the Final Thesis have been working with patients receiving hemodialysis treatment. However, this did not prejudice their research. The relevance to evidence based practice was authenticated by using the *Cumulative Index to Nursing & Allied Health Literature (CINAHL)* electronic database. The relevance of scientific articles chosen for the content analysis was confirmed by limiting the search between years 2000-2007.

Cooperation between Final Thesis authors and working life as recommended by Helsinki Polytechnic Stadia was implemented by signing a written agreement, *vakiosopimus* (Appendix 3), with Helsinki University City Hospital (HUCH) Surgical Hospital's Nephrology Clinic. Based on the evidence based results of the Final Thesis, a poster for educative purposes was produced for Nephrology Clinic's Dialysis Training Ward. Qualitative research posters are becoming more prevalent as the number of qualitative studies increases (Burns and Grove 2005: 604). Poster as the end product offers a modern and efficient tool for the nurses to educate their patients

about the importance and advantages of appropriate hand hygiene. Additionally the poster can be used in other dialysis wards too.

The limitations of this study are following: Firstly, there is not much available information regarding specifically HD patients' hand hygiene compliance. Secondly, this is only a literature review. Therefore, a field study would certainly bring more evidence based information to this subject matter. Thirdly, the selected scientific studies are from Western Europe and North America. Scientific studies from other continents and cultural contexts could have revealed additional valuable dimensions or perspectives to the Final Thesis. Fourthly, the scientific articles were all in English. Articles in other languages might have given additional information and/or other points of view to the Final Thesis.

10 CONCLUSIONS

So far only few studies have focused on the hand hygiene of hemodialysis patients. At first glance of the hospital chain of infections, the role of patients' hands may even seem lesser important compared with that of healthcare workers' hands. However, the amount of new HD patients and peritoneal dialysis patients in Finland has increased over the past 10 years. In the beginning of 2006 there were 1 442 patients who received either HD treatment or peritoneal treatment. The volume of patients requiring especially HD treatment is estimated to increase with an aging population and the growing magnitude of Diabetes Mellitus type II disorder. (Metsärinne 2006: 1713-1714).

In the future, increased amount of patients receiving HD treatment means an increased challenge for patient education. The responsibility will be especially on HD nurses when they try to educate bring about changes in attitudes and behaviours regarding patients' appropriate hand hygiene skills. In addition to the Poster, concrete implementations are required at the ward. Hand detergents have to be easily accessible for all HD patients during all stages of their HD treatment sessions. During a

treatment session a HD patient is connected with tubes to a hemodialysis machine. Therefore, the area in which the patient can move around is limited. Refreshments are served during the HD session. Hand detergent should also be used before eating.

The authors of the Final Thesis suggest a study about HD patient's perception of their own hand hygiene and their practical skills performance in the HD environment. This kind of study might produce more evidence based theoretical knowledge and help to determine more precisely the challenges and gaps in HD patients' hand hygiene. However, multiple and important ethical issues might arise with this type of study. Field studies, especially, require professional and discrete research.

REFERENCES

- Alter M.J. and Tokars J.I. (2001) Preventing transmission of infections among chronic hemodialysis patients, *Nephrology Nursing Journal*, 28(5), 537-543
- Arduino M.J., Tokars J.I. (2005) Why is an infection control program needed in the hemodialysis setting? *Nephrology News & Issues*, 19(7), 44, 46-49
- d'Agata E.M.C, Mount D.B., Thayer V, and Schaffner V. (2000) Hospital-acquired infections among chronic hemodialysis patients. *American Journal of Kidney Diseases*, 35(6), 1083-1088
- Engemann J.J., Friedman J.Y., Reed S.D., Griffiths R.I., Szczech L.A., Kaye K.S., Stryjewski M.E., Reller L.B., Schulman K.A., Corey G.R. and Fowler V.G. Jr. (2005) Clinical outcomes and costs due to *Staphylococcus aureus* bacteremia among patients receiving long-term hemodialysis. *Infection Control and Hospital Epidemiology*, 26(6), 534-539
- Banfield K.R. and Kerr K.G. (2005) Could hospital patients' hands constitute a missing link? *Journal of Hospital Infection*, 61(3), 183-188
- Braun L., Cooper L.M., Malatestinic W.N. and Huggins R.M. (2003) A sepsis review: epidemiology, economics, and disease characteristics. *DCCN: Dimensions of Critical Care Nursing*, 22(3), 117-124
- Braun Curtin R., Bultman Sitter D.C., Schatell D. and Chewning B. (2004) Self-Management, Knowledge, and Functioning and Well-Being of Patients on Hemodialysis. *Nephrology Nursing Journal*, 31(4), 378-396
- Breiterman White R. (2004) Adherence to the Dialysis Prescription: Partnering with Patients for Improved Outcomes. *Nephrology Nursing Journal*, 31(4), 432-435
- Burns N. and Grove S.K. (2005) *The Practice of Nursing Research Conduct, Critique, and Utilization*. Fifth edition. USA: Elsevier Saunders
- Evans R. and Rosner M. (2005) Ocular Abnormalities Associated with Advanced Kidney Disease and Hemodialysis. *Seminars in Dialysis*, 18(3), 252-256
- Froio N., Nicastrì E., Comandini U.V., Cherubini C., Felicioni R., Solmone M., Di Giulio S. and Petrosillo N. (2003) Contamination by hepatitis B and C viruses in the dialysis setting. *American Journal of Kidney Diseases*, 42(3), 546-550
- Fry S.T. and Johnstone M-J (2002) *Ethics in Nursing Practise. A Guide to Ethical Decision Making*. Second edition. USA: Blackwell Publishing
- Furusyo N., Kubo N., Nakashima H., Kashiwagi K., Etoh Y. and Hayashi J. (2004) Confirmation of nosocomial hepatitis C virus infection in a hemodialysis unit. *Infection Control and Hospital Epidemiology*, 25(7), 584-290

- Himmelfarb J. (2005) Core Curriculum in Nephrology: Hemodialysis Complications. *American Journal of Kidney Diseases*, 45(6), 1122-1131
- Jenner E.A., Jones F., Fletcher B., Miller L. and Scott G.M. (2005) Hand hygiene posters: selling the message. *Journal of Hospital Infection*, 59(2), 77-82
- Kozier B., Erb G., Berman A. and Snyder S. (2004) *Fundamentals of Nursing: Concepts, Process, and Practise*. Seventh edition. USA: Prentice Hall
- Kääriäinen M. and Lahtinen M. (2006) Systemaattinen kirjallisuuskatsaus tutkimustiedon jäsentäjänä. *Hoitotiede* 18 (1), 37-45
- Lipponen K. (2006) *Asiakaslähtöisyys potilasohjauksessa*. Presentation on March 26, 2006 in Sairaanhoidajapäivät in Helsinki.
- LoBiondo-Wood G. and Haber J. (2006) *Nursing Research Methods and Critical Appraisal for Evidence-Based Practice*. Sixth edition. USA: MosbyElsevier
- McGuckin M., Taylor A., Martin V., Porten L. and Salcido R. (2004) Evaluation of a patient education model for increasing hand hygiene compliance in an inpatient rehabilitation unit. *American Journal of Infection Control*, 32(4), 235-238
- McKinley T., Gillespie W., Krauss J., Harrison S., Medeiros R., Hawkins M., Maclean R. and Woeltje K. (2005) Focus group data as a tool in assessing effectiveness of a hand hygiene campaign. *American Journal of Infection Control*, 33(6), 368-373
- Meriö-Hietaniemi I. (2004) *Munuaispotilaan infekti-ongelmista ja niiden ehkäisystä*. Summary of presentation on November 11, 2004 in HUS.
- Metsärinne K. (2006) *Dialyysipotilas tänään*. *Lääkärilehti*, 61(15-16), 1713-1715
- Nissenson A.R., Dylan M.L., Griffiths R., Hsing-Ting Y., Dean B.B., Danese M.D. and Dubois R.W. (2005) Clinical and Economic Outcomes of Staphylococcus aureus Septicemia in ESRD Patients Receiving Hemodialysis. *American Journal of Kidney Diseases*, 46(2), 301-308
- Ricard C.J. (2006) Self-care management in adults undergoing hemodialysis. *Nephrology Nursing Journal*, 33(4), 387-396
- Safdar N. (2005) Bloodstream infection: an ounce of prevention is a ton of work. *Infection Control and Hospital Epidemiology*, 26(6), 511-514
- Smeltzer S.C. and Bare B.G. (2004) *Brunner & Suddarth's Textbook of Medical-Surgical Nursing*. Tenth edition. USA: Lippincott Williams & Williams
- Taponen Ros-Marie, Ward Sister, HUCH Surgical Hospital, Division of Internal Medicine, Nephrology Clinic, Dialysis Training Ward. Personal communication. 16-17 and 23 October 2006.

- Taylor G., Gravel D., Johnston L., Embil J., Holton D. and Paton S. (2002) Prospective surveillance for primary bloodstream infections occurring in Canadian hemodialysis units. *Infection Control and Hospital Epidemiology*, 23(12), 716-720
- Taylor G., Gravel D., Johnston L., Embil J., Holton D. and Paton S. (2004) Incidence of bloodstream infection in multicenter inception cohorts of hemodialysis patients. *American Journal of Infection Control*, 32(3), 155-160
- Ward D. (2003) Improving patient hand hygiene. *Nursing Standard*, 17(35), 39-42
- Webster's Encyclopedic Unabridged Dictionary of the English Language* (1994) Deluxe Edition. New Jersey: Gramercy Books
- Whiller J. and Cooper T. (2000) Clean hands: how to encourage good hygiene by patients. *Nursing Times*, 96(46), 37-38
- Wingard R. (2005) Patient Education and the Nursing Process: Meeting the Patient's Needs. *Nephrology Nursing Journal*, 32(2), 211-215

Internet links:

- Honkanen E. (2006) Hemodialyysin veritiet. Internet document.
http://www.musili.fi/document.php?DOC_ID=97#Hemodialyysin_veritiet.pdf
Read 10 September, 2007

Appendix 1

Authors: Study (Year/Country)	Purpose of the Study	Method of the Study	Participants of the Study	Findings of the Study
Alter M.J. and Tokars J.I.: Preventing transmission of infections among chronic hemodialysis patients. <i>Nephrology Nursing Journal</i> 28(5), pp 537-543, 585. (2001/USA)	To provide information on the frequency of and risk factors for bloodstream and vascular access infections in order to formulate and evaluate strategies for control.	Literature review	Chronic Hemodialysis Patients	Hemodialysis patients have a vascular access and their immune response is inadequate. Immunosuppression increases the patients susceptibility to infections. Accordingly, increased attention to asepsis in the form of hand hygiene is required. Training and education is recommended both staff and patients and it should be appropriate to the cognitive level of the staff member, patient or family member, and rationales provided for appropriate infection control behaviors and techniques, since this will make compliance more likely.
Arduino M.J. and Tokars J.I.: Why is an infection control program needed in the hemodialysis setting? <i>Nephrology News & Issues</i> 19(7), pp 44, 46-9. (2005/USA)	To highlight the bacterial infections found among hemodialysis patients.	Literature review	Chronic Hemodialysis Patients	Hemodialysis patients have a vascular access and they are immunosuppressed. This increases their susceptibility to infections. Accordingly, increased attention to asepsis in the form of hand hygiene is required.
D'Agata E.M.C., Mount D.B., Thayer V. and Schaffner W.: Hospital-acquired infections among chronic hemodialysis patients. <i>American Journal of Kidney Diseases</i> 35(6), pp1083-1088. (2000/USA)	To determine the incidence of nosocomial infections and survey the causative pathogens.	30-month prospective surveillance study during July 1, 1995 through December 31, 1997	68,361 patients admissions in Vanderbilt Medical Center in Nashville, Tennessee, USA. Of these, 365 patients required chronic hemodialysis during 578 admissions	Nosocomial infections were significantly more frequent among patients undergoing hemodialysis. Nosocomial infections in population getting hemodialysis treatment may be associated with greater rates of morbidity and mortality. Accordingly, nosocomial infections contribute directly to a substantial number of hospital deaths and extra hospital days.
Banfield K.R. and Kerr K.G.: Could hospital patients' hands constitute a missing link? <i>Journal of Hospital Infection</i> . 61(3), pp 183-188. (2005/United Kingdom)	To look at patients' role in the transmission of healthcare-associated infection.	Literature review	Hospital patients	The role of patient's hands in the transmission of healthcare-associated infection has not been as important as the healthcare professionals hands. Studies have highlighted differences between knowledge of the importance of handwashing and actual hand hygiene behaviour.
Braun Curtin, R: Self-Management, Knowledge, and Functioning and Well-Being of Patients on Hemodialysis. <i>Nephrology Nursing Journal</i> 31(4), p 378 (2004/USA)	To describe the association between hemodialysis patient self-management behaviors and functioning and well-being.	Cross-sectional study	372 patients on hemodialysis from 17 dialysis facilities. 53,4 % of the participants were male.	Patient education has the potential to affect patient outcomes. Much of the responsibility for the daily management falls to the patients themselves.
Briterman White R: Adherence to the dialysis prescription: partnering with patients for improved outcomes. <i>Nephrology Nursing Journal</i> 31(4), pp 432-435. (2004/USA)	To examine current data on the status of nonadherence among dialysis patients, the reasons for it and interventions that might help improve and optimise adherence.	Literature review/Case Study	ESDR patients: 64-year-old patient	There is a widespread nature of nonadherence among dialysis patients. A combination approach that includes removal of barriers to adherence, education, and cognitive behavioral strategies may provide the best opportunity to improve compliance. Permanent change in the patient's health related behaviour is typically not quick or easy and setbacks may occur.

Appendix 1

Authors: Study (Year/Country)	Purpose of the Study	Method of the Study	Participants of the Study	Findings of the Study
Engemann J.J., Friedman J.Y., Reed S.D., Griffiths R.I., Szczech L.A., Kaye K.S., Stryjewski M.E., Reller L.B., Schulman K.A., Corey G.R. and Fowler V.G. Jr.: Clinical outcomes and costs due to Staphylococcus aureus bacteremia among patients receiving long-term hemodialysis. <i>Infection Control and Hospital Epidemiology</i> . 26(6), pp 534-539. (2005/USA)	To examine the clinical outcomes and costs associated with Staphylococcus aureus bacteremia among hemodialysis-dependant patients.	Prospective identified cohort study	210 hemodialysis-dependant adults with ESRD and hospitalised with S.aureus bacteremia	Hemodialysis patients have an open vasculatory access. Staphylococcus Aureus bacteria are easily transmitted from patient to patient on the hands of health care providers and the patients themselves. Accordingly, the emphasis of patient education in the hospital environment should be on minimising the risk of bloodborne infections by good hand hygiene. The economic cost from infection is high. Potential interventions to decrease rates of infection include vaccinations and nasal decolonisation.
McKinley T., Gillespie W., Krauss J., Harrison S., Medeiros R., Hawkins M., Maclean R. and Woeltje K.F.: Focus group data as a tool in assessing effectiveness of a hand hygiene campaign. <i>American Journal of Infection Control</i> 33(6), pp 368-373. (2005/USA)	To implement a hand hygiene program in an academic medical center, utilising visual cues developed with periodic input from hospital personnel.	Qualitative data collection	5 hospital units	Hand hygiene is the single most effective method of preventing the spread of health care-associated infections. The impact of hand hygiene posters appeared to be moderately successful in achieving their objective. To be more relevant to the target group the poster should have more human qualities in it.
Nissenson A.R., Dylan M.L., Griffiths R.I., Yu H., Dean B.B., Danese M.D. and Dubois R.W.: Clinical and economic outcomes of Staphylococcus aureus septicemia in ESRD patients receiving hemodialysis. <i>American Journal of Kidney Diseases</i> 46(2), pp 301-308. (2005/USA)	To identify clinical and economic consequences of hospitalisations with a diagnosis of septicemia caused by S.aureus in hemodialysis patients with ESRD	Retrospective analysis	11,572 patient admissions with septicemia caused by S.aureus	Complications are common in patients with bacteremia caused by S.aureus, occurring in 3% to 45 % of all cases. Accordingly, hemodialysis patients have an open vasculatory access. By paying attention to patients' good hand hygiene compliance both complications, hospitalisations and costs could be decreased. This is beneficial both to the patient and to the society.
Ricard, C.J.: Self-care management in adults undergoing hemodialysis. <i>Nephrology Nursing Journal</i> 33(4), pp 387-96. (2006/USA)	To describe and identify self-care management issues among ESRD patient undergoing hemodialysis	Literature review	Adults with ESRD under hemodialysis treatment.	Patients are not consistently meeting the goals set by healthcare professionals. Also client's perspective towards the patient education should be included when designing a health promotion agenda. Nurses can promote patients' success in achieving advantageous hand hygiene practise.
Taylor G., Gravel D., Johnston L., Embil J., Holton D. and Paton S.: Incidence of bloodstream infection in multicenter inception cohorts of hemodialysis patients. <i>American Journal of Infection Control</i> 32(3), pp 155-160. (2004/Canada)	To assess incidence of and identify risk factors for bloodstream infection in patients starting hemodialysis or starting a new means of vascular access for hemodialysis.	Cohort study and a case-control study	527 patients who underwent 31,268 hemodialysis procedures during a 6-month follow-up during December 1998 to May 1999. 186 patients enrolled in the case-control study.	Central venous catheters (CVCs) indicate highest risk for infection. Hand hygiene is crucial when preventing vascular access related infections. Patients should be given education by nurses to achieve a higher level of hand hygiene and to prevent bloodborne infections.
Ward, D.: Improving patient hand hygiene. <i>Nursing Standard</i> 14-20, pp 17(35): 39-42. (2003/United Kingdom)	To outline strategies to empower patients to improve their hand hygiene	Literature review	Patients	Only few studies have investigated patient hand hygiene. Patient's perspective should be more emphasised in the content of patient education. It is essential to take patient's motivation into consideration that the knowledge is adequate.
Whiller J. and Cooper T.: Clean hands: how to encourage good hygiene by patients. <i>Nursing Times</i> 96(46), pp 37-38. (2000/United Kingdom)	To identify whether the clients on the ward were being offered hand-cleansing facilities after using the commode.	Qualitative data collection	20 hospitalised patients at one ward	The role of nurses is essential when educating patients about the importance of hand hygiene. Staff should be encouraged and supported to investigate infection control issues at clinical level.

HYVÄ KÄSIHYGIENIA ON HEMODIALYYSIPOTILAAN ETU TUTKIMUSNÄYTÖN MUKAAN



Hemodialyysihoito alentaa vastustuskykyä jonka vuoksi mahdollisuus saada infektio tai verenmyrkytys kasvaa.

Veritien pistospaikka mahdollistaa veren välityksellä tarttuvien tautien pääsyn elimistöön. Näitä tauteja ovat muun muassa hepatiitti B tai C-infektio tai MRSA sairaalabakteeri. Seurauksena saattaa olla esimerkiksi krooninen maksasairaus, munuaissiirron jälkeiset komplikaatiot tai pahimmassa tapauksessa kuolema.

Sepsis



Mahdollisia tartunnanlähteitä ovat ympäristön pinnat kuten pöydät, tuolien käsinojat, dialyysikoneen säätönappulat, ovenkahvat jne.

Tartuntariskiä voidaan pienentää hyvän käsihygienian avulla. Hyvä käsihygienia edellyttää käsihuuhteen käyttöä. Vältä fistelin koskettelua ja käytä käsihuuhdetta muun muassa ennen ruokailua, kun tulet osastolle ja kun poistut osastolta sekä WC-käynnin yhteydessä.



STADIA

HELSINGIN AMMATTIKORKEAKOULU

PHOTO: J. HALL, 1999
Dustin Prokopiec is Working
Saverio De Seta Korman
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August 2011

HYVÄ KÄSIHYGIENIA ON HEMODIALYYSIPOTILAAN ETU TUTKIMUSNÄYTÖN MUKAAN

Hemodialyysihoito alentaa vastustuskykyä jonka vuoksi mahdollisuus saada infektio tai verenmyrkytys kasvaa.

MRSA

Veritien pistospaikka mahdollistaa veren välityksellä tarttuvien tautien pääsyn elimistöön. Näitä tauteja ovat muun muassa hepatiitti B tai C -infektio tai MRSA sairaalabakteeri. Seurauksena saattaa olla esimerkiksi krooninen maksasairaus, munuaissiirron jälkeiset komplikaatiot tai pahimmassa tapauksessa kuolema.

Sepsis

Hepatiitti B

Mahdollisia tartunnanlähteitä ovat ympäristön pinnat kuten pöydät, tuolien käsinojat, dialyysikoneen säätönappulat, ovenkahvat jne.

Tartuntariskiä voidaan pienentää hyvän käsihygienian avulla. Hyvä käsihygienia edellyttää käsihuuhteen käyttöä. Vältä fistelin koskettelua ja käytä käsihuuhdetta muun muassa ennen ruokailua, kun tulet osastolle ja kun poistut osastolta sekä WC-käynnin yhteydessä.

Hepatiitti C

STADIA

HELSINGIN AMMATTIKORKEAKOULU