Research proposal outlining the design of a qualitative study using semi-structured interviews

What do nurses at Kingston hospital think about current hand hygiene guidelines and their implementation within their clinical setting?

Hospital acquired infection damages patients, prolongs their length of stay and is costly, and therefore presents a major problem (Emmerson et al., 1996, as cited in Handwashing Liaison Group, 1999). A key way to prevent these problems is through hand washing which is a core aspect of infection control policy within hospitals, yet evidence shows that many healthcare workers do not wash their hands as often as they should (Emmerson et al., 1996, as cited in Kerr, 1998). This research aims to look at the nurses’ opinion from Kingston Hospital regarding current guidelines and policies, the barriers to implementation and why some professionals follow the guidelines whilst others do not. Nurses were chosen to interview as there are specific guidelines in place for these professionals (see appendix 1) and they have more contact with patients than other health care professionals, thus are more likely to be in contact with hospital acquired infections. Kingston Hospital was chosen as in the summer of 2003 an audit of hand hygiene compliance was carried out by the Infection Control Nurses which showed a poor compliance level of 37% (Gear, 2003/2004). Therefore this research also aims to find out why the compliance levels are at this rate from the point of view of the nurses. Kingston Hospital will benefit from this research, as hopefully it will emphasise the need for improvement to their current infection control policies and aims to answers why some professionals follow the guidelines more closely than others. In addition the nurses will benefit by having their current views regarding hand washing questioned, and this will inevitably affect the patients who come into contact with the hospital and these staff.

To carry out the research questions and gain the greatest amount of data the most appropriate approach and methodology to use needed to be identified. Qualitative as opposed to quantitative research will be used as it examines the personal meanings of individuals’ experiences and action (Polgar & Thomas, 2000). This is the most appropriate methodology as it is more concerned with personal meaning, occurs in a natural setting as well as being descriptive, which will provide more in-depth results. A non-experimental strategy will be used as this means the researcher will have “no active intervention in the situation” (Polgar & Thomas, 2000, p. 27). One of the disadvantages of strategy is that due to the detailed observations needed, the
researcher being present could alter the behaviours of the participants being observed. One way to overcome this problem is by using more subtle measures of observation, for example, not using a video recorder which is intrusive. Using observations are well as interviews will prove a more detailed portrait of the nurses in their natural setting. A complete observer who is also an outside will be used who will also be unaided. Important aspects of qualitative field research include detailed descriptions of what is said (through field notes), interaction with others and non-verbal communication (Polgar & Thomas, 2000). There are various approaches to qualitative field research and deciding which approach to use depends on the nature of the problem and what is already know about the phenomenon being researched (Morse & Field, 1995). A phenomenological approach will be used as it links closely to the principles of qualitative methodology, phenomenology “explores the meaning of individual lived experiences” (Rossman & Rallis, 2003, p. 97).

Semi-structured questions will be used in the interviews (see appendix 2) as they will provide the interviewer and the interviewee with some format and will help direct the responses; however there is room for the participant to elaborate. The interviewer can clarify responses and the interviewee can clarify questions, which is not possible with a questionnaire or a very structured interview. However, semi-structured are more time consuming not only in carrying out the interview, but also in analysing it. These interviews will be carried out on a one-to-one bases rather than a small group. Even though focus groups may provide greater interaction and discussion between nurses regarding hand hygiene issues, a focus group could sway the results and create a bias, as other’s responses could be easily imposed. Also a nurse may wish to discuss others within their interview and may feel uncomfortable doing this in front of other colleagues. One-to-one face-to-face interviews will also be used as opposed to the interviews being carried out over the phone, for example, as non-verbal communication can be observed and a closer rapport can be developed. Even though this method will be more costly, richer information should be achieved as lots of information can be gained non-verbally.

Creswell (1998) recommends long interviews with up to ten people for a phenomenological study therefore a sample size of ten nurses will be selected. In order to select the appropriate participants a random sampling method will be used, where all the nurses have an equal chance of being selected. This will be more likely to be representative of the nursing population at Kingston Hospital than an incidental sample, as it is possible to approximate how representative the sample is as the size
and population of the sample is known (Polgar & Thomas, 2000). To get participants posters and emails will be used to advertise the study. These will state the main research title and some of the research questions as well as ensuring the nurses their information will be kept confidential. To encourage responses a small incentive of free refreshments during the interview will be offered. From the nurses who respond a random method such as a random number table will be used to select the ten final participants. Once the ten participants have been selected they will be sent via post or email more details, including information about the risks and benefits, and a letter asking for their informed consent which they will need to sign and send back. They will also be aware that they can drop out until the data begins to be analysed and if they do none of their information will be used.

Audio taping will be used during interviews to help prepare transcripts which will mean the interview will be accessible to independent analysis. One problem with audio taping is that it is quite invasive which may put some participants off; it is also quite costly, although both these issues are less than video recording. To ensure confidentiality, these recordings will need to be kept in a secure place and only listened to in private. From the transcripts a thematic approach will be used to analyse the data, where the initial themes will be identified which will build up a framework as the themes are organised into broader categories. The data will then be labelled in reference to the themes and categories then similar content is placed together and a thematic matrix is created. Categories are refined with elements and dimensions being defined. The final process is searching through each category to look for links (Ritchie et al., 2003).

To ensure confidentiality throughout the process the nurses will be identified through numbers, nothing they discuss will be told to anyone other than the researcher and the interview will take place in a private quiet room away from any other professionals but still within the hospital setting. Once the data has been collected from the interview it will be transferred on to a computer and immediately the data will become confidential by using numbers to identify each individual, as well as all the documents being password protected.

There are many ethical issues that need to be taken into consideration including informed consent, the welfare, protection and privacy of the participants. As stated before all participants need to give informed consent before completing the research. Although this research will not have any intervention that appears to impact the
nurses directly, the research needs to be prepared for any emotional consequences such as anxiety or distress; therefore counselling services should be available if necessary. Another ethical consideration in interview studies is that the aspects of good interviewing such as building trust and rapport might be the factors that make it hard for participants to refuse or to withdraw (Green & Thorogood, 2004).

The main economic issues that need to be considered are time in terms of the interview, as well as the availability of the nurses. The research needs to be carried out at an appropriate time for each nurse; therefore they may need to be conducted over a small series of time. Possible problems also need to be taken into consideration when planning the interview as well as carrying out all the other aspects of the research such as coding and analysis. Also the cost of incentives needs to be calculated and taken into consideration.

To ensure rigour in the qualitative research there are a variety of aspects which can be used. Within this research these will be member checking, reflective journals and identification of possible bias throughout the process. Member checking will be carried out through all stages, including at the end of the interviews, informal conversations with participants and asking for any written or oral commentary and before the submission of a final report or publications. Reflective journals will be completed through the process and through all aspects ensure possible bias are identified and clearly documented.

All the components mentioned above are vital to ensure valid and reliable findings. It is hoped that sound results will be gained and clear analysis found, which can be published and used as a reference for others, but primarily impacting the current policies and guidelines at Kingston hospital and the practice of nurses to improve patient well-being.
Appendix 1
National Institute for Clinical Excellence Infection Control - Prevention of healthcare-associated infection in primary and community care
Clinical Guideline 2, June 2003
Developed by Thames Valley University under the auspices of the National Collaborating Centre for Nursing and Supportive Care.

1.1.1 General recommendations
1.1.1.1 Everyone involved in providing care in the community should be educated about standard principles and trained in hand decontamination, the use of protective clothing and the safe disposal of sharps. D

1.1.1.2 Adequate supplies of liquid soap, hand rub, towels and sharps containers should be made available wherever care is delivered. D

1.1.2 Hand hygiene

1.1.2.1 Hands must be decontaminated immediately before each and every episode of direct patient contact or care and after any activity or contact that could potentially result in hands becoming contaminated. B

1.1.2.2 Hands that are visibly soiled, or potentially grossly contaminated with dirt or organic material, must be washed with liquid soap and water. A

1.1.2.3 Hands must be decontaminated, preferably with an alcohol-based hand rub unless hands are visibly soiled, between caring for different patients and between different care activities for the same patient. A

1.1.2.4 Before regular hand decontamination begins, all wrist and ideally hand jewellery should be removed. Cuts and abrasions must be covered with waterproof dressings. Fingernails should be kept short, clean and free from nail polish. D

1.1.2.5 An effective hand washing technique involves three stages: preparation, washing and rinsing, and drying. Preparation requires wetting hands under tepid running water before applying liquid soap or an antimicrobial preparation. The hand wash solution must come into contact with all of the surfaces of the hand. The hands
must be rubbed together vigorously for a minimum of 10–15 seconds, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers. Hands should be rinsed thoroughly before drying with good quality paper towels. D

1.1.2.6 When decontaminating hands using an alcohol hand rub, hands should be free from dirt and organic material. The hand rub solution must come into contact with all surfaces of the hand. The hands must be rubbed together vigorously, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers, until the solution has evaporated and the hands are dry. D

1.1.2.7 An emollient hand cream should be applied regularly to protect skin from the drying effects of regular hand decontamination. If a particular soap, anti microbial hand wash or alcohol product causes skin irritation an occupational health team should be consulted. D

**Appendix 2: Interview Questions**

1) How many times a day do you wash your hands?
2) How do you feel about current hand washing guidelines?
3) What are your experiences of following these guidelines in your ward?
4) What do you think of your infection control training?
5) Why do you think some healthcare professionals do not follow current guidelines whilst others do?
6) What do you think the barriers are to complying with the current guidelines?
7) How important do you think the environment of the ward is in complying with the guidelines? Do you think there is enough hand washing facilities on the wards?
8) From your personal experience, do you think alcohol rubs are more/less effective as using soap and water? What is your preference?
9) Is there any affect on you from washing your hands regularly?
10) How do you think hand hygiene could be improved at Kingston Hospital?
References:


**Title: Research proposal outlining the design of a quantitative study using randomised controlled trials**

Question
Does the number of cultures present on the hands of nursing staff vary once given additional training on hand washing and drying technique?

Introduction

Hand hygiene is commonly regarded as the most important activity for reducing the spread of infection (Reybrouck, 1983), yet evidence suggests that many health care professionals do not wash their hands as often as they should or use the correct technique (Emmerson et al., 1996, as cited in Kerr, 1998 & Taylor, 1978). Smith-Temple (1994) recommends washing hands for one to two minutes to be effective. However, effective hand washing is dependent on a good technique. Investigations into the techniques of hand washing are limited (Nurse Network, 2002), which highlights a gap in research and a need for this study. The National Audit Office (NAO) report and the Controls Assurance Standards require infection control to be a part of the induction of all staff (NAO, 2004). For example, at Kingston Hospital the infection control nurses continue to have a slot on the corporate induction programme, however due to the pressure to include other subjects, the time slot has been reduced from seventy-five minutes to thirty minutes. This means that there is limited opportunity for participants to practice their hand washing skills (Kingston Hospital annual report, 2004/2005). This example is not uncommon, and even though hand hygiene is crucial to reducing infection, the time spent discussing this topic and ensuring a good technique is limited. Therefore this research aims to look at whether the amount of bacteria on hands is reduced after additional training on accurate techniques. This research will benefit the hospital where the research is undertaken as its results could lead to more time spend on hand washing techniques in training and hopefully lead to a reduction in hospital acquired infections (HAI). It will also benefit the nurses involved, as hopefully the research will prompt them to ensure they use a good technique. In turn, this should benefit the patients who will come into contact with these nurses.

Aims and Objectives

The aim of this research is to identify if there is a difference between the numbers of cultures present on the hands of nursing staff. There will be one group having standard training and another group receiving additional training on hand washing and drying techniques by using a randomised controlled trial. The objectives of this research are to discover if technique is a significant factor in hand washing and drying, if the number of cultures present on hands is reduced and to determine whether the standard training received is adequate. The null hypothesis is that there will be no difference between the number of cultures of the hands of the nursing staff in either the control group or the experimental groups. The alternative
hypothesis is that the new training causes a significant improvement in hand hygiene, as there will be fewer cultures present, compared to the existing training.

Research design and methodology
Quantitative as opposed to qualitative research will be used as it identifies important variables, is controlled and measurable (Polgar and Thomas, 2000). An experimental strategy will be used; this is most appropriate when testing hypotheses and involves an active intervention (Polgar & Thomas, 2000). The experimental design that shall be used will be a randomised controlled trial (RCT), which it is normally used to assess the effect of a treatment or intervention. RCTs are the most rigorous way of exploring cause and effect (Sibbald & Roland, 1998). Polgar and Thomas (2000) highlights that in an experimental study the researcher actively influences the independent variables (cause) and monitors outcomes through measurement of the dependent variables (effect).

Firstly suitable subjects will be identified, in this case the subjects are nurses as there are specific guidelines in place for these professionals (see appendix 1) and they have a lot of contact with patients, thus are more likely to be in contact with HAI and be washing their hands regularly. They will all be from the same hospital and for this experiment the nurses that will be used will have only had standard training. The study will be advertised throughout the hospital by posters and staff notice boards. A list of all the nurses e-mail addresses can also be gained if the line manager gives permission. These will state the group needed (nurses), the main research question, contact details and information regarding anonymity. In order to determine sample size a power calculation will be undertaken in conjunction with a statistician. Once there are enough volunteers and they are deemed as appropriate, a random allocation process will occur. Each participant will be given more information regardless of their arm via post or email, including information about the risks and benefits. As well as a letter asking for their informed consent, which will help to ensure the study is ethical, which they will need to sign and send back. They will also be aware that they can drop out anytime before the data is analysed. As random methods do not guarantee equal division into each arm the researcher should use a method to balance the numbers. For this study the researcher will write either ‘intervention’ or ‘control’ on a piece of paper and place it in separate sealed envelopes and jumble them to decide which volunteers with be in each arm. Randomisation is necessary so there is an equal chance of participants being selected for either group, as well as ensuring there is no selection bias. Since all subjects have an equal chance of being in intervention or control groups, this means that differences between groups will be due to chance, and therefore any differences in outcome can be attributed to the intervention.
To ensure treatment allocation is hidden single blinding will be used; ideally double-blinding would have been used but within this intervention it would be difficult for both the researcher and the participants not to know which group they are in, as they are not receiving a placebo. Therefore the researcher will know who is in the intervention group yet the participants will not know which arm they are in. The intervention group will obviously know they are getting more training, however they will not know that the control group is not receiving additional training. After the participants are randomised, both groups will be asked to demonstrate their hand washing and drying in a laboratory and swabs will be taken. Within the National Institute for Clinical Excellence Infection Control guidelines (see appendix 1) it states that areas that need particular attention are the fingertips, the areas between the fingers and the thumbs, therefore swabs shall be taken from these areas. Then the intervention arm will be given additional training on hand washing techniques, using the guidelines on the Royal College of Nursing (RCN) website (RCN, 2005). As well as guidance on appropriate drying and show both techniques three times and each participant will have one-to-one tuition whilst practicing. This session will last for seventy-five minutes, as this is the time originally given to infection control and hand washing in the corporate induction before time constraints. A week after the additional training session both groups will then be taken into a laboratory setting and asked to demonstrate their hand washing and then drying technique and after swabs will be taken. From the swabs the number of cultures present will be counted and verified by another researcher to ensure reliability and compared to the first swabs.

Validity and reliability are crucial in ensuring unbiased and trustworthy research. Some issues they may arise within this study regarding validity include testing, whereby participants may have learnt skills in the pre-test (first swabs) that affect the results. This is similar to participant learning, which is an issue in reliability, when participants perform better due to previous learning. Additional, the Hawthorne effect needs to be considered when ensuring validity; this refers to participants performing better due to receiving attention from the researcher, rather than because of the independent variable (intervention). For example, participants could be washing their hands using a better technique as this is being tested. To overcome these problems, participants will be asked to provide evidence of their training on hand washing to ensure they all participants have only received standard training. As well as ensure blinding so participants do not feel they need to perform better as they are in the intervention group and the researcher does not influence their technique by giving the intervention group more attention.

**Data Analysis**
Once the data is collected the statistics will be analysed using the Mann Whitney test, also known as the rank sum test. This is a nonparametric test that compares two unpaired groups. Probability tables will also be used when evaluating the statistics and will determine how significant the results are. This value will be expressed as $P<0.005$. Confidence intervals will also be established at 95% CI. Other statistical information will also be gained from the research including mean, mode, median and standard deviation, which should help to analyse the results and discover if there is a significant difference between the two groups.

**Ethical considerations**

There are many ethical issues that need to be taken into consideration including informed consent, other subjects not getting a chance to participate in a potentially beneficial treatment and privacy. Informed consent is necessary from all participants who need to be aware of possible risks as well as the benefits. Participants also need to be aware that their details and their swabs will be anonymous so the researcher will not know which participants had the greatest amount of bacteria and that the findings from the research will be published anonymously. Also gaining permission from an ethics committee is needed. The proposed dissemination of the findings is through hospital newsletters, a nursing journal as well as a general medical journal if results are deemed as significant enough.
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