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Promoting Evidence-Based Nursing Practice:
Redifining Community Based Infection Control: Hand Hygiene

Introduction

Historically, washing one's hands before and after patient/client contact has proved to be beneficial in reducing the transmission of infections. In the 19th century, hand hygiene evolved thanks to some physicians; Philip Semmelweis, Louis Pasteur and Joseph Lister all linked the transmission of microorganisms to unwashed hands. Semmelweiss introduced washing hands in chlorine water, Lister instituted hand washing with carbolic acid (Manza et al, 1987). Recent statistics show us that hand hygiene is the single most important measure in preventing the spread of infection.

However, most people still do not wash hands appropriately. A survey of more than 2000 people found that 31% of men and 17% of women confessed to not washing hands after going to the toilet. One in five said they did not bother washing their hands because they looked clean:

The next time you meet someone and shake their hand – there's a one in five chance that they are one of those who do not always wash their hands after going to the toilet (Pennington H A. June 11th 2001)

Germs are cited as being the enemy and hiding on every surface, just waiting to make you sick. The highest risks of transmitting germs are on hands. Something so simple as shaking hands with people can transmit bacteria (Germworld web site).

Searching for evidence

Hand hygiene is considered the leading measure to reduce infection in healthcare settings (Pittet et al 2001). Best practice hand washing should include removing jewellery, wetting hands thoroughly and then lather vigorously using a pH neutral liquid soap for a duration of fifteen seconds. The hands should then be rinsed under running water, taps turned off with paper or clean towel (National Guidelines Communicable Diseases Network. Draft 2002). This practice refers to hand washing in the acute care sector. In the same guidelines it is suggested that community health care workers may use single-use towelettes (with detergent) before an alcoholic handrub. Hands should then be washed as soon as possible with liquid soap and running water at the first opportunity. Pittet (2000) suggests that hand washing is not sufficiently recognized by healthcare workers as best practice and that compliance with recommended hand washing guidelines is unacceptably (Pittet, 2000). McGuckin (1999) found that hand washing still occurs in only half the instances and for a shorter time than recommended. In a community study, Gould found that community nurses washed hands with soap and water only 53% of 125 visits and with water 21% of the visits. Reasons cited were environmental conditions such as lack of clean towels, hand gel or clean unused soap which significantly impacted on the nurses' ability to comply with best practice guidelines for hand hygiene. In short, these authors found that community nurses were likely to encounter problems following hand hygiene guidelines because of the dependence on the facilities available in client's homes (Gould, 2000).

A clinical audit conducted by Kenny (2002), a District Nurse from Royal District Nursing Service (RDNS) of SA Inc. found that hand hygiene was below best practice. Most nurses used medi prep wipes or pre-used bar soaps (Kenny, 2002) and this was not considered as best practice. As suggested by previous studies, lack of adequate hand washing facilities (clean hand towel or paper towel, and liquid soap) were reasons for poor hand hygiene. Kenny (2002) recommended that hand hygiene practice required review and that the use of a portable kit or waterless hand hygiene product be implemented and evaluated.

In October 2002 the Center for Disease Control released its "Guidelines for Hand Hygiene in Health-Care Setting" which comprises recommendations by the Hand Hygiene Task Force. This comprehensive document explores all aspects of hand hygiene, including history, transmission, compliance and recommendations. One paper examined transmission of gram-negative bacilli and found that even after hand washing with soap and water the organisms were still transferred to another site and that washing with soap and water failed to remove pathogens from hands and increased the chances of skin irritation and dryness. This study also found that an alcohol based hand rub can prevent the transmission of pathogens more effectively than handwashing with soap and water. Gram-negative bacilli were transferred to another site via hands of nurses in only 17% of cases where an alcohol based hand rinse was used and 92% transference where soap and water was used (Boyce et al 2002). In addition, authors claimed that frequent use of alcohol-based formulations can cause drying of the skin unless emollients or other skin conditioning agents are added to the product. In recent trials alcohol based gels containing emollients caused less skin irritation and dryness than soap and water and is less damaging to the skin than soap and water (Winnefeld 2000; Boyce et al 2000). Pittet (2001) concluded that alcohol-based hand rubs compared with traditional handwashing (soap and water) is better practice because it required less time, acted faster and irritated hands less often and finally that alcohol-based rubs resulted in sustained improvement in hand hygiene compliance associated with decreased infection rates.

Implementing evidence based practice

In 2003 RDNS (SA), under the umbrella of 'Year of Clinical Focus', selected infection control as the first clinical risk strategy to undergo review and revision. A project officer (the author) was funded for three months to develop a framework for an infection control program and an implementation strategy. As part of this program, it was decided to explore the introduction of a waterless hand hygiene product with community nursing staff. District Nurses are aware that hand washing deters transmission of bacteria but they do not always have access to clean bathroom facilities in peoples' homes. Therefore, what can district nurses do to ensure their hands are clean? Fortunately several waterless

alcohol based hand hygiene products are now available but it was important to consider the cost, portability and product acceptance by staff when choosing the right product. In 2003 a trial of two waterless alcohol based hand rubs was undertaken in RDNS (SA).

Trial of two waterless alcohol based hand rubs

Twenty four (24) RDNS nurses participated in a two week trial of two alcohol based, waterless hand gels. There was concern with transporting liquid alcohol products in a car in summer due to its flammable nature and that a liquid would pose a safety concern if spilt on the floor. Clearance was given by the safety manager. The product also had to be available in pocket size so it could be readily carried in nurse's pockets. Two companies (who prefer to remain nameless) had alcohol based gel available in pocket size and agreed to supply the product for the trials. The products were available in 100ml and 70ml size. Three other companies were contacted for products that fitted the criteria (pocket size and gel); however none had products that were suitable. Two products, A and B, were selected.

Participating nurses were given a short education program about hand hygiene and the use of gels prior to commencement of the trial. Content of these education programs was - overview of hand hygiene, transmission and prevention of pathogens, how and when to use the gel and provision of laminated instructions. Nurses were asked to use the product before and after any client contact or procedure and that hands needed to be washed with soap and water if visibly soiled.

Two tools were developed for the trial hand hygiene survey (tool 1) and a final and hygiene survey (tool 2). The tools were designed by the trial coordinators and adapted from a similar tool used by a large public hospital.

Nurses were asked to use product A continuously for five days (Monday to Friday). Evening, night and weekend staff were excluded from the trial for ease of administration, observation and availability of advice and provisions. A questionnaire was then completed. and returned to the trial coordinators. The following week, Product B was then used continuously for five days and the same questionnaire completed. A final questionnaire was then completed providing information about preference and any issues.

Tool 1 was used during the first week with product A. It contained a brief explanation of the trial and the products and when to complete the tool. Twenty questions were asked and included the condition of nurse's hands prior to and after using the product, use of moisturiser, glove use, convenience of the product, and whether the nurse would recommend using the product. The tool was designed for ease and quick completion using true/false answers. Comments were invited if the nurses wished to do so. Tool 1 was again used the second week following the use of the second product, product B.

After the second week, nurses were asked to complete a final survey (tool 2) consisting of five items. These questions required a written answer and included questions on problems with both products, product preference, should RDNS provide the product, any concerns/issues to be considered and whether the product should be recommended. The results were analyzed manually.

Summary of findings

Most nurses (69%) preferred product A, whilst 19% preferred product B and 12% had no preference. Eighty percent of respondents felt that their hands were cleaner after using the gels. Following the results of this trial, it was highly recommended that Product A (Aquim) be provided as a product for hand hygiene in practice. Issues considered were cost, effect of heat or cold if left in the car, education, compliance, losing bottles in the house or car, potential for reactions, allergies or dry skin. The use of the hand gel ensures that nurses have the opportunity to use a product that has been developed specifically for hand hygiene.

Conclusions

Anecdotal evidence demonstrates that many nurses are reluctant to use soap and towels provided by clients. This is especially an issue when nurses have sensitive skin and are reluctant to expose their hands to a variety of soaps and detergents. The use of hand gel ensures that nurses have the opportunity to use a product that has been designed specifically for hand hygiene.

This small project has raised hand washing awareness amongst nurses, particularly those who were involved in the trial. It is hoped that information in this newsletter will provide the stimulus for nurses to consider the evidence provided by the literature and the project. The literature available on hand hygiene and compliance demonstrates that hand hygiene needs to be addressed in all health care institutions - this includes community based organizations.

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