

Hand decontamination practices in paediatric wards

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Abstract

The purpose of this study was to determine and describe hand decontamination practices of health care professionals in the paediatric wards of an academic hospital in Johannesburg. The purpose was addressed within a survey design and through the use of descriptive and comparative methods. Data were collected through direct observation conducted with the use of a researcher-administered checklist. A sample of sixty-six health professionals was obtained through convenience sampling. Results indicated that significantly fewer health professionals did not decontaminate their hands on entering the ward (16.6%), prior to making

patient contact (34.8%) and prior to donning gloves (9.1%). Significantly more health professionals did decontaminate their hands following contact with the patient (63.6%) and following removal of gloves (77.8%). More health professionals did not wash their hands after leaving the ward (51.5%). More than half (57.6%) of the health professionals who decontaminate their hands used the correct hand washing technique. Compliance with standard hand decontamination practices of health professionals was found to be poor with only 83.4% of health professionals decontaminating their hands at the start of work.

Introduction

Hand decontamination is the simplest, cost effective way of preventing cross infections in hospital and yet compliance with recommended guidelines is poor. According to literature reported reasons for not washing hands include inaccessible hand washing supplies, skin irritation, wearing of gloves, being too busy or washing hands when necessary (Winnefeld, Richard & Drancourt & Grob, 2000: 546, Hattula & Stevens, 1997: 363).

It is a well-documented (Walling, 2003: 393; Teare, Cookson & Stone, 2001: 412) fact that hospitals harbour populations of virulent strains of microorganisms that may be resistant to antibiotics. A microorganism that is transferred to another environment, which it finds more favourable may change and become pathogenic. The increasing nurse - patient ratio in paediatric wards is posing as a threat to infection control measures in nursing (Pittet, 2001: 234). The risk of nosocomial infections is increased in paediatric wards, as children are most likely to contract infection due to their dependency of health care professionals for caring and nurturing. Additionally, children are the most vulnerable group for contracting nosocomial infections due to their need for close contact with and caring from health care professionals. The longer the hospital stay, the greater the possibility of nosocomial infection, which invariably increases the susceptibility of children to hospital infection. To break the transmission of hospital-acquired infec-

tions, hand washing remains the single most important measure to prevent nosocomial infections (Teare, Cookson & Stone, 2001: 411).

Literature review

Microorganisms on the skin may be resident or transient flora. Resident organisms are normally stable in number and can survive and multiply on the skin in a very short space of time and doubling every seven hours (Pearse, 2000:2). Resident microorganisms in deep skin layers are usually killed only by hand washing products, which contain anti-microbial ingredients. Transient microorganisms are found on the skin, in dirt or under fingernails and attach to the skin when a person has contact with another person or object. Transient flora, which are easily removed by hand washing, cause most hospital infections resulting from cross- infection (Pittet, 2001: 234).

Washing of hands with plain soap and water can physically remove a certain level of microbes. However, the bactericidal efficacy of alcohol-based preparation is more rapid in comparison to products containing other antiseptics such as 5% chlorhexidine gluconate or povidone iodine (Pittet, 2001: 234).

In a study conducted by Pittet et al (2000), it was established that the practice of hand washing, which is consid-

ered fundamental to basic patient care, does not receive sufficient prominence in health professional education. The researchers observed over 20000 opportunities for hand hygiene and monitored overall compliance during routine patient care for six months in teaching hospitals in Geneva and Switzerland. Their compliance rates improved from 48% in 1994 to 66% in 1997. Overall prevalence of nosocomial infection rates also decreased from 16.9% in 1994 to 9.9% in 1998. The researchers used the following strategy to improve and modify health professional=s behaviours. A multi-disciplinary approach was used to address non-compliance to hand washing protocols; communication was done with staff at different levels. Reminders were strategically placed at different places for all staff members to see and efforts to increase compliance rates were discussed at institutional level.

With HIV/AIDS related diseases, hospital wards are filling up with patients who have more acute illnesses and the susceptibility to nosocomial infections is increasing. It is crucial that proper guidelines for hand decontamination practices be adhered to. Reported barriers (Kilbridge, Wirtschafter, Powers & Shechan, 2003: 523) to compliance include skin breakdown from repeated friction, application of antiseptics agents, lack of time, involvement of multiple disciplines and human error.

Purpose of the study

- The purpose of this study was to determine and describe hand decontamination practices of health professionals in the paediatric wards of an academic hospital in Johannesburg. The objectives of the study were to:
- Identify types and patterns of hand decontamination methods used by health care professionals in the paediatric wards.
- Describe the hand decontamination practices prior and post use of sterile and unsterile gloves.
- Determine compliance of professionals with standardised procedures during hand decontamination.

Definition of terms

Based on the literature and past research the following terms were defined.

Health professionals

Health professionals were defined as all professionals involved in the direct of care of a patient. This included doctors, registered nurses, physiotherapists and occupational therapists.

Decontamination of hands

This is carried out using soap or an antiseptic soap. The hands and wrists are washed for at least one minute, using the seven steps technique. Hand washing should be carried out routinely before and after coming to contact with patients, when starting work, when going off duty, when hands become visibly dirty, when hands are contaminated with body fluids or inorganic matter, after visiting the toilet, after removing gloves, after a non-sterile procedure (Pearse,

1997: 332). Contact with patients during ward rounds or routine procedures should be followed by decontamination of hands with alcohol chlorhexidine or washing of hands with soap and water.

Seven steps technique of hand washing

1. Palm to palm
2. Left palm over right dorsum, right palm over left dorsum
3. Palm to palm with fingers interlaced
4. Wash Back of fingers into the opposite palm with fingers interlocked.
5. Rotational rubbing of the left palm; then left thumb in right palm
6. Rotational rubbing of tips of fingers and thumb of right hand in left palm, then left hand in right palm
7. Rotational rubbing of the left and right wrists (Pearce, 1997: 119)

Research design

A quantitative design was used to observe, describe and determine the hand decontamination practices of health professionals in paediatric wards. Descriptive designs may be used for the purpose of developing theory, identifying current practices, making judgements or determine what others in similar situations are doing (Burns & Grove, 1997: 250).

Population and sample

The study population comprised all health professionals working in paediatric wards of the hospital. Systematic random sampling was used to select the wards. All the paediatric units (n = 9) in the hospital were allocated a number from 1 to 9 and placed in a hat and every third ward was selected for inclusion in the study. Convenience sampling was used to select subjects in the participating wards. The sample size comprised 66 health care professionals.

Pilot study

Pilot testing was carried out in one of the paediatric wards, which was not directly involved in the study. Two shifts of the multi-disciplinary team members were observed consisting of three doctors, one physiotherapist, speech and hearing therapists, six registered nurses and two nursing auxiliaries. These participants were observed under similar circumstances. The researcher undertook a non-participant role, taking on a complete observer role. The checklist was tested in terms of content, consistency and reliability. Arrival at work was changed to arrival in the ward as recommended by the responses of the pilot study.

Ethical consideration

Ethical approval for the study was obtained from the University of Witwatersrand Committee for Research on Human Subjects. The purpose of the study was explained to the area manager and after consultation with the individual unit managers, permission to undertake the study was granted. The nature of the study was discussed with each

participating unit manager and the unit managers were asked to conceal the nature of the study from the participants, to avoid behavioural influence. The unit managers were assured of anonymity and confidentiality.

Data collection

Data were collected using direct observation and recorded on the checklist. In order to have a systematic way of counting the occurrences of hand decontamination a checklist was designed with nine questions of yes or no option. The researcher without getting involved with the participants observed each participant and marked off on the checklist the relevant hand decontamination behaviours. The criteria, against which participants were observed, were also derived from the standardized procedure for hand decontamination. To ensure content validity, experts in the field of infection control were consulted to comment on the consistency of the items on the checklist to standardized hand decontamination practices. Validity refers to the degree to which an instrument measures what it is intended to measure (Polit & Hungler, 1993: 404).

Data analysis

Descriptive statistics were used to summarise, organize and present the data. Inferential statistics (Chi-square test and t- test) were used to determine significance of association between variables at 0.05 level of significance.

Discussion of results

Hand washing is the single most important protective and preventative measure in the transmission of disease, thus it is important that hands are washed before starting work (Pearse, 1997:332.). Eleven (16.6%) health professionals washed their hands ($p < 0.001$) before commencing work (see table 1 & 2), to prevent transfer of bacteria hands must be washed before and after each patient contact, whether direct or indirect (Pearse, 1997:332.). Sixty-six health professionals were observed coming into contact with patients. Health professionals were far more likely to decontaminate their hands after patient contact (63.6%) than not (36.4%). It was observed that health professionals were more con-

Table 2: Hand decontamination prior to patient contact

Number of Participants	Total	Percentage
Washed hands prior to patients contact	23	34.80%
Did not wash hands prior to patient contact	43	65.20%
Total	66	100

Table 3: Hand decontamination following patient contact

Number of Participants	Total	Percentage
Washed hands following patient contact	42	63.60%
Did not wash hands following patient contact	24	36.40%
Total	66	100

cerned about what they might contract from patients, but not what patient might contract from them (See table 3).

Thirty-nine (59.1%) were not observed not using sterile gloves during the research period. Significantly fewer health professionals who did use gloves ($n = 27$) decontaminated their hands (9.1%), as compared with 31.8% who did not decontaminate their hands prior to donning gloves (see table 4). Significantly more health professionals, who wore gloves, decontaminated their hands (77.8%) after removing their gloves ($p < 0.05$) (see table 4). Refer to figure one for composite hand washing practices.

Very few aseptic procedures were performed in participating wards during the research period, explaining why only seven health professionals were observed performing an aseptic procedure. Three of the seven participants washed their hands before the aseptic procedure, which is not significantly different from those who did not hand wash prior to performing the aseptic procedure. Five of the seven participants, who performed aseptic techniques, decontaminated their hands after the procedure.

Thirteen (19.7%) health professionals ($n=66$) did not wash their hands at all during the research period; as a result, their technique could not be determined. Significantly more health professionals (57.6%) used the correct technique to wash their hands as compared with 22.7% who used the incorrect technique to wash their hands ($p < 0.05$) (see table 4).

It was also observed during this study that some health professionals desired to wash their hands, however,

Table 1: Hand decontamination at the start of work

Number of Participants	Total	Percentage
Washed hands prior to work	11	16.66%
Did not wash hands prior to work	55	83.34%
Total	66	100

Table 4: Hand decontamination technique

Number of Participants	Total	Percentage
Correct hand decontamination technique	33	50.10%
Incorrect hand decontamination technique	15	22.70%
Not observed washing hands during research period	18	27.20%
Total	66	100

the washing facilities were incomplete as there was no soap and or drying towels provided.

Limitations of the study

Although the researcher's field of observation was as unobtrusive as possible participants might have changed their hand decontamination behaviours because they were aware that they were being observed. Secondly in this hospital there is only one surgical ward which limited the number of aseptic procedures observed because during the period of data collection very few, if any, aseptic procedures were performed in the medical wards.

Recommendations

Ongoing education and encouragement on the importance of hand decontamination is required to assess health professional's compliance with infection control policies, house keeping protocols and hand washing practices. Hand decontamination is taught during training of health professionals, but more emphasis needs to be placed on its importance on reduction of infection when proper hand washing techniques are adhered to. Reinforcement of hand decontamination can be done during in service training and the infection control department can strategically place constant reminders above washing facilities.

The opportunities for correct practice should be afforded to health professionals by ensuring that the correct hand washing facilities are available. Ensuring that washing basins are stocked with soap, hand rub and paper towels at all times would prevent potential litigation and unnecessary prolonged hospital stay. If the facilities are not available each health professional must take responsibility for their own actions. The leader of the health care team should lead by example by instituting the correct hand decontamination practices. Hospital acquired infections should be the key performance indicator in measuring quality care especially in critical care areas. Behavioural change requires that all health care professionals in a unit, especially senior members of the health care team, take responsibility for ensuring proper hand washing practices.

Conclusion

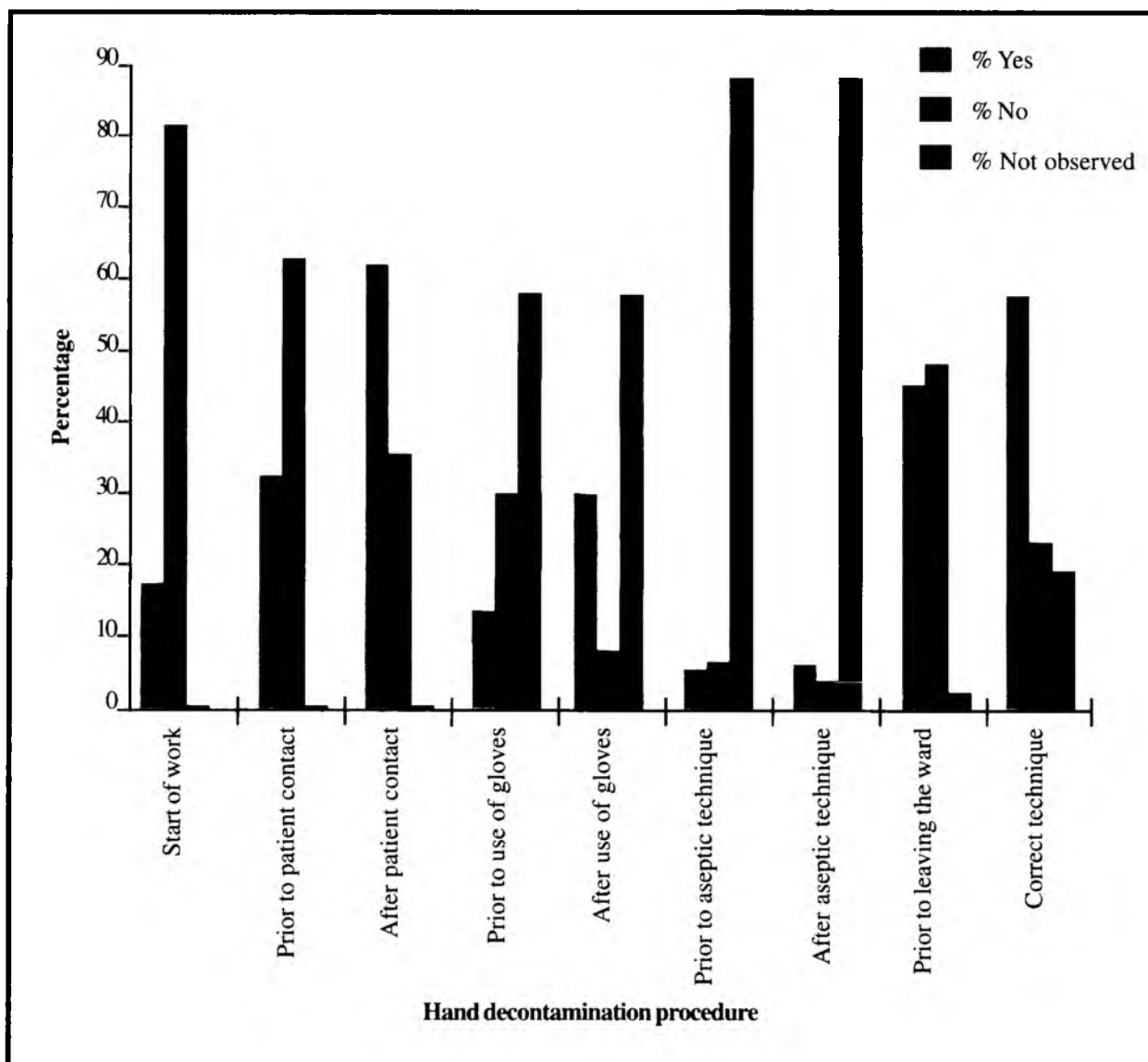
The results indicate that compliance with hand decontamination practices of health professionals was found to be poor with (16.6%) health professionals decontaminating their hands on entering the ward, prior to making patient contact and prior to donning gloves as those who did decontaminate. Significantly (63.6%) more health professionals did decontaminate their hands following contact with the patient and following removal of gloves. Forty seven percent of participants washed their hands after leaving the ward and those who washed their hands used the correct hand washing technique.

The results of this study demonstrate the need for ongoing education of health care professionals about hand decontamination procedure. As well as the importance of upgrading the facilities for carrying out correct hand washing practices in every paediatric unit.

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Graph 1: Episodes of hand decontamination



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