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Nurses' self-report of universal precautions use and observed compliance

Pear, Suzanne Marie, M.S.

The University of Arizona, 1989

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NURSES' SELF-REPORT OF UNIVERSAL PRECAUTIONS USE
AND OBSERVED COMPLIANCE

by

Suzanne Marie Pear

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A Thesis Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF SCIENCE
In the Graduate College
THE UNIVERSITY OF ARIZONA

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ACKNOWLEDGEMENTS

I would like to thank Dr. Rose Gerber, my graduate advisor and thesis committee chairman for her unfailing guidance, encouragement, good humor and patience throughout the entire thesis project. I would also like to thank the other members of my thesis committee, Dr. Joyce Verran and Dr. Alice Longman for their expertise, excellent insights and assistance.

I would like to thank my mother, Susana Byrne, for the belief in the importance of education, and my children, Kristi and Timothy Freeland, for their patience and understanding while I was completing the masters program. I would especially like to acknowledge my husband David Pear, without whose love, encouragement, support and belief in me this project would never have reached completion.

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ABSTRACT

A descriptive correlational study was conducted to develop and test a Universal Precautions (UP) Scale designed to monitor nurses' compliance with the practice of universal precautions in the hospital setting. Subscales of Universal Precautions Scale included barrier precautions usage, personal carefulness factors and handwashing. Nurses (n=59) working in special care units completed the demographic survey, the UP scale, and the Marlowe-Crowne Social Desirability Scale.

Concurrent validity was investigated by observing handwashing behavior of a subgroup (n=34) of those nurses surveyed. Self-report of handwashing frequency did not correlate with observed handwashing frequency, although observed handwashing adequacy did relate with self-reported handwashing adequacy and personal carefulness factors. The UP scale, as constructed, was not related to the handwashing behavior, one behavioral indicator of use of universal precautions, but has demonstrated a potential for further refinement and testing.

CHAPTER 1

INTRODUCTION

Health care workers (HCWs) are at risk for contracting hepatitis B virus (HBV) and human immunodeficiency virus (HIV) from patients by contaminated needlesticks or other percutaneous exposure to infected blood or body fluids. To protect workers, health care institutions throughout the United States have instituted Universal Blood and Body Fluid Precautions programs (Universal Precautions), which emphasize new self-protective practices aimed at preventing work-related exposure of personnel to blood and body fluids. The Occupational Health and Safety Administration (OSHA) requires health-care institutions to monitor employees for compliance to these practices (U.S. Department of Labor, 1988). The purpose of this study was to determine the relationship between nurses' subjective self-reported use of Universal Precautions, with an emphasis on handwashing practices, with the actual observed compliance to handwashing practices performed.

Background Information

Since 1981, people throughout the United States and the world have become increasingly aware of the disease called acquired immune deficiency syndrome (AIDS). Transmission of the etiologic agent called human immunodeficiency virus (HIV), a retrovirus, is believed to be similar to that of hepatitis B virus, that is, by percutaneous passage (through skin or mucous membranes) of infected blood, semen, or vaginal secretions. Other body fluids have potential infectivity, but these are the fluids of most concern to health care workers (Centers for Disease Control, 1988). Although common sources of percutaneous exposure are sexual intercourse, blood transfusions, common use of needles by intravenous drug abusers, and maternal-fetal transmission, health care workers (HCWs) are at risk for contracting these diseases relative to the degree to which they are exposed to contaminated blood or accidental needlesticks (Moss, et al., 1986). In fact, these percutaneous exposures are the most frequently occurring kinds of occupational injury in hospitals today (deCarteret, 1987).

The risk of becoming HIV seropositive after percutaneous exposure to an HIV-positive patient is less than half of one percent (.5%). However, the risk for contracting HBV is approximately 30 percent after exposure to an HBV-positive patient; over 18,000 HCWs become infected with HBV yearly from work-related exposures, and over 300

die from HBV-related causes (U.S. Dept. of Health & Human Services, 1986).

In response to concerns for the safety of health care workers, the Centers for Disease Control (CDC) have published recommendations for prevention of HIV transmission in health care settings (CDC, 1987). The CDC now strongly urges that medical institutions adopt a new type of isolation practice, called Universal Blood and Body Fluid Precautions (Universal Precautions), which places barriers such as gloves, gowns, masks, and protective eye wear between the HCW and the patient's blood and body fluids. Health care workers must also wash their hands after each patient contact. These barriers are to be used selectively on all patients, not just those known to be at risk for carrying the HIV or HBV viruses.

In addition, since the greatest risk of exposure is through contaminated needlestick injuries, the CDC advises that health care settings develop programs and use needle disposal systems which would reduce these injuries, mainly by avoidance of recapping used needles and other practices related to personal carefulness. These recommendations have been endorsed by the Occupational Safety and Health Administration (Joint Advisory Notice, 1987).

In response to the directive from the CDC and OSHA, a Veterans Administration Medical Center (VAMC) in the southwestern United States has adopted Universal Precautions

in an effort to protect the health care workers employed there. Prior to the program implementation, the employees of the VAMC reported 121 incidents of percutaneous exposure to patients' blood or body fluids from needlesticks, scalpel punctures, blood, or body fluid splashes, between January and December, 1988 (Pear, 1989).

Between November, 1988 and January, 1989, the health care workers at the VAMC received a one-hour education program on the principles of Universal Precautions and guidelines for practical implementation of the program. The Universal Precautions program is an interaction-driven system requiring judgement on the part of the HCW to decide the extent of barrier precautions required for the individual nurse-patient encounter or patient care task to prevent exposure. In all instances handwashing is required after each patient contact (CDC, 1988).

Problem

Since the publication of the joint directive from the CDC and OSHA recommending the use of Universal Precautions, OSHA is now requiring that employers monitor their employees for compliance with these practices (U.S. Department of Labor, 1988). It is virtually impossible to directly observe all staff for their compliance with the practice changes involved in the appropriate use of Universal Precautions (UP), but it is important to determine if the

staff know and consistently use these self-protective measures in the workplace.

The problem, then was to find an accurate and efficient way of monitoring staff use of Universal Precautions. If self-reports of the use of Universal Precautions are valid and reliable, then self-report instruments can be used to monitor behavior, as opposed to the time consuming staff observations which otherwise must be done.

Purpose

The purpose of the study was to develop and validate a reliable and time efficient method of measuring compliance to the guidelines of Universal Precautions. This was accomplished by describing the relationship between nurses' subjective self-reported use of Universal Precautions during patient-care activities, using the Universal Precautions Scale developed for this project, and nurses' actual observed behavioral compliance to handwashing practice. Included within the Universal Precautions Scale are three subscales which have been developed to obtain self-report information on the extent of nurse compliance with the new UP program and handwashing. The subscales include the barrier precautions usage (BPU) subscale related to the use of protective equipment, the personal carefulness factor (PCF) subscale related to the ways nurses prevent percutaneous injuries, and the handwashing (HW) subscale related to the reported frequency and adequacy of

handwashing. The Handwashing Observational Monitor (HOM) was also developed to assist in determining the frequency and adequacy of actual handwashing as an estimate of concurrent validity.

The relationship between the self-reported staff responses to the survey questions compared to actual practice activity remained in question. A positive relationship was expected among the extent of barrier precautions usage, personal carefulness, and handwashing behavior reported by nurses and the observed performance of handwashing by nurses. Handwashing, although only one of three identified components of Universal Precautions, was the behavior chosen to be represent UP because it can be considered both a barrier precaution and a personal carefulness factor. Also handwashing was expected to be the most frequently occurring UP behavior.

Significance of the Problem

Development of the Universal Precautions Scale has timely significance. A self-report tool which validly reports behavioral compliance/non-compliance with usage of barrier precautions, personal carefulness and handwashing to prevent exposure to patients' blood and body fluids would be an efficient way to comply with OSHA requirements to monitor staff adherence to Universal Precautions guidelines. A valid survey would also easily identify patient care units having greater difficulty complying with the new practice,

and needing additional Universal Precautions educational programs or reinforcement of learning.

Appropriate use of Universal Precautions may potentially prevent thousands of percutaneous exposures and possibly save hundreds of lives (Curran, 1988). Additionally, such a program would educate HCWs about the ways that HIV and HBV are transmitted. This knowledge would enable personnel to realistically deal with the fear of contracting HIV, and to take appropriate and thoughtful precautions to prevent avoidable exposures to the HIV and HBV viruses. This knowledge would also assist personnel to provide compassionate care to patients known to have AIDS, because these patients would not be needlessly isolated either physically or emotionally (Valenti, 1988).

Research Questions

Question #1

What is the relationship between nurses' self-report of handwashing behavior (HW) and the observed frequency and adequacy of handwashing?

Question #2

What is the relationship between nurses' self-report of barrier precautions usage (BPU) and frequency and adequacy of observed handwashing behavior?

Question #3

What is the relationship between nurses' self-report of personal carefulness factors (PCF) and the observed frequency and adequacy of handwashing behavior?

Summary

Health care workers are at risk for developing HBV and HIV as a result of percutaneous exposure to infected patients' blood and body fluids. Universal Precautions, a self-protection practice which requires personnel to use barriers such as gloves and gowns, and to perform personal carefulness practices such as avoidance of needle recapping, as well as to wash hands, have been advocated as a means for reducing employee exposure to HBV and HIV. At the current time there is no reliable and time-efficient method for monitoring employee compliance with these practices. Additionally, it is important to assess health care workers' compliance with Universal Precautions because these self-protective practices are the major means of preventing exposure to HBV and/or HIV-contaminated blood in the workplace. The purpose of this study was to investigate the relationship between nurses' self-report of Universal Precautions usage and concurrent observation of frequency and adequacy of nurses' handwashing during patient interaction.

CHAPTER 2

REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

The literature was reviewed to obtain information on the construct of occupational health, the concept of Universal Precautions, and the subconcepts of barrier precautions usage, personal carefulness, and handwashing. The subconcepts were operationalized by the Universal Precautions Scale and the Handwashing Observational Monitor. The conceptual framework underlying the study, and a review of related literature are presented in Chapter 2.

Review of Literature

The literature was initially reviewed to identify the types of incidents reported by health care workers which expose them to patients' blood or body fluids (Feldman, 1986; Jacobson, Burke & Conti, 1983; McCormick, -& Maki, 1981; U.S. Dept. of Health & Human Services, 1986; Weiss, et al, 1985). Needlestick injuries and mucous membrane or non-intact skin exposure to patients' blood or body fluids were overwhelmingly identified as the major risk factors associated with work-related acquisition of HBV and HIV.

Following this discovery, the literature was examined to catalog the causative factors involved in percutaneous injuries which HCWs incur and may result in exposure to HIV and HBV, and what measures were being employed to address this problem (deCarteret, 1987; Jacobson, Burke, & Conti,

1983; McCormick, & Maki, 1981; Reed, Anderson, & Hodges, 1980; Weiss, et al., 1985). Patterson, et al., (1985) identified the major causative factors as improper handling of potentially infectious blood and body fluid secretions, failure to anticipate exposure to blood and body fluids, failure of HCWs to wash hands after contact with patients, and the recapping of contaminated needles. Needlestick injuries were extensively investigated by Reed, Anderson, and Hodges, (1980) who identified personal carelessness as the major factor implicated in the cause of these exposures. Personal carelessness incidents were those exposures which occurred as a result of the employee's own actions, such as recapping or careless handling of needles or failure to anticipate the risks of the patient care situation. The other factors associated with needlestick injuries were those exposures sustained by innocent victims, as the result of incorrect handling or disposal by others. The Centers for Disease Control (CDC, 1987) in their report on "Recommendations for Prevention of HIV Transmission in Health-Care Settings" identified that blood and body fluid exposures also occurred as the result of not using barriers such as gloves, gowns, masks or protective eyewear to prevent these fluids from coming in contact with the HCW's skin or mucous membranes.

Handwashing was then investigated to discover whether the practice is an essential part of employee self-

protective practices, and an effective means of infection control (Albert & Condie, 1981; Larson, 1984, 1988). According to Larson (1988, p. 28), handwashing is a primary infection control measure which "remains the cornerstone of efforts to reduce infection". This is the one measure of hygiene and sanitation which has been touted for over 700 years to consistently reduce communication of infection (Othersen & Othersen, 1987). Cudworth (1987) and Taylor (1978) described the appropriate steps which constitute adequate or good handwashing.

Additionally, the concept of self-report of compliance to self-protective behaviors was investigated to assess current findings on the likelihood that employees would accurately report their adherence and compliance to clinical practice standards. In a study by McLane, Chenelly, Sylwestrak & Kirchhoff (1983), nurses were surveyed on their perception of their compliance to aseptic technique and then subsequently observed. Nurses were found to overestimate their compliance performance 33 percent of the time, especially in regard to handwashing and glove usage. Self-reported measures of compliance by patients have been studied by Hilbert, who found that "noncompliance tends to be under-reported and compliance over-reported" (1985, p. 319). The conceptual framework undergirding this study is presented in Figure 1.

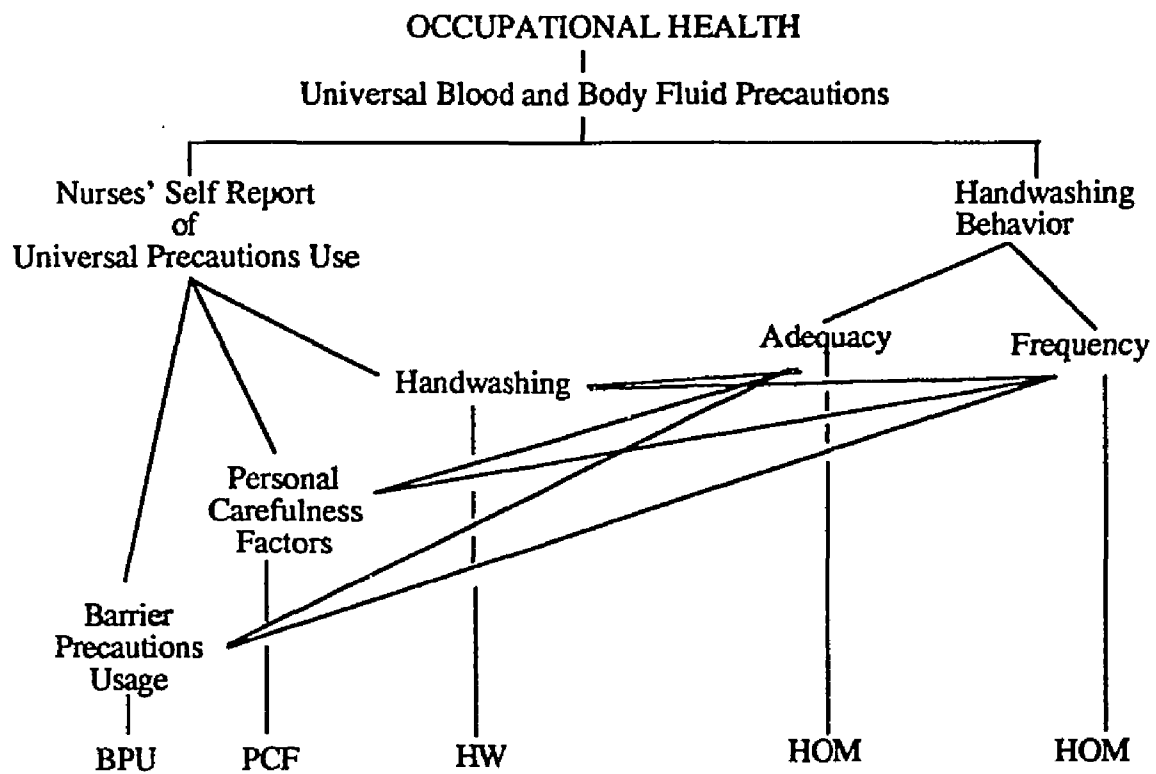


Figure 1. Conceptual Framework for Universal Precautions Use Study.

Conceptual Framework

Occupational Health

Occupational Health is the institutional organization of a program designed to "maintain and promote employee health and well-being by protecting employees from undesirable health effects which may result from inadequately controlled equipment, processes, materials, products, and wastes" (Olishifski, & McElroy, 1979, p. 12). Occupational Health is concern for and the provision of conditions that assist workers in attaining and maintaining a condition of physical, social, and mental well-being (Zenz, 1975). Occupational Health programs also include employee nosocomial or hospital-acquired infection prevention and control components to avoid needless and preventable exposure to infectious organisms in the workplace. "The risk of nosocomial infections exists for both hospitalized patients and for workers involved in their care" (Levy & Wagman, 1988, p.5).

Universal Blood and Body Fluid Precautions

Universal Precautions are an occupational health/infection control practice primarily designed to reduce frequency of health care workers' percutaneous exposure to patients' blood and body fluids, but which may also prevent transmission of disease-producing organisms to patients. "'Universal Blood and Body Fluid Precautions' or 'Universal Precautions' are the recommendations that blood

and body fluid precautions be consistently used on all patients regardless of their known bloodborne infection status" (CDC, 1988, p. 377). The purpose of this self-protective practice is to prevent personnel from contracting HIV or HBV, primarily by the use of protective barriers to reduce the risk of exposure of the health-care workers's skin or mucous membranes to potentially infective materials. One component or subconcept of Universal Precautions is the use of barrier precautions. Traditionally, it was the patient's diagnosis, past health history, or risk factors which generated the information used to decide whether or not to isolate the patient or his body fluids. With the institution of Universal Precautions, the staff is required to review what procedures will be performed for the patient, and to what extent performing these procedures will expose them to the patient's blood and body; not whether the patient is known to be HIV-positive or HBV-positive. When the interaction or procedure is known to or is likely to expose the HCW to blood or body fluids, barriers should be used. "Because specifying the types of barriers needed for every possible clinical situation is impractical, some judgement must be exercised" (CDC, 1988, p. 380). Many times only gloves are required. When the health care worker's skin is intact, and the amount of body fluid is small, gloves may not be necessary; handwashing may suffice. In all instances, handwashing is required after patient

contact, or contact with blood or body fluids. Barrier precautions usage by HCWs should reduce the frequency of blood and body fluid exposures to non-intact skin and mucous membranes.

The second component or subconcept of Universal Precautions is the increased carefulness of personnel required for the prevention of needlestick or sharps injuries to HCWs, because none of the barriers commonly used prevent a needlestick injury. Reducing injuries which are associated with personal carelessness not only include those injuries occurring to HCWs who were not paying close attention to what they were doing when they were using an unsheathed needle or scalpel, but also include those workers who are "innocent victims" and through no fault of their own get stuck with a carelessly handled or inappropriately discarded needle or scalpel (Reed, Anderson, & Hodges, 1980, p. 102). Additionally, the majority of nosocomial infections acquired by health care workers in a hospital are spread by direct contact; handwashing may also be considered a personal carefulness factor.

The third component or subconcept of Universal Blood and Body Fluid Precautions is handwashing. Handwashing is the procedure performed by health care workers using soap or disinfectant solution and water whose purpose is to remove microorganisms and visible soiling from the hands to prevent transfer of those organisms by contact to either the worker

or the patient. It is separate from the concept of barrier precautions because it should be performed after any physical patient contact, not only after contact with non-intact skin or mucous membranes (Mayer, Dubbert, Miller, Burkett, & Chapman, 1986). The concept of handwashing as a preventive measure for nosocomial infections has been known for over 700 years, as opposed to blood and body fluid precautions which are very recent concepts.

Concept Operations

Universal Precautions Scale

The concept of Universal Blood and Body Fluid Precautions was operationalized by the development of the barrier precautions usage (BPU), personal carefulness factors (PCF), and handwashing (HW) subscales. These instruments were designed to elicit from nurses the extent of their usage of these components of Universal Precautions in their nursing practice.

Barrier precautions usage (BPU), a 7-item subscale, was developed to address the use of protective gear used by nurses to protect themselves from blood and body fluid exposures/splashes during patient-nurse interaction or the handling of laboratory specimens or body fluids. Personal carefulness factor (PCF), a 6-item subscale, was developed to address the potentially harmful situations which may occur when handling or disposing needles, other sharps or

contaminated objects and the personal carefulness needed to prevent injuries. Personal carefulness also investigated whether or not nurses anticipate potential exposures, as opposed to simply reacting to situations encountered.

The handwashing (HW) subscale was a 5-item survey related to nurses' self-report of the frequency and adequacy of handwashing they perform at work. Handwashing is more than a personal carefulness activity, it is also essential for patient wellbeing and infection transmission prevention. The practical application of Universal Precautions requires individual judgement on the part of the HCW, so that in many instances, unless an exposure occurs, there may be more than one right decision as to the extent of barrier precautions required for the given situation. There is basically one guideline which must be followed in the majority of situations involving Universal Precautions, and that is that handwashing must be performed after each patient contact, or handling of blood and body fluids (National Committee for Clinical Laboratory Standards, 1988). The handwashing subscale attempted to elicit from nurses the extent of compliance to this requirement.

The concept of employee self-report of behaviors related to Universal Precautions was studied through the use of the three Universal Precautions subscales. Scales or questionnaires are inherently self-report instruments used to indirectly obtain hopefully valid information from the

respondent (Hilbert, 1985). The Marlowe-Crowne Social Desirability Scale was included with the UP self-report tools to assist in determining the extent to which nurses were reporting their universal precautions behaviors in a socially desirable light.

Handwashing Observational Monitor (HOM)

The Handwashing Observational Monitor was a check-list designed to collect data about the nurses' observed compliance to Universal Precautions by monitoring the frequency and adequacy of method with which they wash their hands after patient contact. Not only did the Handwashing Observational Monitor (HOM) record the frequency/consistency of handwashing performed by the nurses after patient contact, but it was also used to rate each handwashing observed for adequacy of technique, i.e., was soap used?, did they scrub for at least 10 seconds? on all surfaces? Comparison of the HOM to the handwashing subscale (HW) questions was used to verify the nurses' self-report of their compliance to Universal Precautions practices.

Handwashing behavior was chosen as the representative indicator not only for self-reported handwashing, but also for self-reported barrier precautions usage and personal carefulness because there is a component of the concept of handwashing within those other two concepts. Although handwashing may be considered a component of both BPU and PCF, additional indicators for handwashing exist so that it

may also be considered a separate concept. The assumption was made that if handwashing is being performed, so are the other two behaviors.

Summary

The literature was reviewed to examine the ways in which health care workers are exposed to patients' blood and body fluids, the use of Universal Blood and Body Fluids as a self-protective practice to prevent these exposures and the validity of self-report measures. The conceptual framework addressed the construct of occupational health, the concepts of Universal Blood and Body Fluid Precautions and employee self-report, and the subconcepts of barrier precautions, personal carefulness and handwashing.

CHAPTER 3

METHODOLOGY

Chapter 3 includes a discussion of the design of the study and an elaboration of the data collection methods. Study limitations and data analysis plan are also addressed in this chapter.

Design

A descriptive correlational research method was used to examine the relationships among self-reported use of barrier precautions, personal carefulness, reported handwashing behavior and observed handwashing. Knowing that nurses might answer the questions as they think they should rather than reporting what they actually do in practice, the Marlowe-Crowne Social Desirability Scale (MCSDS) (Crowne, & Marlowe, 1960) was also administered to assess this potential source of error. Bivariate correlations between all self-report measures and the MCSDS were examined for the purpose of assessing internal validity.

Setting

The selected agency was a federal government medical center located in a southwestern city. The federal facility employed approximately 150 RNs and had the ability to provide sufficient subjects for the study. One of the unique characteristics of the setting was that the institution serviced a specific segment of the general

population, the veteran, and did not have pediatric or obstetric patients. This fact may have had very little bearing on the study, although there may be some intangible difference in the RNs who choose to work in this setting.

Sample

Initially a convenience sample of 65 registered nurses working on patient care units at the VAMC was read a disclaimer form and agreed to participate in a study investigating nurses' self-report of Universal Precautions use in patient care areas. Of those nurses, 59 actually completed the Universal Precautions surveys and 34 of them were observed for handwashing behavior while performing patient-care activities. A larger number were surveyed to allow for potential subject unavailability for observation. All of the subjects surveyed and observed worked in the smaller specialty units such as Medical Intensive Care Unit (MICU), Surgical Intensive Care Unit (SICU), Step Down Unit (SDU), Post-Anesthesia Care Unit (PACU) and Renal Transplant Unit (RTU). The reason for this selection was that these nurses were thought to perform patient care tasks requiring barrier precautions more frequently than general medical or surgical nurses. The smaller units also made for ease and unobtrusiveness of observations of nurses. At the same time, the use of specialty areas and observation of more highly specialized nurses may limit the generalizability of the study findings to other nursing units.

The criteria for selection included those registered nurses (RNs) who performed patient care at the medical center under study and who agreed to participate in the study. The reason for limiting the sample to RNs was to control the population somewhat for educational differences. All nurses used as subjects in the study were non-paid volunteers who were informed of the nature of the study and the possibility of subsequent observations.

Protection of Human Subjects

The project was submitted to the Human Subjects Committee of the University of Arizona; the Research and Development Committee of the VAMC; the American Federation of Government Employees Local 495 of the VAMC; and the Chief, Nursing Service of the VAMC for approval. The study was granted exempt status due to the non-invasive and non-sensitive nature of the study, and a written disclaimer sufficed for written consent.

All of the registered nurses who were asked to participate in the study were informed of the purposes, risks, benefits and costs involved in being in the study. The subjects read the written disclaimer on the front of the Universal Precautions Study when they were invited to participate in the study. It was emphasized that participation in the study was voluntary, non-coercive, and without compensation. The disclaimer, human subjects

research approval, and agency access approval letters are in Appendix A.

Instruments

The nurses were asked to complete the 12-item Demographic Data Form (Appendix B). In addition to the usual demographic information, five of the questions elicited information specifically related to UP.

The 18 items comprising the three Universal Precautions subscales are Likert-type scales which request that the nurses report on a scale of 1 (never) to 5 (always) the extent of their compliance to the various aspects of barrier precautions usage, personal carefulness and handwashing involved in Universal Precautions. The five-point subscale was further defined as to percentage of compliance with the stated behavior, with never=0%, occasionally=25%, often=50%, most of the time=75%, and always=100% compliance to the stated behavior.

Preliminary content validity was obtained for the BPU and PCF subscales by presenting them to seven experts in the field of Occupational Health/Infection Control. Six of the seven experts judged the individual items and the overall tool to exhibit content validity for Universal Precautions. Thus, the two subscales achieved a content validity index of .86 which is acceptable (Lynn, 1986).

A pilot administration of the subscales was conducted using 25 graduate students from a college of nursing who

currently, or within the past six months, were employed as registered nurses, and who performed patient care activities. Initial statistical evaluation of the survey results of the BPU and PCF showed alpha reliabilities of the subscales in the .48 and .41 range respectively. Individual item analysis of the correlation matrix revealed that by restricting item to item correlations to between .30 and .70 and thus eliminating certain low correlating items, internal consistency reliability levels of .77 for the BPU and .70 for the PCF subscale could be attained. A criterion level of .70 or greater is acceptable for immature scales (Nunnally, 1978). The revised BPU was reduced to a seven-item scale, and the PCF to a six-item scale. The handwashing scale, which had limited testing (two of five items) contained five items.

The third self-report instrument which was included in this study was the 33-item Marlowe-Crowne Social Desirability Scale (MCSDS), a reliable scale used to determine the relationship of social desirability to self-report responses. The questionnaires, including the demographic survey, the UP Scale and the MCSDS, are presented in Appendix B, C and D.

The HOM, located in Appendix E, was used to identify and document the extent of observed compliance with established handwashing guidelines. The PI reviewed Universal Blood and Body Fluid Precautions guidelines, and

Fulkerson's Activity Ranking Scale as the criteria for handwashing frequency (Fox, Langner, & Wells, 1974). Fulkerson's tool ranks 15 patient care activities from cleanest to most contaminated, and requires handwashing to be done after the dirty activities named in categories 7 through 15. These "dirty patient care activities" were incorporated into the frequency section of the HOM as indicators of when handwashing should have occurred. Guidelines for adequacy of handwashing were also reviewed, i.e., using running water, soap, minimum 10 second scrub, so that the principal investigator/data collector would understand the observation criteria (Taylor, 1978).

Data Collection Protocol

Potential subjects (n=65) were approached on the patient care units where they worked in the medical center, and invited to participate in the study by filling out the surveys under investigation and agreeing to being observed performing patient care. Fifty-nine nurses completed the questionnaires (total group) and 34 were observed (subgroup). Using the Handwashing Observational Monitor (HOM), observational data was collected at two different intervals. Initially, the subjects were presented with the disclaimer, then 15 nurses were observed prior to completing the questionnaires (Group 1). The questionnaires were then distributed to all participants, and 19 were observed after completing the questionnaires (Group 2). All data were

collected by the Principal Investigator (PI). Observational data were obtained by observing nurses (n=34) performing patient care activities for thirty minute intervals and auditing the frequency and adequacy of handwashing the nurses performed during patient contact. Nurses had been informed when invited to enter the study that "observations of patient care activity" would be performed, and notices were placed on unit bulletin boards when observations were to take place, but nurses were not informed when they were the foci of the observations. The PI attempted to perform the observations as unobtrusively as possible, in order to limit the influence of the observations on subject handwashing behavior.

Methodological Limitations

Methodological limitations of the study were related to the necessity of collecting most of the data in specialty units such as MICU and SICU because of increased nurse-patient contact in these units and relative ease of data collection. However, it was not possible to remain on these small units for extended periods of time collecting data without some of the nurses becoming aware of the reason for the observations, thus probably causing an artificial increase in the number of times the observed behavior was performed. Observational data collection by a single investigator may have eliminated the initial concern over

interrater reliability for this project, but the concern over intrarater reliability remained.

Data Analysis Plan

Data were analyzed using the SPSS-X statistical software package. Descriptive statistics such as frequency, mean and standard deviation, were used to evaluate the demographic data. Bivariate Pearson r correlations were performed to correlate the total Universal Precautions Scale and subscales (BPU, PCF and HW) with the HOM. The Universal Precautions Scale (total scale and subscales) were also correlated with the Marlowe-Crowne Scale and the demographic data. To assess internal validity and evaluate for extraneous effects and differences between Group 1 and Group 2 t-tests were used.

Summary

A descriptive correlational study was conducted which examined the relationships between the Universal Precautions Scale, the Marlowe-Crowne Social Desirability Scale, and the actual handwashing observed handwashing by RNs (n=34), employed in a VAMC in the southwestern United States. Data were analyzed using descriptive statistics, Pearson r correlation coefficients, and internal consistency reliability statistics.

CHAPTER 4

RESULTS OF DATA ANALYSIS

The results of the data analysis related to the demographic characteristics of the sample, scale reliabilities, and research questions are presented in Chapter 4. The results of correlational analyses conducted to answer the research questions are also presented.

Characteristics of the Sample

A convenience sample of 65 registered nurses (RNs) who worked in specialty units were informed about the study and consented to participate. Participation involved completing the questionnaires and being observed performing patient care. A total of 59 (91%) actually completed the self-report questionnaires which contained the demographic survey, the Universal Precautions Scale and the Marlowe-Crowne Social Desirability Scale. Since it was not possible to observe all 59 subjects due to time and scheduling constraints within the clinical setting, only 34 (58%) who had completed the surveys were observed for handwashing behavior while performing patient care. Fifteen (44%) of the 34 nurses were observed for handwashing behavior prior to their completion of the

questionnaires and 19 (56%) were observed after they had completed the questionnaires.

Although the data from the subgroup of 34 subjects were used to answer the research questions, the data from both the total group and the subgroup were analyzed whenever possible to assess the representativeness of the subgroup. Hereafter the two sets of data are referred to as "total group" (N=59) and "subgroup" (n=34).

A number of demographic characteristics of both the total group (n=59) and subgroup (n=34) were evaluated. The age of the subjects in the total group ranged from 22 to 68 years of age with a mean age of 42 and standard deviation of 9.5. RNs in the subgroup averaged 2.3 years younger. Years of experience in nursing ranged from 1 to 44 years in nursing with the mean being 14.8 years and the standard deviation 10.2 for the total group. The range of years experience for the subgroup was from 1 to 30 years, with a mean of 13.2 and standard deviation of 8.1 (Table 1).

Further review of the total group characteristics revealed that five (9%) of the subjects were males and 54 (91%) were females (Table 2). A majority of the sample (37=63%) stated that their basic nursing education was associate degree, while 15 (25%) reported

Table 1

Age and Years of Nursing Experience of Total Group
and Subgroup

	<u>Total Group</u> <u>(n=59)</u>	<u>Subgroup</u> <u>(n=34)</u>
Age in years		
Range	22-68	28-53
\bar{x}	41.9	39.6
s.d.	9.5	6.8
Years of Nursing Experience		
Range	1-44	1-30
\bar{x}	14.8	13.2
s.d.	10.2	8.1

Table 2

Demographic Characteristics of Total Group and Subgroup

	<u>Total Group</u>		<u>Subgroup</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Sex				
Male	5	(9%)	3	(9%)
Female	54	(92%)	31	(92%)
Basic Nursing Education				
ADN	37	(63%)	23	(67%)
Diploma	15	(25%)	7	(21%)
BSN	7	(12%)	4	(12%)
Highest Education Achieved				
ADN	33	(56%)	20	(59%)
Diploma	13	(22%)	6	(17%)
BSN	9	(15%)	5	(15%)
BS/BA	3	(5%)	2	(6%)
MS or higher	1	(2%)	1	(3%)
Clinical Specialty				
Surgical ICU	27	(46%)	19	(56%)
Medical ICU	17	(29%)	10	(29%)
Step Down Unit	6	(10%)	3	(9%)
Post Anesthesia	5	(8%)	2	(6%)
Renal Transplant	4	(7%)	-	
Formal UP Training Program				
Yes	50	(85%)	28	(82%)
No	9	(15%)	6	(18%)

having diploma educations and 7 (12%) had earned BSN degrees initially. When asked the highest educational level attained, 33 (56%) reported ADN, 13 (22%) diploma, 9 (15%) BSN, 3 (5%) BS/BA and 1 (2%) MS degree or higher.

Twenty-seven of the nurses, the largest specialty group sampled (46%), worked in the Surgical Intensive Care Unit (SICU). Seventeen (29%) of the total sample worked in the Medical Intensive Care Unit (MICU), six (10%) worked in the Step Down Unit (SDU), five (9%) worked in the Post Anesthesia Care Unit (PACU), and four (7%) worked in the Renal Transplant Unit (RTU). When questioned as to whether they had received formal training in Universal Blood and Body Fluid Precautions, 50 (85%) of the nurses surveyed reported that they had, while nine (15%) stated that they had not as yet received that educational program. Review of the demographic data of the total group of 59 nurses who completed the questionnaires and the subgroup of 34 nurses who were both surveyed and observed revealed more similarities than differences between the two groups.

Description of Reliability Estimates

The Universal Precautions Scale was theorized to contain three subscales: the barrier precautions usage (BPU) subscale, the personal care factors (PCF) subscale, and the handwashing (HW) subscale. Reliability testing consisted of

estimating internal consistency using standardized item alpha coefficients with a criterion level of $\geq .70$ selected as acceptable for the newly developed scale and subscales. Internal consistency was also examined by item-to-total scale correlations. The preset criterion level for the item-to-total scale correlations was .40 or greater.

Barrier Precautions Usage Subscale

Standardized alpha item reliability analysis of the BPU subscale using the 34 subjects in the subgroup was .52. The alpha reliability for the total group (n=59) increased to .65. A $\geq .70$ criterion level was not met by either the total group or subgroup (Table 3). Of the seven items in the BPU subscale only one item, #14, met the item-total scale criterion of $\geq .40$ with a correlation of .48.

Personal Care Factors Subscale

The alpha reliability generated for the PCF subscale when using 34 subjects was .39. The alpha reliability was .40 for the total group. The desired criterion level was not attained. Examination of the six items in the PCF subscale for item-to-total scale correlations again showed that only one item, #13, met the $\geq .40$ criterion.

Handwashing Subscale

The handwashing subscale (HW) standardized item alpha for the subgroup (n=34) alpha was .58. The total group (n=59) alpha was .63. The criterion for the alpha

Table 3

Alpha Reliabilities for Total Group and Subgroup

	<u>Total Group</u> <u>(n=59)</u>	<u>Subgroup</u> <u>(n=34)</u>
BPU	.65	.52
PCF	.40	.39
HW	.63	.56
UP Scale	.74*	.74*
MCSDS	.86*	.85*

* Met \geq .70 criterion level

coefficient of $\geq .70$ was not met with this subscale. Of the five items found within the handwashing subscale, two items (#10 and #12) met the $\geq .40$ criterion for the item-to-total scale correlation.

Universal Precautions Scale

When the results of the BPU, PCF and HW subscales were combined, the standardized item alpha for the 18 item tool increased to .74 for both the total group and subgroup. Nunnally (1978) suggests that an alpha $\geq .70$ is adequate for an immature scale. However, considering the absence of reliability for the subscales, this alpha may be biased upward as a result of the small sample size. Review of the item-to-scale correlations of the total scale identified 8 items which had exceeded the $\geq .40$ criterion level.

Marlowe-Crowne Social Desirability Scale

The Marlowe-Crowne Social Desirability Scale (MCSDS), incorporated into the study in an effort to identify the extent to which subjects may choose "correct" or desired questionnaire responses, is a mature scale. The estimated alpha was .85 (n=34) and .86 (n=59) when used in this study.

Description of Validity Estimates

Internal validity of the study design was examined by the use of t-tests on the subgroup (n=34) of subjects who were both surveyed and observed. These tests were performed in order to identify extraneous effects on the study results. The subgroup was further divided into two smaller but essentially equal groups. Group 1 (n=15) was first observed for handwashing behavior while performing patient care and then asked to complete the Universal Precautions questionnaires (pre-scale observations). Group 2 (n=19) was given the questionnaires first and then observed for handwashing behavior (post-scale observations). To determine differences between Group 1 and Group 2 on the variables of BPU, PCF, HW, Total UP, frequency of handwashing, adequacy of handwashing and social desirability t-tests were used. The only variable for which there was a significant difference between the two groups was frequency of handwashing ($t=22.47$; $p=.02$). Group 2, the group that were observed for handwashing behavior after completing the questionnaires, washed their hands significantly more often (80% of the time) than Group 1, the group that was observed prior to completing the questionnaires (48% of the time).

Initial content validity of the BPU and PCF subscales had been obtained from Occupational Health/Infection Control experts for a content validity score of .86 which is an acceptable level of validity. Concurrent validity, a hoped for outcome of correlating nurse handwashing with nurses' self-report of handwashing behavior, was only partially evidenced by the results of a correlation between HW and adequacy of handwashing behavior, but not between HW and frequency of handwashing behavior.

Description of Outcomes

The barrier precautions usage (BPU) subscale contained seven items, each having a potential minimum score of 1=0% of time and a total maximum score of 5=100% of time. A total possible mean score for the BPU subscale was 5. The mean self-reported use score of BPU by the total group of nurses surveyed (n=59) was 4.0, which approximates 80% of the total possible score. The subgroup (n=34) reported a mean score of 4.1 (Table 4).

The personal carefulness factors (PCF) subscale contained six items, each having a minimum score of one=0% and a maximum score of five=100% for a total possible mean score of 5. The mean self-reported use

TABLE 4

Scale Means and Standard Deviations for Total Group
and Subgroup

SUBSCALE	<u>Total Group</u> (n=59)		<u>Subgroup</u> (n=34)	
	x*	sd	x*	sd
BPU	4.0	.63	4.1	.56
PCF	4.2	.48	4.2	.53
HW	4.5	.46	4.5	.48
UP Scale	4.2	.38	4.2	.41

* Scale range: 1 (low) to 5 (high)

of PCF by the total group of nurses surveyed (n=59) was 4.2. The mean self-reported use of PCF by the subgroup (n=34) was also 4.2. The handwashing (HW) subscale contained only five items, with each item having a minimum potential score of 1 and a maximum potential score of 5. The self-reported use of handwashing for the total group (n=59) amounted to a mean total score of 4.5 (88%), and the smaller surveyed/observed subgroup (n=34) also reported a mean score of 4.5 (88%).

Research Questions

Observations of handwashing behavior were expected to serve as concurrent validity for the Universal Precautions Scale. When interpreting the results of the UP Scale or any subscale, the lack of reliability of the subscales must be taken into consideration.

Pearson correlation coefficient statistics were used to answer the research questions posed in Chapter 1. Question 1 referred to the relationship between the nurses' self-report of handwashing behavior (HW) and observed frequency and adequacy of handwashing (HOM). The results showed that there was no relationship between self-reported handwashing and frequency of handwashing observed (Table 5). However, a significant ($p=.05$) and moderate relationship ($r=.32$) was

Table 5

Pearson Correlation Matrix: Scales, Frequency and
Adequacy of Handwashing in the Subgroup (n=34)

Up Subscales and Scale				HOM	
Subscales			Total Scale		
BPU	PCF	HW	UP	FREQ	ADEQ
BPU	-	r=.50 (p=.001)*	r=.81 (p=.000)*	r=.16 (p=.180)	r=.24 (p=.109)
PCF	-	r=.47 (p=.003)*	r=.85 (p=.000)*	r=-.12 (p=.247)	r=.58 (p=.001)*
HW	-	-	r=.58 (p=.000)*	r=-.13 (p=.233)	r=.32 (p=.051)*
UP	-	-	-	r=-.00 (p=.497)	r=.47 (p=.006)*
FREQ	-	-	-	-	r=.21 (p=.147)
ADEQ	-	-	-	-	-

degree of relationship r: 0.1 to 0.3 = weak
 0.3 to 0.5 = moderate
 >.5 = strong

* significance at $p \leq .05$

Alpha reliability estimates:

BPU = .52
 PCF = .39
 HW = .56
 UP = .74
 MCSDS = .85

found between self-reported HW and observed adequacy of handwashing (HOM).

Question 2 referred to the relationships between nurses' self-report of barrier precautions usage (BPU) and observed frequency and adequacy of handwashing (HOM). No significant relationships were seen between BPU and handwashing frequency or BPU and handwashing adequacy.

Nurses' self-report of personal care factors (PCF) and the observed frequency and adequacy of handwashing behaviors (HOM) were examined in Question 3. Relationships between PCF and handwashing frequency were not significant. PCF and adequacy of handwashing showed a strong positive relationship ($r=.58$; $p=.001$).

Summary

The demographic characteristics of the sample and survey outcome were described in this chapter using descriptive statistics. Instrument reliabilities of the scales used in the research were also examined, with only the total Universal Precautions Scale and the Marlowe-Crowne Social Desirability Scale meeting the criterion level of $\geq .70$. Differences between observed Group 1 and Group 2 subgroups were evaluated using t-tests. Results were significant for increased frequency of handwashing in the

group which was observed after completion of self-reported surveys (Group 2).

Pairwise Pearson correlation coefficients computed to answer the research questions were performed. Research question 1 results showed a significant relationship between self-reported handwashing and observed adequacy of handwashing, but not frequency of handwashing. In question 2, self-reported BPU did not reveal significant relationships with observed frequency and adequacy of handwashing. Research question 3, concerned with self-reported personal carefulness factors, revealed a significant relationship with adequacy of handwashing, but not frequency of handwashing. PCF responses also correlated with social desirability responses.

CHAPTER 5

FINDINGS, CONCLUSIONS AND DISCUSSION

The findings related to the outcomes of the research questions and conclusions are addressed in Chapter 5. Reliability and validity estimates are also discussed. In addition, possible implications for nursing practice are presented, study limitations identified, and suggestions for future research discussed.

Findings

Presently health care workers must be observed periodically to assess compliance with UP guidelines in order to ensure adequacy of self-protection practices. A more time efficient method was sought. Therefore, it was hoped that a significant relationship between nurses' self-report of handwashing using the handwashing subscale and observed handwashing frequency and adequacy of the subgroups using the HOM would be found (Research Question 1). This was borne out for handwashing adequacy but not for handwashing frequency. Significant correlations between the variables under study were identified between HW and adequacy of handwashing, and PCF and adequacy of handwashing. The lack of subscale reliabilities may have had a negative effect on the subscale correlations.

The subjects' responses on the UP Scale were not correlated with handwashing compliance. The absence of a significant correlation between reported handwashing and observed frequency of handwashing, although disappointing, is not unexpected. As previously discussed in the review of literature, prior research has shown that compliance is usually over-reported and non-compliance is under-reported (Hilbert, 1985). Nurses have also been found to overestimate their compliance to aseptic technique, including handwashing (McLane, Chenelly, Sylwestrak & Kirchoff, 1983). The mean reported score for handwashing in this study on a scale of 1=never (0% of the time) to 5=always (100% of the time) was 4.5 (87% of the time) for frequency and 4.4 (85% of the time) for adequacy; i.e., most of the time. The mean observed frequency of handwashing was 3.6 (65% of the time) and observed adequacy of handwashing was 4.4 (85% of the time). Nurses reported that they washed their hands 87% of the times that they should, but were observed to wash their hands only 65% of the times indicated by compliance to Universal Precautions guidelines. Both nurses' reported and observed adequacy of handwashing technique were 85%.

Reported handwashing and observed handwashing frequency and adequacy did not correlate with social desirability. The data suggest that the nurses answered

truthfully about their handwashing practices rather than give the more socially desirable response. The reason for the overestimation of handwashing frequency may be due to the fact that handwashing among nurses is probably a habitual practice as opposed to a conscious act. They don't think about it, they just do it, but less often than they think they do. The problem may not be with the validity of the instrument, it may be with trying to correlate self-report with certain direct observational measures. Nurses do have an accurate estimation of the adequacy with which they perform handwashing, when they wash their hands.

Subscale mean for BPU was 4.1, with nurses reported using barrier precautions 78% of the time when indicated. The relationships between self-reported barrier precautions usage and observed handwashing frequency and adequacy were examined in response to the second research question. There was no significant relationship between BPU and either handwashing frequency and adequacy. The BPU and HW subscales also did not correlate with each other. Handwashing is not a barrier precaution, but barrier precaution usage is a personal carefulness factor, as is handwashing. Handwashing is an adjunct to the use of protective barriers such as gloves or face/mucous membrane protection, but is not considered a barrier precaution.

Research Question 3 was related to the relationship between nurses' self-report of personal carefulness factors and observed handwashing frequency and adequacy. No correlation existed between PCF and handwashing frequency. The correlation between PCF and handwashing adequacy may exist because nurses realize, as Universal Precautions guidelines demand, that handwashing is one of the most important self-protective practices nurses can perform to prevent exposure and transmission of infectious diseases. A moderate relationship was also identified between self-reported PCF and the Marlowe-Crowne Social Desirability Scale. If nurses are responding to the PCF-related questions with socially desirable answers, they may be inflating the responses somewhat because they know they should protect themselves more than they actually do in practice.

All three subscales correlated significantly with the UP Scale (r 's= .58 to .85). Although the variables of BPU, PCF and HW were originally considered to be separate concepts, in all likelihood they are subconcepts or parts of the concept of Universal Precautions and the scales are actually subscales. It would not be difficult to argue that the use of protective barriers and handwashing both contain elements of personal carefulness, and are not mutually exclusive.

Reliability and Validity

The three subscales were found to be unreliable (alpha < .70), due to the insufficient sample size surveyed for the number of items in the instrument. The adequacy of the total scale alpha may be the result of upward bias of the results. This lack of reliability must be taken into consideration when discussing the validity correlations of the scale and subscales. The belief that the subconcepts, and therefore the subscales that purport to represent those subconcepts, are not separate entities but rather part of the major concept of Universal Precautions may also explain the low reliabilities of the subscales and the adequate reliability of the total scale (Table 3). Division of Universal Precautions into distinct subconcepts such as barrier precautions usage, personal carefulness factors and handwashing may actually be an artificial separation, and may not represent the concept.

Validity testing using concurrent validity comparison of self-reported behavior to observed behavior indicated that self-reported handwashing is not a valid indicator of handwashing frequency, but is for handwashing adequacy. Mean observed handwashing frequency of 65% for Groups 1 and 2 in this study does compare favorably to a study performed at a similar institution and units in which handwashing

frequency compliance was observed to be 63% (Mayer, Dubbert, Miller, Burkett & Chapman, 1986). In another study, Albert and Condie (1981) reported that MICU nurses washed their hands 43% of the time after patient contact which is similar to the handwashing frequency of 48% for Group 1.

Validity testing using t-tests on the data showed that Group 2 (those who were observed after completing the questionnaires), washed hands significantly more frequently (80% of the time) compared to Group 1 (those who were observed prior to questionnaire completion) (48% of the time). There are at least two possible explanations for this difference. One is that the scales represented a learning situation for the nurses, causing them to consciously examine their handwashing behaviors, and consciously perform them. The other is that the presence of and reason for the principal investigator (PI) being on the specialty units may have become obvious to the nurses by the time the second round of observations were being performed. They may have consciously increased their frequency of handwashing when the PI was on the unit. These results also suggest that there may be a greater disparity between self-report and actual handwashing than the scale and observation means indicate.

Implications for Nursing

In its current state of development the Universal Precautions Scale is not a valid indicator of compliance to UP and handwashing behavior, but the UP Scale has potential for use in nursing practice under certain circumstances. The observed compliance to handwashing, whether 65% or 48% of required time, indicates that nurses are not washing their hands as often as necessary to protect themselves and their patients from contact spread of infectious diseases. If periodic completion of the UP Scale by nurses heightens awareness sufficiently to increase handwashing frequency for a significant duration, that alone would justify use of the UP Scale. Handwashing is the single most important activity performed to prevent spread of infection. Anything that improves compliance with handwashing is a significant contribution to patient and employee health. It is premature to pass final judgement on usefulness of the UP Scale and HOM as predictors of nursing compliance due to the early state of development of both tools.

Study Limitations

The study had a number of limitations. First, the generalizability of the findings of the research are limited due to the small subgroup sample size (n=34), and the lack of reliability of the subscales. When testing a new

instrument it is desirable to have 10 subjects for each instrument item. The UP Scale had 18 items so ideally it should have been tested on 180 subjects. This may account, in large part, for the low subscale reliabilities. Also, because of the low reliabilities, the subscales have limited usefulness and may not be used separately to investigate different aspects of UP, but should only be used as a combined UP Scale.

Second, a limitation which may account for not finding a relationship between frequency of handwashing and the other study variables was the lack of interrater or intrarater reliability for the HOM observations. Although the PI was the only one who performed observations, so that hopefully all observations were judged similarly, single observer judgments could have been a source of systematic error. Also, without comparison of judgments with other RN observers the judgments made as to when handwashing should have occurred may also have been in error. The extent of these limitations is unknown.

A third limitation identified was the fact that the HOM tool, although not a new tool and used in prior research, related to handwashing, was not developed specifically for use with Universal Precautions guidelines. There may be sufficient inconsistencies between the HOM and UP to account

for the lack of correlations identified between handwashing frequency and the scale variables.

Suggestions for Future Research

Additional research needs to be performed using the Universal Precautions Scale to refine and improve the reliability of the total scale. The subscales and subconcepts require further investigation to identify whether there is valid reason to separate UP into three distinct components. Research into improving the Handwashing Observational Monitor by making the handwashing criteria specific for UP compliance is also necessary. Replication of the study using other nursing populations would also be useful in order to increase the generalizability of the findings to nursing practice.

Summary

The findings of this descriptive correlational study demonstrated a significant relationship between self-reported handwashing adequacy and observed adequacy, but not between self-reported frequency and observed frequency. This finding was not unexpected, and may be explained in a number of ways including the idea that handwashing is an entrenched habit not easily given to change. Nurses' responses on the handwashing subscale did not correlate with the Arlowe-Crowne Social Desirability Scale, so nurses may in fact

believe that they are washing their hands more frequently than they actually are.

Low subscale reliabilities (alphas) were another concern and require further investigation into whether there actually are distinct subconcepts of UP such as barrier precautions usage, personal carefulness and handwashing. Significant differences between Groups 1 and 2 in the frequency of handwashing performed (48% compared to 80%) were found using t-tests. Possible explanations for this result were discussed.

Implications of this study for Nursing were that the UP Scale, as currently defined, is not a valid indicator of compliance to Universal Precautions practice. Use of the scale may heighten nurses' awareness of handwashing behavior sufficiently to temporarily increase handwashing frequency. Study limitations included small sample size, lack of reliability, and possible inconsistency of HOM with Universal Precautions. Suggestions for future research included refinement of the Universal Precautions Scale, revision of the Handwashing Observational Monitor, and replication of this study using nurses working on other units to increase generalizability of the study findings.

APPENDIX A
DISCLAIMER, HUMAN SUBJECTS COMMITTEE,
AND AGENCY ACCESS APPROVAL

**NURSES' SELF-REPORT
OF UNIVERSAL BLOOD AND BODY FLUID PRECAUTIONS USE**

Nurses who are working in clinical areas which involve direct patient care are being invited to voluntarily provide information on the frequency with which they use Universal Precautions practices to protect themselves from percutaneous (through skin or mucous membrane) exposure to patients' blood or body fluids.

This study is comprised of the 18-item Universal Blood and Body Fluids Precautions Usage Scale, the 33-item Crowne-Marlowe Scale, and the 12-item Demographic Data Form which will be given to you within the next four weeks. You will need to complete the questionnaires and return them to the Principal Investigator, Suzanne Pear. Observations of direct patient care activity form the second part of the research project. These observations will not interfere with your work or the care you are giving. The name of the observer and the observation schedule will be posted on the unit bulletin board.

By signing this form, you are giving your consent to participate in this study. Your name will not be on the questionnaires and your answers will remain confidential. You may choose not to answer some or all of the questions of the investigator and/or withdraw from the study at any time. Your employment will not be affected in any way.

There are no known risks or benefits to the study participants. The survey will take approximately 15 minutes to complete. The only person who will have access to the data is the Principal Investigator. The report of the study will contain only aggregated data. Thank you for any consideration given this request.

Principal Investigator: Suzanne M. Pear, BSN, RN
Graduate Student
University of Arizona
College of Nursing
326-7370

I agree to participate in this study:

Signature _____ Date _____

Subject ID Number _____ Unit _____



THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

COLLEGE OF NURSING

MEMORANDUM

TO: Suzanne M. Pear

FROM: Linda R. Phillips, PhD, RN, FAAN *LRP*
Associate Dean for Research

DATE: April 13, 1989

RE: Human Subjects Review: "Nurses' Self-Report of Universal Precautions Use"

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Subcommittee of the Research Committee and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

We wish you a valuable and stimulating experience with your research.

LRP/ms



The University of Arizona

Human Subjects Committee
 1690 N. Warren (Bldg 526B)
 Tucson, Arizona 85724
 (602) 626-6721 or 626-7575

26 April 1989

Suzanne M. Pear, B.S.N., R.N.
 College of Nursing
 Arizona Health Sciences Center

RE: NURSE'S SELF-REPORT OF UNIVERSAL PRECAUTIONS USE

Dear Ms. Pear:

We have received documents concerning your above cited project. Regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101(b)(3 & 4)] exempt this type of research from review by our Committee.

Please be advised that approval of this project and the requirement of a subject's consent form is to be determined by your department.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely yours,

Milan Novak

Milan Novak, M.D., Ph.D.
 Chairman
 Human Subjects Committee

MN/ms

cc: Departmental/College Review Committee



Veterans
Administration

Memorandum

DATE April 28, 1989

FROM Research Service (151)

SUBJ #001 - Nurses self report on universal precautions use

TO Suzanne Pear, R.N. (118)

Your nursing protocol has been reviewed and granted administrative approval without pharmacy support. The full R&D Committee will meet on May 24, 1989. You will be notified of their final decision.

A handwritten signature in black ink, appearing to read 'M. Katz'.

MURRAY A. KATZ, M.D.
Associate Chief of Staff for Research

RESEARCH APPROVAL FORM

Suzanne M. Pear, BSN, RN, graduate student at the University of Arizona College of Nursing and Principal Investigator has approval from Associate Chief, Nursing Service/Education to conduct a survey and observational monitor involving nurses at the Tucson Veterans Administration Medical Center. This research is part of data collection for a thesis entitled "Nurses' Self-Report of Universal Precautions and Observed compliance".

This approval is contingent on the Principal Investigator obtaining approval from all necessary agencies required for research at this institution.

Cliff W. Shultz RN DPA
Associate Chief Nursing Service/Education
Tucson VAMC

4/3/89
Date

RESEARCH APPROVAL FORM

Suzanne M. Pear, BSN, RN, graduate student at the University of Arizona College of Nursing and Principal Investigator has approval from President, AFGE Local 495 to conduct a survey and observational monitor involving nurses at the Tucson Veterans Administration Medical Center. This research is part of data collection for a thesis entitled "Nurses' Self-Report of Universal Precautions and Observed compliance".

This approval is contingent on the Principal Investigator obtaining approval from all necessary agencies required for research at this institution.



President, AFGE Local 495
Tucson VAMC

4-5-89
Date

APPENDIX B
DEMOGRAPHIC SURVEY

UNIVERSAL PRECAUTIONS USAGE
Demographic Data Form

1. Subject Identification Number: _____ (1,2,3)
2. Age, in years: _____ (5,6)
3. Sex: ___male; ___female (7)
4. Type of basic nursing education program:
 ___ADN; ___Diploma; ___BSN (8)
5. Highest degree held at the present time:
 ___ADN; ___Diploma; ___BSN; ___BS/BA-Other; (9)
 ___Master's or higher degree.
6. Number of years of experience in nursing: ___ (10,11)
7. Clinical Specialty:
 ___MICU ___OPT/LSU ___Other:____
 ___SICU ___ General Medical
 ___Hemodialysis ___General Surgical (12)
8. Length of time practicing Universal Precautions:
 ___Years, ___Months (13,14,15)
9. Have you attended a formal Universal Precautions Inservice?
 ___Yes, ___No (16)
10. When was the last time you were injured with a contaminated needle?
 ___ Never
 ___ Less than six months ago;
 ___ six months to one year ago;
 ___ more than one year ago. (17)
11. Did you report the injury to Employee Health?
 ___ Yes, ___ No, ___N/A (18)
12. Have you received the Hepatitis B vaccination series?
 ___ Yes, ___ No (19)

APPENDIX C
UNIVERSAL PRECAUTIONS USE SCALE

UNIVERSAL BLOOD AND BODY FLUIDS PRECAUTIONS USAGE

Directions: Answer the question by circling the number that best describes the frequency of your actions.

- 1=Never (0% of the time)
 2=Occasionally (25% of the time)
 3=Often (50% of the time)
 4=Most of the Time (75% of the time)
 5=Always (100% of the time)

When adequate supplies are available:

1. I wear gloves when I start IVs. . . (1) (2) (3) (4) (5)
2. I remove a bedpan from patients with ungloved hands.
 (1) (2) (3) (4) (5)
3. Prior to performing a procedure I try to anticipate the type and amount of patient's blood or body fluid I may be exposed to. (1) (2) (3) (4) (5)
4. I wash my hands after removing gloves. (1) (2) (3) (4) (5)
5. I omit wearing gloves when handling nasogastric tube drainage. (1) (2) (3) (4) (5)
6. I recap needles after use. (1) (2) (3) (4) (5)
7. I wash my hands before each patient procedure.
 (1) (2) (3) (4) (5)
8. I wear gloves when performing oral care.
 (1) (2) (3) (4) (5)
9. I wear gloves when I clean up blood or body fluid spills.
 (1) (2) (3) (4) (5)
10. When I wash my hands I scrub for at least 10 seconds. .
 (1) (2) (3) (4) (5)
11. I check the needle disposal box to see that nothing is poking out before I attempt to discard needles into it. . .
 (1) (2) (3) (4) (5)
12. I use soap or antiseptic solutions to wash my hands. . .
 (1) (2) (3) (4) (5)

Directions: Answer the question by circling the number that best describes the frequency of your actions.

- 1=Never (0% of the time)
 2=Occasionally (25% of the time)
 3=Often (50% of the time)
 4=Most of the Time (75% of the time)
 5=Always (100% of the time)

13. I make a special effort to concentrate on what I am doing when I am working with unsheathed needles.(1) (2) (3) (4) (5)
14. I wear gloves when handling laboratory/body fluid specimens.(1) (2) (3) (4) (5)
15. I wash my hands after each patient procedure.(1) (2) (3) (4) (5)
16. I dispose of blood/body fluid -filled containers in the biohazard (red-lined) waste receptacles. (1) (2) (3) (4) (5)
17. I wear gloves when performing fingersticks.(1) (2) (3) (4) (5)
18. I report to Employee Health when I get stuck with a contaminated needle.(1) (2) (3) (4) (5)

APPENDIX D
HANDWASHING OBSERVATIONAL MONITOR

UNIVERSAL BLOOD AND BODY FLUID PRECAUTIONS
HANDWASHING OBSERVATIONAL MONITOR (HOM)

Date: _____

Unit: _____

Criteria	YES	NO	NA	Comments
Handwashing Compliance: Frequency				
1. Washes hands before patient contact/procedure.				
2. Washes hands after touching materials or inanimate objects which have been in contact with or bear patient secretions, such as saliva.				
3. Washes hands after direct patient contact, touching areas of secretions, such as mouth, nose, and so forth.				
4. Washes hands after direct contact with materials contaminated with patient secretions such as urine, blood or feces, dressings				
5. Washes hands after performing any procedure to the patient (i.e., dressing changes, IV therapy initiation, etc.).				
6. Washes hands after changing bed linens and dirty laundry hampers.				
7. Washes hands after removing gloves.				
Handwashing Methodology: Adequacy				
1. Wet both hands and use soap.				
2. Scrub hands for minimum of ten (10) seconds.				
3. Used friction on all surfaces.				
4. Rinse hands well with running water.				
5. Dry hands with paper towels.				
6. Use a paper towel to turn off hand faucets.				

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