

Promoting Universal Precautions

By

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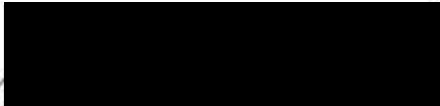
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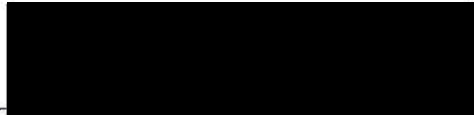
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## TABLE OF CONTENTS

	Page
APPENDICES.....	iii
LIST OF TABLES.....	iv
LIST OF FIGURES.....	v
CHAPTER I: INTRODUCTION.....	2
CHAPTER II: LITERATURE REVIEW.....	4
CONCEPTUAL FRAMEWORK.....	13
RESEARCH QUESTION.....	15
CHAPTER III: METHOD.....	17
INSTRUMENTS.....	18
DATA COLLECTION PROCEDURES.....	24
DATA ANALYSIS.....	26
CHAPTER IV: RESULTS.....	28
CHAPTER V: DISCUSSION, SUMMARY & IMPLICATIONS.....	42
REFERENCES.....	55

## APPENDICES

	Page
A OSHA Recommendations.....	58
B Universal Precautions Self Evaluation.....	59
C Evaluation Survey.....	65
D Biographical Data.....	67
E Cover Letter.....	68
F Proposal Approval from the Committee on Human Research...	69
G Raw Data.....	70
H Responses to Evaluation Survey Items.....	71
I Responses to Evaluation Survey Open-Ended Questions.....	72
J Pearson Product Moment Correlation Matrix.....	75
ABSTRACT.....	76

## LIST OF TABLES

TABLE	PAGE
1. Characteristics of the Sample.....	30
2. ES items Relevant to Research Question 1.....	32
3. ES items Relevant to Research Question 2.a.....	35
4. ES items Relevant to Research Question 2.b.....	37
5. ES items Relevant to Research Question 2.c.....	38
6. Time Required to Complete the UPSE.....	40

LIST OF FIGURES

FIGURE	PAGE
1. Conceptual Framework.....	16

## CHAPTER I

### Introduction

The intent of this paper is to analyze a non-experimental, descriptive study of an instrument developed for nurses to self-evaluate their practice in reference to Universal Precautions guidelines. For the purpose of this paper, Universal Precautions (UP) will be defined as: "a specific infection control policy followed by health care professionals, where all clients are considered equally contagious and therefore specific protocols are followed with all clients per the Occupational Safety and Health Administration (see Appendix A) and CDC recommendations" (Centers for Disease Control, 1987).

Following the Center for Disease Control's (CDC) recommendations for the health care worker and public's protection from blood and body fluids, health care professionals and employing agencies have worked toward changing specific procedures and practice techniques regarding the protection from exposure to blood and body fluids (Centers for Disease Control, 1987). In the clinical setting health care professionals (HCPs) can be faced with multiple exposures to blood and body fluids every day. Although new policies, procedures, and products regarding UP have been placed in effect, and new as well as practicing nurses have been educated, there continues to be "...growing evidence that nurses do not follow recommended procedures..." (McNabb and Keller, 1991, p.732).

Research studies reviewed have documented multiple exposures



of HCPs to blood and body fluids, with HCPs seroconversion to hepatitis B virus (HBV), herpes simplex-2 virus (HSV-2), and human immunodeficiency virus (HIV) (Henderson et al., 1991; Kuhls et al., 1987). Research studies reviewed have also documented the effectiveness of educational strategies to overcome inadequate knowledge regarding UP and inconsistent compliance with UP guidelines (Ribner & Ribner, 1990; Hammond, Eckes, Gomez, & Cunningham, 1990). Because there is evidence that HCPs do not follow UP guidelines as intended, the focus of this study will be to analyze a self-evaluation technique developed for nurses to use to reflect on their individual knowledge and application of UP guidelines, as a motivational factor to promote consistent use of UP guidelines.

## CHAPTER II

### Literature Review

Seventeen studies were reviewed relating to Universal Precautions (UP) usage in the areas of occupational exposures, compliance with UP guidelines, and the effectiveness of educational strategies regarding UP training. Research studies reviewed were selected for the purposes of evaluating research that specifically: 1) pertained to occupational exposures, compliance with UP guidelines, and educational strategies regarding UP training and 2) addressed tools developed to evaluate UP usage. Review of these studies is imperative to present as the basis for acknowledging the problem of inconsistent usage of UP guidelines and for developing a unique approach for promoting UP usage.

#### Multiple Exposures

Longitudinal studies examining health care professionals (HCPs) practice have documented adverse exposures (needlestick and mucous membrane) to blood and body fluids causing seroconversion. Henderson et al. (1991) released the results of a 6 year longitudinal study of HCPs. Out of 1344 HCPs surveyed, there were 179 reported percutaneous and 346 reported mucous membrane exposures to fluid from HIV infected patients. Of these reported exposures one seroconversion of HIV was documented. Five hundred fifty-nine HCPs reported 2712 cutaneous exposures from blood of HIV infected patients. Henderson et al. (1991) report the risk of seroconversion from transmission associated

with a percutaneous exposure to blood from a HIV infected patient to be approximately 0.3% per exposure. Risks associated with mucous membrane and cutaneous exposures are likely smaller.

"These data support the use of barrier precautions and suggest a need for strategies that change HCPs attitudes and behaviors" (Henderson et al., 1991, p.740).

In a similar study released in 1991, Stotka, Wong, Williams, Stuart, and Markowitz prospectively surveyed HCPs exposures to blood and body fluids. Results from surveys documented multiple exposures of HCPs to blood and body fluids. The authors concluded that "...efforts to reduce these exposures should be directed not only at improving procedural skills...but also in increasing barrier use during procedural and nonprocedural tasks" (Stotka et al. 1991, p.538).

Kuhls et al. (1987) completed a prospective study of 246 female HCPs working with HIV infected patients. The purpose was to study multiple occupational exposures that could later document seroconversion to cytomegalovirus (CMV), HBV, or HSV-2 because of the chance for occupationally acquired infection from HIV infected patients with opportunistic infections. Results documented one HCP seroconversion to HBV and another to HSV-2.

### Compliance

A review of nine studies of compliance with Universal Precautions (UP) documented inconsistent practice of HCPs in hospital settings following UP guidelines. McNabb and Keller's (1991) descriptive study of 328 staff nurses revealed that in the

week prior to the study, of the total sample, 76% reported at least one unprotected exposure to blood or body fluids. When asked to describe the last incident of exposure without using precautions, 24% of respondents were exposed when starting an intravenous (IV) catheter, 9% when changing or disconnecting IV tubing or discontinuing an IV catheter, and 8% when drawing blood or assisting with phlebotomy. These unprotected exposures indicate lack of barrier use during predictable situations. The authors point out "two general areas where intervention is needed: changes in the workplace environment and shifting staff education about HIV to include a greater focus on risky situations" (McNabb & Keller, 1991, p.742).

Baraff and Talan (1989) investigated compliance with UP by having a research assistant observe HCPs, unknowingly, as they provided care during 169 encounters. Rate of compliance with use of gloves for IV catheter placement and phlebotomy was 52.5%. With HCPs caring for critical trauma patients, "75% wore gloves, 27% wore gowns, 19% wore protective eye wear, and 2% wore masks" (Baraff & Talan, 1989, p.655).

Hammond, Eckes, Gomez, and Cunningham (1990) reported on findings from an observational study of compliance by HCPs with UP during trauma resuscitations: results showed only an overall strict compliance rate of 16%, and barriers other than gloves were commonly ignored. The researchers indicated the need for "active infection control surveillance" to increase compliance (Hammond et al., 1990, p.557).

Gauthier, Turner, Langley, Neil, and Rush (1991) devised and piloted a UP assessment tool designed to observationally assess use of UP in 3 acute patient care settings (emergency department, intensive care unit, and medical-surgical unit). Compliance was scored in the areas of barrier precautions, handwashing, handling of sharp instruments, and avoiding unprotected mouth-to-mouth resuscitation. Pilot tests of 9 nurses revealed 76-78% compliance rate and a second study of 5 nurses revealed a 62-65% compliance rate.

Courington, Patterson, and Howard (1991) observed and rated HCPs usage of UP. Results showed infractions occurring 57% of the time in 549 observed procedures in one study and 58% of the time in 616 observed procedures in another study. The authors' addendum to this report emphasizes "...the need for leadership in securing compliance with UP...Leaders need to be seen following appropriate precautions" (Courington et al., 1991, p.96).

Willy, Dhillon, Loewen, Wesley, and Henderson (1990) conducted a national survey of certified nurse-midwives to study self-reported exposures to blood and body fluids with the use of barrier precautions and other infection control measures. Results showed over the last six months prior to being surveyed, 74% of the respondents had experienced at least one cutaneous exposure to blood, "51% had splashed blood or amniotic fluid in their faces, 24% reported one or more needlestick injury, and only 55% reported using universal precautions (UP)" (Willy et al., 1990, p.351, 355). These investigators suggest that

emphasizing occupational risk "may be more important than knowledge of transmission routes in affecting the use of UP" because UP compliers in this study perceived a greater risk to occupational infection, while 38% of respondents perceived UP as unnecessary (Willy et al., 1990, p. 356).

Bauer and Kenney (1993) completed a descriptive study of protective barrier use with a random sample of 306 perinatal nurses who rated their practice using a Likert-type scale. During high risk procedures mask, eye wear, and gown were rarely or never used; and use of gloves were listed between sometimes and often. In the year prior to survey, the averaged rate of adverse exposures was 11-15 times for all respondents, with over 25% of respondents reporting over 30 exposures to body fluids. Factors most often reported to influence barrier use were: 1) regarding all patients as infectious and 2) patients considered to be in a high risk group. Factors most often reported to influence barrier nonuse were: 1) no time and 2) poor fit. The authors suggest that "management needs to evaluate the quality and adequacy of the barriers it provides and enforce the use of protective barriers" (Bauer and Kenney, 1993, p.434).

Grady, Shortridge, Davis, and Klinger (1993) developed and tested a two part self-report questionnaire with a convenience sample of 100 registered nurses (RNs) attending either graduate level classes or professional organization meetings. The purpose of this tool was to measure nurses' attitudes toward bloodborne diseases and UP, and nurses' responses to items reflecting health

belief model constructs. The researchers conclude that the model constructs "benefit, barrier, seriousness, and susceptibility are appropriate in identifying the attitudes of RNs relating occupational exposure to bloodborne diseases and UP" (Grady et al., 1993, p.539).

Kristensen, Wernberg, and Anker-Moller (1992) surveyed all employees with any patient contact in one secondary and tertiary care hospital for HCPs' knowledge and compliance with UP. Nine hundred one anonymous questionnaires were returned. Results were used to compare the rate of occupational exposures to knowledge and compliance with UP guidelines. The authors concluded that "healthcare workers who knew and complied with UP had a significantly lower rate of contact with patient blood than those who did not" (Kristensen et al., 1992, p. 723).

#### Effectiveness of Educational Strategies

Five research studies were reviewed regarding educational training for UP. Fahey, Koziol, Banks, and Henderson (1991) studied self-reported cutaneous exposures to blood and body fluids before and after UP training. After UP training, mean blood exposures per participant decreased from 35.1 to 18.1 and mean annual exposures to all substances per participant decreased from 77.8 to 40.0. These authors summarized that "...the use of UP may ultimately significantly lower the occurrence of so called inapparent parenteral transmission of blood-borne pathogens in the health care work place" (Fahey, Koziol, Banks, & Henderson, 1991, p.153).

Burtis and Evangelisti (1992) studied nurses' attitudes toward caring for HIV infected patients before and after UP training. Although only 41% of 79 surveyed nurses had received the HBV vaccine, after UP training there was a 23% increase in accepting assignment for HBV patients and a 17% increase for accepting assignment for HIV patients. Also after instituting UP, there was a "17% increase in nurses feeling they could protect themselves if a diagnosis was not yet established...and a 20% decrease in perceived stress when caring for HIV infected patients" (Burtis & Evangelisti, 1992, p.135). The authors note "positive trends after implementation of UP...including an increase in perceived control of self-protection when providing direct care" (Burtis & Evangelisti, 1992, p.137). Emphasizing to HCPs the risks of blood borne diseases, these researchers state "...the only occupational protection nurses have against AIDS is consistent use of UP" (Burtis & Evangelisti, 1992, p.137).

Ribner and Ribner (1990) developed an educational program that combined reporting needle recapping rates to HCPs together with information about techniques for correct disposal. Through counts of uncapped needles from randomly selected sharps containers before and after program institution the rate of recapping fell from 61% to 16% for percutaneous injections and from 44% to 33% with IV administration needles. Follow up counts after eight months showed continuation of these lowered rates. The authors concluded that "programs that report back to employees on their rate of recapping can significantly reduce



this activity" (Ribner & Ribner, 1990, p.635).

Talan and Baraff (1990) used a 14 item true/false pre/post test to evaluate their UP educational program that included a detailed lecture on the basics of HIV transmission, occupational risks, and UP policies. After their UP educational program, mean scores only increased minimally from 70 to 72.9. Compliance with UP was also documented by a research assistant using direct rating observation. Use of gloves increased from 66.7% to 87.7% in critical trauma IV phlebotomy and patient handling; use of gowns increased from 25.0% to 39.5%; use of eye wear increased from 0% to 17.3%; and use of masks was without change. The authors state "...in general there appeared to be an underestimation of the risk of HIV transmission from a patient not known or perceived to have AIDS...This misunderstanding may explain the incomplete adherence to UP policies" (Talan & Baraff, 1990, p.1325).

Williams and Buckles (1988) used an experimental design and questionnaire to assess effectiveness of an educational program to increase compliance of hand washing as a measurement of infection control. A 42 item true/false questionnaire was devised to measure knowledge of properties and transmission of microorganisms, aseptic and hygienic techniques, and general knowledge of cross-infection and infectious diseases. Tests were given to HCPs of two hospitals. One hospital was the control and its HCPs were not pretested; in the second hospital HCPs were tested before and after implementation of an educational program

regarding hand washing. Scores were higher in the experimental hospital after the educational program although observational measures to count hand washing frequency showed lower rates than at baseline. Williams and Buckles summarize that "...increased knowledge does not necessarily increase behavioral compliance... it appears that lack of motivation rather than lack of knowledge is the most important cause of low compliance" (1988, p.64).

#### Summary

Data from the literature review support the need for strict and consistent adherence to Universal Precaution (UP) guidelines for occupational protection. Incomplete adherence may be due to health care professionals (HCPs) underestimating their risks of occupational seroconversion, which may be the key to the motivational interests for compliance. Researchers suggest directing further studies in the areas of improving procedural skills, with the need for leadership to secure and actively survey compliance. Emphasizing the risks of HCPs to occupational exposures, and reporting positive change habits to HCPs are also implicated through this literature review as effective feedback mechanisms to promote consistent use of UP guidelines.

Examining the literature pertaining to the evaluation of infection control practices, use of protective barrier equipment, and use of UP guidelines revealed a large focus on evaluation of educational programs and observational assessments. Although researchers view the levels of compliance with infection control being directly related to HCP motivation, no studies were found

that directly involved HCPs in actively assessing their own ability to follow recommended procedures. Researchers point out the need for activities that will lead to a more strict adherence to UP guidelines.

What this author saw in the design and results of past studies is impetus for coming up with a unique approach to promote UP usage consistently. If the current approaches to educational programs were not as successful as planners had hoped, then it seems reasonable to seek other approaches. An approach not found in the literature review was a consistent, simple, and quick tool involving HCPs at their individual clinical level in active assessment of their own use of UP. This approach may be effective for self-evaluation, which in turn may motivate HCPs through self-awareness and self-reflection on individual preparedness for and adherence to UP.

#### **Conceptual Framework**

Leadership and motivation appear to be important to promoting UP. "Leadership involves working through individuals and groups to accomplish goals" (LaMonica, 1983, p.8). Motives are defined as "needs, wants, drives, or impulses within an individual that prompt behavior... Motives may be conscious or unconscious" (LaMonica, 1983, p.28). Movement toward goals, although not guaranteed, stems from internal as well as external motivating forces.

Internal motivation comes from within a person; external motivation is outside the person...If someone has an internal need, the sight of an external goal increases the

probability that behavior aimed at goal attainment will follow...External motivation is accomplished by diagnosing the internal need of a person, specifying an external goal and reward, using intrinsic and extrinsic factors that fulfill the follower's need, and setting a path through which the follower can attain the goal and reward through behavior that accomplishes the particular goal (LaMonica, 1983, p.33).

In a commentary, Campbell (1991) acknowledges the challenges infection control practitioners have in promoting infection control practices and states that "it is critical...to motivate personnel and to develop new strategies and practices, that in turn, will mean better infection control" (p. 122). Campbell (1991) identifies motivation as a key concept for promoting infection control and posits that it consists of "three basic components that activate, direct, and sustain human behavior" (p. 122).

This means that there must be something within an individual that stimulates him or her to action...Motivation, then, is the result of both internal and external factors. Internal motivators can be influenced but not controlled, while external motivators can be created and controlled by others...while personnel cannot be directly motivated...practitioners can use strategies to 'push the right buttons' to increase motivation...individualized incentives have more power to motivate (Campbell, 1991, p.122-123).

The study of motivation appeared to be a consistent theme throughout literature reviewed and was the basis for this investigator designing an instrument that would enable individual health care professionals to study their individual practice and identify personal incentives necessary to promote change. The use of a self-evaluation instrument as an external force that would allow for individual reflection may lead to awareness of

personal inconsistencies in individual application of UP guidelines to practice. Realization of this internal need may specify extrinsic factors necessary for motivating change of practice to promote consistent UP usage (see Figure 1).

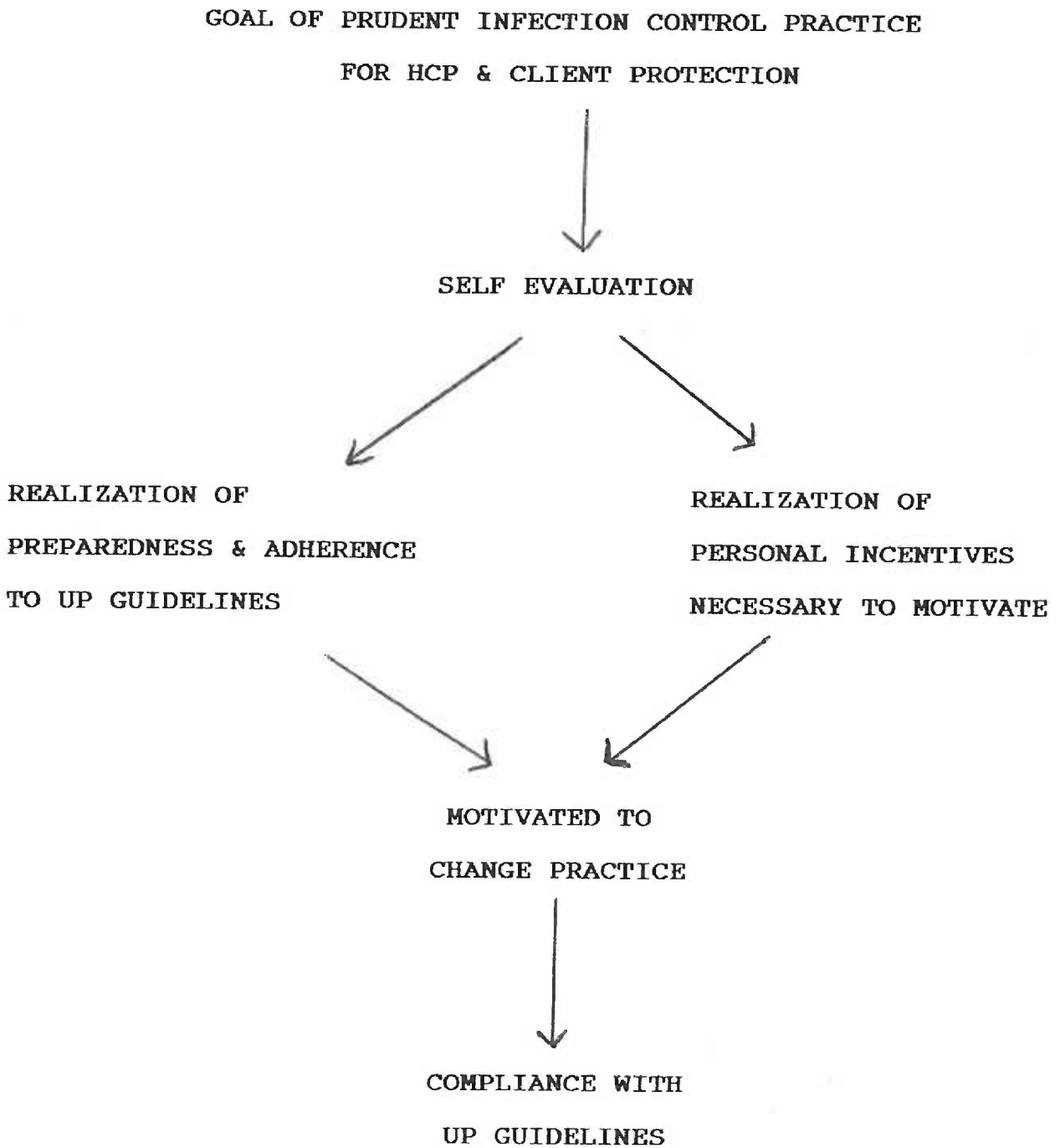
#### Research Question

A self-evaluation instrument regarding Universal Precautions (UP) use was developed for purposes of this study. The aim of this study was to assess the responses of nurses to this instrument. The research questions were:

1. Is the Universal Precautions Self Evaluation an analysis technique that nurses could use to reflect on their personal practice?
2. More specifically, do nurses report that their use of the Universal Precautions Self Evaluation instrument influences self-awareness of:
  - a. their individual use of UP?
  - b. their risk taking behaviors regarding their use of UP?
  - c. their knowledge related to occupational exposures?

Review of the literature has provided the basis for these research questions. The purpose of this research project was to assess the feasibility and adequacy of the Universal Precautions Self Evaluation instrument from the perspective of nurses in clinical practice.

Figure 1  
Conceptual Framework



### CHAPTER III

#### Method

The problem identified was nurses' inconsistent use of UP in their individual clinical practice. Development of the instrument for self-evaluation of Universal Precautions knowledge and application was guided by the problem identified. The instrument is referred to as the Universal Precautions Self Evaluation (see Appendix B). This tool was developed for nurses to use as a self-analysis of individual UP knowledge and application.

A second instrument, developed to answer the research questions, is referred to as the Evaluation Survey (see Appendix C). This tool is a questionnaire survey with Likert scale type items and open-ended questions developed to analyze the Universal Precautions Self Evaluation instrument.

The method developed to assess the feasibility and adequacy of the Universal Precautions Self Evaluation (UPSE) was a pilot study, with a specified group of nurses completing both tools. This method was considered to be the best approach of study because of the need "...to detect weakness as they would be truly representative of inadequacies inherent..." in the newly developed tools (Polit and Hungler, 1991, p. 62).

#### Design

The focus of this research project was the instrument, Universal Precautions Self Evaluation (UPSE). The type of design selected is a non-experimental, descriptive study because the

goal is to describe nurses' responses to using this self-assessment instrument.

### Sample and Setting

The target population of interest is practicing nurses. A convenience sample was selected for this pilot study. The group of nurses selected for this pilot study are from the Oregon Health Sciences University's (OHSU) Post Anesthesia Care Unit (PACU) (N=28). The accessible population and subjects used for the convenience sample included all practicing nurses from one acute care unit in a tertiary care teaching hospital. Practicing nurses were defined as nurses actually working during the two weeks identified as the period for data collection. No exclusions were made. Reasons for choosing this unit were that the PACU nurses' clinical practice included a wide variety of clients with both medical and surgical problems including diagnosed seropositivity for HIV and HBV. Moreover, work in this unit was characterized by a high potential for multiple exposures to blood and body fluids.

### Instruments

Three instruments were used in this study; they were developed by the investigator. The first instrument was the self-evaluation of UP knowledge and application. The second was designed to assess nurses' responses to using the self-evaluation instrument and to answer the research questions. The third was a biographical data sheet used to elicit biographical information from the respondents.



### Universal Precautions Self Evaluation

The Universal Precautions Self Evaluation (UPSE, see Appendix B) was developed as an instrument for nurses to use for reflection on their practice (usage and risk taking behaviors) regarding UP application and knowledge base related to occupational exposures and UP guidelines. The UPSE was designed to be completed by individual nurses, on their own, taking as much time as needed to complete the tool. After completion of the self-evaluation, each section was to be self-scored by the respondent for immediate feedback. The UPSE was developed based on a review of the literature and OSHA's current guidelines for UP (see Appendix A). A copy of these guidelines was included in each packet after the scoring section for respondents to refer to when scoring the UPSE.

The UPSE was divided into four sections. Section I contains questions related to knowledge and understanding of UP guidelines. Sections II and III include questions related to the risk for occupational exposure. Section IV contains different scenarios that require decision making processes for choosing personal protective equipment.

The approach used to develop the UPSE was to devise a self-evaluation that would portray usage of UP guidelines in a way to promote self-awareness through self-review in a non-judgmental fashion. A guiding assumption was that individuals are likely through self-evaluation to reflect on personal risk taking behaviors which might promote internal motivation. As identified

in the conceptual framework, awareness and acceptance of ownership to personal problem areas may increase the probability of behavior aimed at goal attainment. The path to accomplishing set goals should be recognized when the nurses' internal need to prevent risks associated with occupational exposures is made apparent. The external goal of adherence to UP guidelines should then be realized as a motivational force to promote the necessary practice of and adherence to UP guidelines.

#### Evaluation Survey

The Evaluation Survey (ES, see Appendix C) was designed to evaluate nurses' responses to the UPSE. The ES items were either in Likert scale format or open-ended questions. They were created to: 1) assess nurses attitudes regarding personal reactions to UPSE items; 2) identify specific areas of knowledge needs and knowledge gained from completing the UPSE; and 3) evaluate whether the UPSE promotes self-awareness and self-reflection of personal application and knowledge to UP guidelines.

The ES Likert type items were evaluated on a 1-4 point score with 1 point given to the most positive response and 4 points given to the most negative response. Negatively worded items were reverse scored and 1 point was given to the most negative response.

In the open-ended questions respondents were asked to comment on or suggest changes for each specific section and the scoring of the UPSE. Respondents were also asked for general

comments or suggestions about the UPSE and about any difficulties or concerns about using Universal Precautions.

### Biographical Information

The Biographical Data Sheet (see Appendix D) was an instrument developed to elicit personal information from each respondent. The purpose of this instrument was to collect data from respondents for a group description in terms of age, number of years practicing as a nurse, and highest educational qualifications.

### Reliability and Validity

Estimating the reliability and validity of the two primary instruments are important factors for consideration prior to using research instruments for study purposes, especially when they are newly developed. The focus of this study was the perceptions of nurses about the UPSE. The reliability of the UPSE was not an issue; however the design of the instrument and its use did take into account features that would promote reliability.

An assessment of reliability in terms of internal consistency were to be estimated for the ES. Internal consistency refers to "the extent that all subparts are measuring the same characteristics" (Polit and Hungler, 1991, p. 370). Plans for its assessment are discussed under the data analysis section.

Sources of measurement error may also affect the reliability of these two instruments. "Response sets such as social

desirability, extreme responses, and acquiescence are potential problems in self-report measures...minimized by the simple strategy of counterbalancing positively and negatively worded statements" (Polit and Hungler, 1991, p. 366, 308). The self-evaluation format and self-scoring method in the UPSE may decrease response bias and prevent misrepresentation of respondents answering in a socially desirable or extreme response fashion. Because the main idea behind the UPSE instrument is to promote self-reflection, it did not really matter how the nurses completed the UPSE tool as long as it caused them to think about their own practice techniques.

The instrument format and clarity may also influence the outcome of the data obtained. "Questions in a self-report instrument may sometimes be interpreted differently by different respondents, leading to a distorted measure of the critical variable" (Polit and Hungler, 1991, p.367). Care was taken when considering the order and type of questions/items used for both tools. The number of items were also considered, because it has been shown that longer scales have greater reliability, although the less time consuming an instrument is, the better the returns (Polit and Hungler, 1991). Situational and transitory factors may also influence measurement, and their negative impact may be decreased by directing respondents to complete the surveys at their leisure in a quiet comfortable environment (see Appendix E).

Regarding validity: Is there is evidence established that

shows these instruments are measuring the critical attributes this author wants them to be measuring? One way to assess for evidence of critical attributes is through the considerations of content validity. Content validity was assessed by a group of nurses from the local Association of Nurses in AIDS Care who reviewed both instruments for adequate representation of the content areas. The instruments have been revised in accordance with their comments, particularly to have the UPSE questionnaire no more than four pages in length.

Content validity can be assessed through judging whether or not the critical attributes to be studied are linked with a theory or conceptualization (Polit & Hungler, 1991). This author used a logical analysis approach between the conceptual framework addressed and the UPSE instrument development, to link them together in a way to measure these abstract concepts of personal reflection, self-awareness, and self-evaluation as guiding the changes needed to promote consistent usage of UP. The ES questionnaire was developed to assess respondents' attitudes toward the UPSE instrument in the areas of self-reflection, knowledge level, knowledge gained and application of UP guidelines into practice.

#### Extraneous Variables

Variables that may confound the critical attributes under study could come from the research situation and/or the respondents. Keeping communications to respondents regarding this project consistent, as in the cover letter, may minimize

misinterpretations and/or misrepresentations. Use of a homogenous sample population may also lessen the effects of extraneous variables although the draw back to this is less generalizability.

The main idea behind the UPSE is development of a tool to promote self-assessment regarding use of Universal Precautions (UP). Threats to external validity may have been minimized because the UPSE was devised to be a non-judgmental, self-rating analysis for nurses to use, on their own and without consultation from others, unless initiated by the person completing the instrument. The Evaluation Survey (ES) assessed perceptions of nurses as to "success" of the UPSE. Data analysis of the ES described responses on specific items as well as an over-all response. This analysis suggested whether the UPSE and the ES might be used in situations outside the specific pilot test setting. Design threats to external validity of both the UPSE and the ES may be further minimized with a reliable tool, refined on the basis of this pilot project, and controlled through use of a homogenous population sample.

#### Data Collection Procedures

After gaining approval from the Masters Research Project Committee, the Oregon Health Sciences University's Committee on Human Research, and the Post Anesthesia Care Unit's (PACU) department director, packets containing the UPSE, the ES, and the biographical data sheet were distributed to each eligible nurse in the PACU by placing them in their individual mail boxes.

As noted on the cover letter (see Appendix E) directions specified the procedure for completing the UPSE, the ES, and the biographical data sheet and provided directions for returning the ES and the biographical data sheet. Since the UPSE was set up as a self-scoring instrument, subjects who completed the UPSE were to score it themselves to obtain immediate feedback. Next, the respondents would then complete the ES as directed. To protect anonymity, the ES questionnaire and the biographical data sheet were to be returned whether or not they were completed in separate sealed envelopes provided in the packet to a collection box located within the PACU. To encourage responses a flyer was posted in the PACU. After one week a reminder note was placed on the communication bulletin board.

#### Protection of Human Rights

The proposal for this research project was submitted to Oregon Health Sciences University's Committee on Human Research (CHR) and was approved as written (see Appendix F). This study fell under the exempt category from full CHR review because it was a questionnaire survey of competent adults. Procedures to ensure confidentiality were acknowledged in a cover letter attached to each tool (see Appendix E). This cover letter included an explanation of the study purposes, the potential risks associated with participation, and how data obtained will be used. Directions contained a description of subject rights (which included the right to refuse participation and to decline answering any questions) as well as the procedures used to

maintain anonymity and confidentiality.

### Data Analysis

The biographical data were summarized to describe characteristics of the respondents. Analysis of the Likert type items and the open-ended questions in the ES were guided by the research questions. Two analytic strategies were used to describe responses on the ES. First, responses to individual items in the Likert type items were described by calculations of a mean score and a standard deviation for each item, and the frequency (n) of nurses per response. Responses to each item on the scale of strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD) were scored on a scale of 1-4 with 1 point for SA, 2 points for A, 3 points for D, and 4 points for SD. Rationale for choosing univariate descriptive statistics was to examine data variability and describe sample responses (Monroe and Page, 1993). Rationale for choosing this type of analysis was "to look at the characteristics of the individual items, ...the overall scale, and the relationship between the individual items and the entire scale" (Norusis, 1993, p.144). The frequency and percentage of responses to ES items describes the sample responses, the mean describes the average response for each ES item, and the standard deviation describes the variability of the distribution of scores for each ES item (Polit & Hungler, 1993).

Second, the comment section of the ES were also evaluated. General and specific areas the respondents commented on regarding



the UPSE were analyzed based on the research questions.

## CHAPTER IV

### Results

Results of this study describe the responses of nurses to an instrument designed to assist them in self-evaluation of preparedness for and adherence to Universal Precautions (UP) guidelines, as a way to guide their individual practice. The purposes of this study were to: 1) examine nurses' attitudes toward the Universal Precautions Self Evaluation (UPSE), 2) identify specific areas of nurses' knowledge needs and/or benefits from completing the UPSE, and 3) evaluate whether the UPSE promoted nurses' self-awareness and self-reflection of personal application and knowledge of UP guidelines. The Evaluation Survey (ES) was designed to assess whether completing the UPSE instrument is an analysis technique nurses could use to reflect on their personal practice. The response rate to the survey and the sample are described. Responses from the ES Likert type items and open ended questions describe nurses' perceptions about completing the UPSE. The report of these results is organized with reference to the research questions. Lastly, responses relevant to the credibility of the UPSE are described.

### Sample

Twenty-eight research packets were distributed as specified in the data collection procedures to nurses in a tertiary care center's Post Anesthesia Care Unit. Fifty-four percent (N=15) of the Evaluation Surveys were returned completed. There were no

surveys returned uncompleted.

Reasons for non-responders lack of participation in this study were hypothesized. Non-responders may have not wanted to evaluate their use of UP guidelines, they may have also not wanted to take the time to participate in the research study, and may have been less concerned about UP guidelines than those who responded.

Out of the 15 completed Evaluation Surveys (ES) only two item responses were omitted (ES item #6 & 7) on the Likert type items. Six of the Evaluation Surveys returned had written comments for the open-ended questions.

Biographical data were elicited to provide a description of the sample. Fifty-four percent (N=15) returned completed Biographical Data sheets separately as instructed. Characteristics of nurses responding to the ES are listed in Table 1. The age range and number of years practicing shows this sample to be a group of highly experienced nurses.

#### Evaluation Survey (ES)

Responses to the 12 Evaluation Survey Likert type items are listed in Appendix G as raw data and Appendix H with statistics describing central tendency. Responses to the ES open-ended statements are listed in Appendix I. Responses from the open-ended questions were used to evaluate respondents' personal reactions to each section of the UPSE to substantiate possible usefulness of the UPSE and may be useful in revising the instrument.

Table 1  
Characteristics of the Sample N=15

Age	Frequency	Percentage
26-35	2	13%
36-45	9	60%
46-55	4	27%

Number of Years Practicing as a Nurse	Frequency	Percentage
6-10	2	13%
11-20	7	47%
21+	6	40%

Highest Educational Qualification	Frequency	Percentage
Diploma	1	7%
Associate Degree	5	33%
Baccalaureate	7	47%
Master's Degree	2	13%

Research Question #1: Is the UPSE an analysis technique that nurses could use to reflect on their personal practice?

Six of the 12 ES items of the UPSE were directed to this question (see Table 2). The UPSE was designed to assist nurses in reflecting on their personal practice of UP usage by drawing attention to practice habits that indicate risk for exposure to blood or body fluids, usage of personal protective equipment (PPE), as well as testing their personal knowledge base in reference to occupationally acquired diseases, PPE, and UP guidelines.

There was no disagreement to items #1-3 that: 1) the UPSE would be useful as a part of an annual review, as a reminder of Universal Precautions (UP) guidelines; 2) items from the UPSE pointed out areas of practice for which one may be at risk for exposure to blood or body fluids; and 3) overall, the UPSE made respondents more aware of their use of UP.

A majority of respondents ( $n=12$ ) felt the UPSE would be a helpful way to analyze use of PPE annually. The three respondents who did not feel the UPSE would be a helpful way to analyze use of PPE annually did, however, feel the UPSE would be a useful review of UP guidelines annually.

While the majority of respondents ( $n=12$ ) felt that working through the UPSE made them feel concerned that they may be exposing themselves to blood and/or body fluids more than they realized, three respondents disagreed. Of those three who disagreed with ES item #5 one of those respondents disagreed that

Table 2

ES items Relevant to Research Question 1

ES Item	Responses				Statistics	
	SA	A	D	SD	M	SD
I feel the UPSE would be useful as a part of an annual review, as a reminder of UP guidelines.(1)	6	9			1.6	0.51
Items from the UPSE pointed out areas of my practice in which I may be at risk for exposure to blood or body fluids.(2)	4	11			1.7	0.46
Overall, the UPSE made me more aware of my use of UP.(3)	5	10			1.7	0.49
I do not think the UPSE would be a helpful way to analyze my use of PPE annually.(4)	1	2	7	5	1.9	0.88
Working through the UPSE made me feel concerned that I may be exposing myself to blood and/or body fluids more than I realized.(5)	3	9	3		2.0	0.65
The UPSE accurately portrayed how I use UP.(6)	3	8	3		2.0	0.68

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE;  
M=MEAN; SD=STANDARD DEVIATION; N=15. Number in parenthesis after item corresponds to the order in which items appeared on the ES.

the UPSE accurately portrayed their individual use of UP.

Eleven respondents felt the UPSE accurately portrayed how they individually use UP (ES item #6  $\bar{M}=2.0$ ). However, of the three respondents who disagreed with this item, two agreed the UPSE made them feel concerned about exposure to blood and body fluids more than they realized.

Open-ended comments also addressed the UPSE as an analysis technique nurses could use to reflect on their personal practice. The comments received (see Appendix I) included aspects of self-reflection on personal practice. Eight out of 13 comments had to do with personal views regarding individual use and understanding of UP, as well as high-lighting practice issues about UP guidelines, such as the usefulness of UP guidelines for inexperienced nurses.

### Research Question #2

To analyze research question #1 in more depth, specific ES items had been devised to analyze the UPSE in the areas of: 1) individual use of UP, 2) risk taking behaviors regarding use of UP, and 3) knowledge related to occupational exposures. The Pearson Product Moment correlations were calculated to determine inter-relationship among those items (see Appendix J). The higher correlation levels within the ES scale denotes internal consistency. The inter-correlation of items describing ES items with  $> 0.60$  according to the specific areas of nursing practice are described below.

Research question #2.a.: Do nurses report that their use of the UPSE influences self-awareness of their individual use of UP?

This question can be answered by looking at the responses to ES items #2, 3, 5 & 6 (see Table 3). Four respondents strongly agreed and 11 respondents agreed that items from the UPSE pointed out areas of practice in which they may be at risk for occupational exposure to blood or body fluids (ES item #2  $\bar{M}=1.7$ ). However, three of these respondents disagreed that working through the UPSE made them feel concerned they were exposing themselves to blood or body fluids more than they realized (ES item #5  $\bar{M}=2.0$ ). Although respondents felt the UPSE made them more aware of their use of UP (ES item #3  $\bar{M}=1.7$ ), three of these respondents disagreed the UPSE accurately portrayed how they use UP (ES item #6  $\bar{M}=2.0$ ). Even though there was disagreement that the UPSE accurately portrayed UP usage, the importance of the UPSE was that it allowed for self-reflection on personal practice. The Pearson Product Moment correlation of ES items #2 & 3 was 0.85, #2 & 5 was 0.73, and #3 & 5 was 0.68. There was no reason to believe that an accurate portrayal (ES item #6) should correlate with making one more aware (ES item #3) and concern for exposure (ES item #5).

Comments from the open-ended questions (see Appendix I) indicate respondents were reflecting on reasons for differences in individual use of UP. One person speculated that those in practice longer might experience UP differently and nurses may vary in "how comfortable it is for a nurse to change to



Table 3

ES items Relevant to Research Question 2.a.: Do nurses report that their use of the UPSE influences self-awareness of their individual use of UP?

ES Item	Responses				Statistics	
	SA	A	D	SD	M	SD
Items from the UPSE pointed out areas of my practice in which I may be at risk for exposure to blood or body fluids.(2)	4	11			1.6	0.46
Overall, the UPSE made me more aware of my use of UP.(3)	5	10			1.7	0.49
Working through the UPSE made me feel concerned that I may be exposing myself to blood and/or body fluids more than I realized.(5)	3	9	3		2.0	0.65
The UPSE accurately portrayed how I use UP.(6)	3	8	3		2.0	0.68

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE;  
M=MEAN; SD=STANDARD DEVIATION; N=15. Number in parenthesis after item corresponds to the order in which items appeared on the ES.

needleless systems". Another respondent stated one knows to always use PPE but does not practice or see it practiced that way.

Research question #2.b.: Do nurses report that their use of the UPSE influences self-awareness of their risk taking behaviors regarding their use of UP?

This question can be answered by looking at ES item #2, 5 & 11 (see Table 4). As noted above ES items #2 & 5 point out areas of the individual respondent's risk taking behavior regarding potential exposure to blood or body fluids and reported impact of the instrument on their degree of concern for exposure to blood and/or body fluids.

In contrast ES item #11 allows respondents to consider peer practice in following UP guidelines. Twelve respondents disagreed and 1 strongly disagreed (ES item #11  $M=2.9$ ) that replying to the UPSE questions made them feel that staff on their unit consistently follow UP guidelines.

Research question #2.c.: Do nurses report that their use of the UPSE influences self-awareness of their knowledge related to occupational exposures?

This question can be answered by looking at ES item #8, 9, 10, & 12 (see Table 5). Eight respondents agreed and five respondents disagreed that the process of responding to UPSE questions made them feel confident of their knowledge in the area of occupationally acquired HIV (ES item #8  $M=2.3$ ) and occupationally acquired HBV (ES item #12  $M=2.3$ ). One respondent

**Table 4**  
**ES items Relevant to Research Question 2.b.: Do nurses report that their use of the UPSE influences self-awareness of their risk taking behaviors regarding their use of UP?**

ES Item	Responses				Statistics	
	SA	A	D	SD	M	SD
Items from the UPSE pointed out areas of my practice in which I may be at risk for exposure to blood or body fluids.(2)	4	11			1.7	0.46
Working through the UPSE made me feel concerned that I may be exposing myself to blood and/or body fluids more than I realized.(5)	3	9	3		2.0	0.65
Replying to the UPSE questions made me feel that staff on my unit consistently follow UP guidelines.(11)		2	12	1	2.9	0.46

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE;  
M=MEAN; SD=STANDARD DEVIATION; N=15. Number in parenthesis after item corresponds to the order in which items appeared on the ES.

Table 5

ES items Relevant to Research Question 2.c.: Do nurses report that their use of the UPSE influences self-awareness of their knowledge related to occupational exposures?

ES Item	Responses				Statistics	
	SA	A	D	SD	M	SD
The process of responding to UPSE questions made me feel confident of my knowledge in the area of occupationally acquired HIV.(8)	1	8	6		2.3	0.62
The process of responding to the UPSE questions made me feel confident of my knowledge in the area of occupationally acquired HBV.(12)	1	9	5		2.3	0.59
Replying to the UPSE questions made me feel I need more education in the area of UP guidelines.(9)	1	5	8	1	2.6	0.74
The process of responding to the UPSE questions made me realize I need more education in the area of PPE.(10)	1	3	10	1	2.7	0.70

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE;  
M=MEAN; SD=STANDARD DEVIATION; N=15. Number in parenthesis after item corresponds to the order in which items appeared on the ES.

strongly agreed and five respondents agreed that replying to the UPSE questions made them feel they need more education in the area of UP guidelines (ES item #9  $M=2.6$ ), while only two respondents agreed that responding to the UPSE questions made them feel they need more education in the area of PPE (ES item #10  $M=2.7$ ). The Pearson Product Moment correlation of ES items #8 & 12 was 0.91 and ES item #9 & 10 was 0.74.

Open-ended question comments also addressed knowledge related issues (see Appendix I). Comments indicated that a full understanding of UP includes using judgement, which was noted to be directly related to nursing experience. One nurse commented that OSHA's high risk standards were not specific enough about PPE use when emptying wound drains.

#### Credibility of the UPSE

Because the UPSE instrument was designed for nurses to use on their own as a quick reference for self-assessment, it was also important to analyze the self scoring section of the UPSE and the amount of time for completion of the UPSE. Sixty percent disagreed and 40% strongly disagreed (ES item #7  $M=1.6$ ) that the UPSE scoring sections were difficult to complete.

Table 6 lists the amount of time required for respondents to complete the UPSE. Average time for respondents to complete the UPSE was calculated to be 18 minutes. Two respondents ( $n=2$ ) did not answer this question.

Credibility of the UPSE was also addressed by noting each respondent's answers to the ES (see Appendix G). Looking at each

**Table 6**  
**Time Required to Complete the UPSE (n=13)**

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Minutes to Complete the UPSE	Frequency	Percent
10	1	8%
15	7	54%
20	4	31%
30	1	8%

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respondent's variability of answers to the ES gave evidence that respondents did take the questionnaire seriously. No one respondent answered questions all positively or all negatively; nor did they consistently provide responses that could be interpreted as socially desirable.

Initially it had been thought desirable to assess the internal consistency of the ES using Cronbach's alpha. Although in theory comparing each respondents score on the ES to the total score of 48 possible points could be used to analyze internal consistency this type of analysis was deemed inappropriate. First, the ES was designed to evaluate usefulness and applicability of the UPSE by asking questions that represent awareness of 1) individual use of UP, 2) risk taking behaviors regarding use of UP and 3) knowledge related to occupational exposures. The respondents could respond to the ES items in ways that are highly inconsistent but still be reflecting on their personal practice. The internal consistency of the ES is not as important as the fact that the UPSE made the respondents think about these three areas. Second, even though the ES items can be grouped into the three areas described above and these concepts are all related to the usefulness and applicability of the UPSE, it was decided that they represent three different, though potentially inter-related, areas.

## CHAPTER V

### Discussion, Summary & Implications

The results of the study are discussed in terms of practical and theoretical interpretations of the UPSE, and whether the UPSE promoted nurses' self-awareness and self-reflection of personal application and knowledge of UP guidelines. The practical interpretations of this project were based on an analysis of how results from the UPSE and the ES might be inter-related. The theoretical interpretations of this project focus on an analysis of the conceptual framework and the concepts used to develop the UPSE.

#### Practical Interpretations

Data described from the ES implied that the UPSE allowed this sample of nurses to reflect on their personal practice in reference to UP, something which was not addressed in the studies uncovered in the literature review. Respondents agreed that the UPSE was useful as a review to remind themselves of UP guidelines and that the UPSE made the respondents more aware of their use of UP. But most importantly, the UPSE allowed respondents to reflect on their 1) individual use of UP, 2) risk taking behaviors regarding UP, and 3) knowledge related to occupational exposures.

#### Multiple Exposures

Research studies reviewed did document HCPs adverse exposures to blood and body fluids (Henderson et al., 1991; Kuhls et al., 1987). The UPSE (see Appendix B) allowed this sample of



nurses to think about their own risks for occupational exposure by high-lighting areas of practice that may indicate risk for exposure (ES item #2; UPSE Section III) and by allowing nurses to become aware of concern for exposure to blood and/or body fluids (ES item #5). Analysis of data presented from the ES provides evidence that the UPSE is an analysis technique that causes self-reflection of nursing practice. Results presented indicate respondents were able to reflect on their personal practice when completing the UPSE, although three respondents disagreed that working through the UPSE made them feel concerned they were exposing themselves to blood and/or body fluid more than they realized. One could postulate that this disagreement could be attributed to an already heightened concern for exposure to blood and/or body fluids.

Completing the UPSE also gave this sample of nurses the opportunity to evaluate their knowledge level in the area of occupationally acquired HIV and HBV (ES items #8 & 12; UPSE Section I). Although ES results show variability in the respondents confidence levels regarding knowledge of occupationally acquired HIV and HBV, the UPSE did allow respondents to evaluate their knowledge levels.

#### Compliance

The UPSE gave respondents the opportunity to evaluate their own compliance with recommended infection control procedures. Issues around compliance brought up in the UPSE had to do with indicating to HCP's their practice risks and consistency with

following UP guidelines. Interestingly enough the 12 respondents who felt the UPSE pointed out areas of individual practice risks for exposure to blood and/or body fluids also felt that staff on their unit did not consistently follow UP guidelines (ES item #11). However, the majority of respondents felt that working through the UPSE did not make them feel they needed more education regarding UP guidelines and PPE. While six respondents did feel they needed more education regarding UP guidelines, only four felt they needed more education regarding PPE. This leads one to postulate that the practice problem regarding compliance issues are related to the need for HCP's to value the assumptions underlying UP guidelines and to understand the theoretical concepts behind UP guidelines in contrast to being related to the actual "hands on" use of PPE. Traditional information giving educational approaches may not be effective in these instances; rather, there may be a need for more effective collegial discussion about UP and its implementation.

Research studies reviewed documented inconsistent practice of HCPs following UP guidelines (Mcnabb & Keller, 1991; Baraff & Talan, 1989; Hammond et al., 1990; Gauthier et al., 1991; Willy et al., 1991; Bauer & Kenney, 1993). Completing the UPSE allowed this sample of nurses the opportunity to reflect on their use and their peers' use of UP guidelines (ES item #6 & 11; all UPSE Sections) as well as to reflect on their education regarding UP guidelines (ES item #9; UPSE Section I) and use of PPE (ES item #10; UPSE Sections II & IV).

### Self-Reflective Strategies

Research studies reviewed indicated HCPs underestimate occupational transmission from patients not perceived to be "infected" (Talan & Baraff, 1990). Research reviewed also indicated that reporting to employees positive results of behavioral change could significantly impact this activity (Ribner & Ribner, 1990) and that low compliance with infection control practices appeared to be caused by lack of motivation (Williams & Buckles, 1988). The questions in Section I of the UPSE allowed nurses to contemplate care around whether a patient may be perceived to be "infected" which allowed respondents to examine their knowledge level of occupationally acquired infections (ES item #8 & 12). The UPSE has questions in each section that gave respondents the opportunity to reflect on their knowledge, education, and use of PPE and UP guidelines (ES item #9 & 10).

Through the self-scoring section of the UPSE nurses were provided feedback about their scores and rationale for correct answers in the areas of: 1) knowledge and understanding of UP guidelines (UPSE Section I); 2) risk to occupational exposure (UPSE Sections II & III); 3) personal usage of PPE (UPSE Section IV); and 4) decision making processes regarding PPE chosen for different scenarios (UPSE Section IV). Not so important was the score one received on the UPSE sections but that one took time to self-reflect on individual practice. The influence of the self-scoring on respondent perception of the need for more education

is not known. Nor is it known if respondents sought additional information or changed their practice.

### Theoretical Interpretations

The purpose of developing the UPSE instrument was to give nurses a way to reflect on their personal practice as a feedback mechanism that indicated compliance, knowledge and risk taking related to infection control practices. Research reviewed documented the need to promote a way for consistent adherence to UP guidelines by estimating activities related to infection control practices that would lead to a more strict adherence to UP guidelines.

A conceptual framework of motivation provided the theoretical basis for the UPSE (see Figure 1). The UPSE may be seen as an external factor which may motivate change if HCP's goal is prudent infection control practice for HCP and client protection. By completing the UPSE one may realize personal preparedness for and adherence to UP guidelines which may then cause one to realize through self-reflection the personal incentives that are necessary or lacking in either or both preparedness for and adherence to these guidelines. This realization may then provide self-motivation to change practice in areas as needed, leading toward compliance with UP guidelines, but only if the optimal personal goal is prudent infection control practices for HCP and client protection.

### Summary and Implications

The problem identified in clinical practice and confirmed

through review of the literature was that HCPs do not follow UP guidelines as intended and that HCPs also experience a high rate of occupational exposures. A conceptual framework of leadership and motivation was the identified theory behind development of the UPSE, an instrument designed to provide self-assessment regarding knowledge and behavior. Based on information obtained from review of the literature, incomplete adherence to infection control guidelines may be due to HCPs under estimating their risks of occupational exposure. Emphasizing individual compliance, knowledge, and risk taking of HCPs related to infection control practices through the use of the UPSE may be the key to motivational interests for compliance.

The purpose of this project, a pilot study, was to analyze the impact of the UPSE. The Evaluation Survey provided data for this analysis of nurses' perceptions of the usefulness and applicability of the UPSE in practice. Having a group of practicing nurses evaluate the UPSE allowed for a descriptive analysis of the UPSE. The analysis showed that this sample of nurses responding to the UPSE agreed that this type of self-evaluation does promote individual awareness of UP guidelines by high-lighting areas of practice risk and knowledge level of UP guidelines and occupationally acquired infections. Thus, the UPSE could fill the gap identified in the literature review: a simple and quick tool involving HCPs at their individual clinical level to actively assess their own use of infection control practices. The sample of nurses in this study reported they were

able to complete the UPSE in 18 minutes and that the scoring section was not difficult to complete.

Practical implications include the fact that the UPSE did allow this group of nurses to reflect on their personal practice regarding infection control procedures and that the UPSE did act as a reminder of UP guidelines for this group of nurses. When asked to comment in general on the UPSE, one respondent stated: "the best feature of this tool is promoting awareness. I found it informative and easy to use" (see Appendix I).

Theoretical implications based on the conceptual framework of motivation have to do with giving practicing nurses a feedback mechanism that indicated compliance, knowledge and risk taking behaviors. By completing the UPSE, nurses were allowed the opportunity to evaluate their individual preparedness for and adherence to UP guidelines. This realization and personal reflection may allow for self-motivation to change practice in areas as needed. Based on Campbell's (1991, p.122) idea that "practitioners can use strategies to 'push the right buttons' to increase motivation," the UPSE may offer nurses the opportunity to evaluate their practice which may indicate individualized incentives necessary to motivate toward change.

#### Limitations

Limitations of this pilot study can be addressed in the areas of the conceptual framework, data collection procedures, sample, and instruments. It is important to note the limitations of this study if further research is to be undertaken using the

UPSE.

### Conceptual Framework

The underlying assumption of this project was that all HCPs must understand and work toward the goal of prudent infection control practices for HCPs and their clients protection. Although this goal may seem most basic and most important to follow, HCPs may not realize the importance of this goal as part of the basis to their daily practice. Therefore, techniques developed to increase awareness of preparedness for and adherence to infection control practices would only motivate change toward compliance with UP guidelines if HCPs believe in the importance of prudent infection control practices for HCP and client protection.

Another limitation to this study relates to the motivational theory that was the conceptual base underlying the development of the UPSE. The guiding assumption was that individuals are more likely through self-evaluation to reflect on personal infection control practices which in turn may lead them to identify an internal motivational need. It was assumed that the concepts of personal reflection, self-awareness and self-evaluation guide the motivation needed to promote consistent usage of UP. However, it is possible that other theories might complement this framework. White and Berger (1992) discussed a force field analysis approach to studying human behavior in regards to restraining and driving forces that relate to how personal goals are envisioned within individuals and in their surroundings. The UPSE allows for

contemplation of both restraining and driving forces of UP guidelines. Force field analysis may provide another approach to validating these assumptions of personal reflection, self-awareness, and self-evaluation.

#### Data Collection Procedures

The conception of this project created limitations of this study having to do with the data collection procedures. Subjects were instructed in the cover letter to complete Part I, the UPSE, before going on to Part II, the ES. Because the UPSE was given together in a packet with the ES, even though respondents were instructed to complete the UPSE prior to the ES, there was no way to know if respondents read the ES before answering the UPSE questions. By reading the ES before completing the UPSE, respondents may have placed more emphasis on concepts such as self-awareness while working through the UPSE.

#### Sample

The nature of the sample created limitations to the study. Responses to the UPSE could have been negatively or positively affected because of situational and/or transitory factors. Some of these factors include the respondents choice of environment to complete the questionnaires and the fact that the respondents work with the principal investigator. Also, respondents came from only one practice unit where knowledge and beliefs about UP could be common.

Characteristics of the respondents such as age, number of years practicing and schooling may have affected responses to the



UPSE. Eighty-seven percent of the respondents ( $n=13$ ) were 36 years old or older and had practiced for 11 or more years. Thirty-three percent of respondents ( $n=5$ ) were ADN prepared and 47% ( $n=7$ ) were BSN prepared. As noted in the open-ended questions (see Appendix I) several comments indicated that years of practice may impede consistent practice with UP guidelines and needleless systems.

The generalizability of the results of this sample must also be questioned. Because of the small sample size and the age range of respondents, there is less generalizing to a population with a greater range of age and years practicing. Because data from this study was obtained only from RNs working in an acute care setting, evaluation of the UPSE is limited to that group.

#### Instruments

Although the UPSE was informally checked by a group of expert nurses for construct validity, it was assumed that its different sections would represent the infection control practices in the areas of compliance, knowledge, and occupational exposures. Then ES items were developed to assess these three areas by asking different questions about practice and knowledge. Items from the ES did allow this investigator to infer that the UPSE promoted self-awareness and self-analysis because there were specific ES questions that explicitly assessed whether the UPSE promoted self-awareness of respondents use of UP. However, there was no one specific question that asked if the UPSE could motivate respondents to change if they felt their practice was

lacking in preparedness for and/or adherence to UP guidelines.

Characteristics of specific ES item wording were also noted to possibly influence responses, depending on their interpretation by respondents. For example (see Appendix H) ES item # 8, 10 & 12 could have been answered differently if respondents were basing their response on "the process of responding to the UPSE" or "their knowledge level". As with ES item # 9 & 11, were respondents basing their responses on "replying to the UPSE questions" or the use of "UP guidelines"?

Another instrument flaw which may limit this study was that although it was intended that the ES items would be written to have an equal amount of negatively and positively worded items, only 2 items did so and the negative wordings were awkward. ES item #4 might have received different responses if it were a positively worded statement.

Another limitations to this study include the fact that there was no information in the UPSE related to protecting patients. Jackson and Lynch (1991) discussed the importance of reducing nosocomial transmission of microorganisms from the hands of HCPS to patients. These researchers identified the importance of protecting patients through the use of "freshly applied" gloves "to reduce the risk of placing organisms that may be on the health care worker's gloved hands onto vulnerable areas of the patients body" (p.448).

#### Research Implications for Nursing and Other Disciplines

The UPSE could be applied to other disciplines if revisions

in the instrument were made specific to that discipline, and if revisions could result in a clearer presentation of the ES to assess the usefulness of the UPSE and validity of the underlying constructs. The UPSE may be an analysis technique that could benefit the future of infection control evaluation for the health care profession.

#### Suggestions for Future Research and Practice

It would be interesting to study the UPSE to evaluate the different constructs within this instrument. A more in depth descriptive study of the UPSE may substantiate the assumptions that the UPSE sections represent practice in the areas of compliance, knowledge and occupational exposures. A larger sample could allow investigation of a possible link between the UPSE and responses on the ES and the demographics. In addition, it would be appropriate to test the model on which the UPSE is based by ascertaining if there is actual behavior change with regard to compliance with UP guidelines.

It would be interesting to study the aspects of an educational program on the concepts of why nurses need to follow UP guidelines. Based on the conceptual framework goal of prudent infection control practices for HCP and client protection and taking into account data from this study, nurses may need more education regarding UP guidelines. One may postulate that HCPs need more education about the goal of UP guidelines focusing on prudent infection control practices for HCP and client protection in order to take into value and motivate HCPs to consistently

comply with UP guidelines.

The results of this study describe nurses' responses to the use of the UPSE, in other words what the respondents think about this approach to promoting their use of UP. This author sees potential for utilization of the UPSE for HCPs practice because this sample of nurses' responses indicated that the UPSE promoted their self-awareness and reflection through self-review. It would be exciting to see the UPSE used for further research to describe HCPs behaviors changing toward consistent use of UP guidelines to promote HCP and client protection.

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Appendix A

Occupational Safety and Health Administration  
Recommendations

OSHA EXPOSURE RISKS AND PROTECTIVE CLOTHING (BARRIER) SELECTION GRID

TYPES OF BODY FLUIDS	EXAMPLE OF TASKS		BARRIERS NEEDED
BLOOD	Venipunctures (any reason) Arterial punctures Processing specimen in lab Hemodialysis Transfusion therapy Central venous line accessing (inc. SG)	Managing blood from wounds or drainage Irrigating wounds Infant delivery (normal C-section) Handling of infant Post-delivery care of umbilical cord	GLOVES MASK AND EYE PROTECTION if aerosolization or splatter GOWN if soilage is likely
ORAL/PHARYNGEAL SECRETIONS (saliva, sputum, tears, mouth, trachea)	Suctioning (oral/pharyngeal/endotracheal tubes, tracheostomy) Intubation/extubation Resuscitation Specimen obtaining and processing	Oral examinations/hygiene All dental procedures Tracheostomy care Handling linens or articles soiled with oral secretions	GLOVES MASK AND EYE PROTECTION if aerosolization or splatter GOWN if soilage is likely
URINE	Catheterization (straight foley, condom, suprapubic) Collecting/handling/processing specimens Irrigating catheters or ileoconduits	Perineal care Toileting assistance Handling linens/articles soiled with urine	GLOVES MASK AND EYE PROTECTION and GOWNS if aerosolization or splattering or soiling is likely
STOOL	Enemas (Barium, other) Incontinence care Ostomy care Diarrhea	Rectal tubes/rectal exams Toileting assistance Handling linen/articles soiled with stool	GLOVES GOWN if soiling is likely
WOUND DRAINAGE OR SKIN LESIONS (trauma, operative, chronic, erosion)	Wound care Wound irrigation Bathing non-intact skin	Wound examinations Handling linen/articles contaminated with drainage	GLOVES MASK AND EYE PROTECTION if aerosolization or splatter GOWN if soilage is likely
OTHER BODY FLUIDS, SOFT TISSUE, CEREBROSPINAL FLUID, TEARS, PERITONEAL FLUID, VAGINAL DISCHARGE, CEREBRAL FLUID, ABDOMINAL FLUID, SPUTUM, NASOGASTRIC TUBE DRAINAGE	Peritoneal dialysis procedures Thoracentesis Paracentesis Vaginal exams Intracranial monitoring Lumbar puncture	Biopsies Bone Marrow aspirations Organ procurement Joint aspiration Specimen handling	GLOVES MASK AND EYE PROTECTION for aerosolization or splatter GOWN if soilage is likely
HIGH RISK PROCEDURES	Surgery Autopsies Managing of trauma patients	Bronchoscopy Endoscopy GI bleed	GLOVES MASK AND EYE PROTECTION for aerosolization or splatter GOWN if soilage is likely

JH 9/18/92 exngrid.adm

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Appendix B

SECTION I

- |  |  |    |          |
|--|--|----|----------|
| 1. When using the Universal Precautions Policy, one considers all patients to be potentially infected.   | YES  | NO | NOT SURE |
| 2. When correctly following the Universal Precautions Policy, I am protected from risk of infection more than if I did not use this policy as it was intended. | YES  | NO | NOT SURE |
| 3. The risk of acquiring HIV infection from a needlestick or splash is low compared with the risk of acquiring Hepatitis B infection.                          | YES  | NO | NOT SURE |
| 4. A nurse can acquire Hepatitis B from a needlestick exposure from a patient undiagnosed with Hepatitis B.  | YES  | NO | NOT SURE |
| 5. A nurse can acquire HIV by contamination of non-intact skin with blood from a patient undiagnosed with HIV.   | YES  | NO | NOT SURE |
| 6. Your risk of acquiring HIV after a needlestick exposure from a HIV positive patient is:   | a. 1.0-2.0%<br>b. 0.6-0.9%<br>c. 0.2-0.5%<br>d. 0.1%<br>e. NOT SURE        |    |          |
| 7. If you are NOT vaccinated for Hepatitis B, your risk of acquiring Hepatitis B after a needlestick exposure from a Hepatitis B positive patient is:          | a. 1.0-2.0%<br>b. 3.0-6.0%<br>c. 7.0-30.0%<br>d. 31.0-40.0%<br>e. NOT SURE |    |          |

TOTAL POINTS FOR #1-7: \_\_\_\_\_

SECTION II

- |  |     |    |
|--|-----|----|
| 8. Do you immediately place used needles in puncture resistant containers?                                     | YES | NO |
| 9. Are there times in your current practice that you have used 2 hands to recap a used needle?                 | YES | NO |
| 10. Have you ever had a needlestick injury?  | YES | NO |
| 11. Do you feel comfortable using various needleless devices?  | YES | NO |
| 12. Are you comfortable incorporating your agency's choice of needleless devices into your practice?           | YES | NO |
| 13. Are you comfortable incorporating your agency's choice of protective barrier equipment into your practice? | YES | NO |
| 14. Is protective barrier equipment readily available when you need it ?                                       | YES | NO |

TOTAL POINTS FOR # 8-14: \_\_\_\_\_

SECTION III

15. In your current practice, have you ever been in direct contact or splattered with blood and/or body fluids on any of the following body parts:

- |                 |     |    |
|-----------------|-----|----|
| a. HANDS        | YES | NO |
| b. EYES         | YES | NO |
| c. MOUTH        | YES | NO |
| d. FACE         | YES | NO |
| e. EXPOSED SKIN | YES | NO |
| f. NASAL MUCOSA | YES | NO |

16. Which of the following do you consider to be a high risk procedure regarding the potential for exposure to blood or body fluids:

- |                        |     |    |
|------------------------|-----|----|
| a. BRONCHOSCOPY        | YES | NO |
| b. SPECIMEN COLLECTION | YES | NO |
| c. ENDOSCOPY           | YES | NO |
| d. ORAL HYGIENE        | YES | NO |
| e. GI BLEED MANAGEMENT | YES | NO |
| f. WOUND EXAMINATION   | YES | NO |
| g. TRAUMA MANAGEMENT   | YES | NO |
| h. EMPTYING DRAINS     | YES | NO |

TOTAL POINTS FOR #15 & #16: \_\_\_\_\_

SECTION IV

17. Please designate with an "X" across the grid, in a best case scenario where all equipment listed is available, your use of gloves, mask, eye protection, and gowns with each of the tasks listed below:

TASK	GLOVES	MASK	EYE PROTECTION	GOWN	SCORE
a. VENIPUNCTURE					
b. TRANSFUSION ADMINISTRATION					
c. CENTRAL LINE ACCESSING					
d. SPECIMEN COLLECTION					
e. SPECIMEN HANDLING					
f. EMPTYING DRAINS					
g. IRRIGATING WOUNDS					
h. EXAMINING WOUNDS					
i. HANDLING INFANTS					
j. INTUBATION/EXTUBATION					
k. AMBU-BAG RESUSCITATION					
l. ORAL HYGIENE					
m. HANDLING SOILED LINENS					
n. PERIANAL CARE					
o. URINARY CATHETERIZATION					
p. TOILETING ASSISTANCE					
q. THORACENTESIS					
r. BRONCHOSCOPY					

18. Please designate with an "X" across the grid, in a best case scenario where all equipment listed is available, your use of gloves, mask, eye protection, and gown for each scenario listed below:

SCENARIO	GLOVES	MASK	EYE PROTECTION	GOWN	SCORE
a. You have been asked to help bathe a patient who has uncontrollable vomiting and diarrhea.					
b. You have admitted a vascular patient who has a bloodpressure of 240/110. While another nurse is setting up a Nipride drip, you have been asked to assist the physician with inserting an arterial line.					
c. You are caring for a patient who just received a tracheostomy for chronic pneumonia and ventilator dependency, and is now requiring tracheal suctioning.					

### SECTION I SCORING

Give yourself 1 point for every question you answered YES to.

Give yourself 1 point for the answer "c" on question #6.

Give yourself 1 point for the answer "c" on question #7.

You receive zero points for any other answers.

A score of 7 points means you have an adequate knowledge base and understanding of the rationale behind the use of Universal Precautions guidelines.

A score of less than 7 points indicates a need to review Universal Precautions guidelines and infection control information. Help is available if you would like to discuss areas of concern with your Department Director or Clinical Coordinator.

### SECTION II SCORING

Give yourself 1 point for each YES response to question # 8, 11, 12, 13 & 14.

Give yourself 1 point for each NO response to question # 9, & 10.

You receive zero points for any other answers.

A score of 7 points designates you to be at low risk to occupational exposure. If you scored less than 7 points you may be placing yourself at risk for occupational exposure to blood and/or body fluids. Refer to OSHA's guideline for review of Universal Precautions in areas as indicated.

### SECTION III SCORING

Give yourself 1 point for each NO response to question #15.

Give yourself 1 point on question #16 for each YES response to parts a, c, e, & g, and 1 point for each NO response to parts b, d, f, & h.

You receive zero points for any other answers.

If you answered YES to any part of question #15 you may be placing yourself in jeopardy of an occupationally acquired infection.

If you received less than 8 points for question #16, this may indicate a poor understanding of high risk procedures. It is important to understand what procedures indicate high risk according to OSHA's standards. They are a "red flag" signaling the need to use all protective equipment available.

## SECTION IV SCORING

#17. Give yourself 1 point for each "X" across the grid for each task.

Total the "X's" across the grid in the score section for each task.

If you scored less than 3 points on any one task, you may want to re-evaluate your personal usage of Universal Precaution barriers.

Section IV is based on OSHA's guidelines for barrier use suggested for each individual task.

If you refer to the OSHA grid, use of gloves are recommended for all tasks listed in this section.

Masks and eye protection are recommended if aerosolization or splattering is likely.

Gowns are also recommended if splattering or soiling is likely.

Any area left without an "X" you may want to re-evaluate in your clinical setting for personal protection against occupational exposures.

#18. Give yourself 1 point for each "X" across the grid for each scenario.

Total the "X's" across the grid in the score section for each scenario.

If you scored less than 3 points on each scenario, you may want to re-evaluate your decision making processes for choosing the protective barrier equipment you use.

The scenario in #18.a. and #18.b. should alert you that splattering and soilage is likely; and in #18.c. that aerosolization and splattering is likely.

According to OSHA's barrier selection grid, you should choose protective barrier equipment based on the likelihood of exposure to blood and/or body fluid through aerosolization, splattering and/or soilage.

### Appendix C

#### Evaluation Survey

This survey is designed to evaluate the Universal Precautions Self Evaluation (UPSE) instrument you have completed. The purpose of this questionnaire is to analyze your response to answering the UPSE questions to see if this is an analysis technique that you could use to reflect on your personal practice, as a self assessment of Universal Precautions (UP) usage.

Please respond as honestly as possible to each statement below by checking the appropriate box according to your response to each question using the scale:

SA = STRONGLY AGREE  
A = AGREE  
D = DISAGREE  
SD = STRONGLY DISAGREE

	SA	A	D	SD
1. I feel the UPSE would be useful as a part of an annual review, as a reminder of UP guidelines.				
2. Items from the UPSE pointed out areas of my practice in which I may be at risk for exposure to blood or body fluids.				
3. Overall, the UPSE made me more aware of my use of UP.				
4. I do not think the UPSE would be a helpful way to analyze my use of personal protective equipment annually.				
5. Working through the UPSE made me feel concerned that I may be exposing myself to blood and/or body fluids more than I realized.				
6. The UPSE accurately portrayed how I use UP.				
7. I found the scoring sections difficult to complete on my own.				
8. The process of responding to UPSE questions made me feel confident of my knowledge in the area of occupationally acquired HIV.				
9. Replying to the UPSE questions made me feel I need more education in the area of UP guidelines.				
10. The process of responding to the UPSE questions made me realize I need more education in the area of personal protective equipment.				
11. Replying to the UPSE questions made me feel that staff on my unit consistently follows UP guidelines.				
12. The process of responding to the UPSE questions made me feel confident of my knowledge in the area of occupationally acquired Hepatitis B.				

[Please Turn Over]

Did some of the UPSE questions irritate you? How could that be fixed? If you have comments or suggestions pertain to any specific section or question please write in the areas as indicated.

Section I Questions:

Section II Questions:

Section III Questions:

Section IV Questions:

Scoring:

General Comments or Suggestions about the UPSE:

General Comments or Suggestions about the use of Universal Precautions:  
(for example, difficulties/concerns about using)





## Appendix E

### Cover Letter

To: Oregon Health Sciences University's  
Post Anesthesia Care Unit Nurses

From: Beth Lebert, R.N., B.S.N.  
Graduate Nursing Student  
Oregon Health Sciences University

Subject: Participation in Student Research Project

Title: Promoting Universal Precautions

The purpose of this project is to analyze your response to an instrument I have developed to self evaluate nursing practice in relation to Universal Precautions guidelines. I developed the Universal Precautions Self Evaluation (UPSE) instrument for nurses to use, similar to the Code 99, CPR, or policy reviews we perform annually. The difference in this self-evaluation is that it is only intended for the purpose of stimulating self-awareness and self-reflection of your individual use of Universal Precautions guidelines, not to be shared with others unless you want to.

In the packet you have received, there should be a biographical data sheet, two questionnaires, and two envelopes: the first questionnaire is the UPSE. This part is strictly confidential, for you to keep, but is necessary to complete the second questionnaire, the Evaluation Survey. The biographical data sheet allows one to describe the subject.

The UPSE has 4 sections to complete. At the end of the 4 sections there is a scoring segment to complete. Calculate a score for each section to the best of your ability following the directions.

The second questionnaire is the Evaluation Survey. I developed this tool to analyze the UPSE based on your individual attitudes and feelings. Feel free to add general and/or specific comments in the last section of this questionnaire.

Participation is voluntary. You have the right to decline from answering any questions and to refuse participation altogether. It is important to note that there may be some risks to participating in this project that you need to contemplate before deciding to participate. Please use your discretion in deciding to participate. Inconvenience and/or anxiety produced by completing the questionnaires are factors to consider, although your responses will help reveal the potential usefulness of this self evaluation approach. By completing and returning the questionnaires, it will be apparent that you have considered these potential risks and voluntarily chosen to participate.

To maintain anonymity and confidentiality, names will not be needed. To protect anonymity, if you decline to participate, please return the uncompleted biographical data sheet and the Evaluation Survey sealed in the provided envelopes. This is to protect anonymity between those who do or do not participate.

Data obtained will be used to analyze the UPSE. Results will be discussed with my Masters Research Project Committee and during the oral defense, which will be open to the public. Results from this project will be available, upon approval, in the OHSU library, listed under Masters Research Project manuscripts. Material from this study may be published.

Please take as much time as necessary to complete these questionnaires in an unrushed manner, in a quiet and distraction free environment. Please return the biographic data sheet and the Evaluation Survey sealed separately in the envelopes provided, to the collection box located in the PACU by July 29, 1994.

Thank-you for your time.

Appendix F

Proposal Approval from the Committee on Human Research



OREGON  
HEALTH SCIENCES UNIVERSITY

3181 S.W. Sam Jackson Park Road, Portland, OR 97201-3098  
Mail Code L106, (503) 494-7887 Fax (503) 494-7787

*Institutional Review Board/Committee on Human Research*

DATE: July 6, 1994

TO: Beth Lebert, BSN PACU UHS-90  
Dr. Caroline White, Advisor

FROM: Nancy White, Admin. Asst.  
Committee on Human Research *N. White* L-106

SUBJECT: Project entitled "Promoting Universal Precautions".

It is my understanding that this project involves survey procedures of nurses. Thank you for clarifying that there are no identifiers on the materials, but all subjects will be asked to return the packets (completed or not) to further protect anonymity.

This study fits exemption category #2 of the federal regulations (45 CFR Part 46.101 (b)) and is considered to be exempt from review by the Committee on Human Research.

This study has been put into our exempt files, and you will receive no further communication from the Committee concerning this study. However, if the involvement of human subjects in this study changes, you must contact the Committee on Human Research to find out whether or not these changes should be reviewed. If possible, please notify the Committee when this project has been completed.

If you have any questions regarding the status of this study, please call me at 494-7887.

Appendix G

Raw Data

<u>Respondents</u> N=15	<u>Responses to ES Items</u> #1-12											
	1	2	3	4	5	6	7	8	9	10	11	12
1	A	A	A	D	D	A	D	A	D	D	A	A
2	A	A	SA	D	A	D	SD	A	A	D	D	A
3	A	SA	SA	SD	A	SA	SD	SA	SD	SD	D	SA
4	A	A	A	A	D	D	D	A	D	D	D	A
5	A	A	A	D	A	A	D	D	A	D	D	D
6	A	A	A	SD	A	A	SD	D	A	D	D	A
7	A	A	A	D	A	A	SD	A	D	D	A	A
8	SA	A	A	D	A	A	D	D	D	D	D	D
9	SA	SA	SA	SD	SA	SA	SD	S	SA	SA	SD	D
10	SA	A	A	A	A	A	.	D	D	D	D	D
11	SA	SA	SA	SD	SA	A	D	A	D	A	D	A
12	A	A	A	D	A	.	D	A	D	D	D	A
13	SA	A	A	SA	A	D	D	D	A	A	D	D
14	SA	SA	SA	SD	SA	SA	SD	A	A	A	D	A
15	A	A	A	D	D	A	D	A	D	D	D	A

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE.  
. ES items omitted by respondent #10 & 12

**Appendix H**  
**Responses to Evaluation Survey Items**

ES Item	Responses				Statistics	
	SA	A	D	SD	M	SD
I feel the UPSE would be useful as a part of an annual review, as a reminder of UP guidelines.(1)	6	9			1.6	0.51
Items from the UPSE pointed out areas of my practice in which I may be at risk for exposure to blood or body fluids.(2)		4	11		1.7	0.46
Overall, the UPSE made me more aware of my use of UP.(3)	5	10			1.7	0.49
I do not think the UPSE would be a helpful way to analyze my use of PPE annually.(4)	1	2	7	5	1.9	0.88
Working through the UPSE made me feel concerned that I may be exposing myself to blood and/or body fluids more than I realized.(5)		3	9	3	2.0	0.65
The UPSE accurately portrayed how I use UP.(6)	3	8	3		2.0	0.68

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE;  
M=MEAN; SD=STANDARD DEVIATION; N=15. Number in parenthesis after item corresponds to the order in which items appeared on the ES.

ES Item	Responses				Statistics	
	SA	A	D	SD	M	SD
I found the scoring sections difficult to complete on my own.(7)			9	6	1.6	0.51
The process of responding to UPSE questions made me feel confident of my knowledge in the area of occupationally acquired HIV.(8)	1	8	6		2.3	0.62
Replying to the UPSE questions made me feel I need more education in the area of UP guidelines.(9)	1	5	8	1	2.6	0.74
The process of responding to the UPSE questions made me realize I need more education in the area of PPE.(10)	1	3	10	1	2.7	0.70
Replying to the UPSE questions made me feel that staff on my unit consistently follow UP guidelines.(11)		2	12	1	2.9	0.46
The process of responding to the UPSE questions made me feel confident of my knowledge in the area of occupationally acquired HBV.(12)	1	9	5		2.3	0.59

Note. Judgements were made on a 4 point scale:  
SA=STRONGLY AGREE, A=AGREE, D=DISAGREE, SD=STRONGLY DISAGREE;  
M=MEAN; SD=STANDARD DEVIATION; N=15. Number in parenthesis after item corresponds to the order in which items appeared on the ES.

## Appendix I

### Responses to the Evaluation Survey Open Ended Questions

#### Comments Regarding the UPSE Section I Questions:

- 1) "Questions #4 & 5 were confusing as stated."
- 2) "Guessed on the % questions." (#6 & 7)
- 3) "Liked inclusion of questions #6 & 7 (increased Hepatitis awareness)"

#### Comments Regarding the UPSE Section II Questions:

- 1) "It would be interesting to see if years of practice in nursing make a difference in how comfortable it is for a nurse to change to needleless systems. Also question #10 does not take into account years of practice. Perhaps a better question would be 'Have you had a needle stick within the last 10 years?' Years ago it was patient specific precautions, not universal precautions!"

#### Comments Regarding the UPSE Section III Questions:

- 1) The same respondent who commented on Section II questions stated: (for question #15) "the above note can be referred to here, also. Question #16 - I realize these are OSHA's high risk standards, but I do not agree with all. ie. specimen collection - what if it is a trach. specimen you are getting? Also emptying drains - what about hemovacs & JP's when you must express the blood manually."
- 2) "Initially overlooked 'current' in question #15."

#### Comments Regarding the UPSE Section IV Questions:

- 1) "Full UP should include judgement - ie. risks with oral hygiene vary. We can cover ourselves head to toe for every patient contact with any remote potential for exposure - but this has a price too - beyond the cost of garbs there's the use of resources and the perception of fear of human contact."
- 2) "Gloves, mask, & eye protection should always be used but I don't see it practiced. Gloves I use & see used always."

**Comments Regarding the UPSE Scoring Section:**

1) "Place the scoring guidelines at the bottom of each page for easier reference therefore I wouldn't have to flip back & forth."

**General Comments or Suggestions Regarding the UPSE:**

1) "Years of practice may make a difference in how a person might answer certain questions! Nurses who started their schooling in the 50's, 60's, & early 70's did not have to deal with 'UP'."

2) "Appreciated the inclusion of the OSHA Exposure Grid."

3) "The best feature of the tool is promoting awareness. I found it informative and easy to use."

**General Comments Regarding the use of UP:**

1) "Good guidelines - especially for inexperienced. Need to be used as a tool - not an absolute rule."



Appendix J

Pearson Product Moment Correlation Matrix of the ES Items

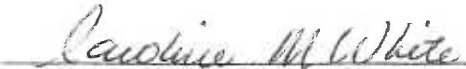
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Q1	1.0	.41	.29	.07	.66	.22	.17	-.44	.28	.68	-.45	-.56
Q2	.41	1.0	.85	-.67	.73	.73	-.41	.37	.06	.42	-.44	.31
Q3	.26	.85	1.0	-.62	.68	.45	-.56	.44	.18	.34	-.44	.36
Q4	.07	-.67	-.62	1.0	-.49	-.74	.58	-.31	-.06	-.08	.19	-.45
Q5	.66	.73	.68	-.49	1.0	.50	-.44	-.79	.45	.62	-.48	-.19
Q6	.22	.73	.46	-.74	.50	1.0	-.44	.18	0.0	.16	-.24	.19
Q7	.17	-.41	.56	.58	-.44	-.44	1.0	-.27	-.28	-.06	.14	-.42
Q8	-.44	.37	.45	-.31	-.18	.18	-.27	1.0	-.62	-.43	.35	.91
Q9	.28	.06	.18	-.06	.45	0.0	-.28	-.62	1.0	.74	-.52	-.55
Q10	.68	.42	.34	-.08	.62	.17	-.06	-.43	.74	1.0	-.51	-.49
Q11	-.45	-.44	-.42	.19	-.48	-.24	.14	.35	-.51	-.51	1.0	.34
Q12	-.56	.31	.36	-.45	-.19	.19	-.42	.91	-.55	-.49	.34	1.0

Note. Q1-Q12 indicates ES item #1-12

**Abstract**

**Title:** Promoting Universal Precautions

**Author:** Beth Lebert

**Approved:**   
Caroline White R.N., Dr.P.H.

Based on the identified problem of health care professionals' (HCPs) inconsistent use of UP guidelines and experiencing occupational exposures to blood and body fluids, the Universal Precautions Self Evaluation (UPSE) instrument was developed by this investigator. The purpose of the UPSE is to allow HCPs the opportunity to reflect on their individual understanding of and adherence to Universal Precautions (UP) guidelines. Guided by a conceptual framework of motivation, the UPSE was developed to give HCPs a feedback mechanism that promotes self-awareness through self-review in a non-judgmental fashion, which may provide personal incentives necessary to motivate practice changes toward compliance with UP guidelines.

A non-experimental descriptive design was selected for this project. The purpose of this study was to describe nurses' responses to using the UPSE. The method used to assess these responses to the UPSE was through a pilot study conducted in a tertiary teaching hospital. A convenience sample of 15 Registered Nurses (RNs) practicing in the Oregon Health Sciences University's Post Anesthesia Care Unit voluntarily chose to participate. Respondents completed an Evaluation Survey (ES) of the UPSE with Likert type items and open-ended questions about

the UPSE. Descriptive statistics were calculated from the ES to analyze nurses' responses to the UPSE. Results indicate that these nurses felt the UPSE does promote self-reflection and self-awareness of UP usage through self-review. Respondents agreed that the UPSE does point out areas of compliance, knowledge, and risk taking behaviors regarding UP guidelines.

Factors that limit generalizability of this study to other nurses include the small sample size with minimal variability in respondents' age and years of practice. Because data was obtained only from RNs, results can only be generalized to this population. The UPSE may be applied to other disciplines if revisions in the UPSE were made specific to that discipline. A more in depth descriptive study of the UPSE may substantiate concepts representing practice in the areas of compliance, knowledge, and occupational exposures. With revisions in the UPSE for other disciplines and evaluation of the UPSE through further study, the UPSE may be an analysis tool that could be beneficial in future studies evaluating educational programs to promote infection control.