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Urinary bladder assessment skills used by hospital nurses before a decision is made to institute intermittent catheterization

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**Urinary Bladder Assessment Skills Used By Hospital Nurses
Before a Decision is Made to Institute Intermittent
Catheterization**

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Degree Sought: Bachelor of Nursing (Honours)

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Tony Hussey**

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

Urinary Bladder Assessment Skills Used by Hospital
Nurses Before a Decision is Made to Institute
Intermittent Catheterization.

Intermittent Catheterization is an invasive technique in which a hollow tube (catheter) is inserted into the bladder to drain urine at regular intervals when a patient does not void. Catheterization is a technique frequently performed by nurses. The skills of assessment by nurses of a patient's urinary bladder prior to instituting intermittent catheterization (IC) have been neglected in the field of nursing research.

The purpose of this descriptive-correlational study is to identify bladder assessment skills (BAS) among hospital nurses prior to instituting intermittent catheterization. The study asks the questions: To what extent do nurses utilize BAS, and what is the relationship between BAS and demographic data? A stratified non-random convenience sample of 64 nurses of varying levels and from medical, surgical, gerontological and orthopaedic wards of a major metropolitan hospital participated in the study. A four-part, 29-item questionnaire was used to gather demographic and BAS data in the presence of the researcher.

Data was analysed by frequency distributions, tables, one-way analysis of variance, Pearson's Product Moment Correlation and t test. The findings indicated that over 80% of nurses reported that they performed most of the BAS

often or always, with the exception of inspection and percussion. Only 11% of nurses reported that they always performed comprehensive bladder assessment skills prior to instituting intermittent catheterization. There was no relationship between the frequency with which BAS were performed and employment designation, education, experience, age, gender, knowledge and nursing speciality. Nurses knowledge was low, particularly when determining the time frame for instituting intermittent catheterization.

Using Gagne's model of information processing as a framework for interpretation, it is suggested that when performing BAS most nurses progress through the stages of Gagne's model prior to their decision to institute intermittent catheterization.

Implications focus primarily on improving the knowledge base through an educational programme, which in turn should increase the number of nurses who perform comprehensive bladder assessment. This will improve the consistency of nursing practice. In addition, if there are inconsistencies in practice, the implementation of a policy on a uniform method of bladder assessment and management will have both social and financial benefits.

"I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text".

Marion Burke

13 December 1993

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CHAPTER 1

Introduction

This descriptive-correlational study was undertaken to gather information relating to a particular phenomenon within nursing, and to ascertain if any problems with existing practice were evident. Specifically the study was concerned with the methods utilized by nurses to assess the patient's bladder before a decision is made to institute intermittent catheterization.

Roe (1991, 1992) identifies the early use of metal catheters from Pompeii, AD 79, and the use of dried reeds and palm leaves by the Chinese to drain urine from the bladder. The urinary catheter is a hollow tube inserted into the bladder to drain urine. Intermittent catheterization involves the insertion of a catheter into the bladder at regular time intervals to drain urine.

The technique of intermittent catheterization became favourable in the early seventies as a means of periodically emptying the bladder, particularly among spinal cord damaged patients who self-catheterized to alleviate bladder distension and bacteriuria (Lapides, Diokno, Silber & Lowe, 1972; Kuhn, Hongladarom, Parks, & Berni 1974; Comarr, 1972; Lapides, Diokno, Gould, & Lowe, 1976; Hill & Davies, 1988). However, it is not without its associated problems (Anderson, 1979; Stamm 1975; Krebs, Halvorsen, Fishman, & Santos-Mendoza, 1984; Donovan, Stolov, Clowers & Clowers, 1978). A descriptive study by Donovan et al., (1978) to determine bacteriuria during intermittent catheterization following spinal cord injury

identified 77% of the 60 participants had one or more episodes of bacteriuria. However, this result could also have been influenced by the time delay in initiating intermittent catheterization in these patients.

An experimental study by Walquist, McGuire, Greene & Herlihy (1983) found intermittent catheterization did not produce infection on a short term basis and suggested other factors (general health, urological history) would have greater significance. Adding to this, Walquist et al., (1983) suggest persistent over-distension was another variable possibly influencing bacteriuria. Therefore it is important to determine how nurses assess patients' bladder status to prevent over-distension.

Intermittent catheterization is instituted in hospitals on a regular basis for a variety of reasons, however, it is an invasive, and traumatic experience (Roe, 1985; Ravichandran & Fellows, 1983; Taube & Gajraj, 1989; & Burgener, 1987) for patients of differing ages and gender. Not only are there risks associated with intermittent catheterization, it is expensive in terms of equipment, nursing time, and treatment of associated complications (Crummey, 1989; Burgener, 1987; Hart 1985; Taube & Gajraj, 1989; De Groot, 1976; & Stamm, 1975).

Crow, Chapman, & Roe (1988) expressed concern about the emphasis placed on the technical performance of procedures, rather than on "assuring the patient's safety from the dangers of the practice" (p. 223). One hundred and sixty five health authorities participated in a postal survey conducted by Crow, et al., (1988) on written nursing

procedures as policies for practice. Catheterization was identified as the most frequently performed procedure (98%). The purpose for performing catheterization was identified in only 25% of documented policies, with 27% identifying inherent hazards associated with catheterization. The author's unsystematic observation of clinical practise prior to this study revealed that some nurses still assess patients on limited and erroneous bases, and often intermittent catheterization is instituted without accurately assessing the patient's bladder status. The Institution in the study has no specific policy on catheterization which offers guidelines for assessment of the patient prior to instituting intermittent catheterization.

Despite physical assessment being an important aspect of nursing care, no literature describes bladder assessment skills (BAS) prior to instituting intermittent catheterization. Bladder assessment techniques are described, but reveal conflicting information. The technique of catheterization is outlined in most textbooks, but assessment of the patient's bladder status prior to catheterization is overlooked (Brunner & Suddarth 1992; Heidenwolf Weaver, 1991; Jackson, 1990; Lewis & Timby, 1988; Morton, 1989; Norton & Miller, 1986; Block & Nolan, 1986).

De Groot (1976) believes catheterization is instituted in nursing practice to save time and not when justifiably indicated. This is supported by Wahlquist, et al., (1983) who suggest intermittent catheterization should not be

performed haphazardly. This does not imply that catheterization is not an important and essential tool for nursing practise, however it should only be instituted when indicated according to Bielski (1980).

Significance of the study

Methods of assessing the patient's bladder prior to instituting intermittent catheterization have not been described in the literature. As intermittent catheterization is common in nursing practice, determining how nurses assess the patient's bladder prior to instituting intermittent catheterization needs addressing. Identification of deficiencies that may be evident will contribute to the development of a BAS tool on which to base nursing practice.

Correct BAS would enable nurses to assess the patient's bladder efficiently and effectively, make clinical judgments and intervene appropriately. These could protect the patient from an unnecessary invasive and traumatic procedure, decrease the risk of complications associated with intermittent catheterization, reduce costs in both material and human expenditure and improve the quality of care.

This study could indicate the need to develop an appropriate BAS tool, which may have both financial and social implications for health care.

The statement of Purpose

This study investigated the methods utilized by nurses to assess the urinary bladder before a decision is made to institute intermittent catheterization. If there are discrepancies in nurses' assessments, a BAS tool could be designed and implemented as policy to provide a uniform method of bladder assessment and management. This would reduce associated complications, improve the quality of care and reduce human and material expenditure.

Definition of Terms

For the purpose of this study, BAS consist of the following:

Urine retention

Urine produced is retained in the bladder (Luckmann & Sorenson, 1987).

Bladder Assessment Skills

A series of techniques used to assess the degree of distension (fullness) of the bladder. They include the following items which should be assessed in the given numbered sequence based upon Morton, (1989) and Block & Nolan, (1986).

1. Fluid Balance

This is the measurement of fluid intake minus fluid output. Intake includes oral, intravenous and enteral fluids. Output includes voiding (passing of urine), faecal loss, insensible losses (perspiration and respiration), surgical drainage and vomiting (Millam, 1991).

2. Inspection

Inspection is the observation of the area to be assessed and involves the use of the eyes to reveal symmetry and contour (Metzgar, 1991).

3. Palpation

Palpation is feeling with the hands. It enables location of internal structures and assessment of characteristics such as size, texture and tenderness (Block & Nolan, 1986). Light palpation involves indenting the skin approximately two centimetres with the lightest pressure possible. Deep palpation involves indenting the skin approximately four centimetres (Metzgar, 1991).

4. Percussion

Percussion entails placing the middle finger of the non-dominant hand on the skin and tapping it with the middle finger of the dominant hand to produce sounds. Sounds transmitted help to locate underlying organ borders, shape, position and to determine if any are filled with fluid or gas (Metzgar, 1991).

Research Questions

1. To what extent do nurses utilize BAS?

Subsidiary Questions

Prior to performing intermittent catheterization:

What proportion of nurses assess fluid balance?

What proportion of nurses determine the time lapse from the last void/intermittent catheterization and consecutive intermittent catheterization?

What proportion of nurses perform inspection?

What proportion of nurses perform palpation?

What proportion of nurses perform percussion?

2. Is there a relationship between the use of BAS and the following factors: Employment designation, gender, age, experience, education and knowledge?

Organization of Study

This chapter has provided the rationale for conducting this descriptive-correlational study, with specific research questions and has defined variables. Literature pertaining to bladder assessment and intermittent catheterization is discussed in Chapter II. The Theoretical Framework chosen for this study is described in Chapter III. Chapter IV describes the methodology and concludes with the assumptions. Chapter V consists of the results. The summary of data analysis and comparison with previous findings is discussed, along with the implications in Chapter VI, which concludes with recommendations for further research.

CHAPTER II

Literature Review

Despite the extensive use of intermittent catheterization in nursing practice, current literature contains no information on the assessment of a patient's bladder prior to instituting intermittent catheterization. Numerous studies in the past have focused on many aspects of catheterization including catheter care, post void residuals, ultrasonography, catheter irrigation, and catheter-related infections (Wilson, 1990; Haylen, Frazer, Sutherst & Ashby, 1989; Stoller & Millard, 1989; Mainprize & Drutz, 1989; Burgener, 1987; Roe, 1985; Kennedy & Brocklehurst, 1982).

Conflicting information on how to assess a patient's bladder is evident in the literature, and in some instances not all aspects of assessment are considered. Discrepancies noted are primarily on sequence and technique of assessment, rather than on what would be inspected, palpated, or percussed (Brunner & Suddarth, 1992; Heidenwolf Weaver, 1991; Metzgar, 1991; Jackson, 1990; Lewis & Timby, 1988; Morton, 1989; Stark, 1988; Norton & Miller, 1986; Block & Nolan, 1986).

Several studies have linked components of bladder assessment in a haphazard manner. An early descriptive study by Kuhn, et al., (1974) focused on intermittent catheterization as a rehabilitation nursing service. The study outlined an educational program taught to nurses, that integrated patient care and theory. Anatomy and physiology of the male genitourinary system, the history of

intermittent catheterization and possible complications and practice sessions using the procedure were implemented. For reasons not identified, the female genitourinary system was not taught. There was no suggestion of assessment by inspection, palpation or percussion of the bladder prior to instituting intermittent catheterization. This could have been acceptable at the time of the study, as systematic nursing assessment (nursing process) was then in its infancy. Intermittent catheterization was performed every four hours during a 24 hour period.

Krebs, et. al., (1984) conducted an experimental study to determine the effectiveness of oral acidifying agents on urinary tract infections during intermittent catheterization. The intermittent catheterization was performed four hourly, and less frequently if spontaneous voiding occurred, however, no evidence indicated whether inspection, palpation or percussion were performed prior to instituting intermittent catheterization.

A quasi-experimental study was conducted by Garrett, Scott, Costich, Aubrey and Gross (1989) on the institution of intermittent catheterization in stroke patients who were unable to void once they had their indwelling catheters discontinued. Instituting intermittent catheterization was made on an assessment of a four to eight hour schedule of not voiding. The aim for a urine output of 350ml per catheterization was varied according to intake and output. No evidence was presented to suggest inspection, palpation, or percussion to determine bladder distension was performed to assist in determining bladder distension.

Pierce and Campbell (1988) conducted a comparative-descriptive study to determine the return of normal bladder function in post-operative patients. The study involved 49 male and female patients, but failed to identify the number of nurses participating in the study. Assessment of fluid intake and output, and time between last voiding and the first attempt to void post-operatively were considered, and recommendations for further research suggested. However, Pierce & Campbell (1988, p, 710) identified "the lack of ... nurses recognizing problems", in which only one nurse palpated a patient's abdomen to determine if bladder distension was present. No evidence was presented to suggest inspection or percussion of the bladder were used by the nurses to determine distension. Despite their findings, no recommendations were made to suggest the need for further research as to why nurses failed to recognize bladder distension, or to perform comprehensive bladder assessments.

Using a descriptive design, Dodds and Hans (1990) studied distended urinary bladder drainage practices among 149 registered nurses. The study was concerned with the amount of urine that could be drained safely from a distended bladder, and the physiological responses that occurred. Findings showed 97% of the nurses palpated for bladder distension, and 89% assessed patient discomfort prior to performing catheterization. Only 48% of the nurses did additional assessments, which included: 26% determined the time of the patient's last voiding, 22% calculated the patient's fluid intake and output. The

study did not indicate whether nurses performed these assessments never, occasionally, sometimes often or always. In addition, the study did not identify if any of the 149 participants inspected or percussed the patient's bladder to determine the degree of bladder distension prior to performing catheterization. These findings are similar to those found by Pierce & Campbell (1988). Despite their findings, no recommendations were made to suggest the need for further research on how nurses assessed patients' bladders.

Michelson, Lotke, & Steinberg (1988), using a quasi-experimental design, focused their study on determining if urinary retention after total joint-replacement surgery was reduced using intermittent catheterization in comparison to short term indwelling catheters. A pre-operative history of bladder symptoms (nocutria, frequency, post-voiding dribble, diminished urinary stream, and stress incontinence) were obtained. Intermittent catheterization was performed by nursing staff every six hours if retention occurred post-operatively. Establishing fluid balance was not considered, but could have assisted in determining if the patient was adequately hydrated intra-operatively and post-operatively. There was no evidence to suggest if inspection, palpation or percussion was performed to assist in determining bladder distension. In their discussion, Michelson et al., (1988) suggests intermittent catheterization can effectively prevent bladder overdistension theoretically, but practically "its use is

compromised in patients who have undergone surgery ...they may be too sedated to recognize onset of distension" (p. 325). For this reason, along with others, identification of how nurses assess the patient's bladder prior to instituting intermittent catheterization needs addressing.

The literature review also revealed inconclusive information on the ideal interval prior to instituting intermittent catheterization, or performing consecutive intermittent catheterization. Several studies (Moore, 1991; Udall, 1988; Hill & Davies, 1988; & Anderson, 1979) indicated bacteriuria was lower in patients catheterized four hourly than those catheterized less frequently. This authors unsystematic observation of nursing practice reveals the interval between the patient's last void (or intermittent catheterization) and the decision to perform catheterization varied among nurses.

In conclusion, the lack of documented evidence suggests the need to determine how nurses assess patients' bladders prior to instituting intermittent catheterization. If the level of knowledge is deficient, the development and implementation of a BAS tool will provide a uniform method of bladder assessment and management, enabling nurses to make better decisions and intervene appropriately.

CHAPTER III

Theoretical Framework

This study will utilize Gagne's model of information-processing. The basic concept of Gagne's model is the stimulus-response theory ($S \rightarrow R$). Gagne's (1974) theory involves the process of obtaining information, either objective and/or subjective from the external environment (represented by "S"). This information is internalised via the intellectual, cognitive, and affective (attitudes) domains of learning and linked to prior knowledge (represented by "s"). Internalising this knowledge and drawing on the repertoire of prior knowledge assists in initiating an appropriate response (represented by "R"). Linking the external information(S) and drawing on the repertoire of internal knowledge(s), enables motor skills to be implemented appropriately(R) (Gagne, 1974; Gagne, 1985; Bigge, 1982; de Tornay & Thompson, 1987).

Applying Gagne's model to BAS, the nurse needs to know the normal anatomical position of the bladder and have prior knowledge regarding BAS(s). The nurse proceeds in a definite sequence to obtain information(S) regarding the patient's bladder status. This is achieved by assessing the patient's discomfort, fluid balance, determining the volume and time of the patient's last void (or intermittent catheterization), any significant urinary history and locating the bladder. Further information is acquired by inspecting, palpating and percussing over the suprapubic area to determine if bladder distension is evident. Linking the external information(S) with the prior

knowledge of BAS(s) enables an external response (R) to be initiated as depicted in figure 1. The external response would be the nurse's decision whether or not to institute intermittent catheterization (IC). The feedback loop provides confirmation that the technique of BAS has achieved its purpose.

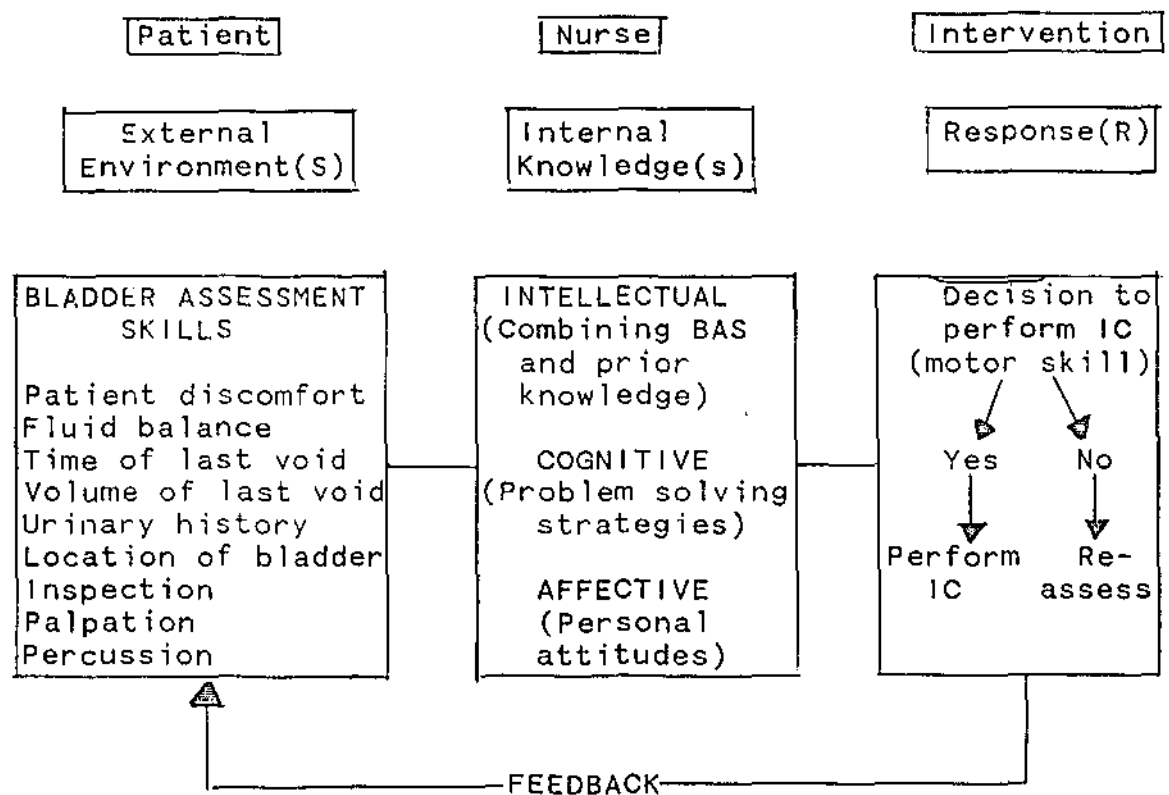


Figure 1. Conceptual model - Adaption of Gagne's (1974)

model applied to Bladder Assessment Skills.

CHAPTER IV

Methodology

Sample and Setting

The sample consisted of 64 qualified nurses, both registered and enrolled nurses of varying levels (Nursing career structure of Western Australia) currently practising on medical, surgical, gerontological and orthopaedic wards of a major metropolitan hospital. Nurses on renal, burns urology, stroke, and critical care wards were excluded from the study, as specific practices in these areas may distort results. Student nurses and nurses in management positions were not required to participate in this study. Selection criteria included nurses permanently employed within the hospital on a shift work basis, without renal course qualifications.

Sample selection was by stratified non-random convenience sampling. Of the 81 nurses approached, 65 (80%) responded. One questionnaire was incomplete, and excluded from the study leaving a sample size of 64 (79%). The sample consisted of 58 female and 6 male nurses. Of the sample, 45 nurses initial nursing education was Hospital Based Diploma and 19 were Tertiary Diploma/Degree nurses. The strata consisted of 15 (23%) nurses from orthopaedic wards, 15 (23%) nurses from surgical wards, 18 (28%) nurses from gerontological wards and 16 (25%) nurses from medical wards. The age range was 21 to 53 years ($M = 32.17$, $SD = 10.46$).

The range for the number of intermittent catheterizations per nurse in the study performed over the month prior to data collection was 0 to 24 ($M = 4$, $SD = 4.92$).

The post-registration nursing experience range was 4 months to 31 years ($M = 10.19$, $SD = 8.92$). For statistical purposes, nurses with post-registration experience of one year or less were entered as having one year of experience.

Study Design

A descriptive-correlational design utilizing a questionnaire was chosen for this study, as it gathers data about the phenomena as they currently exist (Polit & Hungler, 1989), and can identify problems with existing practice, and identify relationships that are present (Burns & Grove, 1987).

Instruments

A search of the literature for a suitable instrument revealed one possibility. However, the instrument designed by Dodds & Hans was unsuitable because the data it would gather would not be applicable to the present study. For this purpose, a "Bladder Assessment Skills" instrument was specifically designed by the author for the study (see Appendix C). This instrument was reviewed by a Nurse Researcher, Clinical Nurse Specialist, Staff Development Nurse and University Nurse Educator for face and content validity.

The instrument is a four-part, 29 item questionnaire. Section one is concerned with demographic data, section two utilizes a Likert-type scale to determine how frequently

nurses perform BAS, section three asks participants to order their responses in accordance with the first thing they do and section four consists of multiple choice questions concerned with knowledge.

A pilot study was conducted on 10 subjects, using the same setting, sample selection and criteria as the major study. The pilot study helped determine reliability and validity of the questionnaire, clarity and effectiveness of language and instructions, and the success of data collection. However, formal tests of reliability were not performed. As a result of the pilot study, the questionnaire was modified prior to its distribution for the major study.

Procedure

A meeting between the researcher and the ward coordinator was arranged to identify a date and time convenient to both the researcher and the ward on which to implement the study. A letter (see Appendix D) was posted on the ward advising staff of the impending study. In addition, a copy of the letter was posted in the staff allocation book corresponding to the day chosen to implement the study. Data was collected three days later on the gerontological wards, five days later on the medical and surgical wards, and six days later on the orthopaedic wards. The need for answering the questions honestly and for refraining from discussing the questionnaire with colleagues was stressed, as guessing and sharing of information might influence results.

Ethical considerations were discussed. Nurses wishing to participate obtained a consent form (see Appendix A) from the researcher at the meeting. Colour coded questionnaires representing the strata were given to the nurses and completed at the meeting in the presence of the researcher. The subjects placed the completed questionnaires in a sealed box present for the duration of questionnaire completion only. The respondents answers to the questionnaire were completely anonymous. The data collection box remained sealed until all data collection was completed.

Ethical Considerations

The study proposal was submitted for review at Edith Cowan University. When approval was granted, the proposal was submitted to the nursing review committee at the participating hospital. Approval from the participating hospital was granted. A consent form (see Appendix A) informed participants of their rights. As the study utilized a questionnaire and no interventions were undertaken, there were no risks to the participants.

A questionnaire cover page (see Appendix B) informing the participants of the basic purpose of the study, was attached to the questionnaire. Manuscript and data were stored separately on individual computer disks. A virus scanner was installed for scanning both hard and floppy discs. Questionnaires and data were stored in safety deposit boxes. The raw data and questionnaires will be kept for seven years and then shredded.

Data Analysis Method

A significance level of .05 was set for data analysis. The data were analysed using the statistical package for the social sciences (SPSS) computer package and the following statistical methods:

Question 1: Frequency distribution and graphs describe to what extent nurses utilize BAS.

Question 2: An overall score of how comprehensive BAS are, and a relationship to demographic data established.

Assumptions

The researcher is assuming that nurses will answer the questions honestly and will refrain from discussing the questionnaire among fellow colleagues. It is further assumed that all nurses are familiar with the physical assessment terminology used in the questionnaire.

CHAPTER V

Results

Intermittent catheterization is a common invasive nursing procedure, performed by varying levels of nurses on all shifts. Correct BAS are important when a decision is required to institute intermittent catheterization. The results, reported in detail below, showed that overall more than 80% of nurses reported that they often or always performed most of the BAS prior to their decision to institute intermittent catheterization. There was no relationship between the demographic data analysed and the frequency with which BAS were performed.

Reported Use of BAS by Nurses

The first research question asked to what extent BAS are used by nurses. In Section 2 of the questionnaire, the subjects were asked how often they performed each of the BAS. They were given the options of "never", "occasionally", "sometimes", "often" and "always". Figure 2 displays a stacked bar graph which depicts the frequency with which subjects responded to each of these options for each of the BAS. Surprisingly, over 80% of nurses reported that they often or always performed most of the BAS, with the exception of inspection and percussion, when determining bladder distension. Of the sample, 52% of nurses reported that they always determined urinary history, 44% of nurses reported that they always inspected the suprapubic area, 58% of nurses reported that they

always palpated the abdomen, and 33% reported that they always percussed the abdomen when determining bladder distension.

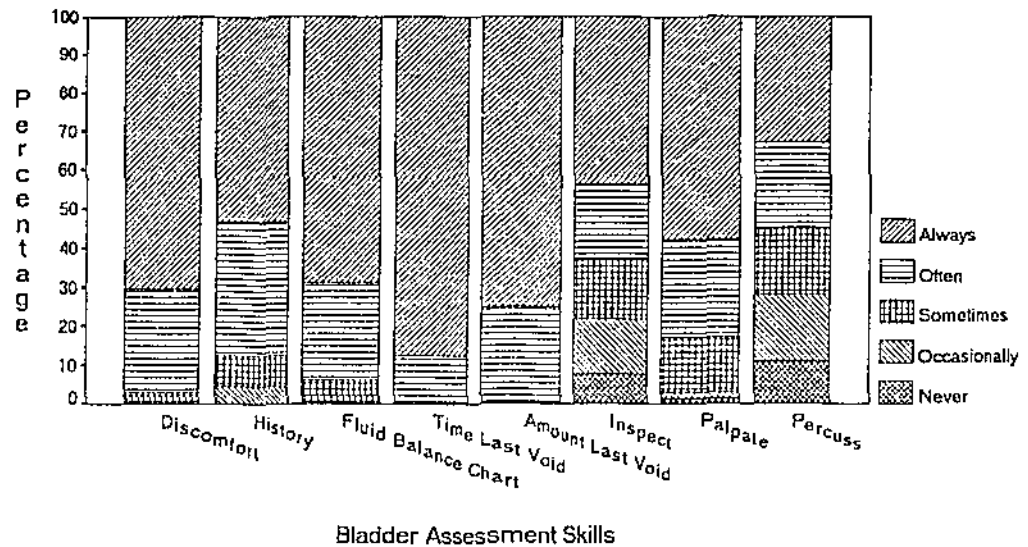


Figure 2

Percentages of Nurses who utilize Bladder Assessment Skills

Relationship Between BAS and Other Factors

The second research question asked if a relationship exists between the use of BAS and the following factors: employment designation, education, experience, age, gender, and knowledge.

The BAS score was calculated by summing the responses to Section 2 of the questionnaire to obtain a total score. The minimum score that could be obtained was 8 and the maximum score that could be obtained was 40. The actual range was 24-40 ($M = 34.89$, $SD = 4.03$). The maximum possible score of 40 was obtained by 11% of nurses.

The relationship between BAS and employment designation was determined by a one-way analysis of variance (ANOVA). The dependent variable is the BAS score and the independent variable is employment designation. Employment designation consisted of three categories: Enrolled Nurses, Registered Nurses, and Clinical Nurses (A Clinical Nurse is a nurse who is at Level two of the career structure, and is responsible for nursing practice in a particular area and for all level one nurses in that area). Two categories of staff (Staff Nurses and Staff Development Nurses) were not included in the analysis due to insufficient numbers. The ANOVA indicated no significant difference in how frequently certain levels of nurses performed BAS, $F(2, 56) = 0.82, p > .05$. The mean scores for Enrolled Nurses ($M = 33.45, SD = 5.35$), Registered Nurses ($M = 34.94, SD = 3.77$), and Clinical Nurses ($M = 35.58, SD = 3.89$) did not differ greatly from each other.

The relationship between BAS and initial nursing education was determined by an independent samples t-test. The t-test revealed no significant difference between the Hospital Based Diploma nurses and Tertiary Diploma/Degree nurses in the frequency with which they performed BAS, $t(62) = 0.02, p > .05$. The mean score for hospital Based Diploma nurses ($M = 34.95, SD = 4.34$) did not differ greatly from Tertiary Diploma/Degree nurses ($M = 34.73, SD = 3.29$).

The relationship between BAS and post-registration nursing experience was calculated using Pearson's Product Moment Correlation. The results indicated there is no

relationship between BAS and the number of years of nursing experience, $r(62) = 0.01$, $p > .05$.

The relationship between BAS and age was determined by Pearson's Product Moment Correlation. The results indicated there was no relationship between the frequency with which the nurse perform BAS and the nurse's age, $r(62) = 0.04$, $p > .05$.

Due to insufficient numbers (there being only 6 male nurses), the relationship between the gender of the nurse and the frequency with which BAS were performed could not be determined. However, the mean score for male nurses ($M = 35.67$, $SD = 5.35$) did not differ greatly from the mean score for female nurses ($M = 34.81$, $SD = 3.92$).

Order of BAS

In Section 3 of the questionnaire, nurses were asked to indicate the order in which they performed bladder assessment skills. Ranking went from 1 to 8, 1 indicating the first BAS used and 8 indicating the last. The mean ranking is shown in Table 1. The BAS which are obtained subjectively or by reviewing documentation ranked below 5, whereas the BAS that are performed manually (inspection, palpation, percussion) ranked above 5. The normal expectation would be for nurses to obtain information subjectively or by reviewing documentation before performing the manual BAS, as is the case in this study, as it is more acceptable for the patient.

Table 1

Ranking of Bladder Assessment Skills
by hospital nurses

ASSESSMENT	MEAN RANKING
Discomfort	3.8
History	4.2
Fluid Balance Chart	3.8
Time of last void	2.4
Amount of last void	3.3
Inspection	5.9
Palpation	5.6
Percussion	6.3

Knowledge of BAS

Total knowledge was calculated by summing all the correct responses to Section 4 of the questionnaire to obtain a total score. The minimum score that could be obtained was 0 and the maximum score that could be obtained was 6. The actual range was 1-6 ($M = 3.52$, $SD = 1.44$). Figure 3 depicts the percentage of nurses who answered each of the knowledge questions correctly. Overall most nurses knew the correct location of the bladder, and most knew the correct definition of palpation, percussion and insensible losses. The percentage of nurses who could correctly define inspection was somewhat lower (52%). Only 23% of

the nurses correctly identified the ideal time frame before instituting intermittent catheterization, the remaining 77% of nurses believed intermittent catheterization should be performed eight hourly or less frequently.

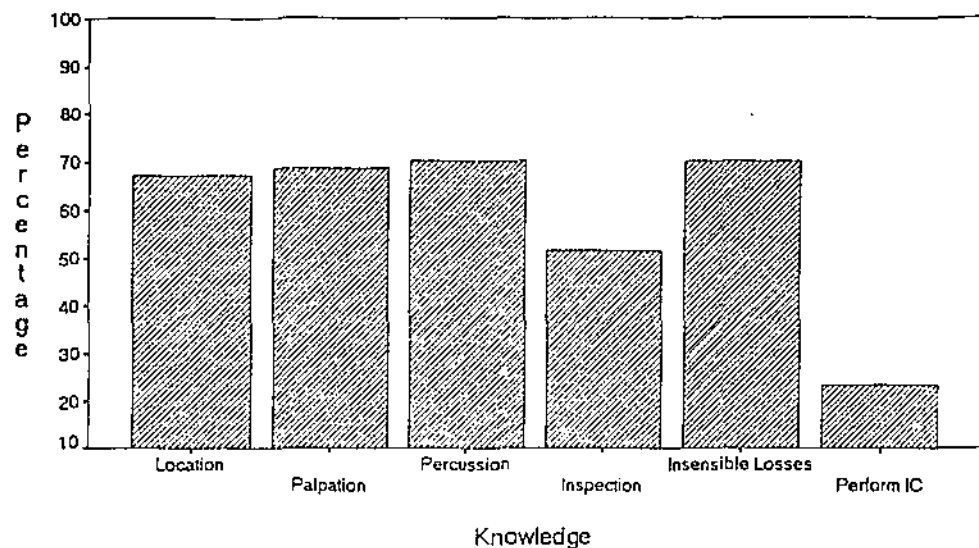


Figure 3
Knowledge of Bladder Assessment Skills

It was thought that possibly the speciality may have influenced BAS knowledge. An ANOVA was performed to determine if an association existed between the total knowledge score and the speciality in which the nurse worked. The ANOVA revealed no difference in nurses' total knowledge $F(3, 60) = 1.26, p > .05$, between Orthopaedic, ($M = 3.87$), Gerontological, ($M = 3.61$), Surgical, ($M = 3.76$) and Medical, ($M = 2.94$) nurses.

Nursing Speciality and Performance of BAS

The frequency with which nurses from each strata (nursing speciality) perform comprehensive BAS was determined and is depicted in Figure 4. Overall a high

percentage of nurses from most specialities always considered assessment of fluid balance charts and the time of the last void, however, the surgical and gerontological nurses scored slightly higher. A higher percentage of surgical nurses reported that they always performed inspection, while a lower percentage of orthopaedic nurses reported that they always performed inspection. Percussion was higher in orthopaedic nurses than the other speciality groups. Possible reasons for differences between specialities are discussed in the next chapter.

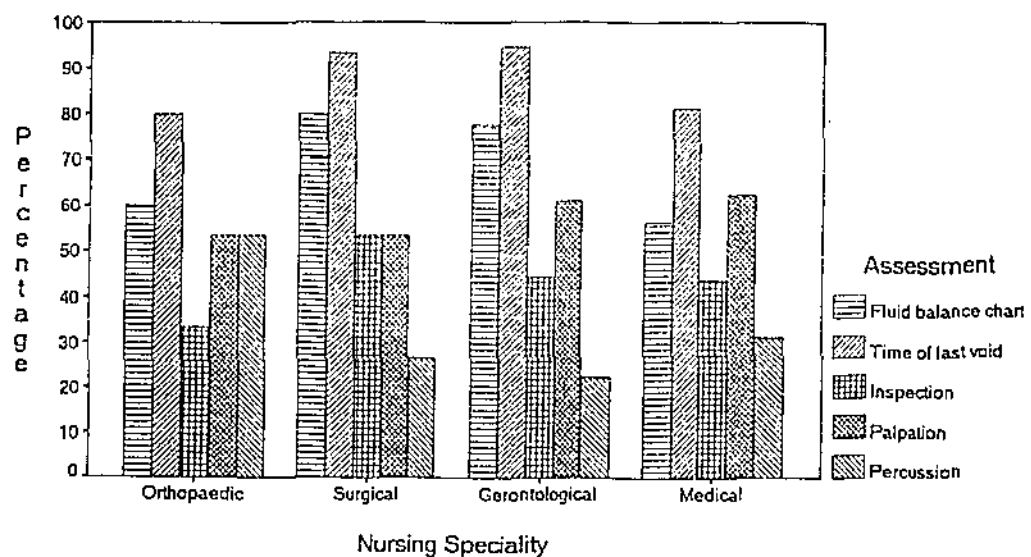


Figure 4
Number of Nurses who always performed BAS by speciality

Summary

Over 80% of nurses reported that they often or always performed most of the BAS with the exception of inspection and percussion. However, only 11% of nurses reported that they always performed a comprehensive bladder assessment. There was no significant difference between how frequently

certain levels of nurses performed BAS, or between the Hospital Based Diploma nurses and the Tertiary Diploma/Degree nurses and the frequency with which they perform BAS. There was no relationship between BAS and nursing experience, and BAS and age. The relationship between gender and the frequency with which BAS were performed could not be determined as only 6 males nurses participated. The ordering of BAS was correct, with the subjective and the review of documentation ranking below 5, and the manual performance of assessment ranking above 5. Nurses knowledge was low, with nurses scoring low on the ideal time frame to institute intermittent catheterization. There was no association between the total knowledge score obtained and the nursing speciality and the frequency with which BAS were performed.

CHAPTER VI

Discussion and implications

The purpose of this descriptive-correlational study was to identify how nurses assess patients' bladder status prior to their decision to implement intermittent catheterization. The study does not identify whether nurses are performing the technique of palpation and percussion correctly. The theoretical framework chosen for this study was Gagne's model of information-processing. The sample of 64 nurses (58 female and 6 male) consisted of 15 orthopaedic nurses, 15 surgical nurses, 16 medical nurses and 18 gerontological nurses. The findings concluded that over 80% of nurses reported that they performed most of the BAS often or always. Only 11% of nurses reported that they always performed a comprehensive bladder assessment on patients prior to their decision to institute intermittent catheterization. There was no relationship between the frequency with which BAS were performed and employment designation, initial nursing education, post registration experience, age, knowledge, and nursing speciality. Due to insufficient numbers the relationship between frequency with which BAS were performed and gender could not be determined.

In this study, only 11% of nurses reported that they always perform a comprehensive bladder assessment. Dodds & Hans (1990) did not distinguish the frequency with which nurses performed bladder assessment in their study, only whether they performed these skills at all. Table 2 shows a comparison between the findings of Dodds & Hans study and

the present study. The present study considered nurses who performed BAS "never, occasionally, sometimes, often and always". The nurses in the present study reported that they performed BAS 'some of the time' far more than nurses in Dodds & Hans study. In the present study, the percentage of nurses who assessed fluid balance and the time of the last void 'some of the time' was much higher than those in Dodds & Hans study. The percentage of nurses who performed palpation was similar for both studies.

Table 2

Comparison between Dodds and Hans (1990) findings and the findings of the present study.

	DODDS & HANS	PRESENT STUDY	
	Performed at all	Performed at all	Performed Always
Fluid Balance Chart	22%	100%	69%
Last Void	29%	100%	87%
Inspection	-	92%	44%
Palpation	97%	98%	58%
Percussion	-	89%	33%

A study conducted by Pierce & Campbell (1988) identified that only one nurse out of an unspecified number performed palpation. Although Pierce & Campbell pointed

out that nurses did assess fluid balance, and the time lapse between the last void, frequencies were not given to assist with a comparison. The present study found that surgical and gerontological nurses scored slightly higher when assessing fluid balance charts. A likely explanation for this is the sedated state of the surgical patient post-operatively and the close monitoring of their fluid balance, and the elderly patient's need to be assisted at times with intake and elimination.

Significant History

Only 53% of nurses in this study reported that they always determined any significant urinary history that the patient may have that could be affecting their voiding patterns. A possible explanation for this may be nurses inadequate assessment of the voiding pattern of each patient, or a inadequate review of previous and/or present medical or surgical history.

Inspection

The present study found that 92% of nurses reported that they inspected the suprapubic area some of the time to determine if bladder distension was evident. Only 44% of nurses reported that they always performed inspection. This is surprising, as 58% of the nurses reported that they always palpated the suprapubic area when determining bladder distension, and inspection and palpation can be performed concurrently. A higher percentage of surgical nurses than orthopaedic nurses reported that they always perform inspection. A likely explanation for this could be that the surgical patient may be too sedated to recognize

distension as pointed out by Michelson et al. 1988, and the nurse needs to be aware of the patients needs. A further explanation could be the frequency with which surgical nurses assess the abdomen for surgical drainage or ooze, and bladder distension may be obvious at that time. Increased bladder volume may increase intra-abdominal pressure, causing more pain, thus causing the patient to verbalize suprapubic discomfort.

Palpation

The study found that 98% of nurses reported that they palpated the suprapubic area some of the time. Only 58% of the nurses always palpated for possible distension. Palpation was lower in surgical and orthopaedic nurses. A likely explanation for this is that, palpation of the suprapubic area in acute surgical patients may increase discomfort due the nature of surgical interventions. Orthopaedic nurses may not palpate as often, as will be discussed in proceeding pages, as they are inclined to percuss more.

Percussion

The study found that 89% of nurses reported that they percussed the suprapubic area some of the time when assessing for bladder distension. Only 33% of nurses always percuss the suprapubic area. A likely explanation for this figure is that, because of obvious distension, nurses may avoid percussion which may cause further discomfort. Percussion was higher in orthopaedic nurses possibly due to the higher number of immobile patients and the prolonged enforced bed rest, which often affects their

voiding pattern. In addition, the use of continuous narcotic infusions, epidurals and patient controlled analgesia for pain control, particularly Morphine, on orthopaedic wards carries the risk of urinary retention.

Time frame

When determining the time frame in which nurses decided they would consider instituting intermittent catheterization, only 15 (23%) believed 4-6 hourly was the ideal time frame. This time frame corresponds to the findings of lower bacteriuria in patients catheterized four hourly (Moore, 1991; Garret et al., 1989; Udall, 1988; Hill & Davies, 1988; Krebs et al., 1984; Anderson, 1979; & Parks & Bernie, 1974). The remaining 49 (77%) believed catheterization should be performed eight hourly or less frequently, despite a policy issued just prior to data collection which stated that intermittent catheterization be performed six hourly. Nurses still appear to adhere to the traditional method of instituting intermittent catheterization eight hourly or less frequently. This finding may not be a necessarily unfavourable one, as instituting intermittent catheterization four hourly may not be warranted in a patient with minimal fluid intake and output, high insensible losses, and non-palpable bladder, and in essence may put the patient at more risk than necessary. Perhaps catheterizing six hourly is more realistic from both a patient and nursing perspective.

This may save nursing time, be cost effective and reduce the frequency which patients are being subjected to an invasive procedure, though still keeping the risk of over distension minimal.

Nurses' knowledge

The nurses' scores in the knowledge section were low, considering over 80% of nurses reported that they perform most of the BAS often or always. When determining the nurses knowledge (Section 4) and the correct location of the bladder (Question 1), the response rate (67%) could be affected by nurses' unfamiliarity with the anatomical landmarks used, rather than lack of knowledge of where the bladder is located. In addition, the low percentage (51%) of correct responses to Question 4 (inspection will identify) could be attributed to difficulty in differentiating between Response C (contour and symmetry) and Response D (abnormal characteristics). The knowledge section noted that the nurses were familiar with the definitions, however it did not determine if nurses actually perform each technique correctly.

Gagne's framework

Using Gagne's model as a framework for interpretation and discussion, it would appear that when performing BAS, most nurses in the present study progress through the stages of Gagne's model. It is to be noted here in relation to the model, that the affective domain was not investigated. These nurses obtain information regarding the patient's bladder status and link this information with their repertoire of internal knowledge before they decide

to institute intermittent catheterization. Only 11% of nurses reported that they always obtained all of the information from the external environment prior to instituting intermittent catheterization. Although over 80% of nurses utilized most of the BAS often or always, the percentage of nurses who comprehensively assessed the patients bladder was low. Physical assessment skills are incorporated in the curriculum for tertiary trained nurses, but these skills were not normally taught in Hospital Based Diploma programmes. Courses focusing on physical assessment skills are now available for Hospital Based Diploma nurses allowing them to update themselves. This may account for the insignificant difference between Tertiary Diploma/Degree nurses and hospital trained nurses and the frequency with which they performed BAS.

For a replication of the study, it is recommended that the instructions to Section 3 be reworded to avoid influencing the responses. Question 6 of Section 4 would need to be eliminated or reworded to decrease ambiguity. In addition, the section pertaining to demographic data should be placed at the back of the questionnaire due to the sensitive nature of its contents, as suggested by Burns & Grove (1987). Inclusion of assessment of medications that may affect voiding pattern may need to be included as a criteria for assessing patients bladder status.

In conclusion, this study identified that over 80% of nurses reported that they performed most of the BAS often or always with the exception of inspection and percussion when assessing a patients bladder status prior to

instituting intermittent catheterization. Only 11% of nurses reported that they always performed a comprehensive bladder assessment. The study showed no difference between the frequency with which BAS were performed and employment designation, initial nursing education, nursing experience, age, gender and the nursing speciality. Assessment of the patients significant urinary history and the nurse's knowledge concerning bladder assessment were low, although the implementation of an education package could improve this.

Limitations

The small sample size limits the ability to generalize the findings. As the study was conducted in one hospital only, the findings cannot be generalized outside this population. There is the possibility of nurses responding to the questionnaire as they believe they should, rather than in the way that accurately reflects their practice. This was evident from comments made by subjects during the pilot study. When data collected from the pilot study was being analysed, there were inconsistencies between the subjects response to Section 2 and Section 3. On discussion with the subjects, comments made were: "I never perform percussion, I only circled that I do"; "I have never checked for urinary history, but I circled that I do sometimes"; "I often palpate, but actually I circled I always palpate". Some subjects may have undertaken a physical assessment course currently being conducted at an organization linked with the participating hospital which may have influenced the results.

An incontinence education package not directly related to this study was devised by the continence advisors at the institution in the study. This package was initiated just prior to data collection. The effects of this package on nurses knowledge may have influenced the results. In addition, the updating of the participating hospital's policy on post-operative intermittent catheterization may have further influenced the results.

Implications

This study identified how nurses in a major adult hospital assess the patient's bladder status prior to their decision to implement intermittent catheterization. The study did not determine if the techniques used during assessment were correct, and if nurses were confident in utilizing BAS.

Over 80% of nurses reported that they performed most of the BAS often or always, with the exception of inspection and percussion as discussed previously. These findings need to be viewed with caution as the data was obtained by a self reporting technique. Polit & Hungler, (1989, 1991) asserts that a major drawback of self reporting techniques is the validity and accuracy of the answers the respondents provide, and the potential for intentional or unconscious distortion of results. The validity of the self reporting in this study is questioned, as discussion with respondents in the pilot study revealed their responses did not always reflect their practice as discussed earlier. In addition, the results may have been

partly influenced by the implementation of the incontinence education package.

The nurses knowledge was low, considering that most nurses reported that they performed most of the BAS often or always. Obtaining significant urinary history that may affect the patients voiding pattern was also low (52%), despite this information being accessible either by reviewing documentation or by obtaining information subjectively.

The development of a BAS educational programme incorporating practical and theoretical components of intermittent catheterization may increase consistency in nursing practice. The programme would aim to increase nurses knowledge, and increase the number of nurses who always perform comprehensive BAS, and decrease the number of catheterizations performed unnecessarily. Reducing intermittent catheterization is both beneficial to nurses and patients. It would reduce material and human expenditure, by reducing the financial cost of using equipment and possible prolonged hospitalization. Elimination of unnecessary catheterization may provide nurses with more time for activities including communication to promote a more positive nurse-patient relationship. The implementation of a policy on a uniform method of bladder assessment and management will assist nurses to make clinical judgements and intervene appropriately. BAS are quick, safe and non-invasive to the patient, and within the learning capabilities of all nurses. Once the nurse has the skills, they are readily

available and can be implemented both in the hospital and the community setting. For these reasons, nurses need to ensure they are competent in performing BAS.

Recommendations for Further Research

Replication of this study in a paediatric setting, nursing home environment, maternity setting or another major adult hospital would provide further data. A follow-up study in twelve months if a standard policy of bladder assessment and management has been implemented would provide valuable information. The identification of why nurses fail to perform a comprehensive bladder assessment on patients who have not voided, and methods nurses currently use to promote voiding would provide useful information for clinical research. In addition, an observational study to observe if nurses actually perform the technique correctly or at all will provide further information for education programmes. The time frame for deciding when to institute intermittent catheterization needs to be further researched. These issues would have both social and financial implications for health care.

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APPENDIX A

Consent Form

Urinary bladder assessment skills used by hospital nurses before a decision is made to institute intermittent catheterisation.

The purpose of this study is to identify the nurse's decision making steps used prior to instituting intermittent catheterisation. The study results may identify the need to develop a bladder assessment tool for nurses' use.

The study will take approximately fifteen minutes of your time and involves filling out a questionnaire concerned with demographic data and clinical decision making. The data will be used for statistical analyses only.

Your participation is purely voluntary, and you may withdraw at any time, without incurring any penalty either professionally or personally. The researcher will be available during completion of the questionnaire should you have any questions.

I _____
(Please print name, sign and date)

agree to participate in the above-mentioned study. I have had the method of maintaining my anonymity explained to me. I am assured my identity will not be disclosed during the study or when the study is completed. All my questions have been answered to my satisfaction.

WITNESS _____
(Please print name, sign and date)

APPENDIX B

Questionnaire Introduction

The following questionnaire is part of a research project being conducted by Marion Burke for a Bachelor of Nursing (Honours) degree at Edith Cowan University. The study is looking at the nurse's decision making steps prior to instituting intermittent catheterisation. The results may identify the need to develop a bladder assessment tool for nurses' use.

Please take your time to read the instructions and questions carefully. Answer all questions honestly. I will be present during completion of questionnaire should you have any questions.

PLEASE DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE.

Thank you for your participation, I appreciate it.

APPENDIX C

QuestionnaireSection One

Please circle the appropriate response for questions 1 to 4.

(Example) Do you have blue eyes? (1) Yes 2 No

Demographic Data

1. Employment designation:

- | | |
|--------------------|-----------------------------|
| 1 Enrolled Nurse | 4 Clinical Nurse |
| 2 Staff Nurse | 5 Staff Development Nurse |
| 3 Registered Nurse | 6 Clinical Nurse Specialist |

2. What is your gender?

- | | |
|----------|--------|
| 1 Female | 2 Male |
|----------|--------|

3. Was your initial nursing education:

- 1 Tafe Diploma?
- 2 Hospital Based Diploma?
- 3 University Diploma?
- 4 University Degree?

4. What post graduate qualifications related to Nursing do you have?

- 1 Nursing Degree
- 2 Post Graduate Diploma
- 3 Honours Degree
- 4 Masters/Doctorate
- 5 Post Basic Course/s

Please Specify _____

Please write in the appropriate response for questions 5 and 6.

5. What is your age? _____ years

6. How many years post registration experience do you have? _____ years.

7. How many urinary catheterisations did you perform over the last month? _____

Section Two

On the scale provided please circle the frequency with which you carry out these steps when assessing a patient's bladder status.

	Never 1	Occasionally 2	Sometimes 3	Often 4	Always 5
(Example) Do you smoke?	1	2	3	4	5
(1) Percuss the bladder	1	2	3	4	5
(2) Determine significant urinary history	1	2	3	4	5
(3) Inspect the suprapubic area	1	2	3	4	5
(4) Assess patient discomfort where able	1	2	3	4	5
(5) Palpate the bladder	1	2	3	4	5
(6) Determine amount of last void	1	2	3	4	5
(7) Determine fluid intake and output	1	2	3	4	5
(8) Determine the time of patient's last void	1	2	3	4	5

Section Three

Please answer the following questions by numbering your responses from 1 to 8 (1 being the first thing you do. If you never perform an action leave it blank).

Please ensure your responses match Section Two.

(Example) In what order do you brush your teeth

- | | |
|--|--|
| (1) Rinse mouth..... | <div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> |
| (2) Brush teeth..... | <div style="border: 1px solid black; padding: 2px; display: inline-block;">2</div> |
| (3) Get dressed | <div style="border: 1px solid black; padding: 2px; display: inline-block;"></div> |
| (4) Put toothbrush / toothpaste away | <div style="border: 1px solid black; padding: 2px; display: inline-block;">3</div> |

In what order do you perform bladder assessment on a patient who has not voided and may require intermittent catheterisation.

- | | |
|---|---|
| (1) Percuss the bladder | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (2) Determine significant urinary history | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (3) Inspect the suprapubic area | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (4) Assess patient discomfort where able | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (5) Palpate the bladder | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (6) Determine amount of last void | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (7) Determine fluid intake and output | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |
| (8) Determine the time of patient's last void | <div style="border: 1px solid black; width: 60px; height: 25px;"></div> |

Section Four

Answer the questions by circling the correct answer.

- (Example) A cat: A *barks*
 B *wears clothes*
 C *drives a car*
 (D) *purrs*

1. The bladder is located in:
 - A *the suprapubic area posterior to the symphysis pubis and rectum*
 - B *the pelvic cavity, posterior to the symphysis pubis and anterior to the rectum*
 - C *the pelvic cavity, anterior to the symphysis pubis and anterior to the rectum*
 - D *all of the above*

2. Which of these is palpation?
 - A *To tap lightly with your fingers to distinguish underlying organs.*
 - B *To gently stroke the affected area.*
 - C *To indent the skin to identify underlying structures.*
 - D *None of the above.*

3. Percussion of the bladder involves the use of:
 - A *the palms of your hands to feel an area*
 - B *the fingertips to gently tap an area*
 - C *tapping of the palm of the non-dominant hand with the fingertips of the dominant hand*
 - D *tapping of the middle finger of the non-dominant hand with the middle finger of the dominant hand*

4. Inspection of the suprapubic area will identify:
 - A *how full the bladder is*
 - B *the need to perform intermittent catheterisation*
 - C *contour and symmetry of the abdomen*
 - D *evidence of abnormal characteristics*

5. Insensible losses are losses of bodily fluids:
 - A *through vomiting, diarrhoea, and voiding*
 - B *that are not important*
 - C *that are no longer required*
 - D *through perspiration and respiration*

6. After what time would you perform intermittent catheterisation in:

- A *1-2 Hours*
- B *3-4 Hours*
- C *5-6 Hours*
- D *7-8 Hours*
- E *8 or more hours*

THANK YOU FOR YOUR PARTICIPATION IN THIS QUESTIONNAIRE.

APPENDIX D

RESEARCH STUDY

Nursing staff on your ward have been invited to participate in a research study being conducted by myself, Marion Burke, a student undertaking a Bachelor of Nursing (Honours) degree at Edith Cowan University. I am also employed at Royal Perth Hospital and currently working part time on Night Pool.

The study will take 15 minutes of your time if you wish to participate. Anonymity is guaranteed.

The study will examine nurses decision making steps in a particular procedure. I will require 5 nurses or more from any of the following employment designation: Enrolled Nurse, Staff Nurse, Registered Nurse, Clinical Nurse, Staff Development Nurse and Clinical Nurse Specialist from your ward. Area Managers and student nurses will not be required to participate in this study.

I will be visiting your ward on _____ to implement the study. On completion of the study I will discuss the results with staff on your ward.

Thank you for your support in this research project. I appreciate your time.

Marion Burke

APPENDIX E

Project Time Line

The time frame required to complete the study will be seven months.

March-May

Liaise with staff at the respective hospital to communicate research aims and submit the required correspondence.

Conduct a pilot study.

Identify and modify problems from pilot study and make adjustments as required.

June-July

Conduct the study and collect data.

August-October

Analyse the data and communicate the findings to the participant hospital and ward staff, Clinical Nurse Specialists and Nurse Researcher, and submit for publication in the Stomal Therapy Journal of Australia.

APPENDIX F

Budget

Supplies	
Printing of instrument (75 Copies).	\$75.00
Computer paper @ \$4.50 per 100 pages.	\$18.00
Travel	\$40.00
Telephone	\$6.00
	TOTAL <u>\$139.00</u>