Identification in the Preparation and Administration of Medications

Anna J. Yuhasz

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IDENTIFICATION IN THE PREPARATION
AND ADMINISTRATION OF MEDICATIONS
by
Anna J. Yuhasz

A Thesis in Partial Fulfillment
of the Requirements for the Degree
Master of Science in the Field of Nursing

March, 1964
I certify that I have read this thesis and that in my opinion it is adequate, in scope and quality, as a thesis for the degree of Master of Science.

D. Lois Burnett, M.A., Professor of Nursing

(Matilda) Anabelle Mills, M.S., Associate Professor of Nursing

Bessie Wat, M.S., Assistant Director of Inservice Education, Loma Linda Sanitarium and Hospital
ACKNOWLEDGMENTS

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Anna J. Yuhasz
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CHAPTER I

INTRODUCTION TO THE PROBLEM

The relative frequency of medication errors occurring in hospitals has led many institutions to take a new look at the nature of these errors and to review present practices. Although the number of errors reported could be termed small in relation to the total medications given, the frequency, the nature, and the potential hazard to patients, as well as legal implications of the errors, indicate a need for a new concentration of study.

"The volume and variety of medications given to patients demand that every possible method of eliminating errors be explored and the chief explorers are those who dispense the medications."\(^1\) Although medication errors arise from a complexity of problems, most of the real causes are deviations from policy or procedures in the preparation and administration of medications. The number of medication errors occurring demand exploration and study in the individual hospitals to discover where correction is most needed.\(^2\)

Mamer stated that one of the serious causes of medication errors was "the problem of properly identifying the medication with the record and rechecking to be sure that it is the proper medication and finally,

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to double check to be sure that the patient is positively identified before the medication is given.\(^3\)

Proper nursing procedures should follow those measures which insure the greatest safety of the patient. Nurses are the key persons in the practice and maintenance of patient safety. By doing the things which she knows comprise "good nursing", the nurse makes her greatest contribution to safety in medication dispensing.\(^4\)

While the probability of eliminating medication errors may never be complete, a careful study of the responsible factors should provide clues to help materially reduce the incidents of medication errors to patients.\(^5\) "Accident frequency, while not a controlling factor, is a guide post. It is reasoned that the greater the frequency the more apparent is a disregard for safety."\(^6\)

According to Fulton the two basic problems in the frequency of medication errors were: (1) improper identification of the patient and the wrong medication given to the wrong patient, and (2) improper identification of the medication and the wrong medication given to the right patient.\(^7\)

\(^3\)Leland J. Mamer, "Good Patient Care Through Hospital Safety Programs," Hospital Management, 81:52, February, 1956.


\(^6\)Hospital Safety and Sanitation: With Special Reference to Patient Safety, Ann Arbor: University of Michigan School of Public Health, 1962, p. 35.

There has been insufficient consideration given to the problem of identification in view of the increasing frequency of medication errors. The increasing opportunities for error in identification were due to several factors. These factors included rapid employee turnover with resulting incomplete orientation to procedures and patient safety, the frequency of moving patients from one unit to another, and the increased numbers and variety of drugs in recent years. As a result, the promotion of safety in medication practices within the hospital has become an increasing challenge. ⁸

The reduction of medication errors by the nursing personnel is a responsibility shared with the hospital pharmacist, the medical and administrative staffs. The hospitals have been and are giving serious consideration to improving drug distribution.

A recent innovation in this area was a new system of dispensing medications. One of the benefits which this system claimed was the potential for reducing medication errors to a minimum. ⁹ Some controversy exists as to the validity of this claim. ¹⁰

No system of dispensing medicines is all good or all bad. None is regarded as infallible. The reliability of any system depends to a large extent upon the person who administers it.

According to Fulton, the most common medication errors involved medications being given to the wrong patient. ¹¹ Therefore, any system for

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⁸Hoynak, loc. cit.


¹¹Fulton, loc. cit.
dispensing and administering medications must consider procedures that prevent unsafe and careless practices.

An analysis of the medication nurses' identification methods will be of value in determining if the nurses' procedures promote patient safety.

It was hoped that a study in a selected hospital, utilizing a new system of dispensing medications might make some meaningful contribution to the overall nursing safety practices in the area of medication and patient identification.

I. THE PROBLEM

Statement of the Problem

The maintenance of safe nursing practices regarding medication dispensing is essential to the effective operation of a hospital. The problem of this study was to find out what factors, within the work situation of the nurse in a selected hospital, contribute to the frequency of medication errors. This was to be accomplished by finding out the identification methods used by selected graduate nurses in the preparation and administration of medications.

Purpose of the Study

Through this study it was anticipated that a survey of selected graduate nurses in the preparation and administration of medications would: (1) determine specific factors that contribute to medication errors during the identification process of medication preparation and administration; and (2) present these findings as an aid to minimize or eliminate factors which contribute to medication errors in order to
promote patient safety.

Need for the Study

The identification of medications during preparation and administration is important to patient safety. The graduate nurses who administer the medications have the responsibility of maintaining the patients' safety in this area. Therefore, it seems important to evaluate the methods they utilize for identification during the preparation and administration of the medication.

Safe nursing practices are essential for good nursing care. According to Bradbury:

Eighty-five per cent of accidents are caused by unsafe acts or behavior. Therefore efforts should be directed toward determining how nurses behave and what can be done in motivating their behavior along lines of safety.\(^\text{12}\)

It was further stated that human beings have a tendency to let down their guard. This "let down" was most often the result of one or a combination of the following: (1) thoughtlessness, (2) taking chances, (3) carelessness, and (4) ignorance. Procedures are therefore necessary. Procedures must be followed.\(^\text{13}\)

A hospital staff nurse may make mistakes in technique over and over again even though she was taught safe and effective techniques when a student. In the area of medication dispensing the nurse is not under constant and close supervision. If a nurse follows her own inclinations rather than an accepted procedure, the outcome may be very disastrous for the patient.\(^\text{14}\)


\(^\text{13}\)Ibid.

\(^\text{14}\)"Patient Gives Needle Back to Nurses," The Modern Hospital, 100: 147, June, 1963.
A medication system in which the nurses are expected to carry unlabeled medications to rooms where there are multiple patients negates good safety principles. The nurse should not be required to rely on her memory for identification of the patients and their medications. Lax procedures in one area of dispensing medications may nurture the tendency toward further carelessness in other areas of patient safety.

Because patient safety in the hospital is of prime importance to the patient and to the hospital administration, any factor which may affect this safety should be considered. It is generally believed that the identification of medications is a part of patient safety. Therefore, the findings of this type of study may reveal factors which contribute to medication errors, which if minimized or eliminated, would lead to better nursing care. As far as could be ascertained, this type of study has not been done at the hospital selected for this study.

Hypothesis

It was the hypothesis of this study that nurses engaged in the preparation and administration of medication do not adhere to safe standards of medication and patient identification after they become familiar with the medications and the patients.

Limitations

This study was limited to observations of seventeen medication nurses in a selected hospital utilizing a new system of dispensing medications.

Nurses observed were limited to those on the morning and afternoon shifts. Only those nurses were selected who had had a day off prior to the first observation period. The observation survey ranged over a two
month period of time.

The number of observations possible with each nurse were limited to the number of medications ordered and administered at the selected periods of observation.

The possibility that the nurse would exercise safe identification procedures while under observation and thus provide behavior which was the exception rather than the rule was a limiting factor to the observational process.

Assumptions

It was assumed that the medication nurses under observation had been oriented to the new system of dispensing medications.

It was also assumed that the medication nurses' knowledge of the standard three check method of identifying the medicine during the preparation of the medication had been taught and learned during the educational period.

It was further assumed that medication nurses were aware of the wristband identification procedure of the employing hospital.

It was also assumed that the periods of observation were typical of all comparable work periods.

Method of Study

In conducting this study the descriptive survey approach was used. The tool of research was an observation check sheet. Literature was reviewed to determine the types of errors which occur in administration of medication. Since administration of medications require safety principles, literature on safety was also reviewed to confirm the need for and the value of patient safety in relationship to this study.
Verbal permission was secured from the director of nursing service and the hospital administrator to conduct the study. A pilot study was also conducted. Medication nurses were observed to collect data.

II. DEFINITION OF TERMS

The following terms were defined for the purpose of this study.

Standard patient identification. The accepted standard of establishing the patient's identity before administering medications is:

1. Checking the patient's wristband, and
2. Addressing the patient by his name.

Standard medication identification. The process of comparison of the written order with the label of the medication to be administered. The procedure includes the reading of the medication label:

1. When taking medication from the drawer or shelf,
2. Before measuring or preparing the dosage, and
3. When replacing the medication on the shelf or in the drawer.

Medication nurses. A medication nurse is a professional registered nurse who has been specifically assigned to the preparation and administration of medications for the patients.

Medication error. Medication error means the administration of a medication at the wrong time, or in the wrong dosage, or to the wrong patient.

Patient safety. Patient safety in this study refers to the measures taken to prevent medication errors while the patient is confined to the hospital.

Administration of a medicine. Administration of a medication is the giving of a single dose of medicine to a patient by a nurse following a physician's order.
Standard. A standard refers to the rules established by authority, custom, and general consent as a criterion for checking.

Post-off Day. Post-off day is the eight hours of nursing services which the nurse renders following a day off.

Attitude. Attitude is the readiness, inclination, or tendency to act toward inner or external elements in accordance with past experience, and which fluctuates with prevailing circumstances and affects human behavior.\(^{15}\)

Average Nurse. The average nurse means the typical performance or achievement for the group of nurses considered in the study.

Three check method. The three check method is the medication identification process as given under the definition of standard medication identification.

Two check method. The two check method is the medication identification process in which the medication nurse eliminates one of the three steps in the standard medication identification procedure.

One check method. The one check method is the medication identification process in which the medication nurse eliminates two of the three steps in the standard medication identification procedure.

No check method. The no check method is the reliance on memory of color, shape, or consistency of medication as the means for identification rather than an accepted identification procedure.

Labeled. Labeled refers to medication which was identified in writing by the medication nurse after it was prepared.

Prepour. Prepour refers to the preparation of medication at a time and at a place not in keeping with the medication procedure and included medication which was poured prior to medicine rounds and when the study maker was not present.

New dispensing system. The new dispensing system is the method of procedure for medication storage and administration which includes and utilizes the following:

1. Drug cart. A self contained medication unit, consisting of a work area on top for the medication preparation, individually labeled patient drawers, and storage drawers for supplies and narcotics. This mobile cart is wheeled to the patient's door during each medication round. A kardex is used for the medication record of the patient. No individual medication cards are used.

2. Drug station. An electrically controlled unit for the storage and dispensing of prepackaged medications located on each nursing station. The medication nurse services the drug cart from this drug station for medication orders for the patients.

III. SUMMARY

There is a growing concern in hospitals about errors in the preparation and the administration of medications. In the area of medication and patient identification, the patient's safety depends upon the nurse who checks carefully to avoid the possibility of giving the wrong medication or the wrong dosage. Identification procedures should insure the greatest safety to the patient. Nurses are the key persons in the maintenance of safety in medication dispensing on the hospital unit and in the ultimate reduction in the frequency of medication errors.

Literature was reviewed for related studies on medication errors and patient safety. The descriptive survey was the method of research,
with the use of an observational check sheet as the data gathering tool.

The remainder of the study is arranged in the following manner. Chapter II contains a review of related literature. In Chapter III the method of gathering data is described. The observational check also is discussed with relation to medication and patient identification. Along with this is reference to the nurses participating in this study. Chapter IV includes the classification and analysis of data gathered. In Chapter V a summary of the study and conclusions drawn from the survey are given with recommendations for the minimization or elimination of medication errors based upon the findings of this study.
CHAPTER II

REVIEW OF LITERATURE

A review of literature was made to find similar studies which may have been done on nurses' identification methods in the preparation and administration of medications and to survey related literature in the area of medication errors and patient safety. Published studies on identification methods of medications and of patients were not found. There were, however, references to identification problems in studies on medication errors.

Literature on the subject of medication errors was limited and the extent of the problem was not fully known because of the reluctance on the part of hospitals to report the results of their own studies. This fact was supported at a recent hospital safety workshop held at the University of Michigan School of Public Health.

Literature to date produces only fragmentary and incomplete definition of the nature and the extent of the problem and it is frequently difficult and sometimes impossible to secure valid information on many phases of patient accidents.16

It was also felt that an analysis of nurses' activities could be of value in determining safe procedures and setting standards that would promote patient safety.

Every patient injury constitutes proof that hazardous conditions or unsafe practices, or both, has gone uncorrected. In spite of the best efforts, some hazards go undetected, and unsafe practices are not caught or go unrecognized. So hospital

16Hospital Safety and Sanitation: With Special Reference to Patient Safety, op. cit., p. 6.
personnel should carefully investigate the accident they have failed to prevent in order to obtain all possible information that will help to improve future employee performances and equipment.\(^{17}\)

Therefore, to understand the need for this study of methods used for identification of patients and their medications, a survey of literature is presented to portray the extent and complexity of this problem.

**I. RELATED STUDIES**

**Medication Errors**

Medication errors arise from a complexity of problems. Some of these errors were deviations from accepted policy or procedures in the preparation and administration of medications. But written policies and procedures apparently did not insure a reduction of medication errors. It was shown that where such policies exist that a great variation still existed in the practice of preparation and administration of medication from nursing unit to nursing unit in the hospitals.\(^{18}\)

The hospital patients and their relatives assume and expect the hospital environment to be safe. Yet, the patient's bedside was considered the most dangerous area in the hospital. The largest number of medication errors occur at the patient's bedside.\(^{19}\) "Medication errors are potentially one of the most dangerous types of patient accidents."\(^{20}\)

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\(^{17}\)Ibid., p. 83.


The full extent of the frequency of medication errors was not known because reporting procedures were incomplete. Potential criticism and possible legal liability were some of the reasons given for inadequate reporting. Differences in individual professional judgment as to what constituted a reportable incident were also a factor.21

Barker and McConnell in their study reported that the average nurse in the hospital made one error in every six medications administered. Fewer than fifty per cent of the nurses reported medication errors. Thirty-six per cent of all known errors were not reported and 29 per cent of the nurses studied would not report medication errors if they made them. According to the findings of their study, the vast majority of medication errors were unknown even to the persons committing them.22

Analyzing the weak areas of medication administration, Byrne23 and Corcoran24 discovered that carelessness and forgetfulness in correct procedure accounted for more than half of the total medication errors. Categorization of these errors by types in Byrne's study showed that administering the wrong medication to the wrong patient accounted for 12 per cent of the errors, while administering the wrong medication to the right patient accounted for twenty per cent of the errors.


22Ibid., pp. 361-369.


Corcoran stated:

There seemed to be two main sources of difficulty for the lack of definite identification of the patient. The first was the location of the bed card. The second was a feeling of familiarity with patients on the unit that made it seem superfluous to call the patient by name.25

According to Safren and Chapanis' study a large number of medication incidents occurred because nurses failed to follow procedures. It was their stated opinion that attention be focused on techniques and procedures which by their very nature and design reduce the probability of human misinterpretation and error.26 The following suggestions were made for the approach of studying medication procedures:

1. Singling out any difficulties associated with particular procedure and then making the necessary changes so that they are easier to follow.

2. Building more safety checks into medication procedures so that if a nurse should forget to follow one step, or makes an error, it would be detected at some other step.27

The legal counsel for the California Hospital Association conducted a study on medication errors and found that nearly half of all the medication errors reported were directly due to improper identification.28

Other Studies

Other studies revealed that 90 per cent of the blood transfusion deaths were caused by faulty identification of the patients. Of the

25Ibid., p. 49.


27Ibid., p. 66.

3500 transfusion deaths reported in 1953, 2700 of these were due to faulty patient identification. Errors in medication are far more prevalent since the medication procedure was more common than other procedures in the hospital. "One would naturally expect to find here the greatest number of errors due to faulty identification."²⁹

In a study by Okimi on the application of knowledge of medications by senior students of nursing, it was shown that the students know more about medications which were given frequently but there were inadequacies in the students' knowledge and in the application of their medication knowledge. The students checked the name tags of the patients before administering the medication 27 per cent of the time consistently and 64 per cent of the time the name tags were sometimes checked. When precautionary measures could have been taken in administering medications, only 35 per cent of these opportunities were utilized.³⁰

Whiteaker's study of pediatric nurses in three selected hospitals showed that the nurses knew the route and the type of drug being administered but their knowledge of the action time and side effects was limited. This additional knowledge could only be acquired by the study of each medication as it was introduced on the unit for patients' use. This study indicated that the nurses were not well informed on knowledge of the old drugs nor did they keep abreast with knowledge about new drugs.³¹


³⁰Patricia H. Okimi, "Application of Knowledge of Medications by Senior Students in a Selected School of Nursing," unpublished Master's thesis, Loma Linda University, Loma Linda, California, 1961, p. 52.

Medication errors are more frequent than previously supposed, although the cause as yet has not been clearly defined. Nursing service administration and nursing education realize that medication errors constitute a nursing problem. Much has been done to improve the administration procedure of medications but more can be done to ascertain that nurses carry through these procedures.

II. NEED FOR SAFE IDENTIFICATION PRACTICES

Trends in Drug Therapy

Problems regarding medication safety are of growing concern to hospitals because of the increased number of drugs being used per patient, the confusing nomenclature, the specificity of action, the increased potency, and the changing concept of medical care. According to Kenna, "these conditions have placed a greater responsibility upon all persons engaged in the dispensing and administration of medications."32

The safe use of medicines today is far more of a problem than it was a few years ago. Many of the new drugs are not only potent therapeutically but are capable of doing great harm in over dosages or when contraindicated through unforeseen reactions developed from allergies of the patient.

Ninety per cent of the medications used currently have been introduced only within the last twenty years. Forty per cent of these were unknown five years ago. In addition to the present volume of medications in use, there are over 300 new drug products being introduced each year.

It is estimated that the average life span of a new drug is two to five years. The turnover rate in medications overwhelms the competence of the average physician not to mention the nurse whose education and experience in this area is relatively minimal when compared with that of the pharmacist or the physician.\textsuperscript{33}

These facts should be of concern to the nurses in the area of preparation and administration of medications. The nurse shares along with the physician and the pharmacist the responsibility for the safe and effective use of the many new and potent drugs. This responsibility can only be discharged if all the nurses handling drugs are familiar with safety controls and use the human measures necessary to make them effective.\textsuperscript{34}

\textbf{Medication Labels}

The nurse who prepares the medications for administration must not only be concerned with the name of the owner of the medication but the name of the drug as well.

Nurses reported that they were confused by the fact that many drugs of the same chemical composition have different names. In some hospitals the use of the official or the council names was confusing when the physician prescribed medications by using the various proprietary or brand names. Even the supporters of the use of the official or council names, for purposes of simplification, find it difficult to insist on a long and difficult official name such as "bishydroxycoumarin"


when the shorter proprietary name of "Dicumarol" was much easier to spell and pronounce.35

Compounding this problem of drug identification was the fact that the nurse must know two weight systems. "In spite of the fact that for some time the U.S. Pharmacopeia, the National Formulary, and the New and Non-Official Drugs have included only the metric doses, it is still necessary for nurses to be able to cope with the apothecary system of dosages as well."36

Medications are also going through a color-size process of change both in the capsules and tablet forms. Goodland pictures this problem by the following example:

Having become used to the white Chloromycetin capsule with a blue band around it (which we always knew could be confused with the very similar capsule of the sedative Carbital) it is now presented to us as white with a green band around or green one end and white the other. Tetracycline, once a white capsule with a yellow band around it now appears with a blue band, so that it can now be confused with Carbital and the "old" Chloromycetin capsule.37

It seems evident that the intention behind this color scheme is to enable quick initial selection. This tends toward a selection by color and then by label, whereas the only safe way to select is identification of the medication label with the physician's order and then double checking afterwards.

Goodland felt that "it was unfair and irresponsible of the drug industry, in pursuit of their own ideas and interests, to leave such

36Ibid.
resultant chaos to be sorted out by the nurses in the hospitals, who must take the blame if she failed to do so. 38

Any medication system must take into account human limitations and weaknesses. Nurses are people with human frailties. Therefore, attention must be focused on techniques and procedures for adequate identification which by their very nature and design can reduce the probability of human misinterpretation and medication error.

**Moral and Legal Responsibilities of Nurses**

What was considered good nursing practice yesterday may be negligence today. In a world where change has been and is the dominant characteristic, the work and legal responsibilities of the nurse are changing. The nurse must keep abreast of these increasing legal responsibilities in her role in this scientific age in which she lives.

Lesnik and Anderson concluded from a recent twenty-five year study on civil liability of nurses that a nurse was more likely to be held liable today than she was ten years ago and that there has been a marked change in society's willingness to initiate legal proceedings against the nurse. 39

Whatever affects the body of knowledge of nursing or its functions, standards, and qualifications has legal import for the nurses. The effect of professional nursing studies and research declarations, identifying nursing functions, have incalculable influence upon courts in their decisions. 40

38 Ibid.
40 Ibid., p. 257.
Current literature also indicates that the number of personnel who give and supervise nursing care did not appear so crucial an issue as the quality of nurses and the nurse's use of her knowledge, skills, and attitudes in rendering service to the patients.

The former chairman of the American Hospital Association's Committee on Safety was quoted as saying:

All too frequently administration and supervisory personnel take for granted that nurses...know their patients and know what to do or give them...History, however, past and present, indicates that they don't always know exactly whom to treat or medicate...With the increasing pressures being exerted upon hospitals by courts to hold the hospital responsible for the acts of their agents, an ounce of prevention is much better than defense of legal action brought on behalf of a patient who may have been the victim of the lack of positive identification.41

There is an increased emphasis on preventative medicine today. This same emphasis must be placed on patient safety rather than after-the-fact correction in the area of medication errors. Nurses must be on the alert to recognize possible sources of error in her work and implement safe, precautionary measures.42

Hospital Environment

The hospital environment can never be entirely free from hazards, nor can it achieve perfect behavior in everyone at all times. Therefore, optimum safety performance can be reached and maintained only by reducing the hazards to a minimum and concurrently developing employee behavior to the maximum degree of excellence.

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42Anderson, op. cit., p. 69, and Hospital Safety and Sanitation: With Special Reference to Patient Safety, op. cit., p. 2.
Administration should take a long, hard look at the area provided for the storage and preparation of medications for administration on the nursing unit. The area must be well-lighted, quiet, and free of traffic, noise, and confusion of the nursing station, if the nurse is expected to perform her function safely.\textsuperscript{43}

Other significant factors found which contributed to medication errors were: (1) poor labeling, (2) the arrangement of drugs in the ward cabinets, (3) inadequate verification of the patient's identity, and (4) distractions and interruptions when medication orders were processed and carried out.\textsuperscript{44}

Emergency situations that require haste set the stage for mistakes.

Instances of mistaken identification could be quoted many times over from medical, hospital, and public press. They occur more often than we think. They do not occur because hospital personnel are less intelligent or more careless than persons in other occupations but because conditions of stress in hospitals favor errors in identification. Risk of errors are inherent in hospitals. It is doubtful that accidents due to haste can ever be completely eliminated from our institutions. Nevertheless, it may be possible to reduce to the absolute minimum the chances of mistaking one patient for another.\textsuperscript{45}

The fact that the patient's bedside has been indicted as the most dangerous area contradicts the concept of safety and security during hospitalization. To indict the hospital was to indict the nurse who contributed to the larger share of the patient's care at the bedside.


If 90 per cent of the accidents which befall the patient occur within the bounds of the bedside, it is necessary to examine this area as well as the activities taking place there which could jeopardize the recovery of the patient.46

Recommended and recognized procedures for locating hazards in hospital are:

1. Periodic and complete inspection of all facilities
2. Analysis of activities of employees to determine safe procedures and setting of standards that will promote patient safety.
3. Investigation of each accident.47

Safety Programs to Guide Human Behavior

There are two major factors other than mechanical which cause unsafe behavior: (1) physiological causes, such as overfatigue, nervous strain, poor selection or placement, poor distribution or workload and too many responsibilities; and (2) mental causes, such as carelessness, emotional disturbances and ignorance. All of these may be caused by poor training orientation, or changing jobs without further training. In short, unsafe behavior was attributed to poor management and supervision.48

Considering the human behavior factors, the nurse needs to have an adequate orientation program, adequate on-the-job training with close supervision and follow-up, a continuous in-service educational program,


47Hospital Safety and Sanitation: With Special Reference to Patient Safety, op. cit., p. 83.

and good leadership from her supervisor.

"The forerunner of any successful patient safety program is the task of identifying unsafe environmental factors and practices which may contribute to patient injury."  

Medication nurses are in a key position to help prevent medication errors since safety is one of the objectives and an integral part of nursing care. Without continuous education in safety, safe practices can not become an integral part of the nurse's daily activities. "Many take drug safety for granted, and are lulled into a false state of complacency by the fact that accidents resulting in serious injury or death to a patient are relatively infrequent."  

Ludlam stated that:

All nursing personnel, newly hired nursing personnel and particularly student nurses, must be properly indoctrinated in the proper use of the wristband. Many of the nursing personnel being hired today in the hospitals are from out of state or out of the country where wristbands are not routinely used. Even our regular personnel may get out of the habit.  

Safety must be promoted and repromoted. Knowing about safety measures is not enough. A safe individual, according to Stack, is "one who is well informed, possesses superior skills and desirable attitudes, and uses these in his everyday activities." Because of the great number of medication errors made by new members of the health team, it

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49Hospital Safety and Sanitation: With Special Reference to Patient Safety, op. cit., p. 82.


was suggested that the pharmacist should assist in the indoctrination and in-service training program and hold conferences for the students and graduate nurses at frequent intervals on new drugs and procedures. Through a planned safety program the medication nurse can be alerted to the hazards of her work and motivated to avoid errors.

Commenting on an editorial on "Continuing Education a Legal Necessity," The Board of Nursing Education and Nurses Registration of California stated that:

It was a sad commentary on a nurse's professional attitude when a review of her background, education, and experience indicated that the nurse slammed the books shut with great vigor the day she graduated...never intending to crack another book or attend another lecture or watch another demonstration of new techniques...In nursing today, as in most other sciences, to stand still is really to retreat. Any registered nurse who rests secure in the belief that she has scaled the highest pinnacle of nursing education when she received her degree or her diploma from the school of nursing was short sighted about her professional responsibility and her legal obligation to keep abreast of changing patterns of patient care and professional service.

Today's rapid advances in medical science, in professional tools, and procedures required all nurses, even those continuously employed, to study, to read, and to attend in-service training or extension courses. This they should do both for their own professional advancement and for the good of the public.

It was the ethical and professional duty of nurses to provide the hospital patients with a safe environment in their daily round of

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54Newsletter, Sacramento: Board of Nursing Education and Nurses Registration, State of California, June, 1963, pp. 29-30.

55Ibid., p. 11.
nursing care. One of the real challenges of the day was to identify behavior which negates a safe environment for the patient, especially in the area of medication preparation and administration.

III. RECOMMENDED STANDARDS OF IDENTIFICATION

Each hospital must determine its own method of assuring proper identification of medications and patients. Whatever the method, "the formulation of definite rules for the preparation and administration of medication for the whole issue of patient safety is necessary."

The American Hospital Association recommended multiple identification as the only fool proof method. The Commissioners of the Joint Commission on Accreditation of Hospitals strongly supports all means and measures, rules and regulations that make the procedure of identification more accurate and secure. They stated that:

1. The identification system must identify.
2. No system of identification is worth anything unless it positively identifies.
3. The indispensable factor for successful use of a system for identification is that the hospital personnel use it for its intended purpose or in its intended manner. Without this the whole system is nullified.

Published and recommended rules of procedure for nurses regarding the use of medications, as developed by the Committee on Safety Practices and Procedures of the American Society of Hospital Pharmacists and the Pharmacy and Therapeutic Committee were:

When pouring medications, the label on the medication container is to be read three (3) times:

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1. When taking the container from the shelf,
2. Before preparing the dosage, and
3. When replacing the container on the shelf.

When administering the medication, the patient for whom the medication is intended shall be positively identified before the medication is administered. 58

These specific rules of procedure were also stated and recommended in the leading nursing texts on pharmacology and nursing principles. 59

**Right Medication**

One of the first things which a nursing student learns is the absolute necessity of always being accurate with medications. The student must know exactly what medication is to be given, when it is to be given, and to whom it is to be given. The student must then make sure that the medication is given to the right person and that the patient takes it.

"The administration of medications is one of the most responsible duties assigned the nurse. It is her duty to see that the drugs are received by the patient accurately, promptly, and in such a way as to give the best possible result. Nurses should therefore be intelligent,

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interested and alert when dealing with medications.60

It was a well established fact that a person's attitude influences his perception and interpretation of a situation. A nurse may read a correctly written medication order, prepare the medication and yet administer the medication to the wrong patient by error, and then chart the drug as having been given correctly.

Sometimes emergencies are created because a nurse did not read the label properly and the wrong medication was given. Only by following the basic rules for drug administration will the right drug be given to the right patient, at the right time, in the right dosage, and in the right method.

Medication policies in the hospital have been developed to protect the patient but errors continue to occur because nurses fail to follow procedures. Faddis stated that "the hospitals should take note of the practices within their walls. Some of these practices may well be hindering rather than aiding their objectives of the best possible care of the patients."61

With changes and improvements in techniques of medical care, new hazards will be constantly developing, but if positive identification techniques are given practical application there should be a reduction rather than an increase of medication errors.

**Right Patient**

Unfortunately the complaint that patients admitted to the hospital lose their identity is often true. Not only do they sometimes lose their

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61Faddis, op. cit., p. 96.
identity but they may gain a new one. "The margin of error in identifying patients is still great for reasons that are both mechanical and human."62

Nearly half of all the medication errors were directly due to improper identification. Where positive wristband identification has been used on all the patients, errors of identification have almost been eliminated, according to Ludlam.63

The American Hospital Association recommended that hospitals consider two forms of identification on all patients: the verbal and the physical. It was felt that the verbal method alone is insufficient because of errors in addressing patients who are either not in possession of their full faculties or who do not understand because of age or language difficulty. The physical method of identification, wristband identification, replaces the patient's name on the door or the bed.64

Other articles cited many cases where patients had incorrectly answered hospital personnel when only the verbal identification method was used. The tendency toward answering to the wrong name was especially a problem among children and the elderly patients.

Too many nurses have learned the hard way that it is possible to call a patient by name before giving a medication, only to discover on one occasion that the patient who answered was not the person for whom the drug was intended.65


65Faddis, op. cit., p. 96.
Not making any verbal or physical identification of the patient but relying totally on memory is regarded as carelessness and an utter disregard for the patient's safety. Carbury stated:

Never need a nurse, nor any hospital personnel rely on memory as to the patient's identity, for a look at his wristband gives the exact information. However, a chain is only as strong as its weakest link, and no matter how accurate the identification band is, if the nurse doesn't look at it, it is useless.66

Identification practices in hospitals may differ widely, but whatever the method it should include the placing of the patient's name on his person. This method should be uniform throughout the hospital and be consistently practiced.

IV. MEDICATION DISPENSING PROCEDURE OF SELECTED HOSPITAL

A new method of dispensing drugs was used in the selected hospital. In judging this method the most important consideration is the safety it provides for the patient and its relation to the total safety program of the hospital.

The new system of dispensing drugs has only recently been available to hospitals. It was first introduced in 1961 with many claims being made for its superior safety. Hospitals are giving this system serious consideration in their efforts for overall improvement of drug distribution.

Efforts to render a more personal pharmacy service to the patient and to reduce medication errors led to the development of the new drug dispensing system. The use of mechanized labeling was an endeavor to

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label and positively identify drugs until they reach the patient's bedside. 67

In considering the safety controls in the dispensing processes of any system, it should be remembered that medication errors constitute a major cause of patient accidents in the hospital. The most common medication error involved medication being given to the wrong patient. Under the new system of dispensing, the medications are still poured and administered by the hands of the nurse. The patient still relies on the care and the safety that is exercised by a well informed nurse.

Some of the safety controls set forth by the new system of dispensing to reduce medication errors are:

1. Each individual patient's medications are stored separately in clearly labeled and identified drawers.
2. Each package of dispensed medication from the drug station is clearly prelabeled for easy comparison with the order.
3. Medications are tiered on nesting devices for better visibility and to minimize errors due to improper identification.
4. Better visualization of stock supplies because of tiering and labeling reduces medication errors both in selection of the proper drug and its return to the assigned place.
5. The preparation and pouring of medication for each patient on an individual basis, makes for more accurate checking and rechecking. 68

Nurses' response to the utilization of the new system of dispensing with relation to the procedure of medication preparation and administration which made the identification process a problem were:


1. The patient's visitors distracted the attention of nurses when the medication dosage was being prepared.

2. Because of the lack of a light on the cart or overhead lighting in the patient's room, the medication had to be prepared in the corridor during the evening and night tour of duty.

3. Lack of familiarity with non-proprietary names of the drugs posed a difficulty to some.\(^6\)

Designated Procedure

The new system of drug dispensing consists basically of two major pieces of equipment: (1) the drug station and (2) the drug cart.

The drug station is an electronically controlled storage device, holding ninety-six prepackaged medications. Three identification plates: (1) patient's name plate, (2) the medication's plate, and (3) the nurse's key plate, has to be inserted into the machines' shuttle before the medication nurse can activate the order button to obtain the necessary medication with the printed data from the addressograph plates on the label. The nurse affixes this label to the dispensed medication package and places the medication in the patient's drawer of the drug cart.\(^7\)

The drug cart is a self contained unit on wheels. The apparatus contains separate drawers for each of the patient's medications. There are separate storage drawers for stock supplies and narcotics. The top of the cart is utilized as a working area for the nurse in the preparation of the medication. There are deep storage wells on this top deck for the storage of larger bottles and supplies. The drawers of the cart are


secured by a master lock, while the narcotics drawer is secured by an additional lock.\textsuperscript{71}

A visible kardex system is used which eliminates the use of the traditional medication cards. When the hour for the dispensing of medication arrives the assigned medication nurse consults the medication kardex rand, notes the circle around the appropriate hour for the medication, and then pushes the cart into each patient's room during the medication round when administering medication to the patient.

In the room, the nurse consults the medication order on the kardex rand for the drug to be given at the particular hour, and opens the patient's drawer, checks the name of the medication label three (3) times, as required, and then checks the patient's wristband to verify that he is the right patient before administering the medication to him.

After giving the medication, the nurse initials the transaction in the space allotted on the medication kardex sheet, and then proceeds to the next patient's bedside until she has administered all the medications for the designated hour.

\textbf{Modified Dispensing Procedure}

The new system for drug dispensing utilized by the selected hospital is basically the same as the procedure described above except for one variation. This variation was made because hospital facilities do not permit easy maneuverability of the drug cart to the bedside of each patient. Therefore the designated procedure is to wheel the cart down the corridor and stop at each patient's door.

\textsuperscript{71}Tbid.; and Manzelli, \textit{op. cit.}, p. 561.
The nurse consults the medication order on the kardex rand for the drug order and then prepares the medication in the corridor. After checking the label of the medication three (3) times, the nurse proceeds to the patient's bedside with the medication. The medication is administered after checking the patient's wristband and addressing the patient by his name.

With this modified dispensing procedure there are no labels of identification for the prepared medication to designate which patient is to receive the medication in a multiple bed unit. Unless the nurse labels the medication with the patient's name she has to rely on her memory in order to administer the right medication to the right patient in rooms which have two or more patients.

The standards of medication procedure and identification in the selected hospital include the traditional medication card system. Since the introduction of the new system of dispensing, without the use of the identifying medication card, there has been no written revision of the medication procedure which requires proper identification of the patient with a labeled medication card.72 However, the nurses were advised to use a prestamped identification label with the patient's name on it when taking medication from the cart to the patient's bedside. This suggested procedure was observed on two units but was not consistently adhered to by all medication nurses.

Is there safety for the patients in a system in which the medication nurse must rely on her memory for proper patient identification before administering the medication? Do not disturbances and confusion

72Nursing Techniques, Loma Linda: Loma Linda Sanitarium and Hospital, 1962, p. 227.
in the hospital corridor during the medication rounds distract the nurse?

Hospital safety in medication dispensing depend on proper identification of the patient and the medication. Modern equipment designed to reduce medication errors does not automatically insure safety measures for the patient, if it is used in such a way that a chance of error exists. It is therefore profitable for hospitals to examine their identification practices in dispensing medications, because medication errors always reflect on a hospital and its identification methods.

V. SUMMARY

Literature was reviewed to find similar studies on identification methods in the preparation and the administration of medications and to survey related material in the area of medication errors and of patient safety.

The full extent of the frequency of medication errors was not known because hospitals were reluctant to publish their own studies and nurses' reporting procedures were incomplete. Studies surveyed on medication incidents revealed that the most common medication error was administering the wrong medication to the patient, and this occurred because nurses failed to follow accepted standards of identification of the patient and the medication.

Problems regarding medication safety were a growing concern to hospitals because of the increased number of medications per patient, the confusing nomenclature, the changing concepts of medical care, and the frequency of medication errors. Current trends in the area of drug
therapy have placed a greater responsibility for patient safety upon the nurses engaged in the preparation and the administration of medications.

The patient's bedside was considered the most dangerous area within the hospital environment because 90 per cent of the accidents and most of the medication errors occur at the patient's bedside. It was suggested that any successful patient safety program should be preceded by identification of unsafe environmental factors and practices which contribute to the patient's injury. Medication nurses were in a key position to reduce medication errors since safety measures are an integral part of nursing care.

Basic fundamental safety principles for medication and patient identification were set forth and accepted as standards of procedure by leading authorities in the nursing, pharmacy and hospital fields.

The new medication dispensing system utilized by the selected hospital was presented and discussed in order to clarify the procedure of preparation and administration of medications for the purpose of this study.
CHAPTER III

METHOD OF APPROACH AND COLLECTION OF DATA

I. METHOD OF APPROACH

The maintenance of safe nursing practices regarding medication dispensing is essential to the operation of a hospital. The problem of this study was to find out what factors within the work situation of the nurse in the selected hospital contribute to the frequency of medication errors. This was to be accomplished by finding out the identification method used by selected graduate nurses in the preparation and administration of medications.

The descriptive survey was used as the method of research in this study of factors of identification contributing to medication errors, because of its adaptability to this type of investigation. An observational check list was the research tool used to collect this data.

The director of nursing service and the hospital administrator of the selected hospital were contacted and permission was granted to conduct this study. The objective of the study was explained and the benefits that may result were pointed out. Details were worked out with the unit supervisors for the observation periods.

The nurse participants were not given any preliminary notice prior to the day of observation. The selected medication nurse was approached by the observer who introduced herself. The nurses were individually told that the observation was for the purpose of a research study and that the interest was in the nurse's utilization of the new system of
dispensing medications.

The real purpose of the observation was withheld in order to obtain an unconditioned response from each of the nurses. Whether the nurses who participated understood the real purpose of the study during the course of the observation period was unknown. No effort was made to question the nurses in order to avoid revealing the real purpose of the study before all the data were collected.

II. DEVELOPMENT OF THE OBSERVATIONAL CHECK SHEET

The rules of procedure for the nurses are the standards of identification for the preparation of medications as recommended by: (1) the Committee on Safety Practices and Procedures of the American Society of Hospital Pharmacists, (2) the Pharmacy and Therapeutics Committee, and (3) the leading nursing texts on pharmacology and nursing principles.73

The accepted standard of identification expected of the nurses when preparing the medication is to read the label three times:

1. When taking the medication from the drawer,
2. Before preparing and measuring the dosage,
3. Before replacing the medication in the drawer.

In this study these three steps (the three check method) were used as the standard medication identification. If the nurse used any two of the three steps, the procedure was classified as "the two check method." When only one of the three steps was followed, the method was classified as "the one check method." If the nurse failed to identify

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the medication by any one of the three steps in the standard procedure, this method was classified as "no check at all."

**Patient Identification**

The standard of patient identification expected of the nurses was taken from the nursing procedure manual of the hospital selected.\(^\text{74}\)

When administering the medication to the patient the nurse was to:

1. Check the patient's name on the wristband, and
2. Have the patient answer to his name.

The use of both of these steps constituted the standard method of patient identification for this study. When any other method of patient identification was used the data were classified under that method. When the nurse did not attempt any identification of the patient before administering the medication, this method was classified as "no patient identification."

**Observational Check Sheet**

An observational check sheet (Appendix A) has been developed as a research tool for gathering data using the standards of identification recommended as outlined on the preceding page along with the possible deviations in method which the nurses may follow in the preparation and administration of medication.

The observational check sheet was divided into two vertical sections: (1) for medication identification methods, and (2) for patient identification methods. The check sheet was organized to include both the medication and the patient identification on one sheet. This

\(^{74}\text{Nursing Techniques, Loma Linda: Loma Linda Sanitarium and Hospital, 1962, p. 228.}\)
arrangement enabled the observer during the research to make a quick check and eliminate the need for writing, thus reducing distraction to a minimum. The check was coded to prevent disclosure of the real purpose of this study.

Five areas of classification for medication identification were chosen. These were: (1) SC for the standard check which represented the three check method; (2) TC for the two check method; (3) PP for the prepoured medications which were administered without preparation being observed; (4) LABEL for the identification the nurse applied to the prepared medication before administering it; and (5) MISCELLANEOUS to record all other methods of identification observed which had not been anticipated.

Six areas of classification for patient identification were chosen. These were: (1) WBN for the standard patient identification method which included checking the wristband and asking the patient his name; (2) WB for the method of checking only the wristband; (3) N for the method of only asking the patient's name; (4) BL for the bed label identification method where such labels were in use within the hospital; (5) NI for no identification when such was observed; and (6) MISCELLANEOUS for all other methods of patient identification attempted which had not been anticipated.

**Pilot Study**

A pilot study was conducted to determine the validity of the observational check sheet. Five full-time nurses who were being utilized as part-time medication nurses participated in the pilot study.

The results of this study indicated a need for the addition of a
miscellaneous column for identification methods in both the medication and patient identification sections. This provided space for recording identification methods not anticipated by the observer. The addition of this miscellaneous column constituted the only revision in the research tool in collecting data for the main study.

III. SELECTION AND OBSERVATION OF NURSES

Selection of Nurses

Nurses participating in this study were members of a 185 bed general teaching hospital which had the new system of dispensing medication on all of the units. Twenty-two nurses were selected from the nursing schedule by the observer because they: (1) were assigned to dispense medications on the various units of the hospital; and (2) met the requirement of having had a day off prior to the observation period.

Each selected nurse was observed on three different occasions. The selected medication nurses were observed during: (1) the first medication round after a day off; this was considered as round one; (2) the second medication round midway in her first day back on duty; this was considered as round two; and (3) the first medication round on her second or third day on duty; this was considered as round three.

The selected medication rounds were chosen to determine: (1) if the nurses would adhere to the standard procedures after having been off duty from one to three days; and (2) whether the nurse would modify the procedures as she became familiar again with the medications and the patients after the first or second medication rounds.

Some of the selected nurses on the smaller units functioned as
team leaders and as head nurses in addition to dispensing medications. On the larger units the medication nurse had only the assignment of dispensing medications during the tour of duty. On the larger units there were periodical rotations in work assignments which made the selection of nurses for the study difficult. Observation of the nurses was further complicated when the nurse's assignment to medications was unexpectedly changed and the replacement nurse did not meet the stipulated criteria of selection for observation. As a result of such changes the total number of nurses observed was reduced from the initial twenty-two to the final seventeen nurses.

Observation of Nurses

Because of the tendency on the part of some medication nurses to prepour medications ahead of schedule, the observer either had to arrive on the units earlier than the designated time for the medication round or the identification method for the prepoured medication was not observed. This consequently reduced the number of medications which the observer could check for identification methods.

The medication nurse was followed and observed during the entire medication round. The identification method used for each medication prepared was noted and recorded on the observational check sheet. The nurse was then followed into the patient's room and the method of patient identification was observed and recorded. Each medication prepared and administered to the patient was noted and recorded at each point throughout the entire medication round.

The number of medications prepared and administered on any observed medication round varied from unit to unit. This variation was due to
several factors: (1) the type of patients and their medication orders at the given time, and (2) the census of the unit at the time of observation. No attempt was made to select the observational periods according to the medication load on any of the units. Medication nurses from each of the units were used in the study in order to obtain an overall representation.

The nurses' acceptance of the observer was made easier by the fact that she was well known to the majority of the nurses. A friendly relationship was maintained throughout the observational period. Significant statements made by the medication nurse which contributed to the problem of the study were recorded after the observer left the unit.

IV. SUMMARY

This chapter was concerned with a description of the method used for collecting data about factors contributing to errors of medication and of patient identification in the preparation and the administration of medications. The development of the observational check sheet was described. The procedure for the selection and observation of the medication nurses was discussed.
CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purposes of this study were: (1) to determine specific factors that contribute to medication errors during the identification process of the preparation and administration of medicine; and (2) to present these findings as an aid to minimize or eliminate those factors which contribute to medication errors in order to promote patient safety.

The descriptive survey method of research was used to secure the data for this study. The observational check sheet (Appendix A) was the research tool for gathering these data.

I. MEDICATION IDENTIFICATION

Methods of Medication Identification

The standard medication identification method has been defined in Chapter I and was developed on the basis of literature review. The accepted standard of identification for nurses in the preparation of medication is to read the label three times:

1. When taking the medication from the drawer,
2. Before preparing and measuring the dosage, and
3. Before replacing the medication in the drawer.

For the purpose of this study all three steps in identifying the medication was to be the standard three check method. The use of only two of the three steps was classified as the two check method. When only one of the three steps was applied this method was classified as the one check method. If the nurse failed to identify the medication by any one of the three steps of the standard medication identification
procedure, this was considered as no check at all.

The method of medication identification which was observed for each medication prepared was noted and recorded under one of the preceding categories. The gathered data were converted to percentages on performances within each classification. Each nurse's average performance within each category was derived from the total medications prepared during the three observational periods. The group's average performance in each category was derived from the total of the individual averages and divided by the number of nurses in the study. Since the number of medications given by each nurse was not constant and since the findings of this study may at some time be compared with later studies, the data have been presented in individual and group percentages.

**Standard Three Check Method.** From Table I it can be seen that the nurses used the standard three check method of identifying medications from 0 to 75 per cent of the time. Thirteen (76 per cent) of the nurses utilized the standard three check method less than 50 per cent of the time. All, except one nurse, used the standard three check method during some part of the period of observation. Out of the total of 933 medications prepared, the group's average in the use of the standard three check method was 26 per cent. This would indicate that the nurses were not taking adequate precautions in medication preparation in keeping with the recommended standard of medication identification.

**Two Check Method.** The most frequently observed method of identification was the two check method. This method of identification was utilized 36 per cent of the time. The nurses used the two check method
### TABLE I
SUMMARY OF EACH NURSES' AVERAGE PERFORMANCE ON MEDICATION IDENTIFICATION METHODS

<table>
<thead>
<tr>
<th>Observed Nurse</th>
<th>Percentages</th>
<th>Standard Check</th>
<th>Two Check</th>
<th>One Check</th>
<th>No Check</th>
<th>Prepoured (Unobserved)</th>
<th>Medicine Labeled</th>
<th>Total Medications</th>
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<td>5.55</td>
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<tr>
<td>7</td>
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</tr>
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<td>62.50</td>
<td>10.71</td>
<td>5.35</td>
<td>8.92</td>
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<td>15.55</td>
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<td>61.44</td>
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</tr>
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<td>16.66</td>
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<td>0</td>
<td>8.33</td>
<td>66.66</td>
<td>12</td>
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<tr>
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<td>7.35</td>
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<td>30.88</td>
<td>23.52</td>
<td>0</td>
<td>2.94</td>
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</tr>
<tr>
<td>12</td>
<td></td>
<td>0</td>
<td>19.04</td>
<td>71.42</td>
<td>9.52</td>
<td>4.76</td>
<td>52.38</td>
<td>21</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>52.50</td>
<td>31.50</td>
<td>10.50</td>
<td>0.50</td>
<td>17.00</td>
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</tr>
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<td>39.68</td>
<td>36.50</td>
<td>1.58</td>
<td>0</td>
<td>60.31</td>
<td>9.51</td>
<td>63</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>8.00</td>
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<td>24.00</td>
<td>22.00</td>
<td>14.00</td>
<td>14.00</td>
<td>50</td>
</tr>
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<td>16</td>
<td></td>
<td>75.86</td>
<td>24.13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.44</td>
<td>29</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>4.87</td>
<td>46.34</td>
<td>17.07</td>
<td>31.70</td>
<td>0</td>
<td>0</td>
<td>41</td>
</tr>
</tbody>
</table>

| Group Average | 26.94       | 36.68         | 13.55     | 5.44     | 21.29   | 18.37                 | Total 933        |
from 12 to 62 per cent of the time. Eleven or 64 per cent of the nurses practiced the two check method over 25 per cent of the time.

**One Check Method.** The one check method was used from 0 to 71 per cent of the time for medication identification. It was noted that where the one check method was utilized in larger percentages, the nurse's standard three check method of identifying medication was commensurately low. The group used this method 13 per cent of the time, and 70 per cent of the observed nurses resorted to the one check method.

**No Check Method.** From 0 to 31 per cent of the time no checks were made to identify the medication by reading the label. It was observed that those nurses who did not check the medication by reading the label also were low on the standard medication identification method.

**Prepoured Medications.** Medication which was prepoured and unserved at the time of preparation accounted for 21 per cent of the total medication administered in this study. These prepoured medications were prepared ahead of the scheduled time when they were due. Provision for this category was merely an attempt on the part of the observer to account for those medications administered to the patient and yet not observed during their preparation.

**Medications Labeled.** The medication dispensing system used in the selected hospital did not make provision for labeling the medicine after it was poured. There were attempts on the part of 14 (82 per cent) of the nurses to label the prepoured medication after it was poured. No uniform procedure for labeling was observed.
Comparison of Medication Rounds for Medication Identification

Each nurse was observed on three different occasions in order to obtain a survey of the methods used for medication identification:

1. the first medication round after a day off was considered round one;
2. midway on the first day after a day off was considered round two; and
3. the first medication round on the second or third day of duty was considered round three.

These medication rounds were chosen for the purpose of this study to determine: (1) whether the medication nurses would adhere to the standard medication identification procedure after a lapse of one to three days from duty, and (2) whether the nurse would modify the identification procedure after she had become familiar with the medications after round one.

Round One. According to the data presented on Table II the nurses utilized the standard three check method for medication identification 26 per cent of the time on round one. The two check method was used 42 per cent, the one check method 11 per cent, and no identification 4 per cent of the time. Fifteen per cent of the medications were prepoured and unobserved for method of identification.

Round Two. During round two (which was midway of the first day after a day off) the standard three check method was used by only 19 per cent of the nurses. This was the second medication round for the nurses after a day off. The two check method was utilized 36 per cent, the one check method 17 per cent, and no check was observable in 5 per cent of the medications prepared. During round two there were 17 per cent prepoured medications which were unobserved.
TABLE II
COMPARISON OF MEDICATION IDENTIFICATION METHODS FOR THREE MEDICATION ROUNDS

<table>
<thead>
<tr>
<th>Observation Period</th>
<th>Standard 3 Check</th>
<th>Two Check</th>
<th>One Check</th>
<th>No Check</th>
<th>Prepoured Medication (Unobserved)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round One</td>
<td>26.30</td>
<td>42.80</td>
<td>11.39</td>
<td>4.21</td>
<td>15.40</td>
</tr>
<tr>
<td>On 1st post-off day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round Two</td>
<td>19.04</td>
<td>36.31</td>
<td>17.78</td>
<td>5.10</td>
<td>17.50</td>
</tr>
<tr>
<td>Midway on 1st post-off day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round Three</td>
<td>32.94</td>
<td>35.88</td>
<td>9.06</td>
<td>6.95</td>
<td>15.17</td>
</tr>
<tr>
<td>On 2nd or 3rd post-off day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Round Three. After the nurses had been on duty for two or three days following a day off, the standard three check method usage increased to 32 per cent. The two check method was used 35 per cent of the time, the one check method decreased to 9 per cent, and the no check method was almost up to 7 per cent. Fifteen per cent of the medications were pre-poured and unobserved during round three.

Comparison of Rounds One, Two, and Three. The standard three check method decreased 7 per cent from round one to round two while the one check method increased by 6 per cent. Did the performance from round one to round two indicate that the nurses engaged in the preparation of medication were not adhering to the standard three check method after becoming familiar with the medications? The standard three check method as observed on round three increased over its use during round one by 6 per cent and that of round two by 13 per cent. Does this reversal of performance suggest that the nurses were attempting to improve in their identification procedure by doing what was expected of them while under observation? Is the pattern seen in rounds one and two the nurses' regular method of identification? Is the change thereafter the nurses' attempts to follow procedure expected of them? Could the change in round three be due to the intelligent reaction and response on the part of the nurses?

The standard error of the sampling was checked by Mainland's Graph I on the Binomial Confidence Limits with a 99 per cent band of probability.75 According to the determinations and interpretations made, the standard error in the sampling percentages was found to be only ± 3 per cent. This indicated that the figures obtained and seen on the three medi-

cation rounds were fairly accurate and reliable for this sampling. Therefore could the probable explanation for the change seen on round three be attributed to the intellectual reaction and response of the nurses to the observation?

Observation Summary

The following observations and voluntary comments from the medication nurses revealed the following information during the course of the study.

It was observed in one instance when a medication container did not have an identifying label, the nurse stated that she was assured as to what the medication should be on the basis of its color and shape. Without further checking with the pharmacist, the nurse poured and administered the medication to the patient. Was the nurse relying on her past experience in identifying this unlabeled medication rather than having positive identification? It was also noted that this same nurse repeatedly prepared medications by using the one check method and the no check method.

Nurses who prepoured the medications frequently commented that this was done to save time on the medication rounds. A few of the nurses who prepoured medications were observed later to attempt to identify the medications by color and shape with the written order on the medication rounding rather than by the medication container.

When the drug cart was not utilized the medications were carried to the patient's room with or without an identifying label on the medication. If the medications were labeled, this was done by writing the patient's name or the room and bed number on the bottom, side or inside
of the medication cup. On occasions several medications were placed around one slip of paper which contained the patient's name or room number only. The nurse found it necessary to rely on her memory to know where each patient's medication was placed on the tray to correspond with the identification label.

During the total period of observation it was noted that several potential medication errors were averted because the patients were alert enough to question the medication being administered. In each instance a check of the nurse's particular method of identification revealed that in each case there had been only one check or no check made in the preparation of the medication. Is the one check method or the reliance on color or shape for identification a safe procedure for medication nurses to use while preparing medications?

All the nurses were familiar with the standard three check method of medication identification and used it to a greater or lesser extent. The one nurse who did not use the standard three check method at all was a graduate who relied on her knowledge of the color and shape of the medications because of the routine usage of these medications on this unit.

The reasons for each nurse's deviation from the accepted standard of medication identification were not sought in this study. The data presented in Table I showed a marked tendency among the nurses who did not utilize the standard three check method to resort often to other methods of checking medications a larger percentage of the time.
Summary of Medication Identification Methods Observed

The group averages indicate that the nurses utilized the standard three check method of medication identification only 26 per cent of the time. The most frequently used method of medication identification was the two check method. Other identification methods were used by 12 (70 per cent) of the nurses.

The comparison of the medication identification methods observed during the three medication rounds showed that the use of the standard three check method decreased from round one to round two by 7 per cent.

Were the deviations from the accepted standard of medication identification influenced by the individual attitudes of the nurses? Was there a conditioning of behavior toward medication routines? Was there an inclination to act in accordance with past experiences and to rely on familiarity with medications? Did each nurse feel that she had made adequate medication identification regardless of the method selected?

Factors in the identification process during the preparation of medications which would contribute to medication errors were: (1) the use of the one check and the no check method in identifying medications, (2) the infrequent selection of the standard three check method as revealed by the low percentage of its use among the group, (3) the tendency to pour and then inadequately label the medications before taking them to the patients, and (4) the tendency of the nurses to rely on memory of the medication's color, shape and size as a means of identification.

II. PATIENT IDENTIFICATION

Methods of Patient Identification

The standard patient identification method as defined in Chapter I
was taken from the selected hospital's nursing procedure manual. When administering the medication to the patient the nurse was to:

1. Check the patient's wristband and
2. Have the patient answer to his name.

The use of both of these steps constituted the standard method of patient identification for this study. Other methods of patient identification noted were recorded under the categories of: (1) the use of the wristband only, (2) the use of the patient's spoken name only, (3) the use of the bed label, (4) no identification at all, and (5) other methods, under which title were listed the use of the door, tray table, and water pitcher labels.

Patient identification methods were also compared by percentages, as the nurses did not administer the same number of medications or contact the same number of patients. Therefore to compare individual and group performances the data were computed by the percentage basis, as in the area of medication preparation. The nurse's average performance in each category was derived from the nurse's respective percentages for each of the three medication rounds. The nurses' average performances were totaled and divided by the total number of nurses in the study to obtain the average for the group's performance.

**Standard Patient Identification.** Table III showed that out of the possible 668 patients contacted, the standard method of patient identification was used from 0 to 75 per cent of the time. Twelve or 70 per cent of the nurses applied the standard method of patient identification to adequately verify the patient's identity less than 50 per cent of the time when administering the medication. The group's average performance
TABLE III

SUMMARY OF EACH NURSE'S AVERAGE PERFORMANCE ON PATIENT IDENTIFICATION METHODS

<table>
<thead>
<tr>
<th>Observed Nurse</th>
<th>Standard Wristband and Name</th>
<th>Wristband</th>
<th>Name Spoken</th>
<th>Bed Label</th>
<th>Door Label</th>
<th>Tray Table</th>
<th>Water Pitcher</th>
<th>No Check</th>
<th>Total Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.69</td>
<td>0</td>
<td>71.15</td>
<td>15.36</td>
<td>1.92</td>
<td>0</td>
<td>0</td>
<td>17.30</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>1.56</td>
<td>1.56</td>
<td>65.62</td>
<td>0</td>
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<td>0</td>
<td>29.68</td>
<td>64</td>
</tr>
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<td>51.66</td>
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<td>6.66</td>
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<td>0</td>
<td>8.33</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13.33</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>14.28</td>
<td>2.04</td>
<td>40.81</td>
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<td>0</td>
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<td>0</td>
<td>4.08</td>
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</tr>
<tr>
<td>6</td>
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<td>32.00</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>52.00</td>
<td>25</td>
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<tr>
<td>7</td>
<td>52.00</td>
<td>12.00</td>
<td>20.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
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<tr>
<td>8</td>
<td>0</td>
<td>0</td>
<td>51.11</td>
<td>20.00</td>
<td>0</td>
<td>2.22</td>
<td>0</td>
<td>46.66</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>56.66</td>
<td>6.66</td>
<td>46.66</td>
<td>6.66</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10.00</td>
<td>30</td>
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<tr>
<td>10</td>
<td>75.00</td>
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<td>8.33</td>
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<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>6.66</td>
<td>2.22</td>
<td>57.77</td>
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<td>0</td>
<td>0</td>
<td>33.33</td>
<td>45</td>
</tr>
<tr>
<td>12</td>
<td>21.43</td>
<td>7.14</td>
<td>35.71</td>
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<td>0</td>
<td>0</td>
<td>43.57</td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td>30.39</td>
<td>42.17</td>
<td>9.80</td>
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<td>40.90</td>
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<td>15</td>
<td>58.62</td>
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<td>24.13</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>6.89</td>
<td>29</td>
</tr>
<tr>
<td>16</td>
<td>31.03</td>
<td>6.89</td>
<td>51.72</td>
<td>3.64</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10.34</td>
<td>29</td>
</tr>
<tr>
<td>17</td>
<td>17.85</td>
<td>10.71</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>28.57</td>
<td>28</td>
</tr>
</tbody>
</table>

Group Average | 27.76 | 6.76 | 41.36 | 6.34 | 1.61 | 0.13 | 0.24 | 23.49 | 668  |

Total Patients | 668   |
revealed that nurses utilized the standard wristband and name check as the means of identification 27 per cent during the 668 patient contacts made.

**Wristband.** The nurses used this method (checking only the patient's wristband) from 0 to 42 per cent of the time. The group's average performance with this method as the only means of identification of the patient was 6 per cent. Only four nurses utilized this method more than 10 per cent of the time.

**Patient's Name.** The most frequent method of patient identification practiced by the nurses was that of speaking the patient's name. The group used this method 41 per cent of the time. Individual nurses applied this method from 8 to 71 per cent of the time. Thirteen or 76 per cent of the nurses resorted to the use of the patient's spoken name for identification purposes from 30 to 70 per cent of the time. The group's average use of this means of identification was 41 per cent out of a possible 668 patient contacts.

**Bed Label.** The group used this method of patient identification 6 per cent of the time. There were 7 (41 per cent) of the nurses using this method. Of these seven nurses, only four nurses utilized this method from 13 to 41 per cent of the time. Ten nurses did not use this method at all. Not all the units used this labeling procedure.

**Door Label.** The door labeling procedure was also not consistently used on all the units. Where it was utilized only 4 nurses were found utilizing this method of patient identification from 1 to 12 per cent of
the time. Since thirteen of the nurses did not practice this method of patient identification, the group's average in this area was one per cent.

**Tray Table.** In order to identify equipment belonging to a patient's bed area the tray tables were labeled with each patient's name but are not intended by the hospital to be used as a means of patient identification. As a means of checking patient identification these labels were used only 2 per cent of the time.

**Water Pitcher.** The water pitcher label was used by one nurse as a means of checking patient identification ¼ per cent of the time. The water pitcher labels were not intended by the hospital to be used as a means of patient identification.

**No Patient Identification.** No patient identification was made in 23 per cent of the patients contacted. All but two nurses were found to be practicing no identification technique when administering medications to patients. In such instances there were frequently no verbal communications made with the patient and no attempt was made to identify these patients by any method discernible to the observer. Where no identification was made by the nurse it appeared that the nurse must have been relying on her previous contacts with the patient and her memory of the patient to establish identification. This tendency to rely on memory and familiarity with the patient through previous contacts was evident by the fact that this method ranked a close second as the most frequently used method of patient identification. Half of the nurses in the study did not identify the patient by any visible method from 28 to 52 per cent of the time.
It was noted that the majority of the nurses who frequently utilized no identification of patients also were low in the use of the standard patient identification method. They were among the group who frequently used the patient's spoken name or no identification at all. This would suggest that some nurses were not oriented to the need for practicing patient safety when administering medications.

Another comparison of the nurses' average patient identification methods may be seen in Appendix B. These data present the percentages of those using one method more than another, or using no method to establish the patient's identification.

**Comparison of Medication Rounds for Patient Identification**

In order to obtain an adequate survey, each nurse was observed on three different occasions. Each period of observation for patient identification was concurrent with that utilized for medication identification, inasmuch as the nurse was followed through the cycle from the preparation to the administration of the medication.

The selected medication rounds were chosen for the purpose of this study to see: (1) if the medication nurse would adhere to the standard patient identification procedure after an absence from duty from one to three days, and (2) whether the methods of identification would change as the nurse became more familiar with the patients after round one.

There was no attempt made to differentiate between the newer patients and those who had been there before the nurse had a day off. It was assumed that the daily admissions and discharges would balance the number of new patients with those patients who had been there for a longer period of time and with whom the nurse was more familiar.
Round One. According to the data presented on Table IV the nurses utilized the standard patient identification of checking the wristband and speaking the patient's name 41 per cent on the first medication round after a day off. The wristband as the only means of identification was used 5 per cent, the patient's spoken name 29 per cent, the bed label 7 per cent, the door label 3 per cent, and the tray table label 3 per cent of the time. The method of no patient identification was practiced 21 per cent of the time.

Round Two. The second medication round was the midway period on the nurse's first day of duty after a day off. Here the standard patient identification was used only 19 per cent of the time. The wristband was checked 6 per cent of the time, the patient's spoken name 49 per cent, the bed label 4 per cent, and the door label one per cent. Since round two was the midway period of the first day and also the second major medication round for the shift, the nurses were practicing no patient identification method 23 per cent at this time of the shift.

Round Three. The third medication round was the nurse's first medication round on her second or third day of consecutive duty. The standard patient identification method increased again to 27 per cent. The use of the wristband was 7 per cent, the patient's spoken name 41 per cent, the bed label 8 per cent, the door label 4 per cent, and the water pitcher label 16 per cent. No patient identification was observed in this round 20 per cent of the time.

Comparison of Rounds One, Two and Three. In comparing patient identification methods observed during the three medication rounds,
### TABLE IV

**COMPARISON OF PATIENT IDENTIFICATION METHODS FOR THREE MEDICATION ROUNDS**

<table>
<thead>
<tr>
<th>Observation Period</th>
<th>Standard Wristband and Name</th>
<th>Wristband Name</th>
<th>Bed Label</th>
<th>Door Label</th>
<th>Tray Table</th>
<th>Water Pitcher</th>
<th>No Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round One 1st post-off day</td>
<td>41.37</td>
<td>5.52</td>
<td>29.10</td>
<td>7.10</td>
<td>3.06</td>
<td>3.0</td>
<td>0</td>
</tr>
<tr>
<td>Round Two Midway on 1st post-off day</td>
<td>19.04</td>
<td>6.37</td>
<td>49.33</td>
<td>4.78</td>
<td>1.92</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Round Three 2nd or 3rd post-off day</td>
<td>27.29</td>
<td>7.22</td>
<td>41.09</td>
<td>8.82</td>
<td>4.98</td>
<td>0</td>
<td>16.6</td>
</tr>
</tbody>
</table>
Table IV showed that the nurses changed their method of identification as they became more familiar with the patients after round one. Round one revealed that the nurses were using the standard patient identification method 41 per cent of the time. On round two the standard patient identification method decreased by 22 per cent, while the use of the patient's spoken name increased from 29 per cent to 49 per cent. From round one to round two the no check method also increased from 21 to 23 per cent. This then would indicate that the nurses were beginning to rely upon less than adequate methods or patient identification after familiarity was gained during round one.

However, on round three, the round observed on the second or third consecutive day of duty, there was a slight increase of 8 per cent on the standard patient identification method. This was still 13 per cent below that seen on round one. Other frequently used methods of patient identification decreased slightly on round three as the nurses shifted back to the standard method of patient identification.

The standard error of this sampling was also checked by Mainland's Graph I on the Binomial Confidence Limits with a 99 per cent band of probability. According to the determinations made, the standard error of the sampling percentages was only 1.3 per cent. This indicated that the figures seen in the three medication rounds were accurate and reliable.

Observation Summary

The following observations were noted during the course of the study which would reveal deficiencies in the identification procedures of the nurses.

76 Ibid.
Bed, Door and Water Pitcher Labels. In areas where the bed labels and the door labels were in use the labels were not very legible due to the type of material on which the label was stamped. Bed labels were often covered and usually only a quick glance was made in its direction. The water pitchers and tray table labels were also stamped with this same type of information and the legibility was poor. Where water pitchers were used for identification purposes, one nurse commented that she had found many patients with the wrong pitchers on their bedside table when checking the names on the water pitchers.

Wristbands. The identification wristbands in use were a source of comment among the nurses and the patients alike. Several of the patients were heard to remark to the nurse when she had difficulty reading the name, "It isn't any good," or "You can't read it." Some of these patients had been long term patients and it was apparent that the nurses were relying on their familiarity with these patients and their memory for patient identification. Where wristbands were missing or blurred, no attempt was observed to replace the identification band on the patient's wrist. Some of the identification bands were placed on the patient's wrist in such a manner that it was difficult for the nurse to read it. It was more conveniently placed for the patient to read rather than for the nurses to read. Accurate identification was impossible when, for various reasons, the lighting was inadequate thus making visibility and legibility of the wristband poor.

Medication Left at Bedside. If medications were left at the bedside when the patients were out this procedure was categorized as no
identification of the patient. The nurses commented that they would check the patient later to see if the medication had been taken. However, these medications were charted as having been given. One observed situation revealed the serious potential for error by such practices. In this instance, one medication was left at a patient's bedside the evening before. The patient discovered the medication during the early morning hours and inquired of the night nurse whether he should take the medication. The night nurse advised the patient to take the medication and then charted it as being taken by the patient at that hour. The morning nurse not having read the medication label carefully nor hearing about this incident, prepared to administer the medication again for the regular scheduled hour. Except for this patient's alertness an overdose would have occurred. This nurse had made a two check of the medication but failed to note when the last dose was administered. The confusion resulting from just one such case would indicate that more careful methods of identification were needed rather than the tendency to utilize less than positive methods of identification.

Nursing Assistant Administering Medications. There was a tendency on the part of some medication nurses to have the nurse assistant working with the patient at the time of medication rounds administer oral medication to the patient. Often there were no attempts made by the medication nurse to positively identify the patient before requesting the nurse assistant to administer the medication.

Carrying More than One Patient's Medication. It also was observed that some of the nurses carried at one time more than one patient's
medication into a two or three bed ward. Sometimes the patient's name or his bed number was written on or in the medication cup, but more often it was not labeled. The nurse carrying a medication cup in each hand would attempt to remember which hand contained the specific patient's medication. If interruptions distracted the attention of the medication nurse, the medications in each hand were rechecked with the medication rand by color and shape but this recheck was the exception rather than the rule. Occasionally in such instances the nurse was seen checking the wristband after the patient had swallowed the medication.

Nurses did not consistently use one method of patient identification but varied the methods. There was a tendency to use the patient's spoken name when the nurse was familiar with the patients. When administering medication without a label the nurse had to rely on her memory for the patient's name for identification purposes. However, the observed number of interruptions which the medication nurse had from the time of preparation to the time of administration of the medication did not give assurance that the right medication would be given to the right patient. There were many potentials for medication error when the nurse did not use the standard wristband and spoken name method for patient identification.

The nurses appeared to be familiar with the standard patient identification procedure of checking the wristband and speaking the patient's name, inasmuch as all but one nurse utilized this method to some extent. The one nurse who did not use this method was aware of it by commenting that the repeated identification on the same patient was not necessary except for the learning process of student nurses. This nurse further commented that the patients were annoyed by such identification procedures.
Summary of Patient Identification Methods Observed

Findings indicated that the average nurse utilized the standard patient identification method only 27 per cent of the time. The most frequently practiced method of patient identification was the use of the patient's spoken name. Twenty-three per cent of the time the nurses made no attempt to identify the patients by any observable method before administering the medication.

Fifty-nine per cent of the nurses at some time used other methods of patient identification such as bed labels, door labels, tray table labels, and water pitcher labels for identification purposes. Nurses using the one check and the no check methods of identification were also low in the use of the standard patient identification methods.

Were deviations from the accepted standard of patient identification method due to inclinations and familiarity with the patients at the time the nurse administered the medications? Did the influence of the individual nurse's attitudes stem from conditioned behavior and the tendency to act in accordance with past experiences and familiarity? Was the nurse familiar enough with her patients to eliminate the necessity of positive patient identification so that regardless of the method selected her patient identification methods were adequate at the time?

The comparison of patient identification methods for the three medication rounds followed the same pattern as seen in the medication identification procedures. Was the change seen from round two to round three due to the intellectual reaction and response of the nurses to the observer?

Factors which would contribute to medication errors during the patient identification process were: (1) the low percentage in the
application of the standard patient identification method, (2) the high percentage in the usage of the patient's spoken name in view of the tendency of some patients to answer to the wrong name, (3) the frequency with which no identification was made and the total reliance of the nurses on memory for the identification of patients in such instances, and (4) the reliance on labels of water pitchers, doors, beds, tray tables bearing the patient's name which are not intended to be a means of patient identification.
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY

The maintenance of good nursing practices in medication dispensing is essential to the effective operation of a hospital.

In this study an attempt was made to find out the factors in the identification methods used by medication nurses in the preparation and administration of medications that would contribute to medication errors. The foregoing chapters have presented the findings and observations of the group of nurses participating in this study. The problem was regarded as important because of the increasing frequency of medication errors; the increasing numbers of new medications being introduced each; the importance of maintaining patient safety by decreasing the medication hazards in the hospital environment; and the importance of the medication administration procedure and the role of the professional nurse in the reduction of medication errors.

A knowledge of the current identification methods of the nurses during the preparation and the administration of the medication is valuable for a better understanding of the problem by the nursing service and by the hospital administration. It is intended that this study stimulate plans for in-service education programs in which means could be found to reduce or eliminate medication errors.

In the development of this study, related literature has been reviewed and cited. Similar studies have been surveyed in order to
determine the relationship of the identification process to medication errors. Safe identification procedures, safe working conditions, and personnel who are responsible, alert, skilled, and well-prepared—all are necessary for a safe environment.

To conduct the study the descriptive survey has been the chosen method. The tool of research was an observational check sheet on which were recorded existing conditions in the identification of medications and of patients. The results from the observational check sheets were totaled and computed by percentages in order to facilitate comparison of individual performances as well as that of the group, both for the present study and for comparison with future studies in this area. This study included seventeen medication nurses who were observed on three different medication rounds. A total of 668 patient contacts were observed and tabulated of the 933 medications dispensed not all were observable for identification methods, as some of the nurses prepoured the medications. The data collected for this study were analyzed under two broad categories: (1) medication identification, and (2) patient identification.

**Medication Identification**

Data in this area disclosed that the nurses were utilizing the standard three check method of medication identification only twenty-seven per cent of the time. The most frequently used method of medication identification was the two check method. The one check method was used 13 per cent of the time with 70 per cent of the nurses resorting to this method, and the no check method was used 5 per cent of the time.

The comparison of the medication identification methods observed during the three medication rounds showed that the use of the standard
three check method decreased from round one to round two by 7 per cent. Could the identification of medication from round one to round two indicate that the nurses did not adhere to the standard three check method after becoming familiar with the medications? On round three the use of the standard three check method increased again over that observed on round one by 6 per cent and that of round two by 13 per cent. Would this reversal of performance suggest that the nurses were attempting to improve in their identification procedure while under observation? Could the change seen from round two to round three have been due to the intellectual reaction and response of the nurses to the observer?

Would deviations from the accepted standard of medication identification suggest that the influencing factor for the nurses was due to the individual attitudes, and the conditioning of behavior toward medication routines and the inclination to act in accordance with past experiences and familiarity?

Other factors in the identification process during the preparation of medications which may contribute to medication errors were: (1) the use of the one check method and the no check method in identifying medications, (2) the infrequent use of the standard three check method as revealed by the low percentage of this method among the nurses, (3) the tendency to prepour and then inadequately label the medication when taking it to the patients, and (4) the tendency of the nurses to rely on memory in identifying the medicines.

Patient Identification

Findings in this area indicated that the medication nurses utilized the standard patient identification method only 27 per cent of the time.
The most frequently practiced method of patient identification was the use of the patient's spoken name, a procedure used approximately 41 per cent of the time. The wristband was used 6 per cent of the time as the only means of patient identification. In 23 per cent of the patient contacts the nurses made no attempt to identify the patient by any observable method before administering the medication.

Fifty-nine per cent of the nurses used other methods of patient identification such as bed labels, door labels, tray table labels, and water pitcher labels for identification purposes. Those nurses using these methods were also lower in the use of the standard patient identification method.

The comparison of patient identification methods observed during the three medication rounds showed that the nurses used the standard patient identification method 41 per cent of the time on round one. On round two the standard patient identification method dropped 22 per cent while the use of the patient's spoken name increased from 29 to 49 per cent. This would indicate that the nurses were beginning to rely upon their memories after they had become acquainted with the patients during round one.

On round three there was an increase of 8 per cent in the standard patient identification method. However, this was still 13 per cent below that seen on round one. Other methods of patient identification on round three also decreased as the nurses increased the usage of the standard method of patient identification. Would this reversal of performance after becoming familiar with the patients suggest that the nurses attempted to improve upon their identification procedure in this area while under
observation? Could this change from round two to round three have been due to the intellectual reaction and response of the nurse to the observer?

Were deviations from the accepted standard of patient identification methods due to individual inclinations and familiarity with the patients at the time the nurse administered the medications? Did the influence of the individual nurse's attitudes stem from conditioned behavior and also the tendency to act in accordance with past experiences and familiarity?

Factors which would contribute to medication errors during patient identification process were: (1) the low percentage (27 per cent) in the use of the standard method; (2) the high percentage (41 per cent) in the use of only the patient's spoken name (some patients answer to the wrong name); (3) the frequency with which no identification was utilized when the nurses relied on memory for patient identification; and (4) a dependence on the patient's name label on the door, bed, tray table, and water pitcher as a reliable means of patient identification.

II. CONCLUSIONS

The findings of this study do not completely support the hypothesis that the nurses engaged in the preparation and administration of medication do not adhere to the standards of identification procedures after becoming familiar with the medications and the patients. The identification methods observed in rounds one and two did support the hypothesis but the change observed in round three reversed somewhat this apparent trend.
Findings from this study also revealed that the nurses were not taking adequate precautions in medication preparation and administration in accordance with the recommended standards of identification procedures. Fifty-five per cent of the time the nurses were using other than the standard three check identification method in the area of medication preparation. Twenty-three per cent of the time no identification was made of the patient at the time the medication was administered.

III. RECOMMENDATIONS

Through the findings of this study it was hoped that the nursing care will improve through more accurate methods of medication dispensing. Based on the preceding findings the following recommendations are made:

1. That nursing service and hospital administration give attention to the identification techniques used by the medication nurses and measures be taken for preventing medication errors. It is suggested that this could be done most effectively through in-service education programs which emphasize the safety principles of identification procedures.

2. That the type of wristbands currently in use be re-evaluated. Wristbands should be water proof, clearly legible, and not easily removed by the patients. The wristband also should be placed on the patient’s wrist in such a manner that the nursing staff can read it.

3. That further study be given to a medication dispensing system and procedure which would eliminate the necessity for nurses to rely upon memory for the name of the medication and the name of the patient to whom the medication is to be administered.
4. That a similar study be conducted which would include observations of identification methods used during the other medication rounds during the second and the third days of the nurses' tour of duty.

5. That a study be conducted to find out the patient's reactions to the nurses' repeated use of the wristband for identification purposes.
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SELECTED BIBLIOGRAPHY

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D. UNPUBLISHED MATERIALS


APPENDICES
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APPENDIX B

SUMMARY OF EACH NURSE’S AVERAGE PATIENT IDENTIFICATION METHODS
### SUMMARY OF EACH NURSE’S AVERAGE PATIENT IDENTIFICATION METHODS

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**Group Average**: 44.28 33.20 22.37 100
LOMA LINDA UNIVERSITY
Graduate School

IDENTIFICATION IN THE PREPARATION
AND ADMINISTRATION OF MEDICATIONS
by
Anna J. Yuhasz

An Abstract of a Thesis
in Partial Fulfillment of the Requirements
for the Degree Master of Science
in the Field of Nursing

March, 1964
ABSTRACT

The purpose of this study was to: (1) determine specific factors that contributed to medication errors during the identification process of medication preparation and administration, and (2) present these findings as an aid to minimize or eliminate factors which contribute to medication errors.

To conduct this study the descriptive survey was used. Seventeen medication nurses were observed on three medication rounds. A total of 688 patient contacts and 933 prepared medications were observed and tabulated. The tool of research used to collect data was an observation check sheet developed for this study.

The data collected were analyzed under two broad categories: (1) medication identification, and (2) patient identification. The results were computed in percentages to compare individual nurse's and the group's performances.

For medication identification the nurses utilized the standard three check method only 27 per cent of the time. The most frequently used method was the two check method which was used 36 per cent of the time. The one check method was used 13 per cent of the time with 70 per cent of the nurses resorting to this method. Five per cent of the time no check was made.

The comparison of medication identification methods observed during the three medication rounds showed that the use of the standard three check method decreased from round one to round two by 7 per cent. On round three the use of the standard three check method increased again over round one by 6 per cent and round two by 13 per cent.
In the area of patient identification the nurses utilized the standard patient identification method only 27 per cent of the time. The most frequently practiced method was the use of the patient's spoken name which was used 41 per cent of the time. The wristband alone was used 6 per cent of the time. In 23 per cent of the patient contacts the nurses made no attempt to identify the patients by any observable method. Eight per cent of the time the nurses used other methods of identifying the patients such as the labels on the door, bed, tray tables, and water pitchers, for identification purposes.

The comparison of patient identification methods during the three medication rounds showed that the nurses used the standard patient identification method 41 per cent of the time on round one. On round two the standard patient identification method dropped 22 per cent while the use of the patient's spoken name increased from 29 to 49 per cent. On round three there was an increase of 8 per cent in the standard patient identification. This 8 per cent increase was 13 per cent below the standard patient identification method used on round one.

It was concluded from this study that the nurses were not using the precautions in medication preparation and administration in accordance with the recommended standards of identification procedures. Based on the findings of this study, recommendations were made for improvement of medication dispensing methods by suggesting that: (1) nursing service and hospital administration give attention to the identification techniques used by nurses and the measures which may be used in preventing medication errors by means of effective in-service education programs which emphasize safety principles of identification procedures; (2) the wristbands currently in use be re-evaluated as to permanent legibility;
(3) further study be given to a medication dispensing system and procedure which would eliminate the necessity for nurses to rely upon memory for the name of the medication and of the patient, and (4) a study be conducted to find out the patients' reactions to the nurses' repeated use of the wristband for identification purposes.