Executive Summary: Toward a Taxonomy of Nursing Practice Errors

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ABSTRACT:

The Practice Breakdown Research Advisory Panel analyzed 21 case studies of nursing errors from nine state boards of nursing files to develop a taxonomy of nursing errors. Eight categories of nursing errors, representing a broad variety of possible errors and contributive or causative factors, were identified; causes for the error, at the system and practice responsibility levels, were also identified in each individual case.
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THE 1999 INSTITUTE OF MEDICINE (IOM) report, *To Err is Human: Building a Safer Health System*,[1] generated a national alarm regarding errors in the American health care system. Because nurses have a generalist education, are present most continuously with patients, and maintain a tradition of patient advocacy, they play a key role in the national agenda of error reduction in health care. On a daily basis, nurses monitor and manage the quality of health care delivered in hospitals, outpatient departments, long-term-care facilities, and many other settings. The nurse's role includes immediate detection and intervention in practice breakdown to reduce adverse events for patients. In studies of actual practice of nurses, monitoring quality of patient care and preventing and intervening in errors were found to be central to nurses' roles.[2]

Responsibility for errors

Responsibility for correcting errors tends to focus on either the system or the individual practitioner. Traditionally, state boards of nursing have focused on individual practitioners who have been reported to the board for disciplinary investigation because of an error or breach in the standards of safe practice.[1] A systems approach is the established structural and functional way of operating and interacting designed into an organizational system that includes internal and external influences on the organizational system. This study calls attention to *practice responsibility* as a third source of error prevention that links an individual and a systems approach. Practice responsibility refers to the socially embedded knowledge, notions of good, and skill lodged in a health care team of local practitioners.

Practitioners have a practice responsibility to learn from experience and make that learning available to other practitioners; that way, experiential learning is cumulative and collective and shapes the research agenda. Experiential learning within a practice discipline and team is distinctly different from a shame-and-blame culture that focuses only on individual responsibility or culpability.

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The IOM report[1] cautions that regulation and legislation related to errors can create disincentives for quality, primarily because they focus on individual responsibility while ignoring system factors that made the error possible. An institution sets limits to safe practice by the way care delivery is designed. Errors are seldom caused by one single factor or one single individual.

The Practice Breakdown Research Advisory Panel (PBRAP) seeks to develop an approach to the regulation and reporting of errors that will increase knowledge and incentives for error detection, reporting, and prevention while fulfilling the duty to protect the public from unsafe practice.

Disciplinary case files

Serious nursing errors are typically reported to state boards of nursing. Therefore, analyzing this data set has great potential for helping to develop new strategies for reducing dangerous errors. This executive summary reports on PBRAP's examination and analysis of 21 disciplinary case files from nine state boards of nursing. An outcome of this analysis is a taxonomy of nursing error survey instrument that classifies nursing errors, their causes, patient outcomes, and disciplinary actions (Taxonomy for Error Reporting, Root Cause Analysis and Analysis of Practice Responsibility—the TERCAP Error Audit Tool).

The immediate goal of the PBRAP study was to develop a taxonomy of errors that could lead to a proactive reporting system to promote improvement at the individual level and at the levels of educational and health care delivery and regulatory organizations. Such a systematic error-reporting tool could provide a way to analyze and compare nursing errors and disciplinary actions taken across states. The long-term goal is to develop strategies for error prevention in nursing education and practice settings.

The following eight categories of nursing errors, each of which has system, individual, and practice contributions to errors, were identified in the 21 cases:
- lack of attentiveness
- lack of agency/fiduciary concern
- inappropriate judgment
- medication errors
- lack of intervention on the patient's behalf
- lack of prevention
- missed or mistaken physician or health care provider orders
- documentation errors.

Every kind of error discovered in the 21 cases was identified along with how to prevent similar errors in the future. Thus, the taxonomy was designed with prevention in mind. The strategy was to identify errors in such a way that the multiple causes of the error could be deduced from the way the error was defined. The guiding rationale was to identify categories central to the nurse's role and function in errors in health care delivery. The eight categories of nursing error are defined and described below.

Lack of attentiveness

Lack of attentiveness is an example of a category of error particularly relevant to nursing practice. Patient safety depends on nurses paying attention to their patients' clinical conditions and responses to therapies, as well as potential hazards or errors in treatment. Lack of attentiveness can be caused by system level problems such as understaffing, high staff turnover, or sudden shifts in the acuity levels of patients without an increase in nursing staff.

A distinction between monitoring unpredictable and predictable conditions was made because each has different implications for error reduction strategies. For example, *missing predictable complications*, such as postoperative hemorrhage, indicates a lack of monitoring and accurate assessment of the postoperative patient; it may also indicate possible breakdowns in communication of patient assessments. Intermittent in-service education on detecting postoperative complications, along with case studies of missed postoperative hemorrhage or other complications, is needed to sustain appropriate levels of vigilance and clinical judgment. *Early detection of unpredictable conditions,* such as an acute myocardial infarction or a cerebrovascular accident (CVA) for long-term patients, requires different educational strategies and regular particularized assessments of all patients.

Lack of agency/ fiduciary concern

Each nurse has a fiduciary relationship to patients because of potential patient/family vulnerability or incapacity and the patient/family trust in the nurse's knowledge, skill, and care. Agency refers to the moral agency of the nurse. Central to that moral agency is the nurse's trustworthiness in working for the patient's/family's best interest. One of the commonly held notions of good nursing practice is that nurses act as patient advocates. Thus, moral agency can be considered lacking when the nurse does not advocate for the patient's or family's best interests. When the nurse fails to question an inappropriate physician or prescriber order, or fails to call a physician for a patient whose vital signs or laboratory reports are critical, or fails to heed patient or family requests for assistance, the nurse's lack of fiduciary concern and moral agency on behalf of the patient causes harm and may be considered a source of substandard or erroneous nursing practice.

Breach of confidentiality is also a breach of fiduciary concern for the patient's privacy and dignity. *Unintentional breach of confidentiality* occurs when the nurse discusses a patient's condition at the nurse's station and the family, patient, or visitor overhears the communication.

Intentional breach of confidentiality is more likely to be reported to a state board of nursing and occurs when the nurse deliberately breaches the patient's confidentiality; for example, when nurses deliberately share patient information with news media or deliberately check patient records for personal information about the patient.

Inappropriate judgment

Clinical judgment is distinct from scientific reasoning, even though clinical judgment uses science and technology for making clinical judgments. The clinician must reason about the particular case, taking into account gains and losses in his or her understanding of the situation over time and also changes in the patient's clinical condition.[2] Patient trends and trajectories are central to medical and nursing clinical judgment. Nurses identify the nature of clinical situations and typically pursue problem solving within their understanding of the clinical situation.

Sometimes errors occur because the clinician misidentifies a situation. For example, a critical care nurse may think the patient is experiencing inadequate heart pump action, when the situation may be one of volume depletion. Until the clinician gets the right grasp of the clinical situation, the sense of salience and understanding of the clinical data will be wrong. Because clinical judgment is central to the nurse's role, inappropriate judgment represents a potentially large category of nursing error.

Various types of inappropriate judgment were identified, including inadequate assessment; faulty logic due to the use of rote habitual action or convention; an unwarranted or faulty intervention, such as giving too much pain medication or giving a medication despite a patient's allergy; and unreasonable expectations for lesser-trained staff, such as when the nurse delegates an action beyond the practice scope, training, and experience of another

staff member. In addition, a subclass of inadequate assessment was identified as the nurse not knowing or recognizing the implications of signs and symptoms identified in the assessment.

Medication errors

The National Coordinating Council for Medication Error Reporting and Prevention[3] defines a medication error as follows:

> *A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use.*[3]

The following six types of medication errors were identified in the 21 cases:
• missed doses of medication
• wrong time of administration of medication, either more frequently or less frequently than ordered
• I.V. rate too fast, delivering too much medication
• wrong concentration or dosage of medication delivered I.V.
• wrong route of administration (for example, oral solution given I.V.) or wrong medication administered
• wrong medications delivered due to misidentifying the patient.

The Joint Commission on Accreditation of Healthcare Organizations identifies the following frequent sources of medication errors: medications with similar names, medications with similar packaging, medications that are not commonly used or prescribed, commonly used medications (such as antibiotics, opiates, and nonsteroidal anti-inflammatory drugs) to which many patients are allergic, and medications that require testing

(such as lithium, warfarin, digoxin, and theophylline) to ensure that proper (nontoxic) therapeutic levels are maintained.

Nine of the twenty-one cases involved medication errors. In eight of these cases, the patient died as a direct result of the medication error. Medication errors cover a wide range of types and causes. Classifying an error as a medication error provides insufficient direction for error reduction because the root cause and practice responsibility for the error may vary greatly and system redesign and experiential learning may be quite different depending on the analysis of the causes of medication error.

It has been recommended that dedicated medication administration personnel be used instead of nursing staff. Although distraction and work overload by nurses no doubt contributes to medication error, separating the functions of administering medications from monitoring and critically assessing the patient's responses to medications may create new errors. Most medications have possible untoward effects, complications, drug interactions, and idiosyncratic patient responses and assessing these possibilities may require critical thinking while administering the medication as well. Decomposing complex tasks simplifies the tasks and, thus, can reduce errors. Where judgment is required over time, however, losing sight of the parts of the tasks (for example, which medications were administered to whom) may prevent adequate clinical judgment.

After a review of the medication errors in the pilot study, it was decided to use the National Coordinating Council for Error Reporting Taxonomy of Medication Errors[3] where possible so that nursing error reporting would be consistent and comparable to this nationally used reporting tool. All of the medication errors discovered and categories of patient harm could be comprehensively covered using the

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National Coordinating Council for Reporting and Preventing Medication Errors Taxonomy; therefore, this tool (NCCRPME) will be used in the TERCAP section related to medication errors. This instrument allows for coding the precise medication at issue using the pharmacologic-therapeutic classification system defined by the American Society of Health-System Pharmacists (AHFS code).

Lack of intervention on the patient's behalf

In the 21 case studies, five examples of failure to intervene on a patient's behalf occurred:
• postoperative bleeding was left undetected because the nurse did not check the patient or follow-up on signs of hypovolemic shock
• pregnancy-induced hypertension (toxemia) went undetected and, therefore, untreated in a postpartum patient
• a patient's signs and symptoms of an acute CVA were left undetected during a 6-hour period in which no patient assessment was done
• a patient's high blood glucose level and laboratory signs of dehydration were not attended to by the nurses, nor were the abnormal lab values conveyed to the physician at night, leading to a fatal delay in treatment
• a nurse failed to start an I.V., or obtain a physician or other clinician who could start an I.V., during a resuscitation effort for a patient with throat edema as a result of an attempted suicide by hanging.

In four of these cases, all of which led to death of the patient, the primary error was caused by a lack of attentiveness.

Lack of prevention

Prevention of patient complications, errors, and threats to patient safety are significant goals of good nursing care. It is more difficult to identify successful prevention outcomes than lack of prevention because it cannot be known for

sure that the preventive efforts were the cause of the lack of complication. It is, therefore, important to capture failures of prevention to improve prevention of patient complications and decrease safety hazards. *Breach of infection precautions* is one of the major threats to patient safety in hospitals and long-term-care facilities. *Lack of prevention of hazards of immobility/decreased mobility* covers a broad range of patient complications, such as pressure ulcers, stasis pneumonia, and patient falls. *Lack of provision of a safe environment* includes the large variety of potentially dangerous environmental hazards to patients (for example, electric shock, patient burns, lack of bed side rails, spills on the floor, and inadequate assistance/supervision with patient ambulation).

Missed or mistaken physician/health care provider's orders

Missed or mistaken prescriber's orders include all the instances of carrying out inappropriate medical orders or mistaking orders, resulting in an erroneous intervention.

Documentation errors

Documentation errors include *charting procedures or medications before they were completed*. Such a documentation error can cause a patient to miss a dose of medication or a treatment and can confuse, misrepresent, or mask a patient's true condition. *Lack of charting of observations of the patient* causes serious harm when a nurse fails to chart signs of patient deterioration, pain, or agitation or particular signs of complications related to the illness or therapies.

Summary and plans for future studies

This article addresses only the taxonomy of nursing errors. Also included in the TERCAP instrument are the following categories of error causes:
• practitioner contributions
• health care team contributions

• patient harm outcomes
• nurse outcomes, including disciplinary actions
• remediation processes and outcomes.

The next step is to further develop the instrument so that it can automatically be scanned into a data file, after the designated state board personnel have coded the case. One hundred fifty to 300 cases will be coded, and the instrument will be reevaluated and revised as necessary. Each case coded will be given ample space for filling in "other" categories, or items under broad categories. A coder's commentary sheet will be filled out for each of the study cases. These comments will be read and analyzed to revise the instrument. A report will be developed from these cases that can be distributed to all state boards and to selected hospitals, other relevant health care agencies, and schools of nursing.

The goal is to develop an interpretive guide for statistically analyzing the data and writing the report that will include recommendations for reducing and preventing errors based on the actual reported errors in each state. These reports will facilitate communication about types of nursing errors and efforts at error prevention across states. The goal is to transform a valuable, untapped, and unaggregated data set about actual errors into useful interpreted data that can provide concrete suggestions for reducing and preventing errors through education, system redesign, and enhanced individual and professional practice responsibility. NM

References

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