The Peroperative Nursing Data Set (PNDS)
Implications of Implementing a Standardized Nomenclature in the Perioperative Nursing Environment

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The VP of surgical service for a three-hospital system in a large metropolitan area received a call early Monday morning from the Quality Assurance director requesting information for reporting on compliance with the Surgical Care Improvement Project (SCIP). The QA director requested the following information regarding time of prophylactic antibiotic administration prior to incision for all hip and knee arthroplasties, hysterectomies, cardiac, vascular, and colon surgeries from the three hospitals for the past quarter:

1. Name, dose, route and time of administration of the prophylactic antibiotic
2. Name of procedure
3. Time of incision
4. Name of clinician administering the medication
5. Date of procedure and administration of the antibiotic
6. Reasons for substitution for recommended antibiotic (e.g. patient allergy)

In reviewing the data, the director soon discovered that each hospital had its own naming convention for the procedures, a different method for documenting administration, and a variety of times associated with the procedures. For example, one facility recorded “start time” rather than the specific time of incision. This made it virtually impossible to determine when the prophylactic antibiotic was administered in relation to time of incision.

Gathering valid and reliable data requires that a standardized method of documentation, like the Perioperative Nursing Data Set (PNDS), underlie the information source. As a standardized nursing language, the PNDS serves as a tool for documenting and reporting information in a consistent manner. Developed by the Association of periOperative Registered Nurses (AORN) and recognized by the American Nurses Association (ANA), the PNDS is a vocabulary to describe nursing care for patients undergoing a surgical or other invasive procedure from pre-admission to discharge. It is designed to fit into the workflow of clinicians and applicable in various perioperative practice settings, including both inpatient and ambulatory surgical environments.

Meeting reporting requirements exemplifies an immediate benefit of implementing the PNDS. But first and foremost, AORN is dedicated to helping nurses deliver safe patient care. The PNDS, along with AORN’s Standards, Recommended Practices, and Guidelines manual, provide the foundation for guiding, documenting and improving perioperative nursing practice. While both are designed to support registered nurses in achieving optimal outcomes, the PNDS is specifically used to evaluate outcomes and support development of new and improved standards for care. As the perioperative nursing record is increasingly incorporated into the hospital electronic infrastructure, the advantages of implementing the PNDS grow accordingly.

Promoting Optimal Outcomes

The manner in which data is documented, captured, mined and aggregated is a critical factor for improving health care. Over 150 years ago Florence Nightingale was a pioneer in identifying the deficit of reliable health care information. While Ms. Nightingale established the statistical premise to examine...
the nurses’ influence on the cost and quality of patient care, the status of quantitative information for making decisions relative to nursing’s impact on patient outcomes has been limited.

The PNDS, by formally defining the professional roles and contributions of perioperative registered nurses, provides a foundation for evaluating outcomes across caregivers and practice settings. This, in turn, holds the promise of uncovering new clinical relationships and promoting new methods for advancing patient care. The potential impact of the PNDS on the perioperative environment is demonstrated in the following synopsis of a normothermia-related case study:

**Problem:** The PACU was having difficulty warming patients after surgery. This came to the attention of the OR director, who requested a chart audit to gather data about the temperature of several patients from the time they entered the preoperative holding through the interoperative phase and arrival in PACU. The director’s concern was twofold:

1. Patient safety: literature demonstrates an association between hypothermia and infections
2. Potential financial impact from a surgical site infection

According to the chart audit, the patient’s temperature was documented in each phase of care. But the director could find no indication of specific nursing interventions used to resolve low patient temperatures—though he knew the perioperative staff followed specific protocols for warming patients. The chart audit was ultimately useless for revealing which nursing interventions succeeded best in warming patients or preventing hypothermia.

**Solution:** A team of pre, intra, and postoperative nurses were assembled to modify their documentation to incorporate the use of the PNDS. Subsequently, they were able to link patient temperature assessment to nursing interventions as well as to the intervention’s outcome. In addition the PNDS helped improve communication among caregivers. During patient hand off, the next caregiver received a history of the patient’s temperature and effective actions for maintaining normothermia.

**Incorporating the PNDS into Electronic Records**

To work effectively today, clinicians must know how to find information, synthesize the evidence and apply it to patient care. Traditionally clinicians have been valued by how much they know and can anticipate. But it is now impossible for nurses and physicians to retain the rapidly expanding healthcare body of knowledge in their heads. Nursing research projects, alone, have more than quadrupled and multidisciplinary collaborative studies have more than doubled in the last 4 years.

Electronic health records are increasingly used to facilitate access to this wonderful influx of knowledge, in the form of protocols, recommended practices, standards, policies and procedures. But in order to retrieve meaningful information about provided care, standardized documentation must be included in the electronic infrastructure. The PNDS is, therefore, authorized for use in SNOMED CT®, a systematically organized computer processable collection of medical terminology developed by the College of American Pathologists.

Significantly, software vendors are also interested in the PNDS for their perioperative record system products. Vendors authorized to use the PNDS now include McKesson, Cerner, Picis, RES-Q Healthcare Systems, SIS, Epic, GE Healthcare Technologies, and Siemens. Incorporated into their systems, the PNDS standardizes the electronic perioperative nursing record, which can then make an impact on several levels:

- There is an immediate advantage for the clinical perioperative nurse in terms of enhanced communication and linkage to clinical support.
• Healthcare organization benefit from effective standardized outcome reporting and quality improvement activities.
• Researchers have access to a wealth of reliable and valid clinical data for uncovering new clinical relationships.

As research uncovers new evidence for practice, this will drive creation of AORN recommended practices as well as refinement of the PNDS.

EHR and the Standardized Perioperative Record

The PNDS is also part of a much larger and more sophisticated picture of health care information technology. A federal mandate calls for implementation of an electronic health record (EHR) by 2014. With comprehensive data comes the opportunity to transform patient care, providing the data can be effectively documented, captured and mined. A perioperative record based on the PNDS is one that incorporates clinical as well as the structural data elements and can, therefore, contribute to various activities related to measuring and correlating clinical, financial and operation outcomes:

• Development of databases to support the evaluation of resource utilization
• Measurement of outcome data, monitor and evaluate quality and effectiveness of care
• Comparison of clinical data from large number of patients/facilities
• Benchmarking across settings and institutions
• Examination of the relationship of cost to quality and effectiveness
• Provide valid clinical data for decision making and policy formulation
• Facilitate calculating, managing and reimbursing the costs of clinical and administrative functions in the PO areas
• Support to health care policy and regulatory development

As the nation moves closer toward a universal interoperable EHR, the PNDS becomes an increasingly valuable asset. Significant resources are allocated to providing safe care for the perioperative patient; and the PNDS is the quantifiable voice of perioperative nursing practice. It is the only representative medium to aggregate and analyze the perioperative nurse’s contribution to patient care.

About AORN: The Association of periOperative Registered Nurses is an organization of professional registered nurses engaged in the provision of perioperative patient care. AORN represents 41,000 registered nurses in the United States and abroad, who: facilitate the management, teaching and practice of perioperative nursing; are enrolled in nursing education; are engaged in perioperative research; or work in related business and industry sectors as perioperative nurses. AORN’s mission is to promote safety and optimal outcomes for patients undergoing operative and other invasive procedures by providing practice support and professional development opportunities to perioperative nurses. AORN will collaborate with professional and regulatory organizations, industry leaders, and other health care partners who support the mission.