PERIANESTHESIA DATA ELEMENTS

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Serving Nurses Practicing in Ambulatory Surgery,
Preanesthesia, and Postanesthesia Care
PREFACE TO PERIANESTHESIA DATA ELEMENTS

The American Society of PeriAnesthesia Nurses (ASPN) embarked on a journey envisioned by 2004-2005 President Dina Krenzischek PhD, RN, CPAN. This vision was to look at the safety and data elements that impact the perianesthesia nurse. Computer documentation is both a reality and an expectation in today’s healthcare environment. ASPAN needed to address the role it would play in meeting the needs of the perianesthesia nurse in providing identified critical data elements. The Perianesthesia Data Elements strategic work team (PDE SWT) headed by Denise O’Brien MSN, RN, ACNS-BC, CPAN, CAPA, FAAN was tasked with developing, maintaining and disseminating a comprehensive standardized dictionary that would provide the framework for clinicians, regulatory agencies and vendors. This product is the result of the task assigned to the PDE SWT.

Without the dedication, persistence, and research by the team members throughout the past 5 years this product would not be available to us today. It continues to be an ongoing project to update and substantiate the evidence based data elements. I am pleased that we are able to offer the first Perianesthesia Data Elements at the 28th National Conference and thank the dedication of a committed team to provide this to our members.

Lois Schick
Lois Schick MN, MBA, RN, CPAN, CAPA
American Society of PeriAnesthesia Nurses President 2008-2009
Perianesthesia Data Elements:
Terminology for Perianesthesia Nursing Practice

In 2004, then ASPAN President Dina Krenzischek contacted me to discuss an idea to develop a data dictionary for perianesthesia nursing care. I was in the process of designing an online documentation application and knew immediately that this data dictionary would meet an identified need for me – the terms that describe the phenomena we observe daily in our practice. Certainly, Dina and I both saw the value of standardizing terms: research across settings would benefit by use of the same terms to describe our assessment findings in the clinical setting. It all seemed so easy….

Fast forward to today. The Perianesthesia Data Elements (PDE) are in your hands as you read this introduction. The PDE, as we define them, are new and promote a new direction and venue in publication for ASPAN. By providing the document electronically, ASPAN has eliminated waste (gone green), created a portable document (available in a lightweight flash drive), and offered the end user a valuable tool to use in the perianesthesia practice setting.

The Perianesthesia Data Elements were developed by a team of dedicated perianesthesia nurses from across the United States. This committee volunteered their time, intellect, and experiential knowledge to the creation of the data elements. Without the input of the committee, the PDE would not exist today.

The PDE, once developed, were validated by perianesthesia nursing peers from across the United States. The reviewers represented perianesthesia settings large and small, academic medical setting and community hospitals, ambulatory and inpatient, and adult and pediatric. It was through validation of the elements that we are assured the terms “work” in your practice setting.

The PDE have been entered as a specialty catalogue in the International Classification for Nursing Practice (ICNP)©, which in turn is mapped to SNOMED (Systematized Nomenclature of Medicine). This allows the terms to be coded, classified, and defined. Using the ICNP© also provides international exposure for the PDE.

The outcome statements originated from the Standards of Perianesthesia Nursing Practice. The work of the PDE Committee in turn required review and revision of the outcome statements. The two documents are interwoven and, like the Standards, the PDE will require maintenance and revision as the years go by.

We recognize that while regional differences may exist in use of certain terms, we have taken great care to standardize the PDE. It is this standardization that creates value for the PDE. Alteration of the terminology, i.e., altering words, diagnoses, outcomes, or interventions, will modify the PDE. If modified, the PDE is no longer the PDE, the modified data elements are no longer the ASPAN PDE and cannot be represented as such.

The committee worked long hours to create the document before you. The work is a labor of love from all of us to all of you – and especially to our perianesthesia patients everywhere. Our patients deserve the best we can give them. Use the PDE to promote the best possible care you can give.

Denise O’Brien, MSN, RN, ACNS-BC, CPAN, CAPA, FAAN
Chair, Perianesthesia Data Elements Committee
April 2009
Perianesthesia Data Elements Committee

Denise O’Brien MSN RN ACNS-BC CPAN CAPA FAAN (Chair)

Barbara Godden MHS RN CPAN CAPA (Board Liaison)

Theresa Clifford MSN RN CPAN

Dolly Ireland MSN RN CAPA CPN

Dina Krenzischek PhD MAS RN CPAN

Vicki Lewis MBA BSN RN CPAN

Wanda Rodriguez MA RN CCRN CPAN

Susan Russell BSN RN CPAN CAPA JD

Linda Wilson PhD RN CPAN CAPA BC CNE

Marisa Wilson DNSc, MHSc, RN-BC

Pamela Windle MS RN NE-BC CPAN CAPA FAAN

Former members:

Karen Cannon MN RN CPAN CAPA

Myrna Mamaril MS RN CPAN CAPA FAAN

Nancy Saufl MS RN CPAN CAPA

Special thanks to Lois Schick MN MBA RN CPAN CAPA ASPAN President 2008-2009 for her support of this project and to Richard Clark RN BSN CNOR for his contributions to the “PDE User’s Guide” section of this Manual.
Legal Disclaimer
Much Ado About Terminology Standards

Judy Ozbolt, PhD, RN, FAAN, FACMI, FAIMBE,
Marisa L. Wilson, DNSc, MHSc, RN,
Denise O’Brien, MSN, APRN,BC, CPAN, CAPA, FAAN

IT WAS EARLY IN 2004 when ASPAN President Dina Krenzischek approached Denise O’Brien about her vision to create perianesthesia-specific data elements and a data dictionary for this specialty nursing practice. During a lengthy telephone call, Dina pitched her idea and a new ASPAN initiative was launched. The initial vision was lofty, yet realistic. ASPAN would assemble a strategic work team (SWT) whose purpose was “to create a comprehensive dictionary that includes critical data elements for perianesthesia nursing documentation.” As a team fresh with ideas, enthusiasm, and naiveté, it was believed that in two years the work would be completed and the team would be able to move on to new challenges.

The journey began in August of 2004. The SWT was to learn along the way the complexity of the work they had chosen to pursue. The SWT members did not know what they did not know—at that time. The members of the SWT were soon to learn that there was a larger, international community of nursing informatics rigorously pursuing complex methodologies for producing standardized terminologies to be used in computerized information systems that far exceed the simple data dictionary model.

The SWT members did know that no current American Nursing Association (ANA)-approved nursing language met the needs of the patient in the perianesthesia setting. ASPAN members spoke of frustration launching electronic documentation applications; the “words” did not work for them. The words were not specific enough. The phrases did not capture the essence of perianesthesia nursing care. Clearly what was present in systems did not adequately reflect the professional nursing practice of this specialty. Nor did they adequately reflect the basic nursing process of assessment, diagnosis, intervention, and reassessment to measure outcome within the perianesthesia realm. The SWT knew the need existed; they were challenged as to how to accomplish the work needed.

They met, emailed, and telephoned but seemed to be circling and not progressing. They began to comprehend that what we truly wanted was more than a data dictionary, but could not define the path we needed to take to meet our needs.

Late in 2005, Dina suggested bringing in the expertise of a different nursing specialty—informatics. Dina suggested Dr Marisa Wilson, a nursing informaticist from the Johns Hopkins Health System, who had been working with perioperative and anesthesia systems.
for more than five years and who had also been working toward common terminologies in those systems. Dr Wilson brought clarity and structure to the team’s work. She brought with her the cutting-edge informatics’ best practices. In 2006, ASPAN supported the creation of a standing committee for the perianesthesia data elements (PDE) that would manage the development of a concept-based terminology suitable for use in computerized systems. The committee is now moving forward, making significant progress in our work of defining perianesthesia data elements that capture the essence of our patient care that are concept oriented and able to be placed in computerized documentation systems.

All of ASPAN will continue on the journey to develop this terminology. The path taken will unfold in the pages of this journal. However, as the PDE Committee moves toward the road ahead, all of ASPAN needs to understand the foundation of the path chosen for this development, which has been and continues to be grounded in academic national and international informatics research and development.

The Terminology Backdrop

Why should perianesthesia nurses care about terminology standards and not just develop and offer a data dictionary to all? How does anything so abstract and academic relate to the real world of nursing practice? And if we must adopt terminology standards, why can’t we just agree on a set of terms to use in documentation? The answers to these questions are sometimes simple, sometimes complex, and nearly always surprising.

The Institute of Medicine startled the world when its 2000 report To Err is Human: Building a Safer Health System revealed that as many as 98,000 hospitalized Americans were dying every year because of clinical mistakes. Its follow-up report Crossing the Quality Chasm attributed this excessive mortality not to individual clinicians but to inadequate systems of care. Recommendations included redesigning care processes, implementing evidence-based practice, and establishing an information infrastructure to support the quality and safety of care.

Caring daily for fragile and vulnerable patients, perianesthesia nurses can readily identify care processes that impede rather than support quality, difficulties in finding or building evidence to support practice, and an information infrastructure that imposes its own risks and challenges. For example, perianesthesia nurses typically must become the bridge among multiple clinical information systems that support different phases of care but that cannot communicate directly with one another: preanesthesia, anesthesia, surgery, postanesthesia, intensive care, and step-down. Nurses steal time from patient care to transcribe information from one system to another and to use ancillary channels of communication and, through no fault of their own, they inadvertently create the risks of inattention and transcription error. How can they possibly implement evidence-based practice or create evidence from their own practice when knowledge and information cannot flow from one phase of care to the next?

Fundamental to getting information systems to talk to one another is establishing a common language. Recognition of this problem predates the invention of computers and, in fact, reaches back to the roots of modern nursing. Nearly 140 years before the Institute of Medicine report, Florence Nightingale sounded the same alarm when she wrote:

“There is a growing conviction that in all hospitals, even in those which are best conducted, there is a great and unnecessary waste of life… In attempting to arrive at the truth, I have applied everywhere for information, but in scarcely an instance have I been able to obtain hospital records fit for any purpose of comparison. If they could be obtained, they would enable us to decide many other questions besides the one alluded to… If wisely used, these
Improved statistics would tell us more of the relative value of particular operations and modes of treatment than we have any means of obtaining at present. They would enable us, besides, to ascertain the influence of the hospital ... upon the general course of operations and diseases passing through its wards; and the truth thus ascertained would enable us to save life and suffering and to improve the treatment and management of the sick..."

—Florence Nightingale, Notes on Hospitals, 1863, pp 175-176

To obtain “records fit for any purpose of comparison,” we must use the same terms to represent the same concepts and have the same understanding of how the concepts relate to one another. In computer-based systems, we must do this so that humans understand the words they read at the interface and that computers understand the unambiguous, abstract formalisms that encode the meanings “behind the scenes.” In the 20th century, nurses generally understood the first condition—shared meanings for the same words—better than they understood the second condition, representing those meanings in ways the computer could also understand. A number of individuals and groups created sets of terms and classification systems to represent nursing practice. Some of the better known classification systems recognized by the ANA include North American Nursing Diagnosis Association (NANDA), Nursing Intervention Classification (NIC), and Nursing Outcome Classification (NOC), Perioperative Nursing Data Set (PNDS), the Omaha System, and the Clinical Care Classification. Some specialty organizations, including ASPAN, recognized gaps in the coverage of their practice within these terminology classification systems and created their own sets of terms. All these terminologies, however, sprang from different conceptual systems; they used the same words for different concepts or different words for the same concepts. They had different levels of abstraction and granularity. None of them had a formal way of representing the meanings that computers could understand. Rather than the “unified nursing language” envisioned by the ANA, the various nursing languages had, by the end of the 20th century, created a virtual Tower of Babel.

This situation was not the fault of the terminology developers. Understanding of what was required to create useful terminologies was evolving, and not until the latter 1990s did the literature provide very much guidance. Recognizing that nursing needed new approaches to developing and implementing terminology to represent nursing practice in computer systems, experts in terminology and standards—nurses and non-nurses—met in 1999 to inaugurate a series of Nursing Terminology Summit Conferences. These annual invitational working conferences have contributed substantially to standards for nursing terminology internationally. The results of these working conferences have formed the backbone of the tasks that are underway to develop the PDE into a computational terminology. Recognizing what Dr Wilson and the PDE Committee were attempting to do, ASPAN was invited in 2006 to be part of this annual working conference. This invitation brought with it challenges but also guidance and critique by the foremost nursing informaticists in the international community.

**Using the Informatics Best Practice for the PDE**

With this backdrop and a connection to the larger community of work being carried out by terminologists and informaticists, the work to transform the PDE, as developed by the Committee, into an actual concept oriented terminology could begin in earnest. The expressed goal of then SWT and now current PDE Committee was to develop a standardized terminology suitable for use in computer systems that would ultimately be able to be used to: communicate between
and among systems, generate evidence to guide practice at a national level, and further understand the contribution of nursing to safe patient care in this area. These goals for PDE are in alignment with the broader national agenda for safe patient care and the use of electronic health records as described in Crossing the Quality Chasm.\textsuperscript{2}

To reach these goals, three main tasks had to be completed.

\textit{Task One: The Content}

The subject matter experts of the PDE Committee have been and continue to work on developing validated and researched outcomes, diagnoses, specific interventions, and assessment criteria for adult and pediatric populations. Each outcome set has an attached standardized data dictionary, along with specific outcome measures that would indicate that the patient has met the specific outcome. The Committee has amassed a large set of documents based on the work of the subject matter experts in the anesthesiology field that reflect best practice within this nursing specialty. The contents of these sets are not amenable to placement in computerized systems in their current state. They simply represent collections of information in no specific format.

\textit{Task Two: Organization and Format}

Most of the diagnoses and outcomes were developed from existing nursing terminologies (NANDA and NOC specifically) and are in that format. Some of the diagnosis and outcome statements are not within any existing format or terminology. This is not surprising because there has been recognition for many years that no single terminology will be able to represent all the interests within the health care domain.\textsuperscript{7} Moreover, the PDE will not simply be placed into another existing ANA terminology because an assessment of those approved terminologies revealed that none met the criteria for inclusion on computerized systems.\textsuperscript{8} Therefore, the PDE Committee was guided to look at a format that would ensure that the terminology contains the attributes of a controlled medical terminology as represented by Cimino et al and the ISO’s Technical Specifications for Terminologies. This compilation is represented best in the work of Rosenblum et al.\textsuperscript{9} Some of the attributes are: (1) complete coverage of the domain; (2) use of concepts rather than terms, phrases, and words; (3) concepts evolve with change in knowledge; (4) concepts identified through context free identifiers; (5) concepts have single, explicit formal definition; (6) absence of duplication, ambiguity, and synonymy; (7) support for compositionality; (8) language independence; (9) integration with other terminologies; and (10) mapping to administrative terminologies. To accomplish the task, the PDE Committee will be working in conjunction with the International Classification of Nursing Practice (ICNP) to use the 7-Axis ICN model (http://www.icn.ch/spv-lbook-ch4.html#2) to build a perianesthesia catalogue that contains the work of the subject matter experts in a concept-oriented format acceptable to computerized systems. Next, discrete concepts from the resulting ICNP model will be coded into SNOMED (http://www.snomed.org/snomedct/index.html) to ensure integration with existing terminologies and coding to administrative databases.

\textit{Task Three: Modeling PDE for Computerization}

Task 3 involves a series of activities that prepare the concept-oriented terminology for inclusion into an actual computerized information system that can be interoperable with and interface to other clinical information systems. These activities include: (1) developing a storyboard to illustrate scenarios that include each diagnosis; (2) creating activity diagrams to graphically represent how the concepts move between and among people, systems, and processes; (3) refining the glossary to ensure complete coverage in SNOMED; and (4) modeling the diagrams into the Health Level 7 Reference Information Model (HL7 RIM).
Modeling the perianesthesia nursing information, terminology, and processes into an information model (HL7 RIM) are steps toward transforming this content machine as readable for electronic patient records, point of care systems, and messages to be sent to other information systems.10

**Conclusion**

The PDE Committee members have come a long way in their knowledge of what it takes to have a terminology that is able to be used in computer information systems so that evidence, outcomes, and nursing impact may be assessed.

From the days of merely envisioning a simple data dictionary to a true concept-oriented, systematically modeled, and ultimately tested terminology, the growth has been exponential.

The PDE Committee is about halfway through their initial work; the content is almost complete. The formatting and modeling of completed content is underway. It is an exciting, rigorous, and detail-driven journey. It is a journey that will result in a product that will be able to be used at the point of care to support and validate the efforts of all perianesthesia nurses now and into the future.

**References**

1. ASPAN Perianesthesia Data Elements Strategic Work Team. Core Purpose, SWT data elements minutes, 2004.
In the Beginning…The Origin and Evolution of ASPAN’s Perianesthesia Data Elements

Dolly Ireland, MSN, RN, CAPA, CPN,
Denise O'Brien, MSN, APRN, BC, CPAN, CAPA, FAAN

WHAT WAS THE origin of ASPAN’s Perianesthesia Data Elements? In the beginning before they were named Perianesthesia Data Elements, past President Dina Krenzischek had a dream of creating perianesthesia-specific data elements and a data dictionary. This column reflects on the origin and evolution of what are now known as the Perianesthesia Data Elements, or PDE.

The Call

A telephone call, very late at night…it’s Dina Krenzischek, the President of ASPAN. “ASPN needs to become involved in the creation of a standardized electronic vocabulary that all perianesthesia care nurses can identify with.” Who would disagree with that statement? “Will you participate on a strategic work team to implement this idea?” That early phone call led to the exploration of all aspects of patient safety and the need for nurses involved in the care of perianesthesia patients to have a shared terminology.

The First Meeting

That phone call led to the creation of the Data Elements Strategic Work Team (SWT). The first meeting of the Data Elements SWT took place August 13-15, 2004, in Nashville, Tennessee. Everyone who assembled was uncertain of this project’s purpose and how it was going to be accomplished; however, there was a buzz of excitement surrounding the idea! The SWT consisted of Coordinator Denise O’Brien, Facilitator Barbara Godden, and members Karen Cannon, Terry Clifford, Dolly Ireland, Dina Krenzischek, Myrna Maharil, Susan Russell, Nancy Saull, and Pam Windle. The first agenda included brainstorming for the vision and mission of this remarkable idea. The core purpose “to create a comprehensive dictionary that includes critical data elements for perianesthesia nursing documentation” was identified. The team’s goal became that ASPAN will be the primary source of research and evidence-based perianesthesia clinical documentation standards.

The next agenda item focused on what to call this dictionary of data elements. There were three final choices: Perianesthesia Data Elements (PDE), PeriAnesthesia Nursing Nomenclature (PANN), or PeriAnesthesia Data Elements (PADE). The unanimous choice was PDE. A theoretical model that would conceptualize the idea of data elements was

Dolly Ireland, MSN, RN, CAPA, CPN is Clinical Nursing Educator of Perianesthesia Services/Ambulatory Services, Mount Clemens Regional Medical Center, Mt. Clemens, MI; and Denise O’Brien, MSN, APRN, BC, CPAN, CAPA, FAAN is Clinical Nurse Specialist, University Hospital Perianesthesia Care Unit, Department of Operating Rooms/PACU, University of Michigan Hospitals and Health Centers, Ann Arbor, MI.

Address correspondence to Denise O’Brien, MSN, APRN, BC, CPAN, CAPA, FAAN, Department of Operating Rooms/PACU, University of Michigan Hospitals and Health Centers, 1500 E. Medical Center Drive, Ann Arbor, MI 48109-5044; e-mail address: dedeo@umich.edu.

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created based on perianesthesia practice and its intersections.

## Outcome Statements Identified

The newly named Perianesthesia Data Elements Strategic Work Team (SWT) was dedicated to incorporating nursing theory into the framework of these data. Fourteen key outcome statements, developed from the 2004 ASPAN Standards of Perianesthesia Nursing Practice,\(^1\) were identified to begin associating “key” perianesthesia data (Table 1).

## Early Vision

ASPN is the recognized expert on PDE for pre- and postanesthesia care. Data elements were needed to describe the practice of perianesthesia nursing and patient care. Clearly, ASPAN must create the knowledge of elements and have all information systems companies recognize ASPAN as the voice. The message was: ASPAN needs to create the system and make it available to vendors. “If you build it...they will come!”

On October 2, 2004, ASPAN issued a press release\(^2\) regarding the development of the PDE:

> “...The first phase in the development of a comprehensive set of perianesthesia data elements has been completed by the American Society of PeriAnesthesia Nurses (ASPN). These data elements will be more specific to the needs of perianesthesia nurses than what is currently available. The ASPAN Perianesthesia Data Elements (PDE) will include the Preanesthesia Phase and Postanesthesia Care Unit Phases I, II, III sets. They will have applications in the ambulatory surgery, office-based practice, and acute care settings. The timeline for completion of this project is an aggressive Spring 2005...”

ASPN’s decision to create a set of PDE was based on increasing demands by its members. It was imperative that the data elements would be developed by perianesthesia nurses who are considered experts in all aspects of care in the perianesthesia settings. The purpose of the ASPAN PDE is to provide standardized documentation practice, education, outcome measures, and the ability to build additional hard datasets based on evidence-based practice. Once they were completed, the data elements would be validated, piloted, and researched by perianesthesia nurses (the ultimate end users) for clarity, usability, and feasibility.

## The Next Steps

The future of PDE includes continued development and testing of the outcome/goal statements to include and validate actual terminology “data” used in perianesthesia practice. Research plans for the PDE began brewing during the early stages. This would require that the PDE be sent out to experts in research, education, practice, and other leaders in the perianesthesia specialty for review and validation. A pilot research study proposal will be presented at the next meeting.

Questions remained for the SWT. Was there a need for a consultant to assist with the marketing? Should all members of the SWT sign
conflict of interest statements? Should the team remain as a SWT or should it become a standing committee? What changes would be necessary for this to occur? Would the timeline allow validation to be completed and presented at the national conference in Spring 2005?

**January 28-30, 2005**

This meeting started with a detailed discussion concerning conflict of interest issues and protection of the ASPAN product that was being developed. All members of the SWT signed nondisclosure and noncompete agreements protecting the intellectual property of the data elements and acknowledging that the systems that ASPAN owns, plans, or develops are confidential and the property of ASPAN.

**Word Starts to Spread**

After the press release issued by the national office informing the outside world that ASPAN was working on PDE, SWT Coordinator Denise O’Brien was interviewed by *Outpatient Surgery* magazine. These events generated interest by many outside sources. Both the American Society of Anesthesiologists and the Association of periOperative Registered Nurses (AORN) have connections with data dictionaries and Systemized Nomenclature of Medicine-Clinical Terms (SNOMED CT), a huge hierarchy, treelike data repository. Dina Krenzischek was invited to participate in meetings related to the Data Dictionary Task Force and SNOMED CT.

The current PDE status was at a critical decision point. What should this final product look like? Is the theoretical model in the right order? Do we use North American Nursing Diagnosis Association/Nursing Outcome Classification (NANDA/NOC) terminology or create our own? Do the outcomes we identified fall into NOC or NANDA outcomes?

A Downstream Marketing Manager, Clinical Specialist IT for GE Healthcare Information Technologies (GEHC), presented information on GE products, services, and technology available. GEHC had assisted AORN in their development of data elements (PNDS), not with content but with structure.

The remainder of the January 2005 meeting centered on how best to organize the identified outcome statements. A standardized template was created so that all of the identified outcomes would follow the same pattern. The PDE are a combination of assessments and interventions, including outcome statements, nursing diagnoses, and data elements. When the work accomplished thus far was reviewed, the marketing possibilities seemed endless! Could scripts be developed for the care of certain populations? Could “drop-down” boxes be created in electronic systems to aid in documentation? Could the outcome statements be developed into specialized care plans for perianesthesia nursing?

Revisions and adjustments were made to the original timeline. There were three items to be addressed in the validation process: (1) feasibility, (2) usability, and (3) clarity for every line. In July 2005, the team met again, this time in St Louis, Missouri, and continued to work on the development and validation of the outcomes, discussed data elements, and redefined next steps. The year ended with as many questions as answers. Were we still on the right path, taking the right direction? What was missing? We were beginning to realize that this endeavor was much bigger than any of us ever imagined. We needed outside help. We were ready to expand our knowledge of nursing terminology, which began at the next PDE meeting.

**January 20-22, 2006**

The Perianesthesia Data Elements SWT started down a new path. Marisa Wilson, DNSc, MHSc, RN, was introduced to the group. Dr Wilson’s background included working with
several disparate electronic systems—systems that do not interface or communicate with each other—and with systems where languages are different. She agreed to become the PDE consultant and took the prevalidated PDE to build an initial database. Dr Wilson explored with the PDE SWT ways in which vendors might use the data. She pointed out that there is growing momentum for a universal language because of the explosion of information and the need for universal language in the electronic world.

Crossroads of Change

The SWT, with Dr Wilson’s help, acknowledged the ethical obligation to bring PDE to the greater nursing community. The development of this language is the fundamental core of practice—the perianesthesia community needs to be using the same language.

The first ASPAN conceptual model for PDE was brought up and revised. (This conceptual model will be discussed in detail in an upcoming column.) The SWT recognized that the language process is a marathon, not a sprint, and must have continuity. This sparked the pursuit of the PDE SWT as a standing committee.

Much of the early work focused on Phase I clinical practice. At this point, outcomes were developed for preoperative and Phase II areas of perianesthesia practice. A system was identified to distribute completed PDE with face validations for peer review. The continued face validation process was outlined with the formal research process to begin by July 1, 2006.

National Conference 2006

The PDE-SWT was approved by the Representative Assembly as a standing committee of ASPAN. The membership of the committee underwent some changes, with founding members Barbara Godden and Nancy Saufi leaving the committee. Wanda Rodriguez and Vicki Lewis soon joined the PDE committee.

July 7-9, 2006

The perspective for PDE took a dramatic change in 2006. The core purpose has remained the same; however, the goal has been restated: ASPAN will be recognized by the health care community worldwide as the leading organization for perianesthesia nursing education, practice, standards, and research. The PDE Vision now stated that ASPAN has an ethical obligation to develop and disseminate perianesthesia data elements to the global nursing community and to create the framework for which PDE can be used by clinicians, regulatory agencies, and vendors.

PDE will:

- create standardized perianesthesia documentation of diagnosis, assessment, intervention, and outcomes.
- standardize the terminology used to describe the core competencies of perianesthesia nursing.
- provide a consistent language to support perianesthesia nursing education.
- allow the conduct of consistent and comparable perianesthesia research.
- provide a database of contributions of these nurses to patient care and outcomes.
- be recognized as a language by the American Nurses Association (ANA).
- provide a framework for the development of electronic health records (impact on coding, regulatory agencies, and reimbursements).

Through Dr Wilson’s contacts and connections in the informatics world, ASPAN has had the incredible opportunity to participate in the Nursing Terminology Summit and the Nursing Vocabulary Summit Conference. These connections help position ASPAN with the opportunity to link with SNOMED-CT,
Logical Observation Identifiers Names and Codes (LOINC), and other international nursing organizations to put perianesthesia language on the map! The next question arose, “Where do we go with PDE?” One could take what has been placed into the database and try to have it incorporated into a clinical information system or...PDE could be developed into a third-generation nursing terminology that is ready to be placed into a clinical information system. Everyone agreed that PDE needed to move globally and thanked Dr Wilson for her continued guidance in leading ASPAN’s data element development efforts.

January 26-28, 2007

Work began on identifying pediatric outcomes and mapping these outcomes with the established templates. The entire committee learned how to create storyboards to diagram perianesthesia activity and the connection of this activity to other entities.

Dr Wilson described how the ANA is not looking to approve new languages but to have nursing speak one language. She identified that it was also possible that PDE may be added to the International Classification of Nursing Practice (ICNP) as a catalog of terms specific to perianesthesia nursing care.

At ASPAN’s recent 2007 National Conference, Dr Wilson and O’Brien presented on the PDE journey and its place in the nursing terminology world. It was evident at the conference that the PDE continues to elicit interest and questions from ASPAN members, vendors, and the greater nursing community.

Today

ASPN sits on the “bleeding edge” of the original PDE project, positioned to use established perianesthesia outcomes to “talk” electronically with the global nursing community. As we continue on our journey to develop the PDE and incorporate these elements into standardized language and classification systems, we continue to learn. The background presented in this article serves to frame the work that has been done to begin our journey on the nursing terminology road. The efforts of the committee continue. Upcoming columns in this journal will present the PDE model, plans for implementation, ongoing progress, and work that will be needed to sustain the PDE.

References


THE CORE PURPOSE of the Perianesthesia Data Elements (PDE) Committee has been to create a comprehensive dictionary that will include the critical data elements crucial for inclusive and consistent perianesthesia nursing documentation. The committee developed a schematic model (Fig 1) to provide a platform showcasing the basic process concepts that converged to form the origins of perianesthesia data elements. This model displays the key characteristics of the informatics structure that best describe the work and language of perianesthesia nurses. Components embedded in this conceptual model include the following: nursing assessments, diagnoses, interventions, outcomes, influential nonclinical elements, critical pathways, care plans, protocols, guidelines, standards, competencies, levels of care, phases of perianesthesia nursing, facilities, quality indicators, and safety. These central components of PDE are critical in laying the foundation for safe communication.

The Model

The Triangle

At the very core of the PDE model lies the actual foundation, the cornerstone of perianesthesia communication and documentation. This represents the structural basis or building blocks on which perianesthesia language relies—the perianesthesia data elements themselves. The remaining ascending rungs of the inner ladder denote the key components of nursing processes every nurse performs in the care of patients: assessment, diagnosis/planning, intervention, and outcome/evaluation.

Standard VI of ASPAN's 2006-2008 Standards of Perianesthesia Nursing Practice describes the standard, rationale, outcome, and criteria for the assessment of perianesthesia patients.¹ This assessment, including continuous monitoring and ongoing data collection, consists of the notation of physiological and psychological parameters, clinical observations, and monitoring of responses from the patient to the environment, interventions, and other interactions. Terminology to describe key nursing assessments varies widely by locale, workplace culture, and individual discretion and practice. These variations contribute to lack of uniformity, measurability, and, at times, disparate interpretations of clinical documentation. Inadequate capture of data can also result in fragmented, sometimes conflicting and/or incomplete records of clinical events.

After the data collection phase of nursing care, the actual data gathered is synthesized and integrated into a plan of care. As noted in

¹ Theresa L. Clifford, MSN, RN, CPAN, is a Clinical Staff Nurse in the PostAnesthesia Care Unit at Mercy Hospital, Portland, ME; Pamela E. Windle, MS, RN, CNA, BC, CPAN, CAPA, is the Nurse Manager in the PostAnesthesia Care Unit and Surgical Observation Unit at St Luke’s Episcopal Hospital, Houston, TX; and Linda Wilson, PhD, RN, CPAN, CAPA, BC, CNE, is an Assistant Professor at Drexel University College of Nursing and Health Professions, Philadelphia, PA.

Address correspondence to Theresa L. Clifford, MSN, RN, CPAN, 14 Liberty Lane #83, South Portland, ME 04106; e-mail address: tel Clifford@aspan.org or el Clifford@hotmail.com.

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this Standard, the plan of care may include actual initiation of protocols or practice guidelines, activation of physician provider orders, and application of perianesthesia standards of care. This plan of care involves the holistic and individualized development of interventions to be implemented for therapeutic measures. The process of integrating data into action is conceptually addressed in Standard VII, Planning and Implementation.\textsuperscript{1}

Lastly, the apex of the pyramid represents the actual and desired patient outcomes resulting from the evolving plan of care and adaptive interventions. Perianesthesia nurses continuously evaluate the patient’s progress to determine movement toward mutual and desired outcomes (Table 1). Evaluation (Standard VIII) involves not only analyzing the success of the goals and interventions, but examining the need for adjustments and changes as well.\textsuperscript{1} As a constant component of the nursing process, evaluation leads back to assessment, which leads to further planning, and the whole process continues to evolve.

\textit{Inner Circle}

The inner circle of the PDE model represents the various phases of perianesthesia care. The scope of perianesthesia practice is not limited to the admission and discharge of surgical and procedural patients. This practice is involved
Table 1. Sample Perianesthesia Patient Outcome Statements

Patients will have:
1) Patent airway
2) Adequate oxygenation and ventilation
3) Adequate cardiac perfusion/hemodynamic stability
4) Stable fluid volume
5) Neurological function
   a) Baseline LOC
   b) Sensory/motor function
6) Normothermia
7) Comfort management (physical, psychosocial, psychospiritual, environmental)
   a) Pain
   b) Nausea and vomiting will be minimized/eliminated
   c) Anxiety
8) Integumentary system free of injury
9) Preoperative and postoperative education
10) Patient rights protected (informed consent, advance directives, privacy, HIPAA)
11) Safety needs met

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intricately in the assessment, diagnosis, intervention, and evaluation of the myriad of actual or potential physical or psychosocial problems that may result from the administration of sedation/analgies/a or anesthetic agents and techniques. In addition to the basic premise of the nursing process, perianesthesia nursing requires competency in critical thinking, decision-making, the retention of analytical abilities, knowing empirical scientific knowledge, and active inquiry. Competencies for perianesthesia nurses include the necessary knowledge base of sedation/analgies, anesthetic agents and techniques, physiological and psychological responses to these agents, and an appreciation for the vulnerability of patients undergoing these techniques.

As members of the interdisciplinary health care team, the scope of perianesthesia nursing includes preanesthesia care (preadmission anesthesia assessments and day-of-surgery or procedure preparations), postanesthesia levels of care (including Phase I, Phase II, and extended observations), and postanesthesia/postdischarge follow-up.¹

External Circle
The inner circle and external circle are separated by serrated lines representing the constant ebb and flow of information within the sphere of the perianesthesia experience. Notably, the transfer of data and information required for safe, evidence-based patient care no longer occurs within traditional confines. Perianesthesia practice environments that now influence care outcomes have assumed a variety of surroundings. These practice influences include anesthesia services, office-based settings, perioperative/surgical services, procedural/interventional services, and inpatient/acute care services. In addition, there are a multitude of entry points along the continuum of care involving a variety of workflow processes that also impact the need for and the flow of data.

Conclusion
ASPN began an important initiative to build a strong and unified voice for perianesthesia nurses through the identification and development of PDE. ASPAN’s vision includes the incorporation and utilization of state-of-the-art information technology. The PDE Committee
developed this conceptual model to provide perianesthesia nurses an understanding of the tenets of perianesthesia nursing language. This ongoing initiative will produce and maintain PDE that are research based to guide perianesthesia documentation and development of perianesthesia electronic records. Implementation and utilization of PDE will have a profound influence on safe communication and documentation.

**Reference**

Perianesthesia Data Elements: From Concept, to Validation, to Operations

Marisa L. Wilson, DNSc, MHSc, RN, Pamela E. Windle, MS, RN, CNA, BC, CPAN, CAPA, Dina A. Krenzischek, MAS, RN, CPAN, Theresa L. Clifford, MSN, RN, CPAN

THE FIRST MEETING of the original Data Elements Strategic Work Team (SWT) took place in August 2004. Visionary SWT members came together to develop solutions for a major problem that they had identified and struggled with within their own health care settings. The focus of the problem revolved around the difficult, often contentious, and unguided process of developing “data dictionaries” to populate the information technology or electronic nursing documentation systems that were being implemented in their facilities. Discussions about this problem led to a collective understanding of the importance of guiding this work through the utilization of evidence as this will ultimately inform future perianesthesia practice. Furthermore, incorporating evidence will assist in the move towards standardization of perianesthesia language.

The SWT recognized potential struggles inherent in the harmonization process of disparate dictionaries—even within the same practice domain. Some of these issues included the realization of regional synonymy (the notion that more than one term can express the same meaning), differences in assessment criteria, and the lack of agreed upon outcome measurements. Over time and the course of several meetings, the members also recognized that the final product of this venture would not only need to be useful in a paper-based documentation environment, but would need to be ultimately used in interoperable, interfaced computerized documentation systems. The team came to appreciate that this factor brought with it requirements for development with which they were going to need to familiarize themselves. The team was then educated on the rules for creating computational terminologies.¹

At the core of this process was the work of creating an evidence-based dictionary. The SWT began an intense process to produce a comprehensive data dictionary synthesized from peer reviewed and validated clinical perianesthesia nursing assessments, diagnoses, interventions, and outcomes. The team concluded that the process of researching perianesthesia data elements was paramount to the success of providing a sound foundation on which to provide language tools specific to perianesthesia practice. The team also realized that a model of use of the data elements would also need to be developed.
to inform and guide the development of appropriate software by software vendors working in this area. It was concluded that the work of this SWT would encompass, at a minimum:

1. Research tasks
   a. Determining the relevant nursing diagnoses and related assessment and intervention tasks along with the outcomes goals.
   b. Vetting these sets through expert reviewers as a method of validation and expert review.

2. Translational operational tasks
   a. Translating the end user interface phrases into computational terminology sets.
   b. Coordinating the perianesthesia data elements (PDE) terminology sets with existing nursing terminologies.
   c. Describing for end users, developers, vendors, and the national forums how this terminology should be embedded and function within systems through industry tools such as Storyboard, Use Cases, Activity Diagrams, and Glossary development.

**Research Tasks**

The SWT, which later became the Perianesthesia Data Elements Committee, explored principles of research for applicability to the core purpose. Incorporating recommendations and feedback from several nurse researchers, the members of the committee began brainstorming core data element categories applicable to the variety of clinical settings requiring clinical documentation. After arriving at consensus, the current *Standards of Perianesthesia Nursing Practice* were used as the foundation for this work. Members were convinced that the anecdotal lack of successful electronic applications for perianesthesia nurses within the industry were in part because of the lack of research to support them. As a result of this concern, the PDE SWT was determined to ensure that the chosen terms embedded into PDE would be semantically correct and in conformance with accepted perianesthesia evidence.

The proposed research process included the following steps:

1. The prevalidation and validation phases
2. The pilot study
3. The research study
4. Continued data analysis

**Validation Phase**

Validation of the PDE is the first step in the PDE research process. Validity asks the question: “Am I measuring what I intend to measure?” Numerous approaches to measuring validity exist. What approach is chosen depends on the purpose and the research design. The ASPAN PDE Committee selected a form of face validity via expert consensus as the measure to evaluate the components of the PDE.

Considering that members have an urgent need to access PDE to begin developing data dictionaries in their institutions or affirm their own progress with clinical documentation needs, common questions regarding the research process include the following:

- Why validate?
- How long will the validation process take?
- What is face validity?

Validation is an important step to ensure that data elements reflect the needs of the population of perianesthesia nurses. In the workplace, perianesthesia nurses may already use particular data elements, but these may have different meanings from one nurse to another. For example, the nurse might document that the patient is *sleepy*. What does *sleepy* mean? How is the sleep qualified? The objective for constructing the data elements from a validity perspective is to have clear, usable, and relevant elements to describe the population that is served. Although the findings from this research will be published in the future, the development of
additional data elements and further validations will continue to evolve.

What is face validity? It is the first preliminary step toward deciding if the data element identified is clear and can be used in the perianesthesia setting. The ASPAN PDE Committee created various sets of data elements, each addressing a particular nursing diagnosis, assessment, intervention, and outcome. Select perianesthesia nurses reviewed these same data elements and provided feedback regarding clarity and relevancy of the data elements.

The PDE Committee carefully constructed the data elements, validated the specific outcomes chosen as well as the assessment criteria and intervention strategies by expert consensus, and provided revisions as needed. The most common nursing diagnoses, assessment parameters, interventions, and outcomes related to perianesthesia practice were identified. Nursing Outcome Classification (NOC), Nursing Interventions Classification (NIC), and the North American Nursing Diagnosis Association International (NANDA-I) were used as references. These diagnoses (11 related to adults and 4 related to pediatrics), with respective assessments, interventions, and outcomes, were organized. Selected perianesthesia nurses from St Luke's Episcopal Hospital (Houston, Texas), University of Michigan Hospitals and Health Centers (Ann Arbor, Michigan), Mercy Hospital (Portland, Maine), and The Johns Hopkins Hospital (Baltimore, Maryland) conducted face validations on all of these data elements. The nurses subjectively evaluated the appropriateness and relevancy in a variety of perianesthesia settings. The findings demonstrated consensus between the PDE Committee members and the selected perianesthesia nurses from the four locations. The limitation of face validation is that there is not a precise or replicable procedure for evaluating this type of content validity. Findings rely on subjective judgment. The significance for this face validation was the ability to obtain a preliminary subjective response from selected bedside perianesthesia nurses related to the appropriateness and relevancy of the PDE among perianesthesia clinicians. Ongoing validation studies will need to be conducted.

Translational Operational Tasks

To assure that the researched and validated PDE could ultimately be used within computerized nursing documentation systems in an efficient and safe way, the PDE Committee then participated in computer industry standard activities used to guide and inform vendors of hardware and software products.

Storyboards

In previous PDE columns, the history and evolution of ASPAN's PDE creation and perianesthesia data dictionary were discussed. The importance of getting the correct information systems to talk to one another with a common language was also stressed. The recommendations of redesigning processes by reviewing content and format and by conducting expert face validation evolved to include performing a series of additional research-related activities. These included the development of storyboards. Storyboards, for the PDE Committee, are narrow topic narratives that are used to describe various scenarios for each developed diagnosis. These are used to both help explain the communications and data interchange that occurs in the perianesthesia space and to understand the importance of implementing evidence-based practice infrastructures. According to Klaus, a storyboard is a plan for teaching and learning activities, and includes such things as outlines, flowcharts, or visual sketches that map out the contents or sequence of ideas. Storyboards, as an introduction to new products, are valuable tools to use in designing and translating concepts into actual process. Storyboards are essential in health care information technology development because they are the main tools used to help translate the complex work that occurs at the patient bedside and within the
clinical unit between providers into a framework that nonclinicians can begin to comprehend.

What does this mean for the PDE? It is often hard for health care workers or end users to understand terminology concepts. How should terms be used? When should certain terms be used? Why? What terms should be used in a new system? Who will use the terms and how will they be passed from one phase of care to another? As the word storyboard implies, a story is developed to provide a better picture of what is being portrayed to the readers or viewers. These stories can capture in detail the real world context about how a new technology can be used, how it should be presented, and the integration of workflow and other information.

What are the advantages of using storyboards? The storyboard helps to describe the flow of work and communications today and to project forward what the flow is going to look like when the project is completed and what clinicians need to do to understand and learn. It is useful for any cross-sectional group to have the commonality of using the same language and meaning for a particular story. It usually conveys functionality of the scenario or story being told. To have a good description of the storyboard, one must create a simple story that can describe fully the characters, setting, and issues or problems being conveyed or illustrated. As with PDE, the storyboard depicts a focused topic that includes various perianesthesia settings and details related to patient presentation including signs and symptoms as observed, events, nursing diagnosis, other related activities in the story, and recommendations for interventions. Most of these stories accurately reflect concrete issues that are arising in perianesthesia practice. The end result of the storyboards created usually introduces perianesthesia nurses to the informatics systems and can be incorporated into education materials or staff development curriculum.

Here is an example of a short storyboard:

Administrator Suzy is concerned with a particular “Morbidity & Mortality” data report that came forward from the quality reporting/risk management department. The report was related to an airway problem that occurred in the PACU. This administrator decided to look at the nursing care provided in the PACU, the number and acuities of patients in the unit at that time, and staffing ratios. Suzy looks to the medical record for contributing factors in the demographic data including the history and physical, relevant chart audits, and the unit’s quality reports. She approaches Manager Mary to look at additional data collection systems, as well as unit-specific/departmental policies and procedures. She also reviews personnel records in the human resource files to check on orientation documentation, continuing education, and competencies of the nurses in the PACU. She searches for references to benchmarking/evidence (including the library, PubMed, consortiums, standards, etc).

Administrator Suzy and Manager Mary decide to observe PACU practices, as well as the nurse involved with the incident, Nurse Nancy. The OR calls or pages on a virtual whiteboard to indicate that Patient Pete is on the way out of the OR. If Nancy Nurse has time, she can look into the electronic health record (EHR) before the close of the case. Upon the patient’s arrival, Nurse Nancy assesses the patient for ABCs. Airway assessment includes looking for chest movement, feeling chest movement, listening to breath sounds, observing for potential obstructions (tongue, secretions), and the presence of airway adjuncts. Breathing assessment includes measuring the rate, depth, O2 saturation, and color of the skin. Nurse Nancy receives the report from the OR (OR nurse, Anesthesia, medical record—can be verbal, paper, or electronic.) Nurse Nancy finds that the patient requires suctioning of secretions, and she applies oxygen. Assessment findings and interventions are documented in the patient record when Nurse Nancy believes that the patient has a patent airway. Nurse Nancy reassesses
the patient's airway again by looking-listening-feeling on an ongoing basis. Nurse Nancy also checks for physicians' orders (on paper or computer physician order entry.) If necessary, she will contact the laboratory, pharmacy, diagnostic imaging, respiratory therapy, the surgeon, and the anesthesia provider. Data from the monitors may or may not be flowing into the electronic health record, either automatically or at the discretion of Nurse Nancy. Patient Pete has been in PACU for some time (approximately 2 hours) and has been stable. Nurse Nancy notifies the receiving caregiver on the surgical floor that Pete is ready for transfer. Nurse Nancy gives the transfer-of-care data verbally, by facs, by paper, or electronically. Transport systems are activated.

Use Case Modeling and Activity Diagrams

The next step in the process is for nurse informaticians to “translate” the storyboards into industry-standard object-oriented models of use. There are two—Use Cases and Activity Diagrams.

A Use Case graphically represents the steps in a specific function or process. In a Use Case, an actor (in this case, a patient or health care provider) requests that the system perform a specific function. The Use Case represents this flow graphically. In the case of the PDE, each storyboard developed will have multiple Use Cases. When several Use Cases are merged, a visual summary of the system is developed into what is called a Use Case Diagram. The Use Case Diagrams become very complex, but describe the ebb and flow of terminology among the various end users across the patient phases of care.

The next step in the operational research process is to translate the narrative storyboards and graphical Use Case Diagrams into Activity Diagrams. Activity Diagrams are tools that allow a description of workflow in a graphic format but include a variety of users and perhaps multiple information systems. It is with the Activity Diagram that one can clearly see the interchange and flow of the terminology that must occur between systems, e.g., from the PreSurgical area to the OR, to the PACU, and then out to the Medical–Surgical floor, to the Home Health agency, and between the various health care providers who work with the patient throughout the process. The Activity Diagram takes the narrative Storyboards, developed by subject matter experts (or expert clinical end users), and the information from the Use Case Diagrams and graphically depicts this workflow into “swimlanes” representing the very complex interplay between users and systems. It then becomes simply a complex workflow diagram that describes the various users’ (or systems’) activities, the people who do each activity, and the sequential flow of these activities.10

Glossary Development

The databases that drive computer systems and allow report development and evidence-based analysis require the use of discreet entries, often represented by codes. Databases become difficult to manage when populated with clauses or sentences representing free text. In addition, nursing researchers struggle when forced to mine information from free text. So the final step conducted on behalf of the PDE Committee by nurse informaticists is to retrieve the original validated concepts put forth and described in the Storyboards, Use Cases, and Activity Diagrams and then to match them with preexisting concepts found in the Systematized Nomenclature of Medicine–Clinical Terms (SNOMED–CT) and to tag the PDE terms with the SNOMED codes. The reason for this is that SNOMED–CT has become the primary method for modeling the existing American Nursing Association–approved nursing terminologies and for providing each distinct concept with a code. With this structure, terminologists and domain experts can develop environments conducive
to interoperable exchange of terms between the different computerized systems that clinical end users may use to document care across the same health care enterprise.

**Conclusion**

This research, validation, and translation process described represents a careful interplay between the subject matter experts and informaticists. The expert end user, perianesthesia nurses who have developed (and who will continue to develop) an evidence-based and validated dictionary representing the primary patient diagnoses, outcome goals, and the steps necessary to diagnose and reach those goals, as well as the nurse informaticists who will assist in guiding vendors in the creation of information systems that can efficiently use the PDE at the point of care, will continue to work this process over time to refine PDE as new evidence and patient goals are developed. Future PDE users should always be secure in knowing that rigorous research, validation, and translation processes occurred before PDE was implemented by any hospital or software vendor.

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Why Are Perianesthesia Data Elements So Important for Research and Evidence-Based Practice?

Wanda Rodriguez, MA, RN, CCRN, CPAN, Myrna E. Mamaril, MS, RN, CPAN, CAPA, FAAN

WHY ARE PERIANESTHESIA data elements (PDEs) so important for research and evidence-based practice (EBP)? Data elements are precise words that form phrases that give description or meaning. These data elements may be described as definitive terms or phrases that are vital links for external users, such as nurses, and facilitate mapping to other data bases. Consequently, PDEs provide the essential infrastructure for the documentation language of the specialty nursing practice. This column describes how data elements establish the foundation for the infrastructure of perianesthesia documentation, how they are embedded in research and EBP, and how they facilitate different search engines that are fundamental for perianesthesia EBP.

This unique PDE language contains the very granular or pure nomenclature that perianesthesia nurses use in many venues to document the patient’s assessment, diagnoses, plan of care, nursing interventions, and patient outcomes. These descriptive data elements are also used in documenting patient education as well as perianesthesia nursing education. Likewise, the perianesthesia language is the vehicle of communication that is critically embedded in the nursing research process, including the conduct and use of research. Foremost, the PDEs facilitate searching the literature and retrieving the evidence to support sound quality EBP.

In 2004, ASPAN recognized the importance of developing our unique nursing language. The ultimate goal was to disseminate the PDEs to be used widely by not only perianesthesia nurses at the bedside, but also perianesthesia nurse scientists in the scientific knowledge of our nursing specialty. Because information and knowledge are essential for nurses when interpreting data and making decisions, it is important that data elements are discrete, organized, and structured. According to Bakken, the data elements are foundational building blocks to all nursing communication. They provide standardized terminology and structures, digital sources of evidence, data exchange standards, informatics processes, and, ultimately, informatics competencies. PDEs provide the basic framework to communicate globally in advancing perianesthesia practice. Furthermore, the recording of these specific data elements through the nursing assessment, workload interventions, and patient outcomes, as the by-product of electronic charting, is a method that is used throughout practice, education, administrative, and research searches. Nurse researchers recognize that standardized key terms, or Medical Subject Headings (MeSH), represent a controlled vocabulary within a database.

Wanda Rodriguez, MA, RN, CCRN, CPAN, is a Clinical Nurse Specialist in the BACU at Memorial Sloan Kettering Cancer Center, New York, NY; and Myrna E. Mamaril, MS, RN, CPAN, CAPA, FAAN, is the Nurse Manager of Perianesthesia Services at University of Colorado Hospital, Aurora, CO.
Address correspondence to Myrna Mamaril, e-mail address: memamarl@adk.com.
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PDEs, found within the MeSH terms, identify unique ideas, subjects, or concepts that assist the researcher in conducting electronic searches by using different strategies to identify the evidence. Identifying search engines and search strategies is critical in locating sound research studies that provide the best evidence on which to base one’s perianesthesia nursing practice. Scientific research is a cumulative process that continues to build on a knowledge base of information. This research is found in the scientific literature that may be referenced during literature searches and ultimately used in EBP.

Some of these EBP resources are Cochrane Library, PubMed, CINAHL, Evidence Matters and TRIP (Turning Research into Practice). The Cochrane Database of Systematic Reviews in the Cochrane Library is the gold standard for searching the highest level of evidence. It contains complete reviews and protocols. PubMed has the clinical queries feature, which enables one to search by clinical study category as well as find systematic reviews. There is also a limit feature that narrows the search down to meta-analysis, practice guideline, and randomized control trial. CINAHL (Cumulative Index to Nursing and Allied Health) has an advanced search feature that enables one to do a target strategy approach. Evidence Matters is a disease-driven database and provides evidence from research articles. TRIP searches other search engines simultaneously and combines the results. It contains abstracts with the source and description along with complete citations. It has a feature for filtering to obtain systematic reviews, guidelines, and clinical questions.

Other evidence-based resources are websites such as the National Guideline Clearinghouse (NGC) and ClinicalTrials.gov (http://www.clinicaltrials.gov). The National Guideline Clearinghouse consists of evidence-based practice clinical guidelines. It has two features comparing the guidelines and guideline synthesis of similar topic areas, which are helpful in narrowing the search. ClinicalTrials.gov includes up-to-date information on both federally and privately supported interventional and observational studies.

In summary, PDEs create a precise, distinct description of key terms that are embedded within the documentation of perianesthesia clinical practice, education, and research. PDEs provide a critical link to databases that facilitate electronic searches of the scientific research that is foundational to EBP. There are numerous evidence-based practice resources in which PDE MeSH terms play an integral role in searching the evidence.

References

Organizational and Management Perspective

Pamela E. Windle, MS, RN, NE-BC, CPAN, CAPA, Dina Krenzischek, PhD, MAS, RN, CPAN, Susan Russell, BSN, RN, JD, CPAN, CAPA, Vicki Lewis, MBA/MHA, BSN, RN, CPAN

UNTIL RECENTLY, nursing has documented patient care in handwritten format. The advent of computers and computerized charting has been the catalyst in the trend to move health care information to an electronic computerized system. The movement to change the way nurses document pertinent patient information has begun, and initiatives are under development to standardize computerized health information throughout the world. For nursing clinicians, the overall goal of using electronic documentation is to capture and deliver high-quality care. Other purposes include quality improvement, clinical research, data mining, and population reporting. The purpose of this column is to educate and to increase awareness through sharing the management perspective related to data elements, such as ASPAN’s perianesthesia data elements (PDEs).

Bedside Nursing Documentation

Electronic clinical documentation at the bedside has become a reality. This method of documentation has been implemented by many hospitals and other health care institutions. Strategic plans begin with an information technology vision. This vision encompasses the financial impact, resources required, the process involved, and the time frame for the actual implementation, which culminate in clinical documentation of the patient’s health record. As part of the implementation program, the selection of a vendor who meets the clinical criteria, financial needs, and user needs of the institution is expected. The creation of central and departmental steering committees provides the necessary oversight to determine that the technology vision is operational, that it fits into the workflow. The committees are accountable for ensuring a successful implementation program. The responsibility to assess the nursing needs of clinical documentation including the data elements is dependent on the institution’s infrastructure.

What Clinical Data Means to Perianesthesia Nurses

What is a data element? A data element is a set of data items pertaining to information of one kind. According to Wikipedia, a data element is a human readable phrase or sentence associated with a data element within a data dictionary that describes the meaning or semantics of a data element. The clinical data interface provides a method for creating the relationships among the terms and the combinations of terms that come from the semantic definitions. The process starting from the beginning of data element development to the final phase where the bedside nurse uses the elements takes a long time because of its complexity.

Perianesthesia nursing is one of the most varied fields in health care today. The nursing knowledge base varies in every setting and
changes daily. Perianesthesia nursing has entered the era of electronic data recording, and PDEs make this a more streamlined function for the bedside nurse. So, why do perianesthesia nurses need these data elements? In many cases, the meaning of specific data elements to perianesthesia nurses may vary according to the electronic clinical documentation in their workplace environments and on the local use of terms. Many nurses who are now using electronic clinical documentation may have a different perspective compared with nurses who have not had the same opportunity. So, it is understandable that the nurses’ value perspective regarding data elements may be different.

As a bedside nurse, it is reasonable to expect sets of data elements that are congruent to standards of practice and easy to use. Data elements mean that the common diagnosis, assessment, interventions, and outcomes in the perianesthesia settings are comparable from site to site and are embodied in the sets of PDEs. The information in PDEs is about perianesthesia patients and their care. The assessment information is varied by age and condition, but all link back to the fundamentals of caring for the perianesthesia patient. These ASPAN data elements were developed and tested by our peers; therefore, there is assurance that they meet the ASPAN standards set for our practice. By having templates to guide charting and assessment, the nurse is able to provide the hands-on care our patients require instead of worrying about how to navigate around the computer and where to input the correct information.

**Management Key Points**

From a management perspective, there are some key points to consider:

1. **Standardized Practice**
   Use of the data elements means the ability to use standardized terms for the nursing process. For example, level of consciousness is a common assessment that is used in perianesthesia nursing, but the definition and description may vary from one institution to another. Terms used can be similar, but using the standard ASPAN PDEs allows consistency within the institution, other institutions, and throughout the perianesthesia settings, regardless of the location. Using sets of standard data elements creates the possibility to interface with other terminologies used in other computer data programs and to compare nursing process and outcomes across settings. It also makes it easier for the perianesthesia nurses to use. As institutions continue to grow in the adaptation of electronic clinical documentation, the use of ASPAN’s PDEs means the ability to provide a standardized documentation that has the same perianesthesia nursing language instead of having the burden to create new nursing terminology in each institution.

2. **Staff education**
   Educating the bedside nurses in a systematic standard approach with actual perianesthesia scenarios can test the application of the PDEs and can be developed easily regarding how to use the data elements in a step-by-step manner. The usability, feasibility, and ease of use are characteristic goals of PDEs. In addition, the data elements make the education process easier because they are precise (direct to the point), concise (brief and clear), noncircular (terms not duplicated), distinct (unambiguous), and unencumbered (free from rationale).

3. **Research and performance improvement**
   The ASPAN PDEs were developed by perianesthesia nursing experts. Each term has been tested using face validation by perianesthesia nurses at the bedside at work settings in the United States. ASPAN’s PDE Committee members were committed to continue using evidence-based practice to support the PDEs. From a research and performance perspective, the development of data elements means the ability to accurately document
comparable clinical data that can be collected from an institutional base, as well as nationally (e.g., looking at the trends of clinical issues, auditing documentation standard compliance, identifying opportunities for patient or staff performance improvement, conducting research, and measuring financial impact). Collection of these data elements is increasingly important because health care cost is increasing and regulators are demanding proof of what bedside nurses are doing and demonstration of outcomes that improve safe and quality patient care. So, data elements mean benefits in both the scientific and operational parts of clinical practice.

4. Operational efficiency
ASPAN's PDEs enable the implementation of electronic documentation. For example, in perianesthesia settings, there are common diagnoses, assessments, and interventions that are used. By having the data elements accessible and integrated into the bedside clinical application, nursing documentation and system implementation will be more easily facilitated. Other opportunities exist for using data elements. For example, in the preoperative phase, one can use data elements in the development of functionality that would allow preoperative patients' involvement in reporting patient history. Within the department and institution, the data elements can be used to generate reports for transfer of care (hand-off information) to the receiving unit. The PACU nurses can view these data elements embodied in the intraoperative documentation to plan the postanesthesia care and promote communication between providers caring for the patient.

5. Service excellence
Patients are encouraged to speak up and be involved in their care during hospitalization. Family members want to know what happened to the family member who was hospitalized. Perianesthesia nurses want to be informed of the cases to be admitted. Receiving units need the clinical documentation as reference and validation of what happened in previous care areas. In general, there is a need to have adequate information to continue quality care, to have a better understanding of the patient's condition and needs, or to answer questions about untoward events. Questions of what happened under the care of the nurses come in various forms such as patient or family complaint, institution's event report, and receiving unit complaints and/or questions. One of the goals in the management of care is patient/family and staff satisfaction. Data elements can provide an immediate assessment from which one can draw a conclusion or recommendation to improve service excellence.

6. Workplace safety culture
Safety is the core of our practice. The factors listed here—standard practice, education, performance improvement, research, operational efficiency, and service excellence—are properties of a safety culture. Data elements are not only available as part of documentation or evaluation, but can help prompt the nurses about what needs to be done or what needs to be prevented in a setting of high patient volume with short and fast turnover of procedural and surgical patients. The perianesthesia nurse works in a setting with numerous interruptions and distractions. In this type of workplace environment, clues, checks, and visible reminders are helpful in reducing errors. Data elements are not only for clinical documentation but also useful in provider order entry, and with safety features, errors can be prevented or reduced.

7. Legal implications
From a legal perspective, the use of PDEs may reduce medical errors related to imprecise communication. One of the primary reasons nurses are sued for negligence is poor documentation. Nurses have been told for years, "If it wasn’t
documented, it wasn’t done." Nursing negligence is usually described in terms of failures: failure to accurately assess and monitor the patient, failure to notify the health care provider of problems, failure to follow orders, failure to ensure patient safety, failure to provide adequate instruction, failure to follow policies and procedures, and failure to properly delegate and supervise.

The interdisciplinary patient medical record serves as the primary communication tool for numerous health care providers. Legally, the medical record is recognized as the complete, accurate reflection of the patient’s condition and the care delivered. Clear communication protects the patient, the health care providers, and the institution.

Standardized language charting such as PDEs promote clear, concise communication among caregivers that decreases the risk of confusion. Documentation with PDE terminology describes objective nursing assessment data, potential and actual problems, procedures, treatments, administered medication, interventions, and outcomes.

Electronic health records are ideally suited to meet the legal requirements in timely, sequential, and retrievable documentation. In an electronic record, PDEs can be incorporated with links to facility policy and procedure, as well as regulatory requirements. Because PDEs communicate the standard of care for perianesthesia nursing, they will be widely understood by the perianesthesia nursing community. As such, PDEs may simplify inquiries from both the public and private sectors. PDEs are poised to have a positive influence on perianesthesia nursing, the health care community, and consumers.

**Challenges and Opportunities**

Computers are found everywhere in most institutions or hospitals these days and are changing the way nurses provide care. What are the challenges and opportunities encountered by some institutions regarding interoperability? In the experience of one institution, multiple activities were identified as barriers during the postoperative phase of care implementation phase of the computerized charting. Resistance to change and accepting ownership are commonly observed when new technology or information is presented.

To facilitate successful implementation of ASPAN’s PDEs, use of common terms and language, free from local colloquialism, is necessary to articulate nursing practice and what nurses do. Therefore, nurses themselves must agree on what common language to use. The most basic effort is the creation of common perianesthesia terms or components, which articulate what perianesthesia nurses actually do as they care for surgical patients in diverse settings. Aside from deciding a common language, terms or data elements to use and what computer application or device to use, agreeing on common language involves multiple interdepartmental meetings and decision-making sessions before a final decision is made.

Issues arise such as: limited access to the medical record for some departments, timeliness of events being charted, accuracy of information documented by the health care provider (which may be a result of different levels of training), but most of all, the lack of support during the initial implementation phase. The longest delay of implementation for one institution was the time to educate and train all nursing staff, which required 24/7 rounding and support. As managers, the release time for staff for education and the support personnel were significant costs. In addition, capturing all employees for education during the deployment was difficult. Other problems were also identified. In some cases, data elements used by different institutions with the same computer systems were not consistent because of customization. Another problem
within institutions was related to the interface and varying information format of different department systems.

Once orientation and education are completed, there can be further lengthy delays for testing and retesting with the user groups. In addition to the lengthy implementation process, there are sometimes unforeseen disruptions in the usual routine. Administrators often have the misconception that computerized charting will take less time. However, one of the most frequent complaints from nurses is how time-consuming and confusing computerized charting can be. Again, the need for support and having a unit-based informatics resource nurse allows the staff to seek advice on the unit in addition to receiving support from the institution’s informatics group.

**Nursing Involvement Summary**

Lorenzi et al.\(^7\) said that successful implementation depends on two very important categories of issues not related to technology: organization and people. Seemingly small shortcomings in planning can lead to technology implementation failure. Common areas in which these shortcomings occur include: communication, organization, complexity, technology, and leadership. The authors outlined four major categories of the failures noted: organizational issues, technical shortcomings, project management shortcomings, and the continuing information explosion. Looking back from one author’s implementation experience five years ago, there are some lessons to be learned: Data elements must be simplified, and adjustability and flexibility for changes must be allowed. The key is that the system has been tested for usability with the nurses, allowing specific, easy access to screens that have only the essential elements needed for each department user. The systems need to have fewer drop-down boxes, especially for high volume and short-length-of-stay departments. Another piece of advice is to make sure the workload issues and workflow processes work, and the system allows each department to view past information, especially the patient’s medication profile from pharmacy to prevent medication errors. The most important lesson is not to pull bedside nurses away from their patient care. Increased involvement from the nurse, training and education, and continuing research will assist in overcoming the barriers of computerized charting.\(^9\)

Nursing involvement is the key aspect for a successful implementation of electronic clinical documentation. The end user who is the bedside nurse must be informed, engaged, and involved as part of the workplace safety environment culture. This is not a choice, but rather a responsibility to be actively engaged in the design, implementation, and evaluation processes. However, the extent of nurses’ involvement may vary according to the leadership direction of the institution. Today, as perianesthesia nurses are asked about their experiences and satisfaction levels on the electronic clinical documentation implementation process, it is not surprising that their responses are different. As managers, we are responsible for our nursing staff’s success. Quint Studer\(^10\) stated that as managers, we should be giving our employees the tools to do their jobs better and more efficiently. This provides a win-win situation for the institution, patient, family, physician, and employee. So how do PDEs fit this model? PDEs can help provide guidance both to experienced nurses and to new graduates. This sets everyone up to succeed and provide the standard of care we all desire for our perianesthesia patients during their surgical experience.

Our practice is varied but is governed, like all areas of health care, by standards. As managers, PDEs will help assure us that perianesthesia nurses are meeting the standards of care for our profession in our individual units regardless of size or location. PDEs will also help with the
orientation of new staff by helping guide them through the charting process. Having a tool like PDEs can help should legal issues arise. PDE sets are important in today’s age to ensure that nurses are caring for the patients and that the needs of all involved are met in the best manner possible. Computerized clinical documentation will improve chart completion and legibility issues and provide more accurate real-time documentation, which will help decrease duplication errors in documentation.

With the market rapidly changing, managers cannot allow an environment where they sit back and wait for others to create change. Organizational change is important for success to happen. The acceptance of technology requires nurses to change how they work. As leaders, we need to support our staff because great demands are placed on them to not only care for patients but to capture and complete the electronic documentation required.

References


6. Austin S. Ladies and gentlemen of the jury, I present . . . the nursing documentation. Nursing. 2006;36:56-64.


8. Lorenzi NM, Riley RT. Organizational issues = change. Int J Med Inform. 2003;69:197-203.


PDE User’s Guide

Introduction
The Perianesthesia Data Elements (PDE) were developed in response to an identified need to unify and standardize the data collected in the various systems used in perianesthesia settings. This standardization was needed as nurses in this specialty struggled to identify common names of phenomena and activities that 1) described the hallmarks of their practice, 2) exist within the assessment, diagnosis, interventions, and outcomes that constitute the practice, and 3) which must be documented on in the clinical setting. It was also recognized that often these nurses were faced with empty databases, or databases which did not reliably describe perianesthesia practice, upon purchasing information systems. The acquisition of these systems ultimately required many hours of data selection, debate and consensus, and manual entry of data in order to implement the system. Notwithstanding the need to standardize particular terms to be aligned with particular phenomena, this standardization is a requisite to fully operationalize rules-based decision support, centered on evidence, for nurses at the bedside.

So began the process of PDE development.

Method
Subject matter expert developers and reviewers harvested these core sets of nursing assessments, diagnoses, interventions, and outcomes from the evidence based literature and ASPAN guidelines. Each core set was reviewed by multiple additional subject matter experts for validation. The result of this work was the identification of domain knowledge from which informaticists were able to synthesize the core concepts. The results are the PDE sets. These sets were developed in the format of the International Classification of Nursing Practice (ICNP®) 7-Axis Model (International Classification of Nursing Practice, 2009). The 7-Axis Model is represented by the areas of Focus, Judgment, Means, Action, Time, Location, and Client. The 7-Axis Model is intended to facilitate the composition of the traditional nursing assessment, diagnosis, intervention, and outcome in a manner such that this data may be manipulated by computer programming via the database (International Classification of Nursing Practice, 2009).

In the 7-Axis Model, for example, a nursing diagnosis must contain a Focus and a Judgment while an Intervention must contain an Action and a Target. Examination of the PDE sets reveals that each has been developed according to this model.

Coding on the Sets
The coding attached to some elements of the PDE sets represents an ASPAN code and an ICNP code. The ASPAN code configuration is listed first and contains an Alpha character followed by three numbers. The ICNP code is a series of 8 numbers. It is important to utilize the ICNP code as other American Nursing Association approved classification systems (such as PNDS) are also mapping to ICNP which will allow codes to pass from one system to another.

What PDE is Not
PDE is not a software application or a program. It is not a “plug and play” add on.
What PDE Is

PDE are the entries for the databases that populate the individual items on each screen that make up the computer application user interface, or what the nurses see when they use their systems. They are the words and terms that perianesthesia nurses use to describe their assessments, interventions and reassessments of patients.

How Can PDE Be Used

The ability to use PDE will vary depending on the state and maturity of the information systems in use at the facility and the flexibility each application permits to augment the databases.

1. For those using an existing information system, in conjunction with the database manager of the software in your facility:
   - Review all tables that are used to populate the screens currently used in the applications.
   - Inactivate (do not erase) entries that do not match the data elements found in the PDE sets.
   - Add/substitute new entries from the PDE set.
   - Determine if new fields can be added to your system.
     If yes, add new fields and populate tables appropriately.
   - Determine if your database tables can accommodate the additional codes that are tied to the PDE.
   - Enter the ASPAN and ICNP codes with each entry.

2. For those in process of implementing an information system, in conjunction with the database manager of the software in your facility:
   - Review all tables that are used to populate the screens used in the applications.
   - Add the base entries from the PDE set.
   - Determine if new fields can be added to your system for any not found in the current application.
     If yes, add new fields and populate tables appropriately.
   - Determine if your database tables can accommodate the additional codes that are tied to the PDE.
   - Enter the ASPAN and ICNP codes with each entry.

3. For those selecting an information system:
   - Determine if the potential vendor has access to a standardized ISO reference terminology as part of their offering.
   - Ask about the ability to customize the database fields and entries.
   - Determine if the potential database tables can accommodate the additional codes that are tied to the PDE.

But I Don’t Have an Electronic Information System!

For those perianesthesia divisions that are not currently using an electronic documentation system, the PDE can easily be integrated into paper records.
Utilizing Perianesthesia Data Elements (PDE) in the Documentation and Management of Pain: Brief PDE Use Case

Description of a Storyboard:
Storyboards are narratives that are used to describe various scenarios. They are used to help explain the communications and data interchange that occurs in the perianesthesia space and to understand the importance of implementing evidence-based practice infrastructures. A storyboard is like a map, a description of the multiple networks across a patient encounter. They are valuable tools used to describe and include a wide variety of concepts into actual process. Storyboards are essential in healthcare information technology development as they are the main tool used to help translate the complex work that occurs at the patient bedside and within the clinical unit between providers into a framework that non-clinicians can begin to comprehend. Storyboards, as created by the PDE Committee, were very detailed, if not redundant, descriptions of practice that helped to define workflow processes, key players in patient care, and key points of contact and patient activity. Below is one example.

Description of Workflow:
The preadmission perianesthesia nurse reviews data that was collected on the patient during a preoperative history and physical interview and examination, which occurred earlier but within 30 days of the current date in the facility. Data was collected on the patient and included current pain at that time and related PDE elements such as, locations of pain, level of pain (scale 0-10), aggravators, and alleviators. Data was also collected on the education effort used to address the current and future postoperative pain relief. Then, the preadmission perianesthesia nurse reviews data from the electronic documentation system and the PDE derived terms. The preadmission nurse notes that the patient was assigned two nursing diagnoses at the earlier visit. First, the nurse assigns a diagnosis containing a focus of Pain and a judgment made by a nurse of Actual and Potential. Secondly, the nurse assigns the diagnosis containing a focus of Preadmit Lack of Knowledge and a judgment by the nurse of Actual. The nurse notes the documentation of an educational intervention using the PDE. The nurse also sees documentation of the targets of the interventions, which were the patient as well as the family member accompanying the patient. The nurse sees that the outcome was documented as complete as all educational interventions were given.

The patient arrives at hospital the morning of the scheduled case. A preoperative day of surgery perianesthesia nurse interviews the patient and patient’s accompanying support. Reviewing the assessment, the preoperative day of surgery nurse is aware of past pain issues and interventions based on the PDE and builds upon the earlier foundation. The preoperative day of surgery perianesthesia nurse again documents data describing with PDE the expressed pain. The nurse enters data on current pain locations, level (scale 0-10), aggravators, and alleviators. The preoperative day of surgery perianesthesia nurse enters data into electronic documentation using PDE derived terms and therefore builds upon the database beginning with the preoperative data collection. Again the patient is noted to have two nursing diagnoses attributed. First, the nurse enters a diagnosis containing a focus of Pain and a judgment by the nurse of Actual and Potential. Secondly, the nurse enters a diagnosis containing a focus of Preadmit Lack of Knowledge and a judgment by the nurse of Actual. The preoperative day of surgery perianesthesia nurse documents brief educational intervention. The nurse also documents that the targets of the interventions are the patient as well as the family member accompanying the patient. The nurse documents the outcomes as completed as all educational interventions were given.
The patient goes to Operating Room where the perioperative nurse continues documentation on patient utilizing a different information system, which has been built with PNDS. However, joint ICNP coding allows for interoperability and interface of data across disparate systems.

The patient comes out of Operating Room and care is handed over to a perianesthesia nurse in the Postanesthesia Care Unit (PACU). The PACU perianesthesia nurse again documents data describing, with PDE, the expressed pain using FACES scale. The PACU perianesthesia nurse enters data on current pain locations, level (FACES), aggravators, and alleviators. The PACU perianesthesia nurse enters data into the electronic documentation system using PDE derived terms and therefore builds upon the database from the two preoperative data collection events. The patient is noted to have two nursing diagnoses attributed. First, the nurse enters a diagnosis containing a focus of Pain and a judgment by the nurse of Actual. Secondly, the nurse enters a diagnosis containing a focus of Lack of Knowledge Phase I, II or Extended Observation and a judgment by the nurse of Actual. The PACU perianesthesia nurse documents the initiation of the PCA, patient positioning, warming interventions, and a brief educational intervention. The nurse also documents that the target of the interventions is the patient. The nurse documents outcomes as a decreasing level for actual pain and completed for all educational interventions.

**Level:** This is a high level brief summary of a potential use case.

**Primary Actor:**
- Perianesthesia PreAdmission Nurse
- Perianesthesia Day of Surgery Nurse
- Perianesthesia PACU Nurse

**Supporting Actors:**
- Patient
- Patient Support/Family Member
- Perioperative Nurse
- Anesthesiology Staff
- Surgery Staff

**Stakeholders and Interests:**
- Anesthesia
- Surgery
- Receiving Unit Nurses
- Home Health
- Director of Nursing
- Quality Assurance
- Risk Management
- Admitting Office

**Pre-Conditions:**
- Nurse must be logged into system.
- Database must contain PDE with unifying ICNP coding.
- Data in system must be able to transfer from one phase to another.
- Data from perioperative product must be able to interface with data from Perianesthesia product.
- Data elements from disparate systems must be harmonized via a unifying terminology.
Post Conditions:

- Nurses are able to document that patient has been adequately assessed, diagnosed, monitored, and intervened in order to control pain.
- Pain interventions are evaluated for outcomes.
- Overall pain control strategies across the continuum of care are assessed for efficacy.
- The contributions of each phase of care towards to goal of acceptable pain are assessed.

Failure end condition:

- Nurse is unable to document in all phases.
- Nurses are unable to see and build upon what has been documented in previous phases.
- Nurses are unable to see what was documented on in a different but relevant information systems (OR and anesthesia).
- Coordination of efforts through documentation cannot be valued.

Minimal Guarantee:

Nurses can document using PDE in all phases of care. However, nurses may have to move through a series of related, but not connected, screens.

Trigger:

Preadmission or Preoperative Perianesthesia nurse logs into and enters data into system.

Main Success Scenario:

1. Perianesthesia Nurse in Preadmit areas enters data.
2. Perianesthesia Nurse in Preoperative area sees previous data and adds to it through unified entry.
3. Perianesthesia Nurse in PACU areas sees data from previous two phases and adds to it through a unified entry.
4. Perianesthesia Nurse able to see and interact with data from Anesthesia and Operating Room information systems.

Extensions:

1. Preoperative perianesthesia nurse must be able to view documentation from patients who did not attend Preoperative session in facility.
2. Perianesthesia nurses must be able to see data from OR system either through interface or view.
3. Perianesthesia nurses must be able to see data from Anesthesia system either through interface or view.
4. Perianesthesia nurses documentation should be interoperable with perioperative nurses documentation and receiving unit documentation for hand off.

Variations:

1. Perianesthesia, perioperative, and anesthesia staff all using disparate and non-communicating information systems.
Pediatric Exemplar and Sample Plan of Care

**Narrative:**
Bryan is a 4 year old who has been struggling with recurrent ear infections treated with oral antibiotics on numerous occasions over the past 3 years. After a consultation with the pediatrician and an evaluation by the Ear Nose Throat (ENT) service, he is presenting to the Ambulatory Care Unit with his mother and his small collection of “Dinosaur Action Figures”, his favorite being Mr. T-Rex. Bryan is scheduled this morning for bilateral myringotomies with tube placement. He is hiding behind his mother's legs.

**ALLERGIES:** Amoxicillin. Peanuts.

**MEDICATIONS:** One pediatric vitamin daily. Does take prn pediatric acetaminophen (Tylenol).

**PMH:** Past medical history is unremarkable. No cardiovascular or pulmonary conditions. Immunizations are up to date. No family history of anesthesia complications.

**PSH:** No previous surgeries.

**FAMILY HISTORY:** Only child. Single parent.

**SOCIAL HISTORY:** Lives at home with mother. Daily daycare in local facility.

**PHYSICAL EXAM:** Temp: 97.6. Height: 40 in. Weight: 36 lbs. Patient is a 4 year-old male who appears in no apparent distress, well-developed and well nourished. Observed to be shy. Mother states child continues to demonstrate ‘stranger anxiety’ despite exposure to day care.
**PLAN OF CARE:**

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus:</strong></td>
<td>Anxiety</td>
<td>D023, 10000477</td>
</tr>
<tr>
<td><strong>Judgment:</strong></td>
<td>Actual</td>
<td>J001, 10000420</td>
</tr>
<tr>
<td><strong>Client:</strong></td>
<td>Patient/Mother</td>
<td>C001, 10014132</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ASSESSMENT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vital signs</strong></td>
<td>Temp 97.6</td>
<td></td>
</tr>
<tr>
<td><strong>Types of comfort:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological</td>
<td>Mr T. Rex</td>
<td></td>
</tr>
<tr>
<td><strong>Medical history:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allergy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication</td>
<td>Amoxicillin</td>
<td></td>
</tr>
<tr>
<td><strong>Food Peanut</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pain history:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic pain</td>
<td>Recurrent Ear Infections</td>
<td></td>
</tr>
<tr>
<td><strong>Medication history:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analgesic</td>
<td>PRN Pediatric Tylenol</td>
<td></td>
</tr>
<tr>
<td><strong>Other medications:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Pediatric Vitamin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adverse Reactions to drugs:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hives</td>
<td>Hives from Amoxicillin</td>
<td></td>
</tr>
<tr>
<td><strong>Other Individual Factors:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td><strong>Barriers to learning</strong></td>
<td>Developmental age</td>
<td></td>
</tr>
<tr>
<td><strong>Educational needs</strong></td>
<td>Target Mother</td>
<td></td>
</tr>
<tr>
<td><strong>Pain descriptors intensity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Characteristics Behavioral:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Glancing about</td>
<td>Noted (peeking from mother’s legs)</td>
<td></td>
</tr>
<tr>
<td>Affective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scared</td>
<td>Noted (hiding)</td>
<td></td>
</tr>
<tr>
<td>Fearful</td>
<td>Noted (developmental)</td>
<td></td>
</tr>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diminished ability to learn</td>
<td>Noted (developmental)</td>
<td></td>
</tr>
<tr>
<td>Socio Cultural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Single Child</td>
<td></td>
</tr>
<tr>
<td>Support system</td>
<td>Day Care</td>
<td></td>
</tr>
</tbody>
</table>

### INTERVENTION

**Action:** Assessing Coping

- Non-pharmacological initiatives
  - Distraction: Encourage play
  - Comfort objects: Mr T Rex

- Acknowledge:
  - Fear
  - Anxieties
  - Reality of the situation

- Educate / re-educate: Involve mother in teaching

- Document treatment and responses

- Report abnormal assessment

**Target:** Nervous System

**Focus:** Anxiety

**Judgment:** Decreasing Level
Adult Phase I Exemplar and Sample Plan of Care

Narrative:
Trudy is a 30 year old, obese, married female who is seeking treatment for infertility. She came to the OR today for an exploratory laparoscopy with lysis of adhesions and fulgeration of endometriosis. Intraoperative course uneventful. Intubated per protocol for history of GERD, she received Propofol, versed and Fentanyl for induction. She was also given Ketoralac and Ondanstron prophylactically.

ALLERGIES: Morphine (N/V), Demerol (N/V) and Sulfa (rash).

MEDICATIONS: Glucophage 1 gm BID for Polycystic Ovary Syndrome, and Clomid for fertility. ? Pain med (cannot remember name).

PMH: Past medical history includes chronic back pain from high school injury which is treated with acupuncture and occasional pain meds.

PSH: One previous diagnostic laparoscopy, appendectomy, T&A as child.

FAMILY HISTORY: No family history of anesthesia complications. Mother is alive and dealing with issues associated with long term diabetes. Father died at ‘young age’ due to unknown causes.

SOCIAL HISTORY: Lives with husband. No alcohol or tobacco use.

PHYSICAL EXAM: Temp: 97.4 Height: 5 ft 3 in, Weight: 236 lbs. Lying on stretcher, IV intact, monitors attached, vital signs stable. Abdomen soft to touch, multiple steri strips over surgical trochar sites, peri pad in place which is clean and dry. Patient is writhing and complaining of pelvic pain “IT HURTS DOWN THERE!” Unable to rate or describe pain. Vocalizing and crying, “Can I have a baby? I want to have a baby! Where is my husband?”
### PLAN OF CARE:

#### DIAGNOSIS

<table>
<thead>
<tr>
<th>Focus</th>
<th>Pain</th>
<th>D021, 10023130</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgment</td>
<td>Actual</td>
<td>J001, 10000420</td>
</tr>
<tr>
<td>Client</td>
<td>Patient</td>
<td>C001, 10014132</td>
</tr>
</tbody>
</table>

#### ASSESSMENT

<table>
<thead>
<tr>
<th>Self report of pain level</th>
<th>Unable to rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital Signs</td>
<td>Temp: 97.4 Height: 5 ft 3 in, Weight: 236 lbs.</td>
</tr>
<tr>
<td>Types of comfort</td>
<td>c/o pelvic pain</td>
</tr>
<tr>
<td>Physical</td>
<td>Vocalizing and crying “Can I have a baby?”</td>
</tr>
<tr>
<td>Psychological</td>
<td></td>
</tr>
<tr>
<td>Medical History</td>
<td>Morphine (N/V)</td>
</tr>
<tr>
<td>Allergy</td>
<td>Demerol (N/V)</td>
</tr>
<tr>
<td>Medication</td>
<td>Sulfa (rash)</td>
</tr>
<tr>
<td>Medication history</td>
<td>Glucophage 1 gm BID for Polycystic Ovary Syndrome, Clomid for fertility.</td>
</tr>
<tr>
<td>Analgesic History</td>
<td>Pain med (cannot remember name).</td>
</tr>
<tr>
<td>Perioperative Medications</td>
<td>Propofol</td>
</tr>
<tr>
<td>Intraop analgesia</td>
<td>versed</td>
</tr>
<tr>
<td>Medication route:</td>
<td>fentanyl</td>
</tr>
<tr>
<td>Intravenous</td>
<td>ketoralac</td>
</tr>
<tr>
<td></td>
<td>Ondanstron</td>
</tr>
</tbody>
</table>

#### PDE Assessment Terms

- Age: 30
- Gender: female
<table>
<thead>
<tr>
<th>Emotional responses</th>
<th>Vocalizing and crying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedation Level:</td>
<td>2= Slightly drowsy, easily aroused</td>
</tr>
<tr>
<td>S= Sleep, easy to arouse</td>
<td></td>
</tr>
<tr>
<td>1= Awake and alert</td>
<td></td>
</tr>
<tr>
<td>2= Slightly drowsy, easily aroused</td>
<td></td>
</tr>
<tr>
<td>3= Frequently drowsy, arousable, drifts off to sleep during conversation</td>
<td></td>
</tr>
<tr>
<td>4= Somnolent, minimal or no response to physical stimulation</td>
<td></td>
</tr>
<tr>
<td>Pain descriptors intensity</td>
<td>Unable to describe pain in either intensity or qualit</td>
</tr>
<tr>
<td>No pain</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
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### INTERVENTION

**Action:**
- Assessing Control Of Pain
- Administering Pain Medication
- Managing Pain
- Assessing Coping
- Monitor vital signs

**Implement Medication**
- Medicate as prescribed by anesthesia provider or surgeon

**Coaching Emotional support**
- Provide emotional support

**Reassurance**
- Offer frequent reassurance

**Listening**
- Offer non-judgmental listening

**Provide comfort food for the soul:**
- Warmth
- Personal connections
- Offer warmed blankets for comfort
- Bring husband to bedside as appropriate

**Non-pharmacological initiatives**
- Active listening
- Distraction
- Deep breathing exercise
- Positioning
- Heat application
- Cold application
- Comfort objects
- Offer non-judgmental listening
- Bring husband to bedside as appropriate
- Encourage deep breathing and relaxation exercises
- Position for comfort
- Apply warmed blankets for comfort

**Implement Patient Controlled Analgesia**
- Initiate PCA as ordered

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<td>Refer to Fertility Counselors/Grief Counselors as needed</td>
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| Judgment: | Decreasing Level | J003, 10005616 |
PERIANESTHESIA DATA ELEMENTS
“FREQUENTLY ASKED QUESTIONS”

STANDARD PRACTICE / DOCUMENTATION

QUESTION 1:
Can Unlicensed Assistive Personnel (UAP) use the electronic documentation? If so, what can they document?

RESPONSE:
UAP can use the electronic documentation after orientation and competency are completed. Since practice guidelines vary among institutions, check with the institution’s Department of Nursing. Some states and facilities allow UAPs to document such things as vital signs and intakes and outputs. In addition, the State Board of Nursing may also define scope of practice for the UAP.

QUESTION 2:
Is charting by exception permissible in the electronic documentation?

RESPONSE:
This is a system of charting in which only significant findings or exceptions to standards or norms of care are recorded or charted. Charting by exception as a method for clinical documentation varies among institutions and is permissible if so defined by institutional policies. Institutional “Scope of Assessment” and/or institutional policies and procedures often define documentation methodology. Carefully written guidelines for documentation methodology define criteria and limitations to “charting by exception” and are often supported by the department of Medical Records. In the electronic documentation, there may be “defaults” that are used for routine care but patients and interventions still need to be re-assessed and the “defaults” may need to be customized to individualize care. If charting by exception, the user must know what is behind the queries in order to document accurately. For example, if you document that you completed a certain part of a care plan, and then you must know exactly what is behind that query so that you are actually doing what it says you are doing.

QUESTION 3:
Can a nurse document medication (e.g., opioid) administered by another provider in the PACU?

RESPONSE:
Some providers may give opioids or other medications upon PACU admission and documentation depends on the individual institutional policy (e.g., Anesthesia Data Record, Nurses’ notes). As a general principle of documentation, the provider administering drugs is accountable for documenting administered medications. You may also want to consult your facility’s legal department to determine the liability issues surrounding documentation of medications which you did not obtain, draw up, or administer. The bottom line is that your name should appear on the record for any medication that you are administering.
QUESTION 4:
Current practice recommends taping a cardiac rhythm strip to the record. How will this practice be accommodated in the electronic documentation?

RESPONSE:
While this practice is usually recommended by the institutional Department of Nursing, the content of a medical record is often defined by medical record policies. In ‘paperless’ systems, technology for scanning paper documents exists. Most facilities however are NOT entirely paperless and the practice of attaching strips to mount sheets for inclusion in the record continues.

QUESTION 5:
For electronic documentation, can specific times be predetermined to record Aldrete or other postanesthesia score?

RESPONSE:
Most electronic documentation systems allow for the timing resolutions to be pre-set. For example, some units choose to view their Phase I clinical documentation in 5 or 10 minutes default increments. However, since a patient’s condition may change outside the pre-determined times, most systems allow the end-user to change the default resolution and/or to insert ‘emergency’ data.

QUESTION 6:
If perianesthesia nurses are using electronic documentation in PACU, what do nurses use to chart during downtime? If a nurse resorts to paper, does the paper chart become a permanent part of the record or must the nurse go back later and enter the information in the electronic record?

RESPONSE:
Regulatory agencies require that the hospital has a complete and accurate medical record for every individual assessed or treated. This requires an institutional definition of the medical record, to include, but not be limited to, any downtime documentation. During downtime, documentation can be defaulted to paper documentation, but the timing requirement depends on the institution’s nursing and medical record policies. Since missing electronic documentation can create a “void” if the documentation is not re-entered electronically, it is imperative that there is notation, either electronically or on paper to indicate an interruption in electronic data entry. Institutional practices and policy vary as to whether downtime documentation is re-entered electronically or not.

QUESTION 7:
Is a PACU care plan required to be incorporated as part of electronic document?

RESPONSE:
The patient care plan is a basic nursing standard. It may be in the form of a critical pathway or a standard care plan that can be imported and individualized in the PACU electronic documentation. The key to documenting appropriate plans of care is the ability to customize the plan to individual patients.
QUESTION 8:
Is there a requirement that each identified nursing diagnosis on the PACU note be prioritized? How will this be done electronically?

RESPONSE:
Nursing documentation standard includes nursing diagnosis or problem identification. The computer layout can be designed to facilitate problem identification as it occurs or can be prioritized although the prioritization is not necessarily a requirement.

QUESTION 9:
Is an electronic signature acceptable?

RESPONSE:
The Joint Commission has long declared the use of electronic signatures as acceptable and in fact, also accepts written signatures, computer keys or rubber stamps. Again, each state and institutional practice may differ.

QUESTION 10:
Should the PACU create different electronic documentation forms based on level of care and different types of surgeries?

RESPONSE:
This can be determined by the service department or their unit-based team. For example, if the PACU recovers ICU patients, they may use the institution’s ICU standard flow sheet. An ambulatory form template can also be created. The most important aspect is not so much the different types of documentation templates, but the core elements of documentation standards for the population that is served. Electronically, there are flexibilities that meet these needs. Again, this depends on institutional nursing policy as well as the functionality/flexibility of the clinical application being used for documentation.

QUESTION 11:
Do providers including physicians, nurse practitioners, and physician assistants enter electronic orders in the perianesthesia settings?

RESPONSE:
The Computerized Provider Order Entry (CPOE) or similar system can be accessed by all authorized prescribers and as defined by the institution wherever implemented.

QUESTION 12:
Who should be developing the physicians’ standardized order sets?

RESPONSE:
Often the creation of standardized order sets includes a multidisciplinary team including physicians, nurses, pharmacy, physical therapy department, etc. The service department identifies the team members who will be developing the order sets. Engaging nurses with clinical experience as part of the development team is very valuable. It is also helpful to include Quality department personnel, as they can ensure that orders are written appropriately for compliance with Surgical Care Improvement Project (SCIP) and Core Measures.
EDUCATION

QUESTION 13:
During orientation, how do educators decrease the amount of time dedicated to electronic documentation and increase the time devoted to patient care?

RESPONSE:
This is an interesting question in that it presumes that electronic documentation somehow decreases time available for patient care. Obviously electronic documentation training must be an integral part of the orientation process. An adequate time for training must be incorporated to allow the staff to build their competency and confidence. Experience has shown that training “super users” or “informatics resource nurses (IRN)” (nurses that are trained to help other nurses at the bedside) is very helpful during and after the orientation period. Nurses who may be slower in their transition phase to electronic documentation should be given more time to practice. The IRN is an excellent resource for any staff in each department. A study released by the Journal of Nursing Administration reported that the implementation of an electronic system was not associated with excessive time spent on documentation.¹

QUESTION 14:
What are the most effective ways to teach electronic documentation to bedside nurses?

RESPONSE:
There are many strategies and fun ways to help clinical nurses integrate computerized charting. For example, nurses who are uncomfortable with computers can practice with their e-mail retrieval and entry, surfing the Internet or even playing games just to try to overcome their anxieties. Using “super users” and information technology support during the transition phase can provide support to staff. Creating a variety of patient care scenarios and allowing the staff to map their documentation is another strategy. Create case scenarios which allow the nurses to practice documenting on the templates. Develop a competency check off to assure that the staff understands how to use the technology as well as to check accuracy and thoroughness. Provide a resource lab and allow the staff to practice, practice & practice!

QUESTION 15:
Some nurses become anxious when confronted with electronic documentation because they lack computer skills. What methods work best to help nurses transition?

RESPONSE:
As noted in Question 14, practice is the key to success. Allow scheduled time for nurses to practice. Use “baby steps” to decrease the anxiety level. Provide step-by-step procedures and encourage the staff to practice using different scenarios. Providing an ‘algorithm’ for documentation can help reduce the fear that “something will be missed.” Include follow-up with audits early on to ensure nurse completeness with documentation.
QUESTION 16:
How much orientation, training and on-the-job training are required to be efficient in electronic documentation?

RESPONSE:
Orientation time varies depending upon the computer skills of the individual. Planning time for practice outside patient care assignments is helpful. The goal is competency and should not necessarily be defined in terms of days and weeks of training. Many vendors suggest that the period of adaptation from paper to electronic documentation occurs over a period of one to six weeks.²

QUESTION 17:
Is a unit-based informatics nurse resource needed? If this resource is not available what other alternative approaches facilitate staff education at the bedside?

RESPONSE:
A unit-based Informatics RN (IRN) is very valuable. This resource is not only helpful for the technical aspects, but for problem identification and resolution as well. The IRN can also provide in-services for any changes or updates in the electronic documentation. Performance improvement is a continuous process to help the bedside nurse become more efficient. However, the institution may have resource limitations. In this case, training “super users” can be used for the technical support, but a link with the Information Technology department to address issues is highly recommended.

MANAGEMENT

QUESTION 18:
Management asked the perianesthesia nurses to submit questions and provide input on a new electronic documentation system. What are the most important questions or key points the perianesthesia nurse should address?

RESPONSE:
There are many questions and suggestions that nurses can provide. Their engagement is very important. Understanding the overall scope of the program is a start. Other examples are structural process, the development phase, education and training, staff involvement, incorporating standards, documentation flow, ease of use and efficiency, equipment and technical support, etc.

Examples include, but are not limited to the following:
• Which is the best software application for our purpose?
• How does our institution define the medical record?
• How will data flow from other internal applications?
• What is the workflow associated with the data? In other words, what and whom will be impacted by implementation of electronic documentation?
• Will the vital signs flow from the monitor to the computer (physiologic monitor capture)?
• Will the application address perianesthesia specific documentation needs such as planning for care, clinical assessments, and nursing care interventions?
• Which are better – bedside workstations or workstations on wheels?
QUESTION 19:
Using electronic documentation for the first few weeks seems to require a PACU nurse to spend more time away from the patient. How can a Nurse Manager better prepare nurses to maximize the transition period from paper to computer?

RESPONSE:
Managers have the option to be creative with their staff support system. Example, allow the staff to practice outside scheduled work hours and provide incentive pay for their time. During the planning and implementation stages, a manager can request and budget extra staff either through overtime or with temporary staff to care for patients while other nurses are practicing their electronic documentation. Managers can collaborate with the Information Technology (IT) staff to work with the nurses side by side to help them as they are actually caring for their patients. Managers can also influence the patient scheduling and with administrative support may advocate for a temporary but ‘lighter’ operating schedule during implementation. The manager must be a champion and coach for this change. Give staff a forum in which to voice their concerns, frustrations and triumphs. A support system is the key factor.

QUESTION 20:
How much time can a manager allow the nurses to train and become efficient in electronic documentation?

RESPONSE:
It is important to design a structured training program for the staff and ensure performance by using competency checklist. A timeline can be identified and for staff who more need time, build flexibility into the schedule. Again, this depends on the individual nurse’s ease and confidence in performing computer charting.

COMPUTER

QUESTION 21
Is there a recommended ratio between number of patients and number of computers provided to perianesthesia nurses?

RESPONSE:
There are no recommended nurse-computer ratios. This depends on the organization’s financial resources, including the budget dedicated to the project. The decision to share workstations will also depend on the software capabilities of the program being used, the requirements of the data drivers and servers related to computers and recommendations from the supporting vendors.

QUESTION 22:
Is there an electronic program to determine the nursing staffing per level of care?

RESPONSE:
At this time, there is no electronic program to determine staffing levels for the perianesthesia areas.
**QUESTION 23:**
A computerized bar code scanning system for medication administration is being implemented in the PACU. How can this system facilitate the perianesthesia nurse’s electronic documentation?

**RESPONSE:**
A bar code scanning system is primarily used for medication administration and the ability of the system to prevent medication errors before reaching the patient is well documented. The bar code scanner checks that the right medication is selected, assisting the perianesthesia nurse with safe medication administration.4

**QUESTION 24:**
What is the difference in efficiency between wireless laptops on rolling carts versus hardwired computers (PCs) at the bedside?

**RESPONSE:**
All these are excellent tools for electronic documentation. Again, it all depends on the institution as to which type is preferred. The physical setup and space in your unit may be a factor in determining which is preferable, including the ability of the Information Technology staff to provide wireless access points throughout the units. Collaborate with the Information technology staff and ask for feedback and recommendation.

**QUESTION 25:**
If hardwired computers (PC) are used, are there recommendations for where they should be mounted, i.e. near the head, foot or side of the bed?

**RESPONSE:**
Most departments using electronic documentation receive recommendations to mount the computers near the head of the bed, so the nurse can easily visualize the patient while charting.

**QUESTION 26:**
What are the main advantages and disadvantages of laptops, bedside computers, and hand-held computers?

**RESPONSE:**
Bedside computers are secured to a single location, so they don’t “disappear.” They can be hardwired. Bedside computers cost more because they have to be installed for every individual bed. Laptops can be mounted on mobile carts and can be also be wireless, making it easier to move them between patients and areas of the department. The general costs for mobile laptops are less than bedside computers however maintenance including battery upkeep may be more expensive. Mobile laptops can be stored in a secure place when not in use and can be serviced outside the unit. They do need to be plugged in for charging periodically. Many mobile carts have storage bins or drawers which lock and can hold small patient care items such as ECG electrodes, disposable pulse oximeter probes, etc. Handheld units work well for assistive staff that move throughout the department performing tasks but have low life batteries and may be hard to view.
QUESTION 27:
Are there significant differences/advantages between computers on rolling carts and mounted or hardwired bedside computers?

RESPONSE:
This is a mobility and space issue. If mobility is of primary importance, a rolling cart makes the most sense. Some carts have built-in storage. Some nurses like to sit down when charting. Mobile carts can be raised or lowered to suit the individual. Rolling carts do take up floor space, so if there is little space between patients, a rolling cart may become an obstacle. They can be wireless, but wireless connections can be lost. Hardwired bedside computers are not movable, so mounting them may depend on the physical layout of your unit. They can be mounted on a fixed surface or an articulating arm.

LEGAL

QUESTION 28:
Are perianesthesia nurses legally required to wait for pharmacy to electronically verify a medication order prior to administering the medication in the PACU?

RESPONSE:
The Joint Commission (JC) Standards for Medication Administration require that all medication orders are evaluated by a pharmacist prior to administration of the first dose. However, the JC does allow for exceptions to the standard. Independent licensed practitioners (such as an anesthesia provider) can take responsibility for the medication-use protocol providing their scopes of responsibilities are clearly defined within the institution. Additionally, in urgent situations such as cardiac arrest, medications may be administered prior to pharmacist review.5

In summary, a nurse does not need to wait for pharmacy verification in an emergency situation or when administering “rescue” medications. Failure to act may result in further patient injury and/or death. When the ordering physician is at the bedside, the nurse does not need to wait for pharmacy to verify the medication order. The caveat to both statements is that the nurse must know the purpose of the medication ordered, how to safely administer it, and what adverse effects may occur. Bypassing pharmacy review places greater liability on the nurse because one of the safeguards against medication error has been omitted. When orders include administering routine medications in the PACU, pharmacy should first review and verify the medication order. If your institution uses routine order sets for postanesthesia care, the orders should be customized for the individual patient and “signed” by the responsible anesthesiologist. Check your institutional policy for guidance and review your state’s Nurse Practice Act. Remember that medication errors are one of the chief causes of patient injury and can lead to both medical malpractice suits and licensure disciplinary actions.6
QUESTION 29:
When a patient is discharged from the PACU, how do you capture the patient’s signature on discharge instructions in an electronic documentation system? If signature is not required is a copy given to the patient or does the document get scanned?

RESPONSE:
Your institution will need to define the requirements for documenting a patient's/significant other's receipt and acknowledgment of discharge instructions, prescriptions, etc. Scanning the signed document is acceptable, as is retaining a paper copy. Look at how you are capturing the patient's signature on the Consent to Treatment, Consent to Surgery, etc. These are legal documents.

QUESTION 30:
Is the perianesthesia nurse legally required to sign off the computer every time the nurse leaves the bedside?

RESPONSE:
The nurse has a duty to protect the patient's privacy and to preserve the medical record. Leaving the record “open” leaves the nurse vulnerable to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) violations and to unauthorized entries in the medical record. Most institutions have policy regarding this issue. Check with your IT department to determine how to “lock” your record from view or access when you need to be away from the bedside if available. Remember that when you transfer care to another provider, you need to “sign out” of the electronic record. Never allow another provider to access a record or to make entries when you are signed on; the record will reflect that you made those entries. Should the patient suffer adverse effects attributed to negligence, the person whose electronic signature is attached to the entry could be named as a defendant in a malpractice suit.

QUESTION 31:
How long can a perianesthesia nurse wait to electronically document after a patient has been admitted?

RESPONSE:
As with any medical record, documentation should occur simultaneously with the care delivered. This promotes accuracy and completeness. Review your institutional and unit policy to determine the parameters required. All documentation should be complete before the end of your shift. The policy regarding late entries in the record still apply to electronic records. Patient safety and well-being are still the priority. Stabilize your patient, then document. You should complete your initial assessment as soon as practicable. Because the computer will capture the actual time you enter your notes, you need to note the date and time of you delivered the care. The audit trail may be “discoverable” should the medical record ever be subpoenaed by a court. If you are keeping paper notes during your care, do not save them once you have incorporated them into the medical record. They should be destroyed in a shredder or HIPAA receptacle.
QUESTION 32:
Can a LVN/LPN document and be signed off by a RN? What are the legal ramifications?

RESPONSE:
Check your institutional and departmental policies regarding RNs signing off the LPN/LVN documentation. Review your state’s Nurse Practice Act regarding delegable and non-delegable nursing duties. For example, an RN may not delegate patient assessment to the LPN/LVN. In some institutions, the PACU RN may “sign” the patient out of PACU if the patient meets the written discharge criteria established by the department of anesthesia.

Be certain that you have documented competencies on record for all staff and that the RNs signing off on the LVN/LPN documentation are familiar with the competencies for the staff they supervise. If you are the RN signing off on someone else’s documentation, you may need to verify that the care was actually performed. Signing your name implies responsibility and liability.

QUESTION 33:
Can a provider enter the admission order set before the patient is actually admitted to the unit?

RESPONSE:
Yes, with qualifications. Entering an order set does not mean that the orders have been implemented. Physician orders cannot and should not be implemented before the patient arrives in the unit. The patient’s condition could change, necessitating a change in the orders. Electronic order entry may occur prior to the patient’s admission to the hospital in the form of preadmissions testing orders, preoperative orders, etc. You will need to check your institutional policy regarding how far in advance orders may be entered. There may be limitations as to how long orders may be “on hold” or “suspended.” There may also be limitations for creating an account which preclude this convenience.

REFERENCES:


Perianesthesia Outcomes

Patient will have patent airway.

Patient will have adequate ventilation and oxygenation.

Patient will have adequate or improved gas exchange.

The patient will have adequate cardiac perfusion and hemodynamic stability.

The patient will have optimal cardiovascular function.

The patient will have optimal end-organ perfusion.

Patient will return to baseline sensory function.

Patient will return to baseline motor function.

Patient will return to baseline mental status.

Patient will meet the patient's needs for relief, ease, and transcendence in the context of physical, psychospiritual, environmental, and sociocultural.

Patient will verbalize methods to increase comfort level.

Patient will have pain score of 4 or less (0-10), or meet patient's goal.

Patient will demonstrate and/or verbalize patient's teaching.

Patient will demonstrate acceptable level of anxiety.

Patient will be normothermic.

Patient will have optimal fluid balance.

Patient will have electrolytes within normal limits.

Patient will return to baseline urinary function.

Patient will have acceptable nausea postoperative nausea and vomiting control.

Patient will have intact integument.

The patient and/or family/significant other verbalize(s) knowledge of disease process, causes, and management.

Patient and/or family/significant other demonstrate(s) behaviors required for performance of activities enhancing recovery.

Patient will be free of injury.

Patient will have rights protected.
Guide to PDE Format and Definitions

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<tr>
<td>Assessing Attitude toward Treatment Regime</td>
<td>I024, 10024205</td>
</tr>
<tr>
<td>Assessing Fear</td>
<td>I025, 10024267</td>
</tr>
<tr>
<td>PDE Intervention Terms</td>
<td></td>
</tr>
<tr>
<td>Determine Patient's wishes</td>
<td>C001, 10014132</td>
</tr>
<tr>
<td>Consent</td>
<td>C002, 10003588</td>
</tr>
<tr>
<td>Research</td>
<td>C003, 10007596</td>
</tr>
<tr>
<td><strong>OUTCOME</strong></td>
<td></td>
</tr>
<tr>
<td>Focus: Consent</td>
<td>D032, 10004981</td>
</tr>
<tr>
<td>Judgment: Completed</td>
<td>J010, 10004849</td>
</tr>
<tr>
<td>Delayed</td>
<td>J011, 10022089</td>
</tr>
<tr>
<td>Started</td>
<td>I008, 10010519</td>
</tr>
<tr>
<td><strong>SAMPLE PDE</strong></td>
<td></td>
</tr>
</tbody>
</table>

A nursing diagnosis is "a clinical judgment about individual, family, or community responses to actual or potential health problems/life processes. Nursing diagnoses provide the basis for selection of nursing interventions to achieve outcomes for which the nurse is accountable" (NANDA, 1992). Nursing diagnoses are concepts used to describe actual and potential health problems of clients. They describe clinical nursing practice in a uniform manner. A diagnosis, like outcomes – require a focus (outcome) and a judgment (actual, potential, etc.).

**CODING**

The "taxonomies" are codes, or alphanumeric characters assigned to each data element or data label. These codes are used to help standardize terminology across applications.

**ASSESSMENT**

Assessment is a basic function of the nursing process.
# Guide to PDE Format and Definitions

<table>
<thead>
<tr>
<th><strong>FOCUS:</strong></th>
<th>The area of attention that is relevant to nursing (e.g., pain, homelessness, elimination, life expectancy, knowledge).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JUDGMENT</strong></td>
<td>Judgment is the clinical opinion or determination that is related to the focus of nursing practice (e.g., decreasing level, risk, enhanced, interrupted, abnormal).</td>
</tr>
<tr>
<td><strong>CLIENT</strong></td>
<td>The client is the subject to which a diagnosis refers and who is the recipient of an intervention (for example: patient, newborn, caregiver, family, community).</td>
</tr>
<tr>
<td><strong>PDE ASSESSMENT TERMS</strong></td>
<td>Data elements related to perianesthesia nursing assessments. Each term (when SNOMED codes exist) is coded in the database file. The database file is available at <a href="http://www.aspan.org">http://www.aspan.org</a>.</td>
</tr>
<tr>
<td><strong>INTERVENTION</strong></td>
<td>The nursing interventions are elements identified to plan and implement patient care. They are needed to satisfy each care component, diagnostic condition, or patient problem assessed as requiring nursing care.</td>
</tr>
<tr>
<td><strong>ACTION</strong></td>
<td>Actions are intentional processes applied to or performed by a client (e.g., educating, changing, administering, monitoring). Each nursing intervention requires a “type action” as the major focus of the core nursing intervention. It provides the evidence used to measure care and determine the resources. These are ‘action’ terms like:</td>
</tr>
<tr>
<td><strong>PDE INTERVENTION TERMS</strong></td>
<td>Data elements related to perianesthesia nursing interventions. Each term (when SNOMED codes exist) is coded in the database file. The database file is available at <a href="http://www.aspan.org">http://www.aspan.org</a>.</td>
</tr>
<tr>
<td><strong>TARGET</strong></td>
<td>Every nursing activity or intervention must have a recipient, an action, and a target.</td>
</tr>
<tr>
<td><strong>OUTCOME</strong></td>
<td>Examples: to improve patient’s condition; to stabilize patient’s condition; to support deterioration or death of patient’s condition. Refer to PDE Outcomes derived from the 2008-2010 Standards for Perianesthesia Nursing Practice.</td>
</tr>
<tr>
<td><strong>FOCUS</strong></td>
<td>The area of attention that is relevant to nursing (e.g., pain, homelessness, elimination, life expectancy, knowledge).</td>
</tr>
<tr>
<td><strong>JUDGMENT</strong></td>
<td>Clinical opinion or determination related to the focus of nursing practice (e.g., decreasing level, risk, enhanced, interrupted, abnormal).</td>
</tr>
</tbody>
</table>

## Bibliography


**DIAGNOSIS**

**Focus:** Altered Perception  
**Judgment:** Actual  
**Potential**  
**Client:** Patient  

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Anesthesia technique</th>
<th>Identify level</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Sciatic</td>
<td>Adverse reaction</td>
</tr>
<tr>
<td>Spinal (SAB)</td>
<td>Femoral</td>
<td>Tachycardia</td>
</tr>
<tr>
<td>Epidural</td>
<td>Lateral femoral cutaneous</td>
<td>Headache</td>
</tr>
<tr>
<td>Peripheral nerve block:</td>
<td>Oburator</td>
<td>Incomplete block</td>
</tr>
<tr>
<td>Cervical plexus block</td>
<td>Popliteal</td>
<td>Prolonged effect of block</td>
</tr>
<tr>
<td>Axillary</td>
<td>Saphenous</td>
<td>Hypotension</td>
</tr>
<tr>
<td>Interscalene</td>
<td>Ankle</td>
<td>Bradycardia</td>
</tr>
<tr>
<td>Supraclavicular</td>
<td>Digital</td>
<td>Seizure</td>
</tr>
<tr>
<td>Infraclavicular</td>
<td>Intravenous block (Bier block)</td>
<td>Dermatome level</td>
</tr>
<tr>
<td>Median</td>
<td>Medication</td>
<td></td>
</tr>
<tr>
<td>Ulnar</td>
<td>epinephrine</td>
<td>C 1</td>
</tr>
<tr>
<td>Radial</td>
<td>lidocaine</td>
<td>C 2</td>
</tr>
<tr>
<td>Intercostal</td>
<td>bupivacaine</td>
<td>C 3 front of neck</td>
</tr>
</tbody>
</table>

Altered Perception Sensory

1
Altered Perception Sensory

C 8 Ring and little finger
  S 3

T 1
  S 4

T 2
  S 5

T 3
  Paresthesia

T 4 nipples
  Numbness
  Tingling
  Prickling

T 5
  Heightened sensitivity

T 6
  Neuropathic pain

T 7
  Burning

T 8
  Stinging

T 9
  Pins and needles

T 10 umbilicus
  Proprioception

T 11
  Within normal limits
  Unaware of posture
  Unaware of movement

T 12
  Assess cranial nerve specific to procedure or intervention

L 1 inguinal
  I Olfactory

L 2
  Ask to identify smell

L 3 knee
  Within normal limits

L 4
  Assess behavior on arousal

L 5 anterior ankle/foot
  Altered findings

S 1 outer toe
  Within normal limits

S 2

Altered findings

V  Trigeminal

Touch side of face and ask for awareness of touch

Right
  Within normal limits
  Altered findings

Left
  Within normal limits
  Altered findings

VIII Acoustic

Whisper in patient’s ear and ask to repeat

Right
  Within normal limits
  Altered findings

Left
  Within normal limits
  Altered findings

Determine stimulation necessary to arouse

Altered findings
Evaluate using Glasgow coma scale

**Eyes**
- 1 = does not open eyes
- 2 = Opens eyes in response to painful stimuli
- 3 = Opens eyes in response to voice
- 4 = Opens eyes spontaneously

**Verbal**
- 1 = Makes no sounds
- 2 = Incomprehensible sounds
- 3 = Utters inappropriate words
- 4 = Confused, disoriented
- 5 = Oriented, converses normally

**Motor**
- 1 = Makes no movements
- 2 = Extension to painful stimuli
- 3 = Abnormal flexion to painful stimuli
- 4 = Flexion / Withdrawal to painful stimuli
- 5 = Localizes painful stimuli

6 = Obeys commands

Expressive dysphasia

Altered Perception Sensory

3
<table>
<thead>
<tr>
<th>Sensory Assessment</th>
<th>Dermatome Levels</th>
<th>Nerve Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaze left</td>
<td>C 8 Ring and little finger</td>
<td>S 3</td>
</tr>
<tr>
<td>Gaze right</td>
<td>T 1</td>
<td>S 4</td>
</tr>
<tr>
<td>Nystagmus</td>
<td>T 2</td>
<td>S 5</td>
</tr>
<tr>
<td>Sunset eyes</td>
<td>T 3</td>
<td></td>
</tr>
<tr>
<td>No movement</td>
<td>T 4 nipples</td>
<td>Nerve distribution</td>
</tr>
<tr>
<td>Assess dull to sharp or warm to cold discrimination</td>
<td>T 5</td>
<td>Radial nerve</td>
</tr>
<tr>
<td>Assess proprioception</td>
<td>T 6</td>
<td>Ulnar nerve</td>
</tr>
<tr>
<td>Assess whether distribution of sensory loss is</td>
<td>T 7</td>
<td>Sensation</td>
</tr>
<tr>
<td>Dermatomal</td>
<td>T 8</td>
<td>No awareness of touch</td>
</tr>
<tr>
<td>Related to peripheral nerve</td>
<td>T 9</td>
<td>Pin prick is dull</td>
</tr>
<tr>
<td>Related to central pathway</td>
<td>T 10 umbilicus</td>
<td>Both</td>
</tr>
<tr>
<td>Assess integrity of skin</td>
<td>T 11</td>
<td>Unable to assess</td>
</tr>
<tr>
<td>Assess dermatome level if spinal (Subarachnoid Block [SAB]) or epidural anesthesia</td>
<td>T 12</td>
<td></td>
</tr>
<tr>
<td>Dermatome levels</td>
<td>L 1 inguinal</td>
<td>Assess dermatome level if SAB or epidural anesthesia</td>
</tr>
<tr>
<td></td>
<td>L 2</td>
<td>Assess movement in all four extremities</td>
</tr>
<tr>
<td></td>
<td>L 3 knee</td>
<td>Note asymmetry</td>
</tr>
<tr>
<td></td>
<td>L 4</td>
<td>Assess muscle strength, control</td>
</tr>
<tr>
<td></td>
<td>L 5 anterior ankle/foot</td>
<td>Assess ability to move purposefully</td>
</tr>
<tr>
<td></td>
<td>S 1 outer toe</td>
<td>Moves, not against gravity</td>
</tr>
<tr>
<td></td>
<td>S 2</td>
<td>Moves against gravity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resists but weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Normal</td>
</tr>
</tbody>
</table>
Assess integrity of skin  
Involuntary movements
   Fasciculation
   Tic
   Tremor
Dermatome level
   C 1
   C 2
   C 3 front of neck
   C 6 thumb
   C 8 Ring and little finger
   T 1
   T 2
   T 3
   T 4 nipples
   T 5
   T 6
   T 7
   T 8
   T 9
   T 10 umbilicus
   T 11
   T 12
   L 1 inguinal
   L 2
   L 3 knee
   L 4
   L 5 anterior ankle/foot
   S 1 outer toe
   S 2
   S 3
   S 4
   S 5

**INTERVENTION**

**Action:** Evaluating Neurological Status After Operation  
Prioritizing (Treatment) Regime

**PDE Intervention Terms**

Verbally orient to
   Time
   Place
   Listen attentively

Assess impaired oxygen delivery to cerebral tissue

Solicit assistance in understanding

Altered Perception Sensory

5
Encourage patient to repeat
Allow adequate time
Be aware of effects of anesthetic agents
Consult with physician for changes in pupil size and reactivity
Monitor extra ocular movement
Position to prevent injury
Educate patient about protecting affected limb
Monitor skin for
  Redness
  Breakdown
Monitor for source of pressure
Sustain optimal physiologic function

<table>
<thead>
<tr>
<th>Maintain functional anatomic alignment</th>
<th>Reposition every two hours</th>
<th>Monitor renal function studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor</td>
<td>Vital signs</td>
<td>Monitor for signs of electrolyte imbalance</td>
</tr>
<tr>
<td>Measure, record and report</td>
<td>Intake</td>
<td>Recognize hormonal responses to stress</td>
</tr>
<tr>
<td></td>
<td>Output</td>
<td>Recognize metabolic responses to stress</td>
</tr>
<tr>
<td>Measure specific gravity of urine</td>
<td></td>
<td>Monitor electrolytes</td>
</tr>
<tr>
<td>Monitor central venous pressure</td>
<td></td>
<td>Restrict fluids as ordered</td>
</tr>
<tr>
<td>Maintain patent IV</td>
<td></td>
<td>Administer prescribed diuretics</td>
</tr>
<tr>
<td>Fluid challenge</td>
<td></td>
<td>Provide for privacy</td>
</tr>
<tr>
<td></td>
<td>Crystalloid</td>
<td>Use power of suggestion (running water)</td>
</tr>
<tr>
<td></td>
<td>Colloid</td>
<td>Straight catheterization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insert Foley catheter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perform skin care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intermittent straight catheterization for neurogenic bladder</td>
</tr>
</tbody>
</table>

**Target:**
- Cardiovascular System
- Nervous System
- Integumentary System
- Musculoskeletal System

**Altered Perception Sensory**

6
Urinary System

**OUTCOME**

**Focus:** Altered Perception

**Judgment:**
- Decreasing Level
- Increasing Level
- Same Level

Altered Perception Sensory

7
DIAGNOSIS

Focus: Confusion
Judgment: Actual
Client: Patient

PDE Assessment Terms:

Vital signs
  Temperature
  Heart rate (numeric value)
  Respiratory rate (numeric value)
  Blood pressure
    Diastolic
    Systolic
  Oxygen saturation
Assess level of consciousness
  Agitated
  Awake and alert
  Confused
Diagnosis Confusion (Level of Consciousness)

D014, 10023633
J001, 10000420
J002, 10017252
C001, 10014132
<table>
<thead>
<tr>
<th>Place</th>
<th>Obtain glucose levels</th>
<th>Assess pattern of speech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Obtain laboratory values</td>
<td>Assess ability to speak</td>
</tr>
<tr>
<td>Assess ability to follow commands</td>
<td>Assess intracranial pressure</td>
<td>Assess safety needs</td>
</tr>
<tr>
<td>Assess pupillary response to light</td>
<td>Monitor seizure activity</td>
<td>Assess comfort needs</td>
</tr>
</tbody>
</table>

**INTERVENTION**

**Action:**
- Monitoring Physiological Status
- Continuous Surveillance
- Prioritizing (treatment) Regime

**PDE Intervention Terms:**
- Monitor vital signs
- Provide stimulation to determine response
- Notify physician of changes in patient status
- Orient to
- Person
- Time
- Place
- Event
- Situation

Diagnosis: Confusion (Level of Consciousness) 2

<p>| Place | Time | Assess ability to follow commands | Assess pupillary response to light | Obtain glucose levels | Assess pattern of speech | Obtain laboratory values | Assess ability to speak | Assess intracranial pressure | Assess safety needs | Assess comfort needs | Monitor seizure activity | Monitoring Physiological Status | Continuous Surveillance | Prioritizing (treatment) Regime | PDE Intervention Terms: | Monitor vital signs | Provide stimulation to determine response | Notify physician of changes in patient status | Monitor laboratory results for critical values | Monitor intracranial pressure | Monitor pulse pressure | Monitor for involuntary movements | Monitor for involuntary movements | Request family assistance |
|-------|------|----------------------------------|----------------------------------|-----------------------|-------------------------|--------------------------|--------------------------|----------------------------|------------------------|----------------------|----------------------------|-----------------------------|-----------------------------|--------------------------------|--------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------|-----------------------------|--------------------------------|--------------------------------|--------------------------|-----------------------------|--------------------------------|--------------------------------|-----------------------------|</p>
<table>
<thead>
<tr>
<th>Provide interpreter</th>
<th>Implement safety measures</th>
<th>Administer medications as ordered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide communication aids</td>
<td>Implement comfort measures</td>
<td></td>
</tr>
</tbody>
</table>

**Target:**
- Laryngeal Cavity T001, 1001112
- Nasal Cavity T002, 10012424
- Oral Cavity T003, 10013720
- Cardiovascular System T005, 10003936
- Nervous System T006, 10013085

**OUTCOME**

**Focus:**
- Confusion D014, 10023633

**Judgment:**
- Decreasing Level J003, 10005616
- Increasing Level J004, 10009974
- Same Level J005, 10017473

Diagnosis Confusion (Level of Consciousness)
### DIAGNOSIS

**Focus:** Decreased Cardiac Output

**Judgment:**
- Actual
- Potential

**Client:** Patient

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Vital sign</th>
<th>Age Range</th>
<th>Value</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>1-6 months</td>
<td>110-180</td>
<td></td>
</tr>
<tr>
<td>Heart rate (numeric value)</td>
<td>1-3 years</td>
<td>90-150</td>
<td></td>
</tr>
<tr>
<td>Respiratory rate (numeric value)</td>
<td>4-5 years</td>
<td>65-135</td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td>6-8 years</td>
<td>60-130</td>
<td></td>
</tr>
<tr>
<td>Diastolic</td>
<td>9-11 years</td>
<td>60-110</td>
<td></td>
</tr>
<tr>
<td>Systolic</td>
<td>12-16 years</td>
<td>60-110</td>
<td></td>
</tr>
<tr>
<td>Oxygen saturation</td>
<td>Greater than 16 years</td>
<td>60-100</td>
<td></td>
</tr>
</tbody>
</table>

**Adult:** Regular heart rate 60-100 bpm,
**Pediatric:** Heart Rates:

<table>
<thead>
<tr>
<th>Age</th>
<th>Heart Rate (bpm)</th>
<th>Pediatric: Systolic blood pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7 days</td>
<td>95-160</td>
<td>Greater 60 mmHg in terms neonates (0 to 28 days)</td>
</tr>
<tr>
<td>1-3 weeks</td>
<td>105-180</td>
<td></td>
</tr>
</tbody>
</table>

**Diastolic pulses:**
- Absent
- Weak
- Strong
- Bounding

**Capillary refill:**
- Less than 2 sec
- Delayed (greater than 2 sec)
<table>
<thead>
<tr>
<th>Color</th>
<th>Second degree heart block Type 1</th>
<th>Third degree heart block</th>
<th>Murmurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pink</td>
<td>Second degree heart block Type 2</td>
<td></td>
<td>Rubs</td>
</tr>
<tr>
<td>Pale</td>
<td>Pacemaker</td>
<td></td>
<td>ST segment</td>
</tr>
<tr>
<td>Ruddy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyanotic</td>
<td>Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaundiced</td>
<td>Temporary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mucous membranes condition</td>
<td>Permanent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moist</td>
<td>Ventricular demand pacer (VVI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry</td>
<td>AV universal pacer (DDD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pink</td>
<td>Pacing</td>
<td></td>
<td>Lead II</td>
</tr>
<tr>
<td>Pale</td>
<td>Non-Capture</td>
<td></td>
<td>Lead V1</td>
</tr>
<tr>
<td>Cyanotic</td>
<td>Internal cardiac defibrillator (ICD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Arterial Pressure</td>
<td>On</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhythm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supraventricular tachycardia</td>
<td>Heart sounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinus tachycardia</td>
<td>S1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>S2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atrial flutter</td>
<td>S3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First degree heart block</td>
<td>S4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cardiac history

- Myocardial infarct
- Congestive heart failure
- Chest pain/angina
- Obesity

Diagnosis Cardiac Output

2
<table>
<thead>
<tr>
<th>Diagnosis Cardiac Output</th>
<th>Chronic obstructive lung disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>Other cardiac history</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td></td>
</tr>
</tbody>
</table>

**INTERVENTION**

**Action:**
- Assessing Cardiac Status Using Monitoring Device I002, 10002706
- Continuous Surveillance I010, 10005093
- Prioritizing (treatment) Regime I008, 10024438

**PDE Intervention Terms:**

<table>
<thead>
<tr>
<th>Provide continuous ECG monitoring</th>
<th>Monitor, evaluate and report capillary refill</th>
<th>Provide oxygen therapy as ordered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtain diagnostic ECG when indicated or ordered</td>
<td>Monitor, evaluate and report urine output</td>
<td>Pediatric:</td>
</tr>
<tr>
<td>Monitor, evaluate and report hemodynamic status</td>
<td>Monitor, evaluate and report breath sounds</td>
<td>Blow-by</td>
</tr>
<tr>
<td>Level and zero transducer</td>
<td>Monitor, evaluate and report respiratory pattern</td>
<td>Humidified face mask</td>
</tr>
<tr>
<td>Adjust monitor alarms</td>
<td>Monitor, evaluate and report skin appearance</td>
<td>Bag-valve-mask ventilation</td>
</tr>
<tr>
<td>Monitor, evaluate and report mental status</td>
<td>Arrange for reactivation of implanted cardiac devices</td>
<td>Assist with intubation</td>
</tr>
<tr>
<td>Monitor, evaluate and report heart sounds</td>
<td>Obtain and report lab data as ordered</td>
<td>Endotracheal tube</td>
</tr>
<tr>
<td>Monitor, evaluate and report peripheral pulses</td>
<td>Obtain and report ABGs results as ordered</td>
<td>Laryngeal Mask Airway</td>
</tr>
</tbody>
</table>

**Target:** Cardiovascular System T005, 10003936
### OUTCOME

**Focus:** Decreased Cardiac Output  
**Judgment:**     
- Decreasing Level  
- Increasing Level  
- Same Level  

<table>
<thead>
<tr>
<th>Focus</th>
<th>Judgment</th>
<th>Code</th>
<th>ID</th>
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</thead>
<tbody>
<tr>
<td>Decreased Cardiac Output</td>
<td>Decreasing Level</td>
<td>D007</td>
<td>10000816</td>
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<tr>
<td></td>
<td>Increasing Level</td>
<td>J003</td>
<td>10005616</td>
</tr>
<tr>
<td></td>
<td>Same Level</td>
<td>J004</td>
<td>10009974</td>
</tr>
<tr>
<td></td>
<td></td>
<td>J005</td>
<td>1001747</td>
</tr>
</tbody>
</table>

Diagnosis Cardiac Output
4
DIAGNOSIS

Focus: Risk for injury D035, 10015146
Judgment: Actual J001, 10013269
Potential J002, 10013295
Client: Patient C001, 10014132

PDE Assessment Terms:
- Noise
- Lighting levels
- Patient temperature
- Staffing pattern
- Developmental age
- Patient identifiers
- Restraints
- Fall prevention
- Cognitive status
- Dementia management
- Surveillance stability
- Mobility skills
- Medication factors
- Sedatives
- Anti-depressants
- Anti-Parkinson’s
- Diuretics
- Anti-hypertensives
- Hypnotics
- History of recent falls
- Psychological factors
- Anxiety
- Depression
- Lack of cooperation

INTERVENTION

Action: Environmental Safety Management I011, 10024706
Continuous Surveillance I010, 10005093

Diagnosis Free of Injury

1
Reduce environmental stimuli
Avoid unnecessary
Exposure
Draft
Overheating
Chilling
Adjust temperature to meet patient’s needs
Provide appropriate
Staffing patterns
Nurse/patient ratios
Assess appropriate safety needs as indicated for developmental/age-specific needs
Identify patient by use of two identifiers
Assess patient for appropriate use
Restraints
Side rails
Safety straps on stretchers
Alternative measures
Application of appropriate restraints
Assess patient at risk of falling
Physiological factors
Postoperative condition
Sensory/perceptual disturbances due to anesthesia
Proprioceptive deficits
Acute illness
Visual difficulties
Fall/Risk Assessment Tool (FRAT)
Disorientation
Muscle weakness
Abnormal lab profile
Malnutrition
Assess cognitive impairment
Previous history of falls
Assess medication effect
Report and document adverse reactions
Follow medication reconciliation protocols
Observe area for anything that might cause injury

**Target:** Environmental Entity  T012, 1006997

**Focus:** Risk for injury  D035, 10015146

Diagnosis Free of Injury  2
<table>
<thead>
<tr>
<th>Judgment</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreasing Level</td>
<td>J003, 10005616</td>
</tr>
<tr>
<td>Increasing Level</td>
<td>J004, 10009974</td>
</tr>
<tr>
<td>Same Level</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>

Diagnosis Free of Injury
3
**DIAGNOSIS**

<table>
<thead>
<tr>
<th>Focus: Hyperthermia</th>
<th></th>
<th></th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Judgment:</th>
<th>Actual</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J001, 10013269</td>
<td>J002, 10013295</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client:</th>
<th>Patient</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td>C001, 10014132</td>
<td></td>
</tr>
</tbody>
</table>

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Vital signs</th>
<th>Cyanotic mottling extremities</th>
<th>Respiratory acidosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Assess ABG’s</td>
<td>Color</td>
</tr>
<tr>
<td>Temperature greater than 38° C</td>
<td>Hemodynamic instability</td>
<td>Pink mucous membranes</td>
</tr>
<tr>
<td>Heart rate (numeric value)</td>
<td>Hypotension</td>
<td>Peripheral cyanosis</td>
</tr>
<tr>
<td>Respiratory rate (numeric value)</td>
<td>Hypoxia</td>
<td>Central cyanosis</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Headache</td>
<td>Flushed skin</td>
</tr>
<tr>
<td>Diastolic</td>
<td>Confusion</td>
<td>Discoloration</td>
</tr>
<tr>
<td>Systolic</td>
<td>Decreased mental status</td>
<td>Location</td>
</tr>
<tr>
<td>Oxygen saturation</td>
<td>Slurred speech</td>
<td></td>
</tr>
<tr>
<td>Self report feeling 'hot'</td>
<td>Diaphoresis</td>
<td></td>
</tr>
<tr>
<td>Masseter rigidity</td>
<td>Dry skin</td>
<td>Left</td>
</tr>
<tr>
<td>Tachycardia</td>
<td>Dry mucous membranes</td>
<td></td>
</tr>
<tr>
<td>Tachypnea</td>
<td>Metabolic acidosis</td>
<td></td>
</tr>
<tr>
<td>Diagnosis Hyperthermia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1
Left
Pulses Absent
Normal

Diagnosis Hyperthermia

Dysrhythmias
Ventricular tachycardia
Ventricular fibrillation

INTERVENTION

**Action:**
- Evaluating Response To Thermoregulation
- Continuous Surveillance
- Prioritizing (treatment) Regime

**PDE Intervention Terms**
- Administer oxygen therapy
- Monitor vital signs
- Decrease room temperature
- Provide cooling blanket
- Monitor skin color
- Monitor skin temperature
- Monitor for electrolyte imbalance
- Monitor respiratory status
- Monitor arterial blood gases
- Monitor acid-base imbalance

- Monitor intake
- Monitor output
- Monitor for seizures
- Immediate cooling
- Ice lavage
- Chill IV fluids
- Cooling Blanket to groin
- Ice packs to
- Groin
- Axillae

- Notify physician immediately
- Massive doses of dantrolene
- Provide oxygenation
- Provide hyperventilation at 100%
- 12 lead electrocardiogram (ECG)
- Monitor laboratory test:
  - Electrolytes
  - Urinalysis (Hematuria)
  - ABGs
  - Treat metabolic acidosis

**Monitor laboratory test:**
- Electrolytes
- Urinalysis (Hematuria)
- ABGs
- Treat metabolic acidosis
Treat respiratory acidosis
Measure and monitor end tidal CO₂
Monitor vital signs
Blood pressure

Temperature
Pulse
Respiratory rate
Cardiac rhythm

Pupil size
Pupil reactivity
Seizure precautions
Call MHAUS 1-800-MHHYPER

**Target:**
- Cardiovascular System
- Nervous System
- Integumentary System
- Musculoskeletal System
- Urinary System

**Target:**
- Cardiovascular System T005, 10003936
- Nervous System T006, 10013085
- Integumentary System T007, 10010428
- Musculoskeletal System T008, 10012344
- Urinary System T009, 10020421

**Focus:** Hyperthermia

**Focus:** D017, 10000757

**Judgment:** Decreasing Level

**Judgment:** J003, 10005616

**Judgment:** Increasing Level

**Judgment:** J004, 10009974

**Judgment:** Same Level

**Judgment:** J005, 10017473

**OUTCOME**
<table>
<thead>
<tr>
<th>Focus: Hypothermia</th>
<th>Judgement: Actual</th>
<th>Diagnosis Hypothermia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Judgment: Actual</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potential</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Client: Patient</td>
<td></td>
</tr>
</tbody>
</table>

**PDE Assessment Terms:**

- Self report feeling “cold”
- Skin cool
- Pale
- Hypertension, then hypotension
- Discoloration
- Confusion
- Location
- Decreased mental status
- Upper extremities
- Slurred speech
- Right
- Lethargy
- Left
- Bradypnea
- Lower extremities
- Tachycardia
- Right
- Oxygen saturation
- Thermal discomfort (feels cold)
- Left
- Shivering
- Color
- Pulses
- Pink mucous membranes
- Normal
- Peripheral cyanosis
- Absent
- Central cyanosis
- Diminished
- Delayed capillary refill greater than 3 sec
- Cold extremities
- Normal
- Diminished
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Hypothermia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid shifts</td>
<td>Delayed emergence from anesthesia</td>
</tr>
<tr>
<td>Dysrhythmias</td>
<td>Prolonged medication effect</td>
</tr>
<tr>
<td>Ventricular tachycardia</td>
<td>Delayed elimination of drugs</td>
</tr>
<tr>
<td>Ventricular fibrillation</td>
<td>Pre-existing patient conditions</td>
</tr>
<tr>
<td>Cardiac disturbance</td>
<td>Hypothyroidism</td>
</tr>
<tr>
<td>Increase cardiac output</td>
<td>Peripheral vascular disease</td>
</tr>
<tr>
<td>Increase breathing</td>
<td>Cachexia</td>
</tr>
<tr>
<td>Increase oxygen consumption</td>
<td>Diabetes</td>
</tr>
</tbody>
</table>

**INTERVENTION**

**Action:** Evaluating Response to Thermoregulation  
**Continuous Surveillance:** Use thermometers  
**Prioritizing (treatment) Regime:** Monitor vital signs  

<table>
<thead>
<tr>
<th>PDE Intervention Terms:</th>
<th>Monitor for electrolyte imbalance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor vital signs</td>
<td>Use thermometers</td>
</tr>
<tr>
<td>Increase room temperature</td>
<td>Axillary</td>
</tr>
<tr>
<td>Provide warm blankets</td>
<td>Nasal probe</td>
</tr>
<tr>
<td>Monitor skin color</td>
<td>Oral</td>
</tr>
<tr>
<td>Monitor temperature</td>
<td>Pulmonary artery catheter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monitor</th>
<th>Use</th>
<th>Monitor for electrolyte imbalance</th>
</tr>
</thead>
</table>
| Rectal  |     | Skin temp probe  
| Skin temp probe | Temporal artery  
| Temporal artery | Tympanic  
| Tympanic | Monitor for electrolyte imbalance  

**80**
<table>
<thead>
<tr>
<th>Diagnosis Hypothermia</th>
<th>3</th>
</tr>
</thead>
</table>

| Monitor respiratory status | Provide socks | Blood warmers |
| Monitor arterial blood gases | Provide head covering | Infrared lights |
| Monitor acid-base imbalance | Heat lamps | Warm mattress |
| Monitor intake | Cotton blankets | Forced air warming device |
| Monitor output | Warmed thermal or cotton blankets | Provide warmed IV fluids |
| Continuous temperature measurement (if T less than 36°C) | Thermal drapes | IV fluid warmer |
| Administer heated humidified oxygen | Fluid warmers | Monitor patient temperature at least every 30 minutes |

**Target:**
- Cardiovascular System T005, 10003936
- Nervous System T006, 10013085
- Integumentary System T007, 10010428
- Musculoskeletal System T008, 10012344
- Urinary System T009, 10020421

**OUTCOME**

<table>
<thead>
<tr>
<th>Focus: Hypothermia</th>
<th>D016, 10000761</th>
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<tbody>
<tr>
<td>Judgment: Decreasing Level</td>
<td>J003, 10005616</td>
</tr>
<tr>
<td>Increasing Level</td>
<td>J004, 10009974</td>
</tr>
<tr>
<td>Same Level</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>
**DIAGNOSIS**

**Focus:**  
Impaired Airway Clearance  
D001, 10001051

**Judgment:**  
Actual  
J001, 10000420  
Potential  
J002, 10017252

**Client:**  
Patient  
C001, 10014132

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Airway</th>
<th>Edema</th>
<th>Airway support/adjunct present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unobstructed</td>
<td>Foreign body</td>
<td>Chin lift</td>
</tr>
<tr>
<td>Partially obstructed</td>
<td>Hematoma</td>
<td>Endotracheal tube</td>
</tr>
<tr>
<td>Barking</td>
<td>Secretions</td>
<td>Jaw thrust</td>
</tr>
<tr>
<td>Coughing</td>
<td>Tongue</td>
<td>Laryngeal Mask airway</td>
</tr>
<tr>
<td>Crowing</td>
<td>Observations</td>
<td>Nasopharyngeal airway</td>
</tr>
<tr>
<td>Grunting</td>
<td>Wide eyed</td>
<td>Nasotracheal tube</td>
</tr>
<tr>
<td>Nasal flaring</td>
<td>Restless</td>
<td>Oropharyngeal airway</td>
</tr>
<tr>
<td>Pursed lips</td>
<td>Anxious</td>
<td>Otracheal tube</td>
</tr>
<tr>
<td>Snoring</td>
<td>Cyanotic</td>
<td>Tracheostomy</td>
</tr>
<tr>
<td>Stridor</td>
<td>Chest wall retractions</td>
<td>Temporary</td>
</tr>
<tr>
<td>Obstructed</td>
<td>Use of accessory muscles</td>
<td>Permanent</td>
</tr>
<tr>
<td>Bleeding</td>
<td>Oxygen saturation</td>
<td>Stoma</td>
</tr>
</tbody>
</table>

Diagnosis Impaired Airway Clearance
<table>
<thead>
<tr>
<th>Tracheal Sounds</th>
<th>Lower lobe</th>
<th>Secretions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within normal limits</td>
<td>Left lung</td>
<td>Absent</td>
</tr>
<tr>
<td>Stridor</td>
<td>Upper lobe</td>
<td>Present</td>
</tr>
<tr>
<td>Breath Sounds</td>
<td>Lower lobe</td>
<td>Secretion Quality</td>
</tr>
<tr>
<td>Present</td>
<td>Bilateral</td>
<td>Clear</td>
</tr>
<tr>
<td>Diminished</td>
<td>Anterior chest</td>
<td>Cloudy</td>
</tr>
<tr>
<td>Absent</td>
<td>Lateral chest</td>
<td>Secretion Type</td>
</tr>
<tr>
<td>Clear</td>
<td>Posterior chest</td>
<td>Bloody</td>
</tr>
<tr>
<td>Crackles</td>
<td>Base</td>
<td>Blood-streaked</td>
</tr>
<tr>
<td>Wheezing</td>
<td>Right</td>
<td>Mucous</td>
</tr>
<tr>
<td>Rhonchi</td>
<td>Left</td>
<td>Purulent</td>
</tr>
<tr>
<td>Stridor</td>
<td>Vocalization</td>
<td>Vomitus</td>
</tr>
<tr>
<td>Pleural friction rub</td>
<td>Normal</td>
<td>Color</td>
</tr>
<tr>
<td>Inspiratory</td>
<td>Abnormal</td>
<td>Colorless</td>
</tr>
<tr>
<td>Expiratory</td>
<td>Difficulty speaking</td>
<td>Yellow</td>
</tr>
<tr>
<td>Location</td>
<td>Hoarseness</td>
<td>Green</td>
</tr>
<tr>
<td>Right lung</td>
<td>High pitched cry</td>
<td>White</td>
</tr>
<tr>
<td>Upper lobe</td>
<td>Grunting</td>
<td>Consistency</td>
</tr>
<tr>
<td>Middle lobe</td>
<td>Aphonia</td>
<td>Thin</td>
</tr>
</tbody>
</table>

Diagnosis Impaired Airway Clearance
Thick
Frothy
Amount

Scant
Minimal
Small

Moderate
Large

INTERVENTION

Action: Monitoring Respiratory Status I001, 10010018
Continuous Surveillance I010, 10005093
Prioritizing (treatment) Regime I008, 10024438

PDE Intervention Terms

Monitor airway status
Monitor respiratory status
Monitor oxygenation status
Suction

Remove foreign body
Encourage coughing
Encourage deep breathing
Insert airway adjunct

Reposition head
Reposition patient
Recovery position
Prepare for intubation
Prepare for reintubation

Nasopharyngeal airway
Oropharyngeal airway
Provide airway support
Chin lift

Administer oxygen therapy as indicated
Bag-valve-mask device
Nasal prongs
Nasal cannula

Diagnosis Impaired Airway Clearance
3
<table>
<thead>
<tr>
<th>Face mask</th>
<th>Collar</th>
<th>Instruct patient to take deep breaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>T-piece</td>
<td>Instruct patient to cough</td>
</tr>
<tr>
<td>Non-rebreather</td>
<td>Blow-by</td>
<td>Instruct patient in use of incentive spirometer</td>
</tr>
<tr>
<td>Venturi</td>
<td>Ventilator</td>
<td>Initiate use of incentive spirometer</td>
</tr>
<tr>
<td>Face tent</td>
<td>FiO₂</td>
<td>Reassure patient</td>
</tr>
<tr>
<td>Tracheostomy Mask</td>
<td>Notify physician of patient assessment</td>
<td>Reinforce preoperative education</td>
</tr>
<tr>
<td></td>
<td>Administer medications as ordered</td>
<td>Initiate patient education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Target:</strong></th>
<th><strong>Laryngeal Cavity</strong></th>
<th><strong>Nasal Cavity</strong></th>
<th><strong>Oral Cavity</strong></th>
<th><strong>Trachea</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T001, 10011128</td>
<td>T002, 10012424</td>
<td>T003, 10013720</td>
<td>T004, 10019922</td>
</tr>
</tbody>
</table>

**OUTCOME**

<table>
<thead>
<tr>
<th><strong>Focus:</strong></th>
<th><strong>Impaired Airway Clearance</strong></th>
<th><strong>Decreasing Level</strong></th>
<th><strong>Increasing Level</strong></th>
<th><strong>Same Level</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D001, 10001051</td>
<td>J003, 10005616</td>
<td>J004, 10009974</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>

Diagnosis Impaired Airway Clearance
### DIAGNOSIS

**Focus:** Ventilation  
D018, 10020704  
Hypoventilation  
D016, 10005616  
Hyperventilation  
D017, 10009974

**Judgment:**  
Actual J001, 10000420  
Potential J002, 10017252  
Abnormal J006, 10013269  
Normal J007, 10013295

**Client:** Patient  
C001, 10014132

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Unobstructed</th>
<th>Partially obstructed</th>
<th>Obstructed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pursed lip</td>
<td>Nasal flaring</td>
<td>Hematoma</td>
</tr>
<tr>
<td>Secretions</td>
<td></td>
<td>Foreign body</td>
</tr>
<tr>
<td>Barking</td>
<td></td>
<td>Oxygen saturation (numerical value)</td>
</tr>
<tr>
<td>Coughing</td>
<td></td>
<td>Airway support/adjunct present</td>
</tr>
<tr>
<td>Crowing</td>
<td></td>
<td>Chin lift</td>
</tr>
<tr>
<td>Stridor</td>
<td></td>
<td>Jaw thrust</td>
</tr>
<tr>
<td>Snoring</td>
<td></td>
<td>Nasopharyngeal airway</td>
</tr>
</tbody>
</table>

Diagnosis Impaired Breathing

1
Oropharyngeal airway
Laryngeal Airway Mask
Endotracheal tube

Orotracheal tube
Nasotracheal tube
Tracheostomy

Temporary
Permanent
Stoma

**INTERVENTION**

**Action:**
- Monitoring Respiratory Status
- Continuous Surveillance
- Prioritizing (treatment) Regime

**PDE Intervention Terms:**
- Monitor airway status
- Auscultate breath sounds frequently
- Insert airway adjunct
- Nasal airway
- Oropharyngeal airway
- Chin lift/jaw thrust
-Provide stimulation
-Reposition head
-Reposition patient
-Semi-Fowlers

- Fowlers
- Prepare for intubation
- Prepare for reintubation
- Prepare for chest tube insertion
- Administer oxygen therapy as indicated
- Bag-valve-mask device
- Nasal prongs
- Nasal cannula
- Face mask
- Simple

- Non-rebreather
- Venturi
- Face tent
- Tracheostomy
- Mask
- Collar
- T-piece
- Blow-by
- Ventilator
- FiO₂

**Diagnosis Impaired Breathing**

2
**Target:**

<table>
<thead>
<tr>
<th>Target</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laryngeal Cavity</td>
<td>T001, 10011128</td>
</tr>
<tr>
<td>Nasal Cavity</td>
<td>T002, 10012424</td>
</tr>
<tr>
<td>Oral Cavity</td>
<td>T003, 10013720</td>
</tr>
<tr>
<td>Trachea</td>
<td>T004, 10019922</td>
</tr>
</tbody>
</table>

**OUTCOME**

**Focus:**

<table>
<thead>
<tr>
<th>Focus</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired Breathing</td>
<td>D018, 10001316</td>
</tr>
<tr>
<td>Hypoventilation</td>
<td>D016, 10005616</td>
</tr>
<tr>
<td>Hyperventilation</td>
<td>D017, 10009974</td>
</tr>
</tbody>
</table>

**Judgment:**

<table>
<thead>
<tr>
<th>Judgment</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreasing Level</td>
<td>J003, 10005616</td>
</tr>
<tr>
<td>Increasing Level</td>
<td>J004, 10009974</td>
</tr>
<tr>
<td>Same Level</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>

Diagnosis Impaired Breathing

3
### Diagnosis

**Focus:** Impaired Fluid Volume  
Deficient Fluid Volume  
Excess Fluid Volume

**Judgment:** Actual  
Potential

**Client:** Patient

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Vital signs</th>
<th>Weight</th>
<th>30 - 45 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Monitor oral intake</td>
<td>45 - 60 seconds</td>
</tr>
<tr>
<td>Heart rate (numeric value)</td>
<td>Intravascular replacement fluid</td>
<td>Greater than 60 seconds</td>
</tr>
<tr>
<td>Respiratory rate (numeric value)</td>
<td>Volume</td>
<td>Skin turgor</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Rate</td>
<td>Normal turgor</td>
</tr>
<tr>
<td>Diastolic</td>
<td>Site of infusion</td>
<td>Decreased turgor</td>
</tr>
<tr>
<td>Systolic</td>
<td>Condition of infusion site</td>
<td>Skin condition</td>
</tr>
<tr>
<td>Orthostatic blood pressures</td>
<td>Venous filling</td>
<td>Mucous membranes condition</td>
</tr>
<tr>
<td>Oxygen saturation</td>
<td>Less than 15 seconds</td>
<td>Moist</td>
</tr>
<tr>
<td>Central venous pressure</td>
<td>15 - 30 seconds</td>
<td>Dry</td>
</tr>
<tr>
<td>Pink</td>
<td>Assess Edema</td>
<td>Heart sounds</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Pale</td>
<td>Non Pitting</td>
<td>S1</td>
</tr>
<tr>
<td>Cyanotic</td>
<td>Pitting</td>
<td>S2</td>
</tr>
</tbody>
</table>

Assess urine:
- 1+ Mild pitting, slight indentation, no perceptible swelling of the leg (S3)
- 2+ Moderate pitting, indentation subsides rapidly (S4)

Determine other fluid loss:
- 3+ Deep pitting, indentation remains for a short time, leg looks swollen

Document irrigant:
- 4+ Very deep pitting, indentation lasts a long time, leg is very swollen

Monitor mental status:

Obtain laboratory studies:
- Hematocrit
- Hemoglobin
- Electrolytes
- Metabolic panel

Ascites
- Breath sounds
- Effort
- Pattern

Pediatric
- Head circumference
- Fontanels

Soft

Sunken

Bulging

Tense

**INTERVENTION**

**Action:**
- Administering Fluid Or Electrolyte Therapy I005, 10001815
- Continuous Surveillance I010, 10005093
- Evaluating Response To Fluid Therapy I006, 10007176

Diagnosis Impaired Fluid Volume 2
PDE Intervention Terms:

Monitor vital signs  Pulmonary artery pressure  Monitor urine output
Temperature  Pulmonary wedge (occlusive) pressure  Monitor character of urine
Heart rate  Monitor and measure oral intake  Monitor pattern of voiding
Respiratory rate  Administer replacement fluid as ordered  Diaper count and weight
Blood pressure  Crystalloids  Monitor
Diastolic  Colloids  Blood loss
Systolic  Maintain patent IV  Emesis
Non-invasive  Monitor IV site  Amount of drainage from drains
Direct arterial  Peripheral  Diaphoresis
Oxygen saturation  Central  Monitor for changes in mental status
Daily weight  Monitor distal veins  Notify laboratory for time of ordered draw
Monitor  Monitor neck vein distention  Monitor for critical values
Orthostatic pressures  Monitor skin turgor  Report to physician
Dizziness  Promote skin integrity  Monitor for edema
Imbalance  Provide skin care  Restrict fluids as ordered
Monitor  Bath  Elevate affected extremity
Central venous pressure  Apply lotion  Administer diuretics as ordered
Mean arterial pressure  Provide frequent oral care  Monitor abdominal girth

Diagnosis Impaired Fluid Volume
3
Auscultate breath sounds  
Monitor chest movement for Symmetry  
Use of accessory muscles Retraction  
Monitor respiratory pattern  
Chest X-Ray as ordered  
Monitor radiology reports  
Notify physician of changes  
Auscultate heart sounds  
ECG as ordered  
Measure head circumference  
Monitor fontanels

**Target:**

- Cardiovascular System
- Nervous System
- Integumentary System
- Musculoskeletal System
- Urinary System

<table>
<thead>
<tr>
<th>System</th>
<th>Code</th>
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<tbody>
<tr>
<td>Cardiovascular System</td>
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<tr>
<td>Nervous System</td>
<td>T006, 10013085</td>
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<tr>
<td>Integumentary System</td>
<td>T007, 10010428</td>
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<tr>
<td>Musculoskeletal System</td>
<td>T008, 10012344</td>
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<td>Urinary System</td>
<td>T009, 10020421</td>
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**Outcome**

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<td>D073, 10000598</td>
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<tr>
<td>Excess Fluid Volume</td>
<td>D074, 10000676</td>
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<td>J003, 10005616</td>
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<tr>
<td>Increasing Level</td>
<td>J004, 10009974</td>
</tr>
<tr>
<td>Same Level</td>
<td>J005, 10017473</td>
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</table>

Diagnosis Impaired Fluid Volume
### DIAGNOSIS

**Focus:** Impaired Gas Exchange  
**Judgment:** Actual  
**Client:** Patient  

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Location</th>
<th>Permanent/Temporary</th>
<th>Inspiratory/Expiratory</th>
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<tbody>
<tr>
<td>Oxygen saturation (numerical value)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airway support/adjunct present</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Chin lift</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jaw thrust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasopharyngeal airway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oropharyngeal airway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laryngeal Mask airway</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Endotracheal tube</td>
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</tr>
<tr>
<td>Nasotracheal tube</td>
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<td></td>
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<tr>
<td>Orotraceal tube</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tracheostomy</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Temporary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breath Sounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right lung</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td>Upper lobe</td>
<td></td>
</tr>
<tr>
<td>Diminished</td>
<td></td>
<td>Middle lobe</td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
<td>Lower lobe</td>
<td></td>
</tr>
<tr>
<td>Clear</td>
<td></td>
<td>Left lung</td>
<td></td>
</tr>
<tr>
<td>Crackles</td>
<td></td>
<td>Upper lobe</td>
<td></td>
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<td>Wheezing</td>
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<td>Lower lobe</td>
<td></td>
</tr>
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<td>Rhonchi</td>
<td></td>
<td>Bilateral</td>
<td></td>
</tr>
<tr>
<td>Stridor</td>
<td></td>
<td>Anterior chest</td>
<td></td>
</tr>
<tr>
<td>Stoma</td>
<td></td>
<td>Lateral chest</td>
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Diagnosis Impaired Gas Exchange
<table>
<thead>
<tr>
<th>Diagnosis Impaired Gas Exchange</th>
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<tbody>
<tr>
<td>2</td>
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<tr>
<td></td>
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<tr>
<td><strong>Posterior chest</strong></td>
</tr>
<tr>
<td><strong>Base</strong></td>
</tr>
<tr>
<td><strong>Right</strong></td>
</tr>
<tr>
<td><strong>Left</strong></td>
</tr>
<tr>
<td><strong>Vocalizations</strong></td>
</tr>
<tr>
<td><strong>Normal</strong></td>
</tr>
<tr>
<td><strong>Abnormal</strong></td>
</tr>
<tr>
<td><strong>Difficulty speaking</strong></td>
</tr>
<tr>
<td><strong>Hoarseness</strong></td>
</tr>
<tr>
<td><strong>High pitched cry</strong></td>
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<tr>
<td><strong>Grunting</strong></td>
</tr>
<tr>
<td><strong>Absent</strong></td>
</tr>
<tr>
<td><strong>Aphonia</strong></td>
</tr>
<tr>
<td><strong>Respiratory Assessment</strong></td>
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<tr>
<td><strong>Rate (numerical value)</strong></td>
</tr>
<tr>
<td><strong>Depth</strong></td>
</tr>
<tr>
<td><strong>Shallow</strong></td>
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<tr>
<td><strong>Deep</strong></td>
</tr>
<tr>
<td>Tachycardia</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Normal Sinus Rhythm</td>
</tr>
<tr>
<td>Level of consciousness</td>
</tr>
<tr>
<td>Agitated</td>
</tr>
<tr>
<td>Alert</td>
</tr>
<tr>
<td>Angry</td>
</tr>
<tr>
<td>Awake</td>
</tr>
<tr>
<td>Confused</td>
</tr>
<tr>
<td>Drowsy easy to arouse</td>
</tr>
<tr>
<td>Drowsy needs vigorous simulation</td>
</tr>
<tr>
<td>Drowsy responds to repeated stimuli</td>
</tr>
<tr>
<td>Incoherent</td>
</tr>
<tr>
<td>Lethargic</td>
</tr>
<tr>
<td>Stuporous</td>
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<tr>
<td>Unresponsive</td>
</tr>
<tr>
<td>ABGs</td>
</tr>
<tr>
<td>PaO₂</td>
</tr>
<tr>
<td>PaCO₂</td>
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</table>

Diagnosis Impaired Gas Exchange
Mucous  Green  Amount
Purulent  White  Scant
Vomitus  Consistency  Minimal
Color  Thin  Small
Colorless  Thick  Moderate
Yellow  Frothy  Large

**INTERVENTION**

**Action:**
- Monitoring Respiratory Status
- Continuous Surveillance
- Prioritizing (treatment) Regime

**PDE Intervention Terms:**
- Monitor airway status
- Suction
- Encourage coughing
- Obtain radiology exams as ordered
- Obtain ABGs as ordered
- Medicate
  - Bronchodilators
- Diagnosis Impaired Gas Exchange

- IV
- Nebulizer
- Racemic epinephrine
- Dexamethasone
- Diuretic
- Analgesic
- Antiarrhythmic

- Opioid Antagonist
- Aspiration precautions
- Positioning
- Nasogastic tube
- Suctioning
- Insert airway adjunct
- Nasopharyngeal airway

4
Oropharyngeal airway
Provide airway support
Chin lift
Jaw thrust
Reposition head
Reposition patient
Prepare for intubation
Prepare for reintubation
Prepare for chest tube insertion
Noninvasive Positive Pressure Ventilation
CPAP
BiPAP
Administer oxygen therapy as indicated
Bag-valve-mask device
Nasal prongs
Nasal cannula
Face mask
Simple
Non-rebreather
Venturi
Face tent
Tracheostomy
Mask
Collar
T-piece
Blow-by
Ventilator
FiO2
Notify physician of patient assessment
Reassure patient
Reinforce preoperative education
Initiate patient education
Patient education
Deep breathing
Coughing
Incentive spirometry

Target:
Laryngeal Cavity
Nasal Cavity
Oral Cavity
Trachea
Cardiovascular System

Diagnosis Impaired Gas Exchange
5
**OUTCOME**

<table>
<thead>
<tr>
<th>Focus:</th>
<th>Impaired Gas Exchange</th>
<th>D020, 10001177</th>
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<td>Increasing Level</td>
<td>J004, 10009974</td>
</tr>
<tr>
<td></td>
<td>Same Level</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>

Diagnosis Impaired Gas Exchange
DIAGNOSIS

**Focus:** Impaired Psychomotor Ability

**Judgment:**
- Actual J001, 10000420
- Potential J002, 10017252

**Client:** Patient C001, 10014132

**PDE Assessment Terms:**

- Anesthesia technique
  - General
  - Spinal (SAB)
  - Epidural
  - Peripheral nerve block
    - Cervical plexus block
    - Axillary
    - Interscalene
    - Supraclavicular
    - Infraclavicular
    - Median
    - Ulnar
    - Radial

- Medication
  - lidocaine
  - bupivacaine
  - other

- Identify level
  - Intercostal
  - Sciatic
  - Femoral
  - Lateral femoral cutaneous

- Adverse reaction
  - Tachycardia
  - Headache
  - Incomplete block
  - Prolonged effect of block
  - Hypotension
  - Bradycardia
  - Seizure
  - Dermatome level
  - C 1

Diagnosis Impaired Psychomotor Ability

1
<table>
<thead>
<tr>
<th>Level</th>
<th>Segment</th>
<th>Movement and strength</th>
<th>Extremity</th>
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<tbody>
<tr>
<td>C 2</td>
<td>L 4</td>
<td></td>
<td>Right lower extremity</td>
</tr>
<tr>
<td>C 3 front of neck</td>
<td>L 5 anterior ankle/foot</td>
<td></td>
<td>Left lower extremity</td>
</tr>
<tr>
<td>C 6 thumb</td>
<td>S 1 outer toe</td>
<td></td>
<td>All extremities</td>
</tr>
<tr>
<td>C 8 Ring and little finger</td>
<td>S 2</td>
<td></td>
<td>Both upper extremities</td>
</tr>
<tr>
<td>T 1</td>
<td>S 3</td>
<td></td>
<td>Both lower extremities</td>
</tr>
<tr>
<td>T 2</td>
<td>S 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 3</td>
<td>S 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 4 nipples</td>
<td>Movement and strength</td>
<td></td>
<td>Able to lift</td>
</tr>
<tr>
<td>T 5</td>
<td>Normal against resistance</td>
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<td>Right upper extremity</td>
</tr>
<tr>
<td>T 6</td>
<td>Right upper extremity</td>
<td></td>
<td>Left lower extremity</td>
</tr>
<tr>
<td>T 7</td>
<td>Left upper extremity</td>
<td></td>
<td>All extremities</td>
</tr>
<tr>
<td>T 8</td>
<td>Right lower extremity</td>
<td></td>
<td>Both upper extremities</td>
</tr>
<tr>
<td>T 9</td>
<td>Left lower extremity</td>
<td></td>
<td>Both lower extremities</td>
</tr>
<tr>
<td>T 10 umbilicus</td>
<td>All extremities</td>
<td></td>
<td>Unable to lift</td>
</tr>
<tr>
<td>T 11</td>
<td>Both upper extremities</td>
<td></td>
<td>Right upper extremity</td>
</tr>
<tr>
<td>T 12</td>
<td>Both lower extremities</td>
<td></td>
<td>Left upper extremity</td>
</tr>
<tr>
<td>L 1 inguinal</td>
<td>Weak against resistance</td>
<td></td>
<td>Right lower extremity</td>
</tr>
<tr>
<td>L 2</td>
<td>Right upper extremity</td>
<td></td>
<td>Left lower extremity</td>
</tr>
<tr>
<td>L 3 knee</td>
<td>Left upper extremity</td>
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<td>All extremities</td>
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</tbody>
</table>

Diagnosis: Impaired Psychomotor Ability
Diagnosis: Impaired Psychomotor Ability

Both upper extremities: Fasciculation
Both lower extremities: Tremor

Flicker of movement: Shivering
Right upper extremity: Tic/twitch
Left upper extremity: Seizure
Right lower extremity: None
Left lower extremity: Petit mal
All extremities: Grand mal

No movement: Location
Both upper extremities: Right upper extremity
Both lower extremities: Left upper extremity

Right upper extremity: Right lower extremity
Left upper extremity: Left lower extremity
Right lower extremity: All extremities
Left lower extremity: Both upper extremities
All extremities: Both lower extremities

Both upper extremities: Cranial nerve specific to procedure or intervention
Both lower extremities: III Ocular motor nerve

Involuntary movements:

Cranial nerve specific to procedure or intervention: Check pupil constriction to light

Within normal limits: Within normal limits
Altered findings: Altered findings

IV Trochlear: Ask patient to look downward and inward

Within normal limits: Within normal limits
Altered findings: Altered findings

V Trigeminal: Ask patient to clench jaw

Within normal limits: Within normal limits
Altered findings: Altered findings

VI Abducens: Assess for deviation of eye/gaze

Within normal limits: Within normal limits
Altered findings: Altered findings

VII Facial: Ask patient to smile, frown, elevate eyebrows and show teeth
Diagnosis Impaired Psychomotor Ability

Within normal limits
Altered findings
IX Glosopharyngeal
Ask patient to swallow and say “ah”
X Vagus
Ask patient to speak and swallow
XI Spinal accessory
Ask patient to shrug shoulders or turn head to side
XII Hypoglossal
Ask patient to stick out tongue

INTERVENTION

Action: Evaluating Neurological Status After Operation
Continuous Surveillance
Prioritizing (treatment) Regime

PDE Intervention Terms:
Monitor
Vital signs
Blood pressure
Temperature
Heart rate
Respiratory rate
Oxygen saturation
Regression of block

Pain level
Notify physician/anesthesia provider of patient assessment
Maintain functional anatomical position
Assist positioning
Assist repositioning
Positioning aids

Maintain safety precautions
Side rails up/locked
Bed/stretcher in low position
Initiate patient education
Reinforce patient education
Transfer of care
Turn every two hours as appropriate
<table>
<thead>
<tr>
<th><strong>Target:</strong></th>
<th>Cardiovascular System</th>
<th>T005, 10003936</th>
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<tbody>
<tr>
<td></td>
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<td>T006, 10013085</td>
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**OUTCOME**

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</tr>
<tr>
<td></td>
<td>Same Level</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>
## DIAGNOSIS

**Focus:**  
- Slurred Speech  
- Expressive Aphasia  
- Impaired Verbal Communication  

**Judgment:**  
- Actual  
- Potential  

**Client:**  
Patient  

**PDE Assessment Terms:**

<table>
<thead>
<tr>
<th>Expressive disorder</th>
<th>Speech</th>
<th>Receptive disorder</th>
<th>Incoherent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aphasia/inability to use language</td>
<td>Clear</td>
<td>Dysphasia/inappropriate language</td>
<td>Garbled</td>
</tr>
<tr>
<td>Dysarthria/slurred speech</td>
<td>Hoarse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unable to interpret language</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unable to comprehend written words</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Monotone**  
- Soft  
- Thick  
- Lisp  
- Stammer  
- Stutter  

**INTERVENTION**

**Action:**  
- Monitoring Physiological Status  
- Continuous Surveillance  
- Prioritizing (treatment) Regime  

Diagnosis Incomprehensible Speech
PDE Intervention Terms:

Vital signs

- Blood pressure
- Temperature
- Heart rate

Respiratory rate

- Oxygen saturation
- Monitor for changes in status
- Listen attentively

Encourage to repeat

Allow adequate time

Solicit family assistance

Interpreter

Target:

- Laryngeal Cavity
- Nasal Cavity
- Oral Cavity
- Cardiovascular System
- Nervous System

T001, 10011128
T002, 10012424
T003, 10013720
T005, 10003936
T006, 10013085

OUTCOME

Focus:

- Slurred Speech
- Expressive Aphasia
- Impaired Verbal Communication

D077, 10018304
D075, 10007406
D076, 10025104

Judgment:

- Decreasing Level
- Increasing Level
- Same Level

J003, 10005616
J004, 10009974
J005, 10017473

Diagnosis: Incomprehensible Speech
DIAGNOSIS

Focus: Ineffective Tissue Perfusion

Judgment: Actual
Potential

Client: Patient

PDE Assessment Terms:

Testing - Invasive
Cardiac catheterization
Vascular catheterization

Testing - Noninvasive
ECG
ABGs
Laboratory
Ultrasound
Stress test
Transesophageal echocardiogram (TEE)
Echocardiogram
V-Q scan
Chest X-ray

Skin
Warm
Dry
Cool
Clammy

Skin color
Pink
Pale
Ruddy
Cyanotic
Jaundiced

Breath sounds
Present
Diminished
Absent
Clear
Crackles
Rhonchi
Pleural friction rub
Inspiratory
Expiratory
Distant
Referred
Quality of breath sounds
Fine
Coarse
Chest pain/discomfort

Intensity

Pain Scale (numeric value 0-10)

Location

Jaw

Chest

Substernal

Left arm

Back

Quality

Soreness

Burning

Throbbing

Shooting

Sharp

Cramping

Aching

Pricking

Pulling

Radiating

Intensity

Scale 0-10

Pediatric: FLACC (Face, Legs, Activity, Cry, Consolability)

Other assessment

Diaphoresis

General weakness

General strength

Vertigo

Dizziness

Presence of nausea

Vomiting

Confusion

Loss of consciousness

Oliguria

Breath sounds

Present

Diminished

Absent

Clear

Crackles

Rhonchi

Pleural friction rub

Inspiratory

Expiratory

Distant

Referred

Quality of breath sounds

Fine

Course

Location

Right lung

Upper lobe

Middle lobe

Lower lobe

Left lung

Upper lobe

Diagnosis Ineffective Tissue Perfusion

2
<table>
<thead>
<tr>
<th>Location</th>
<th>Condition</th>
<th>Action</th>
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<tr>
<td>Lower lobe</td>
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<td>Evaluating Tissue Perfusion After Operation I031, 10007202</td>
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<td>Increased</td>
<td>Continuous Surveillance I010, 10005093</td>
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<td>Anterior chest</td>
<td>Respiratory effort</td>
<td>Prioritizing (treatment) Regime I008, 10024438</td>
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<tr>
<td>Lateral chest</td>
<td>Unlabored</td>
<td></td>
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<tr>
<td>Posterior chest</td>
<td>Labored</td>
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</tr>
<tr>
<td>Base</td>
<td>Dyspnea at rest</td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>Orthopnea</td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>Dyspnea with exertion</td>
<td></td>
</tr>
<tr>
<td>Rate</td>
<td>Tachypnea</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>Bradypnea</td>
<td></td>
</tr>
<tr>
<td>Shallow</td>
<td>Intercostal chest wall movement</td>
<td></td>
</tr>
<tr>
<td>Deep</td>
<td>Paradoxical respiration</td>
<td></td>
</tr>
<tr>
<td>Tidal volume</td>
<td>Abdominal breathing</td>
<td></td>
</tr>
<tr>
<td>Within normal limits</td>
<td>Cough</td>
<td></td>
</tr>
</tbody>
</table>

**INTERVENTION**

**Action:** Evaluating Tissue Perfusion After Operation I031, 10007202
Continuous Surveillance I010, 10005093
Prioritizing (treatment) Regime I008, 10024438

Diagnosis Ineffective Tissue Perfusion
**PDE Intervention Terms:**

<table>
<thead>
<tr>
<th>Monitor, evaluate and report</th>
<th>Non-rebreather</th>
<th>Administer medications as ordered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capillary refill</td>
<td>Venturi</td>
<td>Diuretics</td>
</tr>
<tr>
<td>Urine output</td>
<td>Face tent</td>
<td>Antihypertensives</td>
</tr>
<tr>
<td>Breath sounds</td>
<td>Tracheostomy</td>
<td>ACE inhibitors</td>
</tr>
<tr>
<td>Respiratory pattern</td>
<td>Mask</td>
<td>Beta blockers</td>
</tr>
<tr>
<td>Skin appearance</td>
<td>Collar</td>
<td>Analgesics</td>
</tr>
<tr>
<td>Arrange for reactivation of implanted cardiac devices</td>
<td>T-piece</td>
<td>Evaluate patient response to pharmacologic intervention</td>
</tr>
<tr>
<td>Obtain and report lab data as ordered</td>
<td>Blow-by</td>
<td>Provide comfort measures</td>
</tr>
<tr>
<td>Administer oxygen therapy as indicated</td>
<td>Ventilator</td>
<td>Prepare for cardiovascular event</td>
</tr>
<tr>
<td>Bag-valve-mask device</td>
<td>FiO₂</td>
<td>Access to temporary pacers, cardiac defibrillators, emergency equipment</td>
</tr>
<tr>
<td>Nasal prongs</td>
<td>Maintain IV access</td>
<td>Minimize environmental stress</td>
</tr>
<tr>
<td>Nasal cannula</td>
<td>Manage pain</td>
<td>Explore stress</td>
</tr>
<tr>
<td>Face mask</td>
<td>Measure temperature</td>
<td>Explore anxiety reduction</td>
</tr>
<tr>
<td>Simple</td>
<td>Maintain normothermia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide fluid replacement</td>
<td></td>
</tr>
</tbody>
</table>

**Target:**

- Cardiovascular System: T005, 10003936
- Urinary System: T009, 10020421

Diagnosis: Ineffective Tissue Perfusion
Female Urinary System T010, 10007874
Male Urinary System T011, 10011591
Integumentary System T007, 10010428

OUTCOME

Focus: Ineffective Tissue Perfusion D008, 10001344
Judgment: Decreasing Level J003, 10005616
Increasing Level J004, 10009974
Same Level J005, 10017473

Diagnosis Ineffective Tissue Perfusion
5
## DIAGNOSIS

**Focus:** Pain  
Discomfort  
Anxiety

**Judgment:** Actual  
Potential

**Client:** Patient

### PDE Assessment Terms:

<table>
<thead>
<tr>
<th>Term</th>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>Self report of comfort goal</td>
<td>Oxygen saturation</td>
</tr>
<tr>
<td>Self report pain goal</td>
<td>Types of comfort</td>
</tr>
<tr>
<td>Self report of pain level</td>
<td>Physical</td>
</tr>
<tr>
<td>Vital signs</td>
<td>Psychological</td>
</tr>
<tr>
<td>Temperature</td>
<td>Spiritual</td>
</tr>
<tr>
<td>Heart rate (numeric value)</td>
<td>Social</td>
</tr>
<tr>
<td>Respiratory rate (numeric value)</td>
<td>Cultural</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Environment</td>
</tr>
<tr>
<td>Diastolic</td>
<td>Medical history</td>
</tr>
<tr>
<td>Systolic</td>
<td>Allergy</td>
</tr>
<tr>
<td>Medication</td>
<td>Food</td>
</tr>
<tr>
<td>Food</td>
<td>Objects</td>
</tr>
<tr>
<td>Objects</td>
<td>Use of herbas</td>
</tr>
<tr>
<td>Use of herbas</td>
<td>Sickle cell anemia</td>
</tr>
<tr>
<td>Sickle cell anemia</td>
<td>Drug dependency</td>
</tr>
<tr>
<td>Drug dependency</td>
<td>Fear</td>
</tr>
<tr>
<td>Fear</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Motion sickness</td>
</tr>
<tr>
<td>Motion sickness</td>
<td>Sleep apnea</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Disability</td>
<td>Abdominal distention</td>
</tr>
<tr>
<td>Cognitive impairment</td>
<td>Irritating effects</td>
</tr>
<tr>
<td>Oxygenation</td>
<td>Stimulating effects</td>
</tr>
<tr>
<td>Circulation</td>
<td>Stress</td>
</tr>
<tr>
<td>Fluid balance</td>
<td>Noxious environmental stimuli</td>
</tr>
<tr>
<td>Electrolyte balance</td>
<td>Pain history</td>
</tr>
<tr>
<td>Hypothermia</td>
<td>Preexisting pain</td>
</tr>
<tr>
<td>Hyperthermia</td>
<td>Acute pain</td>
</tr>
<tr>
<td>Digestion</td>
<td>Chronic pain</td>
</tr>
<tr>
<td>Elimination</td>
<td>Neuropathic pain</td>
</tr>
<tr>
<td>Postoperative nausea and vomiting</td>
<td>Fibromyalgia</td>
</tr>
<tr>
<td>Preexisting history</td>
<td>Effects of pain on personal life</td>
</tr>
<tr>
<td>Comfort level</td>
<td>Coping mechanism</td>
</tr>
<tr>
<td>Frequency</td>
<td>Concerns</td>
</tr>
<tr>
<td>Type of vomitus</td>
<td>Aggravating factors</td>
</tr>
<tr>
<td>Volume</td>
<td>Alleviating factors</td>
</tr>
<tr>
<td>Postoperative nausea and vomiting</td>
<td>Medication history</td>
</tr>
<tr>
<td>Related factors</td>
<td>Antidepressant</td>
</tr>
</tbody>
</table>

Diagnosis Pain Comfort Anxiety  
2
Anticoagulant
Antihypertensive
Muscle relaxant
Perioperative Medications:
Preoperative analgesia
Intraoperative analgesia
Postoperative analgesia
Type of medication
Total dose
Last dose
Route
Effects
Medication route
Intravenous
Orally
Intramuscular
Rectal
Intrathecal

Diagnosis Pain Comfort Anxiety
3

Epidural
Transdermal
Adverse Reactions to drugs
Hives
Itchiness
Nausea
Vomiting
Respiratory depression
Anaphylactic response
Pruritus
Rash
Generalized
Localized
Shock
Urinary retention
Sensory loss
Muscle weakness
Respiratory depression
Sensory deficit
Motor deficit
Pain at the catheter site
Low back pain
Dizziness
Tinnitus
Circumoral tingling
Tremors
Seizures
Physiological response
Acute:
Increased blood pressure
Increased pulse rate
Increased respiratory rate
Decreased respiratory rate
Decreased oxygen saturation
Diaphoresis
Pupils constricted
### Sedation Level

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Sleep, easy to arouse</td>
</tr>
<tr>
<td>1</td>
<td>Awake and alert</td>
</tr>
<tr>
<td>2</td>
<td>Slightly drowsy, easily aroused</td>
</tr>
<tr>
<td>3</td>
<td>Frequently drowsy, arousable, drifts off to sleep during conversation</td>
</tr>
<tr>
<td>4</td>
<td>Somnolent, minimal or no response to physical stimulation</td>
</tr>
</tbody>
</table>

### Abnormal laboratory results

- Prothrombin time [PT]
- Partial thromboplastin time [PTT]
- International normalized ratio [INR]

### Other Individual Factors

- Age
- Gender
- Religious affiliation
- Level of knowledge
- Level of education
- Barriers to learning

### Culture

- Dominant language
- Patterns of communication
- Perception of body
- Perception of functions
- Emotional responses
- Emotional reactions
- Past experiences
- Cultural preference:
  - Personal beliefs
  - Restrictions
  - Heritage
  - Values
- Educational needs
- Plan of care
- Pain intensity scales
- Pain goal
- Patient Controlled Analgesia

### Pharmacological treatment

- Drug
- Dose
- Route
- Adverse outcomes

### Non-pharmacological interventions

- (relaxation, positioning, deep breathing)

### Context

- Physical Characteristics
  - Intensity
    - 0 - 10 scale
    - 0 - 5 scale
  - FLACC (Face, Legs, Activity, Cry, Consolability)
    - Behavioral Pain Scale
- Pain descriptors intensity
  - No pain
  - Mild
  - Moderate
<table>
<thead>
<tr>
<th>Severe</th>
<th>Quality Descriptors</th>
<th>Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very severe</td>
<td>Aching</td>
<td>Appetite</td>
</tr>
<tr>
<td>Worst possible pain</td>
<td>Throbbing</td>
<td>Physical activity</td>
</tr>
<tr>
<td>Frequency</td>
<td>Burning</td>
<td>Relationship with others</td>
</tr>
<tr>
<td>Continuous</td>
<td>Shooting</td>
<td>Emotions</td>
</tr>
<tr>
<td>Intermittent</td>
<td>Sharp</td>
<td>Concentration</td>
</tr>
<tr>
<td>Pattern</td>
<td>Dull</td>
<td>Psychospiritual related factors</td>
</tr>
<tr>
<td>Onset</td>
<td>Pressure</td>
<td>Self esteem/meaning life</td>
</tr>
<tr>
<td>Duration</td>
<td>Stinging</td>
<td>Self concept</td>
</tr>
<tr>
<td>Behaviors/expressions or history</td>
<td>Sensitivity</td>
<td>Sexuality</td>
</tr>
<tr>
<td>Grimacing</td>
<td>Tenderness</td>
<td>Spirituality</td>
</tr>
<tr>
<td>Crying</td>
<td>Cold</td>
<td>Other History</td>
</tr>
<tr>
<td>Restlessness</td>
<td>Hot</td>
<td>Exposure to toxins</td>
</tr>
<tr>
<td>Tension</td>
<td>Annoying</td>
<td>Threat or change in role status</td>
</tr>
<tr>
<td>Posturing</td>
<td>Effects of discomfort/pain</td>
<td>Unconscious conflict about essential values/goals of life</td>
</tr>
<tr>
<td>Demanding</td>
<td>Decreased function</td>
<td>Familial association</td>
</tr>
<tr>
<td>Confusion</td>
<td>Decreased quality of life</td>
<td>Heredity</td>
</tr>
<tr>
<td></td>
<td>Interferes with</td>
<td></td>
</tr>
<tr>
<td>Unmet needs</td>
<td>Regretful</td>
<td>Denial</td>
</tr>
<tr>
<td>Situational crisis</td>
<td>Irritability</td>
<td>Physiological</td>
</tr>
<tr>
<td>Threat of death</td>
<td>Anguish</td>
<td>Voice quivering</td>
</tr>
<tr>
<td>Threat to change of status</td>
<td>Scared</td>
<td>Trembling</td>
</tr>
<tr>
<td>Threat to self concept</td>
<td>Jittery</td>
<td>Hand tremors</td>
</tr>
<tr>
<td>Anxiety Characteristics</td>
<td>Overexcited</td>
<td>Shakiness</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Persistent increased helplessness</td>
<td>Increased respiration</td>
</tr>
<tr>
<td>Diminished productivity</td>
<td>Rattled</td>
<td>Urinary urgency</td>
</tr>
<tr>
<td>Scanning</td>
<td>Uncertainty</td>
<td>Increased pulse</td>
</tr>
<tr>
<td>Vigilance</td>
<td>Increased wariness</td>
<td>Pupil dilation</td>
</tr>
<tr>
<td>Poor eye contact</td>
<td>Focus on self</td>
<td>Increased reflexes</td>
</tr>
<tr>
<td>Restlessness</td>
<td>Feeling of inadequacy</td>
<td>Abdominal pain</td>
</tr>
<tr>
<td>Glancing about</td>
<td>Fearful</td>
<td>Sleep disturbance</td>
</tr>
<tr>
<td>Extraneous movement</td>
<td>Distressed</td>
<td>Tingling in extremities</td>
</tr>
<tr>
<td>Expressed concerns</td>
<td>Worried</td>
<td>Cardiovascular excitation</td>
</tr>
<tr>
<td>Insomnia</td>
<td>Apprehensive</td>
<td>Increase perspiration</td>
</tr>
<tr>
<td>Fidgeting</td>
<td>Angry</td>
<td>Facial tension</td>
</tr>
<tr>
<td>Affective</td>
<td>Withdrawn</td>
<td>Anorexia</td>
</tr>
</tbody>
</table>
Heart pounding
Diarrhea
Urinary hesitancy
Fatigue
Dry mouth
Weakness
Decrease pulse
Facial flushing
Twitching
Decreased blood pressure
Increased blood pressure
Nausea
Urinary frequency
Faintness
Cognitive
Blocking of thought
Confusion
Preoccupation

Forgetfulness
Impaired attention
Decreased perceptual field
Fear of unspecific consequences
Tendency to blame others
Difficulty concentrating
Diminished ability to problem solve
Diminished ability to learn
Environmental
Temperature
Cold
Hot
Warm
Light
Sound
Odor
Color
Privacy

Other History
Threat in change of environment
Substance abuse
Socio-cultural
Family
Relationships
Finance
Teaching
Health care personnel
Family traditions
Rituals
Visitors
Support system
Personal beliefs / needs
Restrictions
Other History
Change in role function

Diagnosis Pain Comfort Anxiety

7
### INTERVENTION

**Action:**
- Assessing Control Of Pain
- Administering Pain Medication
- Managing Pain
- Administering Patient Controlled Analgesia
- Assessing Coping

**PDE Intervention Terms**

<table>
<thead>
<tr>
<th>Standard comfort interventions</th>
<th>Education</th>
<th>Personal connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor vital signs</td>
<td>Listening</td>
<td>Avoid challenging approach</td>
</tr>
<tr>
<td>Obtain lab results</td>
<td>Provide comfort food for the soul:</td>
<td>Pharmacological treatments as ordered</td>
</tr>
<tr>
<td>Implement</td>
<td>Warmth</td>
<td>Non-pharmacological initiatives</td>
</tr>
<tr>
<td>Medication</td>
<td>Therapeutic touch</td>
<td>Active listening</td>
</tr>
<tr>
<td>Treatments</td>
<td>Music therapy</td>
<td>Distraction</td>
</tr>
<tr>
<td>Safety measures</td>
<td>Guided imagery</td>
<td>Music</td>
</tr>
<tr>
<td>Coaching</td>
<td>Reiki</td>
<td>Bathing</td>
</tr>
<tr>
<td>Emotional support</td>
<td>Spiritual</td>
<td>Deep breathing exercise</td>
</tr>
<tr>
<td>Reassurance</td>
<td>Spending time</td>
<td>Humor</td>
</tr>
</tbody>
</table>

Diagnosis Pain Comfort Anxiety

8
<table>
<thead>
<tr>
<th>Ambulation</th>
<th>Reduce fear and anxiety</th>
<th>Evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positioning</td>
<td>Deep and slow breaths</td>
<td>Coping</td>
</tr>
<tr>
<td>Touch</td>
<td>Change position slowly</td>
<td>Defense mechanism</td>
</tr>
<tr>
<td>Heat application</td>
<td>Oral hygiene after each emesis</td>
<td>Problem solving</td>
</tr>
<tr>
<td>Cold application</td>
<td>Advance diet slowly as indicated</td>
<td>Use of resources</td>
</tr>
<tr>
<td>Transcutaneous Electrical Nerve Stimulation (TENS)</td>
<td>Decreased activities</td>
<td>Referral to appropriate expert</td>
</tr>
<tr>
<td>Guided imagery</td>
<td>Listen to return of bowel sounds</td>
<td>Educate/re-educate</td>
</tr>
<tr>
<td>Meditation</td>
<td>Implement anxiety reduction measures</td>
<td>Pain goal and level</td>
</tr>
<tr>
<td>Visualization</td>
<td>Acknowledge</td>
<td>Comfort goal and level</td>
</tr>
<tr>
<td>Comfort objects</td>
<td>Fear</td>
<td>Medication</td>
</tr>
<tr>
<td>Implement Patient Controlled Analgesia</td>
<td>Anxieties</td>
<td>Action</td>
</tr>
<tr>
<td>Implement Epidural Pump</td>
<td>Reality of the situation</td>
<td>Dose</td>
</tr>
<tr>
<td>Implement Local Pain Pump</td>
<td>Observe</td>
<td>Route</td>
</tr>
<tr>
<td>Implement preventive measures for PONV:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasogastric tube</td>
<td>Speech content</td>
<td>Use of Patient Controlled Analgesia</td>
</tr>
<tr>
<td>Eliminate noxious sights</td>
<td>Communication patterns</td>
<td>Nurse’s call bell/light</td>
</tr>
<tr>
<td>Eliminate odors from environment</td>
<td>Vocabulary</td>
<td>Coordinate pain consult visit</td>
</tr>
<tr>
<td></td>
<td>Narrowed focus of attention</td>
<td>Arrange for interpreter</td>
</tr>
<tr>
<td></td>
<td>Delayed response</td>
<td>Document treatment and responses</td>
</tr>
<tr>
<td>Target:</td>
<td>Nervous System</td>
<td>T006, 10013085</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Focus:</td>
<td>Pain</td>
<td>D021, 10023130</td>
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<tr>
<td></td>
<td>Discomfort</td>
<td>D024, 10023066</td>
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<tr>
<td></td>
<td>Anxiety</td>
<td>D023, 10000477</td>
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<tr>
<td>Judgment:</td>
<td>Decreasing Level</td>
<td>J003, 10005616</td>
</tr>
<tr>
<td></td>
<td>Increasing Level</td>
<td>J004, 10009974</td>
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<td></td>
<td>Same Level</td>
<td>J005, 10017473</td>
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</table>

**Diagnosis Pain Comfort Anxiety**

10

<table>
<thead>
<tr>
<th>Report abnormal assessments to physicians</th>
<th>Secure epidural line</th>
<th>Coordinate consult visit as needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement safety measures</td>
<td>Discontinue Patient Controlled Analgesia based on sedation level</td>
<td>Document treatment and responses</td>
</tr>
<tr>
<td>Patient identification</td>
<td>Transfer care report</td>
<td>Report abnormal assessment</td>
</tr>
<tr>
<td>Secure intravenous line</td>
<td>Implement individualized education plan</td>
<td>Implement safety measures and identify educational needs</td>
</tr>
</tbody>
</table>
DIAGNOSIS

**Focus:** Consent  
**Judgment:** Actual, Potential  
**Client:** Patient, Caregiver, Family Member

**PDE Assessment Terms**
- Assess for signed Advanced Directives, Consent
- Procedure Blood
- Questioning beliefs
- Questioning personal values

**INTERVENTION**

**Action:** Verifying Consent Before Operation  
Assessing Attitude toward Treatment Regime  
Assessing Fear

Diagnosis Patient Rights

1
**PDE Intervention Terms**

<table>
<thead>
<tr>
<th>Determine</th>
<th>Consent</th>
<th>Determine who is legally empowered to give consent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s wishes</td>
<td>Research</td>
<td></td>
</tr>
</tbody>
</table>

**Target:**
- Patient: C001, 10014132
- Caregiver: C002, 10003958
- Family Member: C003, 10007596

**Outcome**
- Focus: Consent D032, 10004981
- Judgment: Completed J010, 10004849
- Delayed J011, 10022089
- Interrupted J008, 10010519
- Started J009, 10018764

Diagnosis Patient Rights
2
### Diagnosis

**Focus:** Lack of Knowledge (Phase 1)  
**Judgment:** Actual  
**Client:** Patient, Caregiver, Family Member

<table>
<thead>
<tr>
<th>PDE Assessment Terms</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess understanding of pain management</td>
<td>Effectiveness</td>
<td>Duration</td>
</tr>
<tr>
<td>Analgesic history</td>
<td>Adverse reactions</td>
<td>Pain Scale</td>
</tr>
<tr>
<td>Opioids</td>
<td>Pain Management</td>
<td>Numerical rating scale</td>
</tr>
<tr>
<td>Non-opioids</td>
<td>Type</td>
<td>FLACC</td>
</tr>
<tr>
<td>Adjuvant analgesics</td>
<td>Location</td>
<td>FACES</td>
</tr>
<tr>
<td>Anticoagulants</td>
<td>Intensity</td>
<td>Visual Analogue Scale</td>
</tr>
<tr>
<td>Antihypertensives</td>
<td>Quality</td>
<td>Behavioral Pain Scale</td>
</tr>
<tr>
<td>Muscle relaxants</td>
<td>Frequency</td>
<td>Sedation Scale</td>
</tr>
<tr>
<td>Dose</td>
<td>Pattern</td>
<td>Routes</td>
</tr>
<tr>
<td>Frequency</td>
<td>Onset</td>
<td>IV</td>
</tr>
</tbody>
</table>

Diagnosis Phase I Knowledge Deficit

1
PO  Rectal  Patient Controlled Analgesia
IM  Transdermal  Epidural

**INTERVENTION**

**Action:**
- Teaching about Managing Pain  I012, 100019489
- Teaching Family Caregiver about Operation Before Operation  I013, 10019518

**PDE Intervention Terms**
- Reinforce teaching about Pain management
- Deep breathing
- Coughing
- Comfort measures
- Positioning

**Target:**
- Patient  C001, 10014132
- Caregiver  C002, 10003958
- Family Member  C003, 10007596

**OUTCOME**

**Focus:** Lack of Knowledge (Phase 1)  D012, 10000837

**Judgment:**
- Completed  J010, 10004849
- Delayed  J011, 10022089
- Interrupted  J008, 10010519
- Started  J009, 10018764

Diagnosis Phase I Knowledge Deficit
2
DIAGNOSIS

Focus: Lack of Knowledge (Phases 2 and 3)  
Judgment: Actual, Potential  
Client: Patient, Caregiver, Family Member  

PDE Assessment Terms

Assess understanding of Pain management, Comfort measures available, Diet, Wound care, Drain care, Dressings, Hand washing, Bathing/shower, Activity level

Discharge instructions, Prescription to be obtained, When and how to take, Adverse reactions, Medication Interactions, Safety measures, No driving, No operating equipment, No alcohol, When to contact physician, When to return to the Emergency Department, Pain Management Type, Location, Intensity, Quality, Frequency, Pattern, Onset, Duration
### Pain Scale
- Numerical rating scale
- FLACC
- FACES
- Visual Analogue Scale

### Behavioral Pain Scale
- Sedation Scale
- Intravenous
- Orally

### Routes
- Intravenous
- Orally
- Intramuscular
- Rectal
- Transdermal
- Patient Controlled Analgesia
- Epidural

## INTERVENTION

### Action:
- Teaching Family about Treatment Regime
- Teaching about Medication
- Teaching about Managing Pain
- Teaching about Wound Care and Wound Healing
- Teaching about Treatment Regime
- Teaching Safety Measures
- Teaching How to Increase Activity Tolerance
- Teaching about Nutrition

### PDE Intervention Terms
- Discharge instructions
- Instruct in
- Pain management
- Comfort measures
- Diet
- Wound care
- Drain care
- Dressings
- Hand washing
- Bathing/shower
- Activity level
- Prescriptions to be obtained

### Diagnosis Phase II&III Knowledge Deficit 2
When to take   No driving
How to take   No operating equipment
Adverse reactions   No alcohol
Interactions   Contact numbers
Safety measures   When to contact physician

Target: Patient C001, 10014132
Caregiver C002, 10003958
Family Member C003, 10007596

OUTCOME

Focus: Lack of Knowledge (Phases 2 and 3) D013, 10000837
Judgment: Completed J010, 10004849
          Delayed J011, 10022089
          Interrupted J008, 10010519
          Started J009, 10018764
# Diagnosis

**Focus:** Nausea  
**Focus:** Vomiting  
**Judgment:** Actual  
**Judgment:** Potential  
**Client:** Patient

**PDE Assessment Terms**

<table>
<thead>
<tr>
<th>Medical History</th>
<th>Pregnancy</th>
<th>Time of last solid food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-anesthetic-related factors</td>
<td>Gender</td>
<td>Anesthetic-related factors</td>
</tr>
<tr>
<td>Age: 3-12</td>
<td>Females</td>
<td>Premedication</td>
</tr>
<tr>
<td>Adolescence</td>
<td>Individual predisposition</td>
<td>Opioid</td>
</tr>
<tr>
<td>Gastroparesis</td>
<td>History of nausea, vomiting</td>
<td>Induction of anesthesia</td>
</tr>
<tr>
<td>Ileus</td>
<td>History of motion sickness</td>
<td>Inhalation induction</td>
</tr>
<tr>
<td>Bowel obstruction</td>
<td>Allergic reaction</td>
<td>Positive pressure ventilation face mask</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>Smoking status</td>
<td>Hypnotic agents</td>
</tr>
<tr>
<td>Muscular dystrophies</td>
<td>Smoker</td>
<td>etomidate</td>
</tr>
<tr>
<td>Collagen vascular disorders</td>
<td>Nonsmoker</td>
<td>thiopental</td>
</tr>
<tr>
<td>Uremia</td>
<td>Food ingestion</td>
<td>ketamine</td>
</tr>
<tr>
<td>Increased intracranial pressure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
methohexital
propofol

Maintenance of anesthesia

Duration of anesthesia

Prolonged General anesthesia

Inhalation agents
  isoflurane
  desflurane
  sevoflurane

Intraoperative opioids
  nitrous oxide

Duration of anesthesia

Type of surgery
  Laparoscopy
  Intestinal operations
  Ovum retrieval
  Orchiopexy

Diagnosis PONV
2
**INTERVENTION**

**Action:** Managing Negative Response to Treatment

**PDE Intervention Terms**

<table>
<thead>
<tr>
<th>Monitor vital signs</th>
<th>Observe non-verbal cues of discomfort</th>
<th>Distraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid management</td>
<td>Identify contributing factors</td>
<td>Notify health care provider</td>
</tr>
<tr>
<td>Electrolyte management</td>
<td>Patient education on non-pharmacological techniques</td>
<td>Reduce or eliminate precipitating factors</td>
</tr>
<tr>
<td>Fluid monitoring</td>
<td>Biofeedback</td>
<td>Position patient to prevent aspiration</td>
</tr>
<tr>
<td>Medication administration</td>
<td>Relaxation</td>
<td>Monitor fluid and electrolyte imbalance</td>
</tr>
<tr>
<td>Pain management</td>
<td>Guided imagery</td>
<td>Gradually increase PO fluid</td>
</tr>
<tr>
<td>Aspiration precaution</td>
<td>Music therapy</td>
<td>Monitor effects of vomiting management</td>
</tr>
</tbody>
</table>

**Target:**

- Laryngeal Cavity T001, 10011128
- Nasal Cavity T002, 10012424
- Oral Cavity T003, 10013720
- Gastrointestinal System T012, 10008345

Diagnosis PONV

3
### OUTCOME

<table>
<thead>
<tr>
<th>Judgment</th>
<th>Code</th>
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<tbody>
<tr>
<td>Decreasing Level</td>
<td>J003, 10005616</td>
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<tr>
<td>Increasing Level</td>
<td>J004, 10009974</td>
</tr>
<tr>
<td>Same Level</td>
<td>J005, 10017473</td>
</tr>
</tbody>
</table>

**Diagnosis PONV**

4
### Diagnosis Postop Knowledge Deficit

**Focus:** Lack of Knowledge (Postop)  
**Judgment:** Actual  
**Client:** Patient, Caregiver, Family Member  

#### PDE Assessment Terms

<table>
<thead>
<tr>
<th>Assess knowledge</th>
<th>Cold application</th>
<th>Pain control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Cryo-cuff application</td>
<td>Appropriate pain scale</td>
</tr>
<tr>
<td>Deep breathing</td>
<td>Crutch walking</td>
<td>Nutrition management</td>
</tr>
<tr>
<td>Ambulation</td>
<td>Home maintenance</td>
<td>Diet</td>
</tr>
<tr>
<td>Exercise</td>
<td>Home visits</td>
<td>Appetite</td>
</tr>
<tr>
<td>Bathing</td>
<td>Physical layout</td>
<td>Wound healing</td>
</tr>
<tr>
<td>Return to pre-surgical status</td>
<td>Identify family/caregiver</td>
<td>Wound/Incision</td>
</tr>
<tr>
<td>Treatments/activities</td>
<td>Medication instruction</td>
<td>Description</td>
</tr>
<tr>
<td>Dressing changes</td>
<td>Prescriptions</td>
<td>Color</td>
</tr>
<tr>
<td>Heat application</td>
<td>Interactions</td>
<td>Temperature</td>
</tr>
</tbody>
</table>

Diagnosis Postop Knowledge Deficit
**Diagnosis** Postop Knowledge Deficit

**INTERVENTION**

**Action:**
- Teaching Family about Treatment Regime
- Teaching about Medication
- Teaching about Managing Pain
- Teaching about Wound Care and Wound Healing
- Teaching about Treatment Regime
- Teaching Safety Measures
- Teaching how to Increase Activity Tolerance
- Teaching about Nutrition

**PDE Intervention Terms**

<table>
<thead>
<tr>
<th>Discharge planning</th>
<th>Educate patient/family</th>
<th>Color</th>
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</thead>
<tbody>
<tr>
<td>Home maintenance assistance</td>
<td>Diet</td>
<td>Size</td>
</tr>
<tr>
<td>Medication instruction</td>
<td>Dietary restrictions</td>
<td>Odor</td>
</tr>
<tr>
<td>Medication reconciliation</td>
<td>Food intake</td>
<td>Educate patient/family on</td>
</tr>
<tr>
<td>Comfort management</td>
<td>Fluid intake</td>
<td>Sterile technique</td>
</tr>
<tr>
<td>Pain management</td>
<td>Educate patient on</td>
<td>Change dressings</td>
</tr>
<tr>
<td>Nutrition management</td>
<td>Wound characteristics</td>
<td>Instruct patient/family on</td>
</tr>
<tr>
<td>Wound management</td>
<td>Drainage</td>
<td>Supplies to obtain</td>
</tr>
</tbody>
</table>

Drainage Dressings changed
<table>
<thead>
<tr>
<th>Proper storage</th>
<th>Proper disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong></td>
<td>C001, 10014132</td>
</tr>
<tr>
<td>Patient</td>
<td>Caregiver</td>
</tr>
<tr>
<td></td>
<td>C002, 10003958</td>
</tr>
<tr>
<td>Family Member</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C003, 10007596</td>
</tr>
</tbody>
</table>

**OUTCOME**

<table>
<thead>
<tr>
<th><strong>Focus:</strong></th>
<th>Lack of Knowledge (Postop)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Judgment:</strong></td>
<td>D048, 10000837</td>
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<tr>
<td>Completed</td>
<td>J010, 10004849</td>
</tr>
<tr>
<td>Delayed</td>
<td>J011, 10022089</td>
</tr>
<tr>
<td>Interrupted</td>
<td>J008, 10010519</td>
</tr>
<tr>
<td>Started</td>
<td>J009, 10018764</td>
</tr>
</tbody>
</table>

Diagnosis Postop Knowledge Deficit
3
**DIAGNOSIS**

**Focus:** Lack of Knowledge of Treatment Regime (PreAdmit/PreProcedure)  
  Error: D011, 10021925

**Judgment:** Actual  
  Error: J001, 10000420

Potential  
  Error: J002, 10017252

**Client:** Patient  
  Error: C001, 10014132

Caregiver  
  Error: C002, 10003958

Family Member  
  Error: C003, 10007596

**PDE Assessment Terms**

<table>
<thead>
<tr>
<th>Nursing history</th>
<th>Physiological stressors</th>
<th>Body image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home medications</td>
<td>Pain</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Chief complaint</td>
<td>Disabilities</td>
<td>Denial</td>
</tr>
<tr>
<td>Previous hospitalizations</td>
<td>Visual</td>
<td>Depression</td>
</tr>
<tr>
<td>Previous surgery</td>
<td>Hearing</td>
<td>Environmental stressors</td>
</tr>
<tr>
<td>Previous procedures</td>
<td>Developmental</td>
<td>Loss of privacy</td>
</tr>
<tr>
<td>Allergies</td>
<td>Psychological stressors</td>
<td>Unfamiliar environment</td>
</tr>
<tr>
<td>Adverse reactions</td>
<td>Changes in role at</td>
<td>Social-cultural stressors</td>
</tr>
<tr>
<td>Home environment</td>
<td>Home</td>
<td>Age</td>
</tr>
<tr>
<td></td>
<td>Work</td>
<td>Gender</td>
</tr>
</tbody>
</table>

**Diagnosis:** Preadmit Proc Knowledge Deficit

---

135
<table>
<thead>
<tr>
<th>Ethnic origin</th>
<th>Language</th>
<th>Anticipated length of procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture</td>
<td>Current level of knowledge</td>
<td>Anticipated length of stay</td>
</tr>
<tr>
<td>Economic status</td>
<td>Diagnosis</td>
<td>Pain goal</td>
</tr>
<tr>
<td>Religious beliefs</td>
<td>Planned procedure</td>
<td>Pain management</td>
</tr>
<tr>
<td>Level of education</td>
<td>Plan of care</td>
<td>Special equipment to be used</td>
</tr>
<tr>
<td>Occupation</td>
<td>Anesthesia techniques</td>
<td></td>
</tr>
</tbody>
</table>

**INTERVENTION**

**Action:**
- Teaching Family about Treatment Regime
- Teaching about Medication
- Teaching about Managing Pain
- Teaching about Wound Care and Wound Healing
- Teaching about Treatment Regime
- Teaching Safety Measures
- Teaching How to Increase Activity Tolerance
- Teaching about Nutrition

**PDE Intervention Terms**
- Instruct patient to take home medications
- Refer to physician and/or anesthesia provider
- Provide pain relief
- Instruct patient to hold home medications
- Provide comfort measures
- Instruct patient to bring glasses

Diagnosis: Preadmit Proc Knowledge Deficit
Provide large font printed material

Instruct patient to bring hearing aids

Instruct patient to leave other valuables at home

Provide a quiet environment with minimal interruption

Reduce noise level

Control noise level

Reduce level of light

Control level of light

Provide an atmosphere of

Respect

Openness

Trust

Collaboration

Encourage questions

Provide privacy

Privacy curtain

Private cubicle

Diagnosis Preadmit Proc Knowledge Deficit

Ability

Instruct patient and significant other

Attire

Leave valuables at home

Remove

Body piercings

Make-up

Jewelry

Have patient, family or significant other share knowledge of diagnosis

Clarify any misunderstanding

Have patient, family or significant other share knowledge of planned procedure

Clarify any misunderstanding and notify physician if further informed consent is needed

Have patient, family or significant other share knowledge of how long the procedure is expected to take

Clarify any misunderstanding

Speak quietly

Orient to environment

Staff

Call bell/light

Bed control

Chair controls

Equipment

Location of restrooms

Family waiting areas

Unit routine

Encourage comfort objects from home

Refer to Social Services

Refer to Pastoral Care

Provide education at level appropriate to age

Use language that is appropriate to patient

Provide an interpreter as needed

Present information based on

Patient’s learning

Preference
Have patient, family or significant other share information about anesthesia technique that is planned

Introduce anesthesia provider

Refer to anesthesia provider for clarification

Have patient, family or significant other share knowledge of anticipated length of stay

Introduce pain scale tool appropriate for age

Provide information about Laboratory work

ECG

Imaging studies

Provide information about equipment

Provide information about supplies

Provide information about activities needed to enhance recovery

Initiate discharge planning

Caregiver

Transportation

Special needs or equipment

**Target:**

- Patient: C001, 10014132
- Caregiver: C002, 10003958
- Family Member: C003, 10007596

**OUTCOME**

**Focus:** Lack of Knowledge of Treatment Regime (PreAdmit/PreProcedure) D011, 10021925

**Judgment:**

- Completed J010, 10004849
- Delayed J011, 10022089
- Interrupted J008, 10010519
- Started J009, 10018764

Diagnosis Preadmit Proc Knowledge Deficit
**DIAGNOSIS**

**Focus:**
- Risk for Impaired Skin Integrity
- Impaired Mobility
- Mechanical injury

**Client:** Patient

**PDE Assessment Terms**

<table>
<thead>
<tr>
<th>Skin assessment</th>
<th>Ruddy</th>
<th>Assess correct use of devices to prevent pressure injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discoloration</td>
<td>Cyanotic</td>
<td>Inspect surgical incision</td>
</tr>
<tr>
<td>Bruising</td>
<td>Jaundiced</td>
<td>Observe extremities</td>
</tr>
<tr>
<td>Rashes</td>
<td>Temperature</td>
<td>Redness</td>
</tr>
<tr>
<td>Abrasions</td>
<td>Warm</td>
<td>Breakdown</td>
</tr>
<tr>
<td>Dryness</td>
<td>Cool</td>
<td>Sources of pressure</td>
</tr>
<tr>
<td>Moisture</td>
<td>Turgor</td>
<td>Sources of friction</td>
</tr>
<tr>
<td>Color</td>
<td>Normal turgor</td>
<td>Identify patients at risk</td>
</tr>
<tr>
<td>Pink</td>
<td>Decreased turgor</td>
<td></td>
</tr>
<tr>
<td>Pale</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INTERVENTION**

**Action:**
- Positioning Patient
- Observing Transfer Injury
- Diagnosis Skin Breakdown
PDE Intervention Terms

<table>
<thead>
<tr>
<th>Position</th>
<th>Pills</th>
<th>Pressure ulcer prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reposition</td>
<td>Foam wedges</td>
<td>Skin surveillance</td>
</tr>
<tr>
<td>Manage Pressure</td>
<td>Pressure-reducing devices</td>
<td>Keep linens clean and dry</td>
</tr>
</tbody>
</table>

**Target:** Integumentary System

**OUTCOME**

**Focus:** Risk for Impaired Skin Integrity
- Impaired Mobility
- Mechanical injury

**Judgment:**
- Decreasing Level
- Increasing Level
- Same Level

Diagnosis Skin Breakdown

2
DIAGNOSIS

Focus: Stress Incontinence
        Urge Incontinence

Judgment: Actual
        Potential

Client: Patient
        Caregiver
        Family Member

PDE Assessment Terms:

Medical History
  Arthritis
  Benign prostatic hypertrophy
  Brain
  Infection
  Injury
  Tumor
  Cerebrovascular accident
  Demyelinating diseases

Diagnosis Urinary Incontinence Urge and Stress
Diagnosis Urinary Incontinence Urge and Stress

Maturational Appearance of stoma Discoloration
Geriatric Skin Adhesive product and application fit
Pediatric Irritation Distention of lower abdomen
Presence of stoma Rashes Bowel sounds

INTERVENTION

Action: Assisting With Toileting I009, 10023531
Continuous Surveillance I010, 10005093
Prioritizing (treatment) Regime I008, 10024438

PDE Intervention Terms

Fluid management Urinary catheterization intermittent Meds for treatment
Fluid monitoring Urinary incontinence Meds that exacerbate
Medication management Postoperative teaching Provide information on odor
Urinary elimination management Diapers Familiarize patient with potential risk of skin breakdown
Perineal care Linen protectors Ostomy care
Self care assistance External collection devices Clean with water and pat dry
Toileting Care of indwelling catheter Apply effective sealant barrier
Urinary tube care Use of absorbent pads Apply collecting pouch
Urinary catheterization Medications
Connect collecting pouch to continuous bedside drainage system

Apply antifungal spray or powder

Consult enterostomal nurse

**Target:**
- Urinary System
- Female Urinary System
- Male Urinary System
- Integumentary System

**OUTCOME**

**Focus:**
- Stress Incontinence
- Urge Incontinence

**Judgment:**
- Decreasing Level
- Increasing Level
- Same Level

Diagnosis Urinary Incontinence Urge and Stress
# DIAGNOSIS

**Focus:** Urinary Retention

**Judgment:** Actual

**Client:** Patient

**Caregiver**

**Family Member**

### PDE Assessment Terms

**Medical History**

- Alcoholic neuropathy
- Bladder neck contractures
- Brain
  - Infection
  - Injury
  - Tumor
- Cerebrovascular accident
- Demyelinating disease
- Diabetic neuropathy
- Diagnosis Urinary Retention

**Treatment Related**

- Medication effects
- Type of surgery

**Situational**

- Fecal impaction
- Genitourinary cases
- Gynecological cases

**Other**

- Multiple sclerosis
- Perineal swelling
- Prostate enlargement
- Sphincter blockage
- Spinal cord
- Tabes dorsalis
- Urerocele
- Ureterocele
- Strictures
### Gastrointestinal cases
- Fear of pain
- Hematuric

### Inguinal Hernia
- Inadequate intake
- Yellow

### Rectal
- Lower abdominal distention
- Pale

### Pelvic surgery
- Sensation
- Dark

### Intake & Output history (perioperative)
- Hesitancy
- Blue

### Anesthesia Technique
- Urgency
- Blue/green

#### General anesthesia
- Characteristics
- Brown

#### Regional anesthesia
- Urine amount
- Clarity

#### Spinal anesthesia
- Frequency
- Odor

#### Caudal anesthesia
- Urgency
- Consistency

### Others
- Color
- Volume

### Pain
- Consistency
- Volume

### INTERVENTION

**Action:**
- Assisting With Toileting
- I009, 10023531
- Continuous Surveillance
- I010, 10005093
- Prioritizing (Treatment) Regime
- I008, 10024438

---

Diagnosis Urinary Retention

2
### PDE Intervention Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder irrigation</td>
<td></td>
<td>Secure catheters</td>
</tr>
<tr>
<td>Fluid management</td>
<td></td>
<td>Encourage fluids</td>
</tr>
<tr>
<td>Fluid monitoring</td>
<td></td>
<td>Fluid bolus</td>
</tr>
<tr>
<td>Medication management</td>
<td></td>
<td>Provide privacy</td>
</tr>
<tr>
<td>Urinary tube care</td>
<td></td>
<td>Monitor Vital Signs</td>
</tr>
<tr>
<td>Urinary catheterization</td>
<td></td>
<td>Check</td>
</tr>
<tr>
<td>Urinary catheterization intermittent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary elimination management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary retention care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate previous patterns of voiding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visually inspect and palpate lower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>abdominal distention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use bladder scanner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure residual urine post catheterization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determine balance between intake and output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinalysis</td>
<td></td>
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<tr>
<td>Urine culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine sensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creatinine</td>
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</tbody>
</table>

**Target:**

- Urinary System
- Female Urinary System
- Male Urinary System
- Integumentary System

- Diagnosis Urinary Retention

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>T009, 10020421</td>
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<td>T010, 10007874</td>
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<td>T011, 10011591</td>
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<td>T007, 10010428</td>
</tr>
</tbody>
</table>
OUTCOME

**Focus:** Urinary Retention

**Judgment:**
- Decreasing Level
- Increasing Level
- Same Level

Diagnosis Urinary Retention
DIAGNOSIS

Focus: Ventilation  D018, 10020704
Hypoventilation  D019, 10005616
Hyperventilation  D022, 10009974

Judgment: Actual  J001, 10000420
Potential  J002, 10017252
Abnormal  J006, 10013269
Normal  J007, 10013295

Client: Patient  C001, 10014132

PDE Assessment Terms

<table>
<thead>
<tr>
<th>Normal respiratory rate</th>
<th>14-18</th>
<th>14-20</th>
<th>Snoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Rate</td>
<td>Adults</td>
<td>16-20</td>
</tr>
<tr>
<td>Neonate</td>
<td>40-50</td>
<td>Unobstructed</td>
<td>Nasal flaring</td>
</tr>
<tr>
<td>0-1</td>
<td>22-38</td>
<td>Partially obstructed</td>
<td>Grunting</td>
</tr>
<tr>
<td>1-3</td>
<td>22-30</td>
<td>Barking</td>
<td>Obstructed</td>
</tr>
<tr>
<td>4-6</td>
<td>20-24</td>
<td>Coughing</td>
<td>Secretions</td>
</tr>
<tr>
<td>7-9</td>
<td>18-24</td>
<td>Crowing</td>
<td>Bleeding</td>
</tr>
<tr>
<td>10-14</td>
<td>16-22</td>
<td>Stridor</td>
<td>Tongue</td>
</tr>
</tbody>
</table>

Diagnosis Ventilation
1
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Permanent</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Edema</td>
<td>Permanent</td>
<td>Right lung</td>
</tr>
<tr>
<td>Hematoma</td>
<td>Permanent</td>
<td>Right lung</td>
</tr>
<tr>
<td>Foreign body</td>
<td>Breath Sounds</td>
<td>Upper lobe</td>
</tr>
<tr>
<td>Oxygen saturation (numerical value)</td>
<td>Present</td>
<td>Middle lobe</td>
</tr>
<tr>
<td>Airway support/adjunct present</td>
<td>Diminished</td>
<td>Lower lobe</td>
</tr>
<tr>
<td>Chin lift</td>
<td>Absent</td>
<td>Left lung</td>
</tr>
<tr>
<td>Jaw thrust</td>
<td>Clear</td>
<td>Upper lobe</td>
</tr>
<tr>
<td>Nasopharyngeal airway</td>
<td>Rales</td>
<td>Lower lobe</td>
</tr>
<tr>
<td>Oropharyngeal airway</td>
<td>Crackles</td>
<td>Bilateral</td>
</tr>
<tr>
<td>Laryngeal mask airway</td>
<td>Wheezing</td>
<td>Anterior chest</td>
</tr>
<tr>
<td>Endotracheal tube</td>
<td>Rhonchi</td>
<td>Lateral chest</td>
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<tr>
<td>Orotracheal tube</td>
<td>Stridor</td>
<td>Posterior chest</td>
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<tr>
<td>Nasotracheal tube</td>
<td>Pleural friction rub</td>
<td>Base</td>
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<tr>
<td>Tracheostomy</td>
<td>Inspiratory</td>
<td>Right</td>
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<tr>
<td>Temporary</td>
<td>Expiratory</td>
<td>Left</td>
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**INTERVENTION**

**Action:**
- Monitoring Respiratory Status: I001, 10010018
- Continuous Surveillance: I010, 10005093
- Prioritizing (treatment) Regime: I008, 10024438

Diagnosis Ventilation

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**PDE Intervention Terms**

- Monitor airway status
- Auscultate breath sounds frequently
- Insert airway adjunct
- Nasal airway
- Oropharyngeal airway
- Provide airway support
- Chin lift
- Jaw thrust
- Provide stimulation
- Remove foreign body
- Back blows
- Chest thrusts
- Abdominal thrusts
- Reposition head

- Reposition patient
- Semi-Fowlers
- Fowlers
- Nasal airway
- Oropharyngeal airway
- Prepare airway support
- Pulse oximetry
- Prepare for intubation
- Prepare for reintubation
- chin lift
- Jaw thrust
- Provide stimulation
- Administer oxygen therapy as indicated
- Bag-valve-mask device
- Nasal prongs
- Nasal cannula
- Face mask

- Non-rebreather
- Venturi
- Face tent
- Tracheostomy
- Mask
- Collar
- T-Piece
- Blow By
- FiO2
- Order X-rays
- Order Arterial Blood Gas (ABG)
- End Tidal CO2

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**Target:**

- Laryngeal Cavity
- Nasal Cavity
- Oral Cavity

**Diagnosis Ventilation**

3
<table>
<thead>
<tr>
<th>Focus</th>
<th>Diagnosis Ventilation</th>
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<tbody>
<tr>
<td>Ventilation</td>
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<td>D022, 10009974</td>
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<td>Increasing Level</td>
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<td>Same Level</td>
<td>J005, 10017473</td>
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Bibliography


Ralston M. *PALS provider manual*. Dallas, TX: American Heart Association; 2006.