This manual is designed to assist you as you plan your competency assessment program for nurses caring for patients requiring chest drainage. No guarantees are made that the information contained within is the only information required for accreditation purposes, or that this information will meet all accreditation requirements. You may copy checklists from this manual only for the purposes of using them in practice in your institution with Atrium products. No representation is made for the applicability of the checklists for other manufacturers' chest drains. The manual is © 2010 Atrium Medical Corporation. All rights reserved.
Our goal with this manual is to help you develop methods for assessing the competence of your nursing staff to care for patients with chest tubes who require chest drainage.

Ever since JCAHO developed the competency standard, nurse managers, educators and clinical specialists have felt the burden of assessing staff competence. Through this manual, we'll give you some perspectives from the literature and provide a variety of approaches to assessing competence so that you can choose strategies that fit best in your practice situation and your organization.

We have included an extensive list of references on both competency assessment and chest drainage so you can review the literature as you wish. Some of these articles are available from your Atrium representative; don't hesitate to ask him or her for assistance.

While checklists aren't the complete answer to the competency assessment dilemma, we have included psychomotor checklists for each Atrium drain as well as for implementing autotransfusion. Feel free to photocopy these checklists and use them in your orientation program, critical care course or assessment of new hires.

Competency assessment includes evaluating the nurse's ability to perform at the bedside in the clinical setting; it is difficult to help you do that with a manual. However, for simulation purposes, we include sample case study situations that will allow you to assess clinical decision-making skills before the nurses go to the bedside to apply their learning. You may use these as an individual written exam, or you can use them to lead a group discussion to ask nurses how they would handle specific situations. Since nurses won't be practicing all alone and will have colleagues to call on, a group discussion is a closer simulation of a true bedside experience.

We appreciate your feedback. Please don't hesitate to let us know how we can improve this manual or develop other tools about chest drainage to make your job easier. Just call Atrium Medical Corporation at (800)528-7486. Or visit us on the web at www.atriummed.com.
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Assessing Competence of Nurses Caring for Patients Requiring Chest Drainage

Part One: As Simple as A-B-C
Atrium
Basic Competencies

Our goal is to help you develop methods for assessing the competence of your nursing staff to care for patients with chest tubes who require chest drainage.

When the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) made assessing workers’ competence to do their jobs a requirement of accreditation, nurse managers and educators across the country felt the new requirement's weight. Each institution seemed to have its own interpretation of "competent practice", and its own approach to evaluating whether nurses are competent to provide care. In many organizations, "assessing competency" led to a panicky sea of paper predominated by checklists. Many managers and educators believed that if an organization could "check off" its employees, it had met the JCAHO standards.

Before we analyze whether or not that’s an ideal approach, we first need to look at what organizations can do, and what competence and competent practice really mean.

What Can Organizations Do?

An institution's response to JCAHO requirements is like a Rorschach test: The approach chosen typically reflects the organization’s dominant vision and philosophy. Organizations can choose one of two paths — either create task-oriented checklists or examine how hiring, developing and maintaining competent staff can be woven like a thread through the entire organization.

Organizations in the latter group seize the opportunity to become competent organizations in which the notion of competence drives:
• the way people are hired, evaluated and promoted;
• the way a quality assurance or continuous quality improvement program is designed; and
• how the organization as a whole responds to the needs of the customers in the community it serves.

However, as Ann Kobs of the JCAHO noted, "It is a rare organization that focuses beyond the psychomotor" (Kobs, 1997a) — and that means checklists.

If you’re in a checklist-driven organization right now, we’re not suggesting you’re necessarily doing anything wrong. Congratulations on the work you did to develop the checklists and get through your JCAHO surveys! Now that you have a basic framework in place, you can explore other options available to shift to a philosophy that helps establish a competent organization and makes competency assessment an ongoing process instead of a once-a-year event. This change can make the requirement of assessing your staff's competency much, much easier than the labor-intensive work and bedside staff time required to complete annual checklists.
What is Competent Practice?

Perhaps no term other than "critical thinking" has been used and abused the way the terms competence and competency have been. It seems that almost every author who writes about the topic has a slightly different take on the concept. While the Joint Commission requires that all staff in the organization are competent (Kobs, 1997a), it provides little concrete guidance about what competence is and how to measure it. That determination is left to the organization; as long as a plan and rationale are in place (see Box 1), organizations today have many options.

First, it is important to develop a consensus in your organization about what competence and competency really mean. Without being too esoteric, we will use the terms interchangeably to mean possessing the requisite knowledge, skills, self-awareness of one's own limitations and capabilities, and attitudes to perform in a given setting — and performing successfully. While some authors make a clear distinction between the ability and the performance (Alspach, 1992; Gurvis & Grey, 1995; Hadaway, 1997), for this discussion we will not because, in clinical practice, performance is the critical element.

A key concept is that competence requires integration of psychomotor, cognitive and affective attributes (Alspach, 1992; Kobs, 1997a), including clinical applications and problem-solving skills (Stahl & Richards, 2002). Based on this concept of competence, a simple skills-based checklist or multiple choice test is not adequate to assess staff competence. In other words, it is not enough to be able to demonstrate a knowledge base; the staff member must be able to apply that knowledge in the clinical setting. Think about the Advanced Cardiac Life Support curriculum. A written exam is not sufficient for successful completion of the course; participants need to apply their knowledge in a clinical simulation mega-code situation to demonstrate the ability to act on their knowledge in the clinical setting (performance).

Another critical concept about competent practice is that competence is setting-specific. An experienced critical care nurse who has cared for hundreds of patients requiring mechanical ventilation, for example, may be highly competent in their care. However, that same nurse is not automatically competent to care for a patient receiving mechanical ventilation at home where the environment, equipment, and interpersonal interactions are very different from those in the hospital (Blevins, 2001). While this nurse may have the "book knowledge," that knowledge base may or may not be transferrable to a new practice setting. Remember, competence is not just knowing the right thing to do -- it is successfully performing in a particular practice setting.

Box 1. JCAHO Standard LD 3.70

The leaders define the required qualifications and competence of those staff who provide care, treatment, and services, and recommend a sufficient number of qualified and competent staff to provide care, treatment, and services.
Aren't Competency and Knowledge the Same Thing?

Those of us with more years of experience than we might care to admit have worked with nurses who were "book smart" but who couldn't apply that knowledge to bedside care. Those nurses may be knowledgeable, but they aren't necessarily competent. Conversely, a nurse may not have specific knowledge, but may still be competent.

Here's an example. A medical-surgical nurse may not often take care of patients with chest tubes. But the nurse has had successful past experience with chest drains and can perform an appropriate assessment of a patient's respiratory status and identify assessment findings outside the normal range. He or she may not be able to set up a drain quickly or instantly describe how to interpret bubbling in the water seal chamber. The nurse may lack that technical knowledge. But the nurse is competent if he or she knows how to fill that knowledge gap at the time the patient needs care.

If the nurse can quickly identify resources that will help him or her care for the patient safely — such as wall charts, training aids, or a policy and procedure manual — or if the nurse knows whom to call for help, such as a clinical nurse specialist, educator, designated colleague, or Atrium's on-call clinical specialist, then that nurse may be considered competent by an institution's competency standards. This is one reason Atrium lists its 24-hour, toll-free clinical support telephone number on the front of each drain. Atrium wants nurses who are unsure about caring for patients with a chest drain to call. An expert can then provide support and answer questions so that nurses can provide competent bedside care of patients with chest tubes who require chest drainage.

It's unrealistic to expect all nurses to be up-to-date on every clinical situation, especially those that may come up only a couple of times each year. A skills fair during which nurses can practice with equipment is one approach because the hands-on experience enhances psychomotor skills. However, if nurses do not regularly use equipment, they won't remember what to do with it (Adams, et al., 2002).

In many practice settings, it is more practical to teach nurses how to fill a knowledge gap with readily available resources and whom to consult or call, which can be considered competent practice. Why? It shows problem-solving skills that allow the nurse to function effectively and safely at the bedside. Because the definition of competence can vary so much, it is essential for the institution to define competent practice for the care of patients with chest tubes, evaluate nurses' competency and be able to justify or back up those decisions during a site visit. With JCAHO's implementation of patient safety goals in 2004 (JCAHO, 2004), it is even more important to establish a system that can answer nurses' questions and provide ready access to instruction and experts when a low-frequency, high-risk situation arises.
If Not Checklists, Then What?

The first step is to define competent practice. When caring for patients requiring chest drainage, for example, there may be different statements of competency for patients with mediastinal tubes compared with patients having pleural tubes. Don’t forget to include age-specific competency statements for those nurses who regularly care for patients of various ages, such as in the ER, OR, or PACU. Since the competencies are institution-specific and will be based on institutional philosophies and models of practice, we will not provide a list here. However, in part 2 we provide examples of ways to combine competence assessment with practice models.

To establish your standards for competent practice, consider these steps:

- **Set Up the Team**

  First, assemble a team representing a variety of stakeholders. Resist the urge to include only nurse managers, clinical nurse specialists, educators and APRNs. Be sure also to include nurses who perform the job daily at the bedside. They will provide a reality check that will validate your competency statements.

- **Establish Criteria**

  The team should work together to formulate competency statements. These are generally broad statements, such as "The nurse provides safe and skilled care to the patient with mediastinal chest tubes." Then, the nurses on the team who care for those patients on a daily basis can help fill out what constitutes "safe and skilled care." Box 2 provides sample statements for competency documents relating to patient assessment.

Some institutions have decided to rewrite their policy and procedure manuals to include competency statements that reinforce the concept of competent practice throughout the institution. Others have actually incorporated competency statements into their job descriptions and employee evaluation forms. Sharon LaDuke, of Hepburn Medical Center in Ogdensburg, NY, created a hospital-wide competency assessment system that was reflected in a single document: the nurse’s job description. This description is the basis for determining if the nurse demonstrates competence practice and for generating regular performance appraisals. This approach also makes the organization's expectations clear to the bedside nurse at the time of job interviews, so the nurse can carefully consider if the expectations of the practice setting are a good fit with his or her abilities.

Note that these key aspects do not focus on what the nurse needs to know, nor on what the nurse needs to do. Rather, this is a more holistic approach that integrates the knowledge, skills and attitudes necessary to perform effectively.

Box 2. Key Aspects of Competency Statements for Patient Assessment

- Collects assessment data
- Includes information from family and other relevant sources
- Distinguishes between normal and abnormal assessment findings
- Analyzes patient assessment data to direct nursing interventions
- Documents to facilitate communication among members of the healthcare team

(Adapted from Alspach, 1992)
How Can We Develop a Different Approach?

According to the literature, putting together a comprehensive competency assessment program requires a timeframe of at least 14 to 19 months.

Baziet, Erickson & Thomas (1989) offer these helpful tips:
• Base performance criteria on the organization’s policies and procedures — simply by referencing them. This way, competency statements will not require changes when policies and procedures are updated.
• Do not spell out each step of a procedure or process in the competency statements; this will keep the tool more concise.
• Focus on what people should be able to do (performance) in relation to patient outcomes, not what they know.
• Use clinical evaluation as the ultimate criterion of performance, not checklists or tests.
• Emphasize evaluation of integrated cognitive, affective and psychomotor skills in the clinical practice setting.

Can This Be Easy? You Decide.

It may be a challenge for staff members to make the conceptual leap from traditional means of evaluation based on knowledge (tests) and skills (psychomotor performance) in a simulated setting alone to continuous competency evaluation of bedside practice. It is important to get the message across that competent performance is expected every day of the year — not just once at a hospital-wide competency fair.

If you have relied on checklists, your head may be spinning by now, wondering how you can make this paradigm shift. First, understand from Ann Kobs of JCAHO (1997a), "There is no requirement for checklists, nor has there ever been." She goes on to note that surveyors report seeing an overabundance of paperwork during site visits.

So, what options do you have besides re-writing existing documents? How do you know if nurses really know what they’re doing when it comes to chest drainage? There are many options (see Box 3). You’re probably already doing some (if not all) of these activities but simply not documenting them as competency assessments.

Box 3. Methods of Assessing Competence

• Observation of workers in their daily work environment
• Clinical simulations
• Concurrent review of patient management through chart reviews
• Patient rounds that discuss the clinical decision-making process by nurses for patients in their care
• Quality improvement data
• Regular employment appraisals

(Kobs, 1997a; Gurvis & Grey, 1995)
Assessing competence can be as simple as reviewing incident reports and working with the risk management team to identify deficiencies. If there are no incident reports, risk management incidents, or sentinel events regarding chest drainage in a reporting period, then you have evidence that nurses are competent in the care of patients with chest tubes.

A similar review can be made of patient charts, to check documentation of the care of patients with chest tubes. If one doesn't already exist, you can set up a quality improvement indicator for chest drainage that is regularly monitored. You may wish to modify your bedside documentation forms to include assessments specific to chest drainage, such as monitoring the level of water in the water seal chamber, whether bubbling or tidalling is visible, and the suction level set on the drain.

If quality assurance audits are positive, patient outcomes are good, and there are no reports of deficiencies, then nurses are competent. The key is that this is an ongoing, regular assessment so that deficiencies can be spotted and addressed promptly in a nonpunitive manner.

Competency assessment does not have to be a time-consuming sea of paperwork for your organization. It does not mean completing stacks of checklists every year for each nurse. Instead, every nurse has to work in an environment in which expectations for competent practice are clear and regularly evaluated.

Assessing competence means that your organization has established a system to determine if any problems exist when nurses care for patients requiring chest drainage. If you establish a plan (such as using CQI data integrated with competency statements) and regularly monitor the criteria you've established, you will have met JCAHO requirements. Nurse managers, educators and CNSs do not have to invent new paperwork; they don't need to find new ways to evaluate whether nurses have the requisite knowledge, skills, and attitudes and can apply those qualities at the bedside to care successfully for patients with chest drains. Use data you're already collecting — what could be simpler?

How far do you take competency in your organization? That's up to you.
Part Two: More Building Blocks….D,E,F

Designing
Effective Evaluation
Feedback

In recent years, the nursing literature has featured a number of creative approaches to competency assessment. You might think of it as "assessing competence in the new millennium" since these articles have been published since 2000. These approaches integrate nursing competency with a model of nursing practice so that the competence assessment is an ongoing part of everyday care.

Benner’s Novice to Expert

Patricia Benner changed the way we look at the professional development continuum of registered nurses when she published From Novice to Expert (Benner, 1984). In this book, Benner describes her research applying the Dreyfus Model of Skill Acquisition to nursing practice. Through comprehensive interviews of nurses at various levels of experience, she identified five levels of practice.

One key concept from her research is that it is not the nurse's schooling or degree that establishes his or her level of practice - it is the amount of experience the nurse has. The more patients a nurse works with, the more the nurse is able to discern patterns associated with certain conditions, and the more holistic the nurse's practice becomes.

Another critical aspect of Benner's levels of practice is that they are setting-specific; that is, an expert neonatal nurse would not necessarily be an expert in coronary care. Keep this in mind for chest drainage when nurses move among similar units, but with different patient populations.

For example, if a medical unit becomes a medical-surgical unit, the nurse with expert assessment skills will be able to transfer those skills to a new patient population. However, that otherwise expert nurse may not have much experience with chest drainage on a medical unit. Similarly, a coronary care nurse who is expert at dysrhythmia analysis may not be at the same level working with critically ill trauma patients requiring chest drainage.

Many organizations have adopted Benner's model as a theoretical framework for clinical ladders and critical care orientation programs. Table 1 shows how this model can be applied to care of patients requiring chest drainage; you can modify this as needed for your particular practice setting.
Table 1: Application of Benner's Novice to Expert Model

<table>
<thead>
<tr>
<th>Benner’s Element</th>
<th>Novice</th>
<th>Advanced Beginner</th>
<th>Competent</th>
<th>Proficient</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Assessment (adapted from McGregor, 1990)</td>
<td>Explain correct technique for auscultation</td>
<td>Demonstrate correct technique for auscultation</td>
<td>Differentiate between normal &amp; abnormal findings</td>
<td>Interpret findings and suggest interventions</td>
<td>Anticipate complications &amp; interventions based on assessment findings</td>
</tr>
<tr>
<td>Chest Drainage</td>
<td>Identify components of a chest drain system</td>
<td>Confirm correct setup and proper functioning of a chest drain system</td>
<td>Differentiate between normal and abnormal findings when examining a chest drain system</td>
<td>Correlate findings of assessment of chest drainage system to underlying pathophysiology</td>
<td>Predict interventions that may be necessary for a given patient if chest drain assessment findings change</td>
</tr>
</tbody>
</table>

**Common Elements of Competent Practice**

Finnish nurse researchers (Meeretoja, Eriksson & Leino-Kilpi, 2002) wanted to establish indicators for competent practice that were universal for nursing care in any setting in their 1000-bed medical center. They based their analysis on Benner's later work with colleagues (1996).

An initial survey of 122 nurses (a majority of whom were staff nurses) identified 173 indicators of competent practice. These were reviewed, categorized, and then distributed to 25 groups of experts to identify those indicators that received a level of agreement across specialties. In rank order, these indicators are shown in Table 2.

This research is interesting for a number of reasons. Notice how these indicators have little to do with policy or procedures and much to do with holistic management of situations and nursing professionalism. Compare how these indicators were ranked by nurses in a large teaching hospital in Finland to how you would rank them based on your organizational culture.

To introduce a more holistic and less task-oriented view of competent practice, you may ask nurses in your organization to rank these items in order of importance. You can replicate that aspect of this study and then examine the cultural differences evident in the results.

These researchers ask colleagues to replicate their work and to examine the relationship between nursing care by nurses who possess these skills and continuously apply them to practice and the outcomes of patients cared for by these nurses.
Table 2: Application of Indicators of Competent Practice

<table>
<thead>
<tr>
<th>Indicators of Competent Practice</th>
<th>Application Examples (Patients with Chest Drainage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acting accurately in life-threatening situations</td>
<td>Recognizing signs of hemorrhage, massive air leak or tension pneumothorax</td>
</tr>
<tr>
<td>Coordinating nursing team activities</td>
<td></td>
</tr>
<tr>
<td>Anticipating significant changes in a patient's condition</td>
<td>Monitoring for bubbling and tidalling in the water seal chamber and the rate of drainage in the collection chamber</td>
</tr>
<tr>
<td>Promoting the patient's participation in and control of his or her own health/illness care</td>
<td>Teaching the patient about chest drainage</td>
</tr>
<tr>
<td>Providing an early warning signal</td>
<td></td>
</tr>
<tr>
<td>Incorporating relevant research into practice</td>
<td>See articles on chest drainage, references</td>
</tr>
<tr>
<td>Providing continuity for student nurse mentoring</td>
<td></td>
</tr>
<tr>
<td>Mentoring novices and advanced beginners</td>
<td></td>
</tr>
<tr>
<td>Providing emotional and informational support to patients</td>
<td></td>
</tr>
<tr>
<td>Guiding patients accurately and individually</td>
<td></td>
</tr>
<tr>
<td>Capturing the individual demands for patient guiding</td>
<td></td>
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<tr>
<td>Administering medications and IV therapy safely</td>
<td></td>
</tr>
<tr>
<td>Incorporating the patient and the family into the nursing care planning</td>
<td></td>
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<tr>
<td>Coaching other team members in rapidly changing situations</td>
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</tr>
</tbody>
</table>

**The California Model**

In 1993, a group called the California Strategic Planning Committee for Nursing (CSPCN) was formed to identify causes of the nursing shortage and to recommend a master plan for the state's nursing workforce needs (Keating et al., 2003a and 2003b). In one phase of the project, a task force examined the mismatch between the expectations of the workplace and nurses' educational preparation. The project developed competency statements for different nursing practice roles: LVN, RN care provider, RN care coordinator, and APRN. Each role's expectations addressed four key elements of nursing practice:

- Care provider
- Advocate
- Teacher
- Supervisor

Competency statements were developed for practice activities expected of nurses at different points on Benner's continuum (see Table 1): novice, competent, proficient, and expert. These are called the Competency-Based Role Differentiation Model (CBRDM). The task force worked with organizations whose job descriptions and performance evaluation tools included key differences among nursing roles: knowledge and skill required, levels of complexity of practice and responsibility for care, work effort and working conditions.
The task force invited hospitals to submit job descriptions and performance appraisals to the group for analysis to see if there was agreement between workplace expectations and the model developed. While a number of organizations assessed nursing performance according to Benner's levels of proficiency, only two documents provided criteria by which to evaluate the nurses. Thus, it was almost impossible to match the workplace expectations with the CSPCN's recommendations. The group's analysis of the documents provided identified common practice areas:

- Nursing process
- Safety
- Professional growth
- Patient / family teaching
- Leadership
- Management

Once the CBRDM was developed, it was tested in both schools of nursing and hospitals to seek congruency between education and practice. Behaviors identified for optimal nursing practice include:

- Exercising leadership in advocating for the patient
- Applying an ethical perspective in clinical decision-making
- Functioning effectively as a team member within the organizational structures to deliver patient care

Each of these elements has expectations for different experiential levels of practice from novice to expert, according to Benner's definitions. Nursing schools are now implementing this competency-based framework for curriculum development. This approach is groundbreaking because students will be able to transition from education to practice while being evaluated by the same criteria and with a clear understanding of expectations of the next phase of their practice.

This model also provides a framework for clinical ladder programs that will recognize the nurse's professional growth in the workplace.

**NIC NOC: Who's There?**

For the past twenty years, there has been an increased emphasis on standardizing language used to describe nursing practice. Standardizing language facilitates research. If nursing researchers agree on and use the same language, studies can be compared and replicated more easily because no one reading the study has to try to figure out what the researchers are describing.

In contemporary nursing practice, three standardized languages exist: the North American Nursing Diagnosis Association (NANDA), the Nursing Interventions Classification (NIC), and Nursing Outcomes Classification (NOC).

NIC is unique because it focuses on nursing behavior rather than the patient's condition or outcome. In this model, an intervention is "any treatment, based upon clinical judgment and knowledge, that a nurse performs to enhance patient/client outcomes" (Dochterman & Bulechek, 2004). Each nursing intervention has a label, a definition, and a set of activities (behaviors or
actions) nurses do to implement the intervention and help move a patient toward a desired outcome.

NOC describes nursing outcomes so that results of nursing interventions can be measured and evaluated. These research-based statements provide criteria that can be used to determine if a nursing intervention (including multidisciplinary care) is successful. Each outcome has a label, a definition, a list of indicators, and a Likert scale that allows nurses to evaluate patient status in relation to outcome achievement. Scales range from 1 to 5 where 1 is the least desired patient behavior, and 5 is the most desired behavior. Definitions of the Likert scale change depending on the nature of the outcome, with 10 different measurement scales defined in the third edition (Moorhead, Johnson & Maas, 2004). Examples include:

- Severely compromised to not compromised
- Severe deviation from normal range to no deviation from normal range
- None to extensive
- Never demonstrated to consistently demonstrated

In this classification system, scoring can be used daily (or less frequently, depending on the element being evaluated) to objectively evaluate the patient's progress toward outcome goals.

All three languages can be linked to standardize documenting, evaluating and analyzing nursing care. LaDuke (2002) points out that this language can be used to define a set of skills for job descriptions, as a basis for orientation, for performance appraisals, and to evaluate competent nursing practice. NIC allows nursing leaders to use standard terms to describe how we define nursing skills. This can help determine appropriate staffing levels and the most efficient staff mix, depending on the patient population and acuity based on the interventions required.

Because NIC clearly identifies an intervention, defines it, and provides the individual activities the nurse may need to perform to complete the intervention, it is, in itself, a competency assessment tool. LaDuke points out that the activities listed for each intervention constitute indicators of research-based performance criteria that can be used for valid, objective competence assessment.

NIC and NOC can be taken further. If, for example, you use the Benner model for nursing skills acquisition, you can form an expert committee to analyze the NIC activities and determine which are expectations for novice / advanced beginner practice, competent, proficient, and expert practice.

Table 3 shows how NIC and NOC can be used for patients who require pleural chest drainage (note that this example is not the only way these languages can be used and is not all-inclusive).
Table 2: Application of Indicators of Competent Practice

<table>
<thead>
<tr>
<th>Risk for impaired breathing pattern related to compressed lung tissue and ventilation/perfusion mismatch, as evidenced by decreased SpO₂, tachycardia, tachypnea, shallow breathing, decreased breath sounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIC 3350: Respiratory monitoring</td>
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</table>

<table>
<thead>
<tr>
<th>NOC 0403: Respiratory status: ventilation</th>
<th>Outcome statement: Patient's respiratory status will be minimally compromised or not compromised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicators: Scored severely compromised to not compromised</td>
<td></td>
</tr>
<tr>
<td>Respiratory rate, respiratory rhythm, symmetrical chest expansion, breath sounds scored severe to none</td>
<td></td>
</tr>
<tr>
<td>Accessory muscle use, abnormal breath sounds, shortness of breath</td>
<td></td>
</tr>
</tbody>
</table>

Whichever method you choose, we hope this review of available options provides you with a range of resources you can explore further to develop a plan that fits your patient population, organizational culture, and guiding philosophy of nursing care.
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</tr>
</thead>
<tbody>
<tr>
<td>Selected related activities:</td>
<td>• Monitor rate, rhythm, depth and effort</td>
</tr>
<tr>
<td></td>
<td>• Note chest movement, watching for symmetry, accessory muscle use and retractions</td>
</tr>
<tr>
<td></td>
<td>• Palpate for equal lung expansion</td>
</tr>
<tr>
<td></td>
<td>• Percuss thorax</td>
</tr>
<tr>
<td></td>
<td>• Note tracheal location</td>
</tr>
<tr>
<td></td>
<td>• Listen to breath sounds</td>
</tr>
<tr>
<td></td>
<td>• Monitor for dyspnea</td>
</tr>
<tr>
<td></td>
<td>• Assess for crepitus</td>
</tr>
<tr>
<td></td>
<td>• Review chest x-ray results</td>
</tr>
</tbody>
</table>

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<td></td>
<td>Respiratory rate, respiratory rhythm, symmetrical chest expansion, breath sounds scored severe to none</td>
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<tr>
<td></td>
<td>Accessory muscle use, abnormal breath sounds, shortness of breath</td>
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Table 2: Application of Indicators of Competent Practice
Case Studies

Note that answers are suggested based on national standards of practice. Nurses' responses should be considered within the context of the setting in which they will be practicing. For example, local practice will determine when it is appropriate to call the patient's physician (or APRN or PA) in many cases.

Design your own case studies appropriate to your clinical setting, using these examples as guides. If you identify a particular problem during competency assessment, risk management or clinical practice, then write a case study of that situation and use it for future training and evaluation.

Case Study One

Mr. Johnson, 26 years old, had a right lower lobectomy after a stab wound to the chest. He has a chest tube in his midaxillary line on the right side; it is properly positioned in the pleural space. He is 12 hours postop, and when you assess the chest drain, you note the water in the water seal chamber is at the -15cmH₂O mark. What does this mean, and what nursing actions are indicated?

Suggested answers
1. It means there is or has been a situation of high negative pressure in the chest.
2. Patient should be assessed to determine what may have caused the high negativity (chest tube stripping, deep breath to cough, respiratory distress).
3. Depress the high negativity vent to return the water level to baseline (if connected to suction).
4. Any answer that indicates the nurse would consult a colleague, check the policy and procedure manual, call a clinical nurse specialist, educator, or other nursing resource, or call Atrium would be correct, as it demonstrates problem-solving behavior to assist the nurse in properly addressing the situation.

Case Study Two

Mrs. Weston, 56 years old, had a thoracotomy 36 hours ago; a lobectomy was performed to remove a cancerous tumor. You turn her from supine into a side-lying position, and approximately 200cc of dark blood spills into the collection chamber of the chest drain. What does this mean, and what nursing actions are required?

Suggested answers
1. Since blood coming in contact with the pleurae is defibrinogenated, it does not clot within the chest. It's not uncommon for drainage to be inaccessible to the chest tube until the patient is turned. As long as it is dark in color, and there is no indication of fresh bleeding, no nursing actions are required other than regular assessment of the patient and chest drainage system.
2. Any answer that indicates the nurse would consult a colleague, check the policy and procedure manual, call a clinical nurse specialist, educator, or other nursing resource, or call Atrium would be correct, as it demonstrates problem-solving behavior to assist the nurse in properly addressing the situation.
**Case Study Three**

Mr. Sanchez, 66 years old, has had a CABG with the internal mammary artery used for the graft. He comes to the cardiothoracic ICU with two mediastinal chest tubes in place connected to one chest drain. During your assessment of the chest drain, you note new bubbling in the water seal chamber. Describe what you would do to determine where this air leak is from. What could an air leak from the chest indicate in this situation?

**Suggested answers**

1. Get two booted hemostats or special tubing clamps. Clamp one chest tube momentarily, beginning at the patient, where the chest tube leaves the chest. Clamp and look at the water seal chamber to see whether the bubbling has stopped. If you clamp at the chest and the bubbling goes away, the leak is coming from the part of the chest drained by that chest tube. If you clamp at the chest and the bubbling persists, the leak is either between the clamp and the water seal chamber or from the other chest tube. Clamp the other chest tube at the chest simultaneously and check again for bubbling. If bubbling stops, the leak is within the chest. If bubbling persists, the leak is between the clamps and the water seal chamber. While momentarily occluding the tube, move the clamp down the tubing toward the chest drain – clamp and reassess. When the bubbling goes away, the clamp is below the site of the leak.

2. If there is evidence the leak is coming from the chest, the physician should be notified, and the patient’s respiratory status should be carefully monitored because it is a new finding. There could be an air leak from the lung due to a tear made in the pleura during dissection of the internal mammary artery.

3. Any answer that indicates the nurse would consult a colleague, check the policy and procedure manual, call a clinical nurse specialist, educator, or other nursing resource, or call Atrium would be correct, as it demonstrates problem-solving behavior to assist the nurse in properly addressing the situation.

**Case Study Four**

Ms. Wu, 33 years old, was in a motor vehicle crash. She sustained multiple injuries, including fractured ribs and a pneumothorax. She now has ARDS and is on a ventilator with +10cmH₂O of PEEP. Assessment of the water seal chamber on the chest drain shows continuous bubbling. What does this mean, and what nursing actions should be taken?

**Suggested answers**

1. Perform a respiratory assessment to see if there are changes from baseline.

2. Continuous bubbling in the water seal chamber of a patient with a pneumothorax who is receiving PEEP from the ventilator is to be expected. Since positive pressure is continuously present in the lung, air will be continuously pushed out through the hole created by the pneumothorax.

3. Any answer that indicates the nurse would consult a colleague, check the policy and procedure manual, call a clinical nurse specialist, educator, or other nursing resource, or call Atrium would be correct, as it demonstrates problem-solving behavior to assist the nurse in properly addressing the situation.
Case Study Five

Mr. Goldstein, 72 years old had a single vessel bypass via OPCAB (off-pump coronary artery bypass). He was extubated in the operating room and is hemodynamically stable. How can early ambulation be facilitated to help reduce length of stay?

Suggested answers
1. Use a chest drain designed to enhance patient mobility such as the Express Mini 500 Mobile Chest Drain. The small, streamlined device allows the patient to walk without carrying the drain by providing straps that go around the waist or over the shoulder.
2. Connect the chest drain to suction only when indicated by individual patient assessment. Research shows that for a large majority of patients, suction is not required and can increase LOS.
3. Any answer that indicates the nurse would consult a colleague, check the policy and procedure manual, call a clinical nurse specialist, educator, or other nursing resource, or call Atrium would be correct, as it demonstrates problem-solving behavior to assist the nurse in properly addressing the situation.
Suggested Readings

Readings for Additional Information: Competency


Gebbie K et al (2002). Identifying individual competency in emerging areas of practice: an applied approach. *Qualitative Health Research*, 12(7), 990-999. **


*Not all of these articles support the competency models described in this monograph. Those marked with ** are the most recent and particularly innovative and informative as determined by the author.

**Chest Drainage Suggested Readings**

For an extensive list of references, please visit the Atrium website and go to this link: http://www.atriummed.com/drainreadings