COLLEGE OF
LICENSED PRACTICAL NURSES
OF ALBERTA

Health Assessment

CLPNA Self-Study Course

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College of Licensed Practical Nurses of Alberta (CLPNA)
St. Alberta Trail Place 13163 - 146 Street NW
Edmonton, Alberta, Canada T5L 4S8
Phone: 780-484-8886
Website: www.clpna.com
Email: profdev@clpna.com

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Content Development and Review

Dr. John Collins has attained broad experience in the fields of nursing and education. He has worked as an RN and RPN in clinical practice, administration, research, and education. As an individual who has completed undergraduate, graduate, and postgraduate studies, John values the principle of lifelong learning and encourages others to follow this path with a view to providing excellence in client care.

Jason Richmond is an Advanced Care Paramedic with experience in healthcare, education and curriculum development. He is currently pursuing a Master of Education in Distance Education. Jason was the Founding Chairperson of the Continuing Education Centre for Emergency Services, which continues to provide free continuing education. He is a strong advocate for integrated practice between health professions and open education.

Heather Buzila completed the editing of these course modules. Heather has broad editorial experience that includes educational materials and fiction and nonfiction manuscripts.

Design and Programming

Russell Sawchuk of Steppingstones Partnership, Inc., and Learning Nurse Resources Network completed the design and programing for this course.

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Introduction

Assessment is a dynamic and continuous process involving the collection, verification, and organization of information about a client within a specific health-care context. Assessment begins when the nurse first encounters the client. This encounter may involve the physical presence of both the nurse and the client, or it may begin when the nurse is provided with information about the client or the client's records in advance of meeting him or her. Assessment continues throughout the nurse-client relationship—it is an ongoing process that provides increased and enhanced or clarified client information as it proceeds. "Nurses take a highly critical perspective towards client assessment, as every piece of data can always be further clarified by the next piece of data. Humans are not static entities. Therefore, there is always more data to be discovered!"[1]

Every day, nurses around the world are engaged in the practice of health assessment. The health team, especially the clients themselves, rely on nurses for completeness and accuracy of data collection and for reliability in the interpretation of that data. The client's health outcomes are contingent on how this data is critically appraised, how clinical judgments are made, and how nursing interventions are applied. Thus, health assessment for the licensed practical nurse (LPN) is a meaningful component of nursing practice involving many competency areas with critical consequences for the clients LPNs work with.

This course aims to review health assessment and its component parts and to discuss the integration of these into holistic nursing practice. The course follows the various types of assessments LPNs practice and provides a review of the theory and content from the nursing sciences and arts.

The course begins with an overview of key theoretical content related to health assessment before moving into the various types of assessments. In addition, there are online exercises and questions provided at studywithclpna.ca, where learners can challenge themselves further in a particular area.

Course Learning Outcomes

- State a definition of *health assessment*.
- State the types of client assessments that LPNs perform.
- Identify the various components of a health assessment.
- Describe the process of conducting each type of assessment.
- Identify the techniques that LPNs use in conducting health assessments.
- Indicate how health assessment can be applied across the lifespan.
- Apply communication skills to the conduct of health assessments.
- Analyze data collected during the health assessment.
- Demonstrate cultural safety in performing health assessments

Chapter 1: Overview of a Holistic Health Assessment

This chapter reviews the role of the LPN in health assessment. It provides a definition and overview of health assessment and identifies several reasons for conducting these assessments. The chapter includes comments about health assessment as a key component of the nursing process, both in providing initial data and in evaluating the effects of nursing interventions on clients, as well as in monitoring the progress of the client's health status. Lastly, the chapter addresses health assessment as a part of health promotion in nursing practice.

Chapter Outcomes

On completion of this chapter, participants will be able to do the following:

- Describe the roles of the LPN in health assessment.
- Define *health assessment* and its place in the nursing process.
- Provide reasons for conducting a health assessment.
- Explain health assessment as a health-promotion activity.

Questions to Consider

- In your area of work, what types of client populations do you commonly treat? What barriers can you identify, and how do you and your peers overcome these?
- How does health promotion affect client outcomes? In your place of work, what types of promotional activities occur? Can you identify their purposes?

Role of the Licensed Practical Nurse

LPNs work in a variety of contexts of care, from hospital units to residential care facilities to community centres and outpatient clinics in urban, rural, and remote settings. They also provide nursing care to clients across the lifespan. In some contexts of practice, LPNs play supporting roles in teams, while in others they take leadership roles. In all the nursing services they provide and the roles they fill, none is more crucial than providing accurate client assessments. Sometimes the continuation of clients' lives and the quality of those lives depend on the accuracy and outcome of the health assessment.

With these circumstances in mind, and considering the vulnerability of individuals who are the subjects of health-care services, nurses need to approach client assessment from a holistic frame of reference. Without the view of the whole person, information gathered from data can be misinterpreted. This has the potential to lead to situations of harm for the client, as well as to valuable time being wasted. For example, a nurse assessing a client's pulse in a situation of ruling out cardiovascular events might interpret the faster-than-usual pulse as a tachycardia. However, in the context of the client being visited by a long-lost friend five minutes before the pulse was assessed, the data takes on alternative possibilities for interpretation. Without this attention to the whole person, it is not difficult to see that nursing (and other) interventions could prove harmful rather than health-promoting.

What is a Health Assessment?

The health assessment is a dynamic and continuous process involving the collection, verification, and organization of information about a client within a specific health-care context. Assessment begins either when the nurse first encounters the client or before. This encounter may involve the physical presence of both the client and the nurse, or it may begin when the nurse is provided with information about the client or the client's records in advance of meeting the client. Assessment continues throughout the nurse-client relationship—it is an ongoing process that provides increased and enhanced or clarified client information as it proceeds. "Nurses take a highly critical perspective towards client assessment, as every piece of data can always be further clarified by the next piece of data. Humans are not static entities, therefore, there is always more data to be discovered!"[2]

During the health assessment, emphasis should be placed on focusing the evaluation around the client's personal beliefs and practices. With assessment findings, the health-care team can develop a treatment plan that is centred on the client's needs. As a practitioner, be ready to contribute by providing care for the client and recording and reporting findings for optimal client outcomes.[3]

Assessment can be an intentional activity, such as when a nurse completes the initial assessment for a new client or when a client's health status changes. Additionally, assessment can be an incidental activity, such as when a nurse overhears a client saying something to a family member as she or he passes the client's room.

Purpose of the Health Assessment

The purpose of assessment is to establish a database about the client's perceived needs, health problems, and responses to these problems. In addition, the data can reveal related experiences, health practices, goals, values, and expectations about the health-care system.[4] The

health history informs the need for, and the degree of, physical assessment, and the data collected in the physical assessment is varied, based on the client's acuity and presenting symptoms. When the situation is of an urgent nature, the nurse will focus the data collection to try to gather evidence that will point to the source of the client's problems and allow treatment to begin promptly.

At times, the purpose of the assessment is to provide an updated baseline for a healthy client. In this case, data collection will focus on risk factors and lab and diagnostic screening and will put emphasis on health-promotion activities and client education.[5] In most inpatient scenarios, nurses perform assessments to monitor the client for changes in their health status—progress or deterioration. Having obtained the original baseline assessment data allows for further measures to be compared, with the nurse's attention focused on finding patterns that point to improvement or worsening of the client's health status. These assessments also allow the nurse to find early signs of change and thus anticipate issues before they become a threat to the client's life. Moreover, these ongoing assessments can serve to provide evidence of the client's responses to treatment.

The Nursing Process in Health Assessment

The nursing process is a framework intended to produce individualized care to the client (individual, family, group, community). Applying the nursing process involves a "back and forth among the phases of this problem-solving approach."[6] The process begins with an assessment of the client, and from that point forward all further care of the client is dependent on the degree to which the assessment data is complete, accurate, and current. In order to move through and address the next three phases of the nursing process (diagnosis, planning, and implementation), the nurse will need to apply critical thinking, clinical reasoning, and clinical judgment to the interpretation of the data and development of the care plan. The evaluation phase of the nursing process involves collecting data related to outcomes of nursing care and completing further assessments to determine if the goals of care are being met. This part of the process may also lead the nurse to collect more precise and specific data, thus entering the assessment phase again. These phases of the nursing process can also overlap as the nurse responds to initial assessment data pointing to the need for urgent intervention. Further, as the nurse collaborates with the client in his or her care, components of the assessment may be adjusted to address client needs. Stephen et al. cite the example of the client whose priority is to sleep, and the nurse decides to omit four-hourly vital signs during the night (assuming the client's condition is stable).[7]

Health Assessment in the Context of Health Promotion

Social Determinants of Health, Health Beliefs, and Practices

An integral component of nursing practice is health promotion. Since the health assessment involves the collection of data related to the client's history, including medical history and social determinants of the client's health, health promotion can start with the assessment. During the assessment, the nurse pays attention to assessment of risk and takes immediate opportunities to educate the client about how to reduce risks and prevent illness and disease. At the same time, the data gathered in the assessment provides the basis for nursing

interventions, which include health-promoting strategies. Moreover, the assessment will uncover the client's health beliefs and practices, which the nurse can incorporate into the care plan.

When health assessments are conducted on "healthy" individuals, it is with a view to maintaining and promoting their health and preventing illness and disease before they occur (i.e., primary prevention). In acute-care contexts, the health assessment is directed toward early diagnosis and treatment to minimize the impact of illness on the individual, promote recovery, and prevent complications from arising (i.e., secondary prevention). In cases of chronic illness or disease, the health assessment aims to prevent complications of the existing condition and prevent exacerbations, restoring health to the optimum level in the circumstances (i.e., tertiary prevention).[8]

Concluding Comments

This section describes some theoretical tenets related to health assessment. The LPN has a key role to play in conducting accurate health assessments on healthy clients and those with a variety of health challenges. Knowing that health assessment is carried out in the context of the nursing process and that it can also serve to promote client health can assist the LPN in providing health assessments that serve the purposes for which they are intended in each circumstance. Chapter 2 adds to this theoretical understanding by addressing several nursing concepts that apply to the practice of health assessment.

Review Questions

- What are the purposes of the health assessment, based on your reading of this chapter?
- What are the three phases of the nursing process that follow the health assessment?
- What reasons in your work environment would you have to perform a health assessment?

Chapter 2: Safety, Ethics and Competence in Holistic Health Assessments

The LPN is responsible for providing safe, competent, and ethical care to clients. This chapter addresses each of these concepts in the context of health-assessment practices. This includes consideration of the significance of cultural competence and the culture of safe care to creating an environment that is safe and ethical for client care during the health assessment.

Chapter Outcomes

On completion of this chapter, participants will be able to do the following:

- Describe the factors that contribute to the culture of safe care in the context of health assessment.
- Explain culturally competent care in the practice of health assessment.
- Identify ethical issues that can arise in the context of health assessment.

Questions to Consider

- In your current work environment, what types of cultures can you identify?
- What special adjustments do you make to accommodate their needs?


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Culture of Safe Care

Safety has become a key concern of all health-care practice. The Canadian Patient Safety Institute defined *patient safety* in 2009 as "the reduction and mitigation of unsafe acts within the health care system, as well as through the use of best practices shown to lead to optimal patient safety."[9] The nurse must ensure that the client is safe at all times during health assessments. Providing this safety involves consideration of several issues including the nurse's knowledge base, the workload on the unit, new technologies, and the nurse's technical competence to perform assessment procedures. These factors, among others, allow the nurse to provide the client with safe, competent care. The Canadian Patient Safety Institute has identified more competencies that relate to the culture of safe care. Some of these have direct implications for health assessment, while others are less directly related.

Culturally Competent Care

Accurate assessment of the client involves taking a holistic perspective on data collection and interpretation. The more knowledge and understanding the nurse has of the client, the more the potential for accuracy in the health assessment. The LPN works to achieve cultural competence with each individual client. As a health-care professional, what do you suppose being culturally competent means? Stephen et al. describe this as follows:

> Cultural competence refers to the complex combination of knowledge, attitudes, and skills that a health care provider uses to deliver care that considers the total context of the client's situation across cultural boundaries (Purnell, 2009). The term has been applied in different ways: addressing culture so that racism and inequity are considered; thinking about culture as shared values, beliefs, and practices of groups of people (Spector, 2009): or thinking about an evolving concept labelled cultural safety by Canadian nurse researchers (Varco, Browne, et al., 2010).[10]

In your practice, how does your institute handle cultural differences? Does Stephen et al.'s definition apply to your practice? How would you expand on this definition for your context?

To provide culturally competent care, the nurse must maintain awareness of his or her own beliefs and health practices and how these could influence thinking and interpretation of assessment data from the client. Lack of awareness on the nurse's part has the potential to create barriers to the provision of culturally safe care for the client. Varco et al. highlighted the significance of culture between the nurse and the client in the context of health assessment:

> "People create culture in relation to one another and their environments. Nurses need to understand how they are bearers of health care and other cultures and how they create culture even as they do health assessments."[11]

Lifespan

Which data to collect, as well as the interpretation of that data, varies across the lifespan? Each human is unique, and their development as they progress through life can vary depending on factors such as their environments and their interfaces with the world. Assessment of areas such as growth and development, cognitive development, and motor development include a comparison of data collected against expected results, based on the client's stage of maturation and chronological

age. A child may be slow to develop physically compared to his or her cohort. An individual with mental health issues may have challenges of psychosocial development. Cognitive development can differ between toddlers and adolescents or be affected by injury or disease in adults. These are factors that must be given due consideration in health assessment.

Ethical Issues in the Context of Health Assessment

Common ethical issues that arise in the context of health assessment include informed consent, client rights, privacy and confidentiality, client dignity, and those issues already mentioned previously—safety and culturally safe care.

The nurse must obtain the client's consent for the various components of the assessment, must inform the client about what is involved in each assessment, and must ensure that the assessment procedures are carried out with rigor. The client has the right to give and withdraw consent at any time, and the nurse must respect this. The health-assessment procedures involve inquiring into the client's life and exposing the client's body. This can create situations involving various degrees of vulnerability for the client, depending on the individual and his or her cultural and spiritual beliefs. The nurse must be aware of this and conduct the assessment in a manner that is sensitive and respectful and maintains client dignity (i.e., client-centred approach). The same approach must be applied each time an assessment or further assessment is required for the individual client. It is preferable to conduct the health-assessment interview in an area away from others to preserve the client's privacy. All information and data collected from assessments must be assigned confidential status and only be shared with members of the health team and the client.

Concluding Comments

This chapter has provided a brief overview of some important areas of consideration for the nurse in advance of conducting health assessments. Further information about each of these can be found in the additional reading and resources found at the end of this document. Attention to this subject matter increases the competence of the LPN and the quality of the assessment.

Review Questions

- You are taking a health history. Why is it important for you to obtain a complete description of the client's present illness?
- You are taking a health history. What is one reason it is important for you to obtain a complete description of the client's lifestyle and exercise habits?[12]

Chapter 3: Health History and Interviewing

This chapter provides a discussion of the interview with the client, with a view to obtaining the client's health history. This interview is a vital component of the health assessment, since it can provide direction to the physical assessment, may suggest expected findings, or can provide an advanced explanation of data that the nurse may uncover. The interview is discussed with some pointers about types of questions and uses of communication techniques.

Chapter Outcomes

- State the importance of obtaining health histories from clients.
- Identify communication skills and therapeutic techniques that can enhance the interview with the client.

Questions to Consider

- In what ways does your work environment make the interviewing process easier for the client?

Components of a Health History

There are two main sources of information about the client: the primary source is the client, and the secondary source includes old health records and charts, family members, and other health-care team members. Asking the client directly is regarded as the primary source of information. However, it is not always possible to obtain this information from the client. If the client is unconscious or has limited speech related to cognitive impairment (e.g., from dementia, delirium, or depression), it may be impossible to obtain the history without consulting the secondary sources first.[13]

Depending on the type of unit you work on and the current state of the client, there are three types of history the LPN can undertake: emergency, focused, and comprehensive. It is obvious that if the client is experiencing a medical or surgical emergency, it would be inappropriate to complete a comprehensive interview. All the nurse needs at this point is the most basic information. The priority is to save the life or limb of the client.[14]

The Interview

Communication Process, Asking Questions, and Therapeutic and Non-Therapeutic Nursing Responses

To begin the interview with a new client, make sure that the client is comfortable, that all physiological needs have been met, and that both you and the client have sufficient time to dedicate to the interview—a minimum of 30 minutes of uninterrupted time. Before you begin to have a conversation with the client, you need to know the admitting diagnosis so you can determine how much energy the client will have to tell you about his or her recent health history and past health status.[15] In some cases, the story will be full of information that is not apparently relevant to the admitting diagnosis. However, it may shed light on who the client is as a person.

Questions that require an explanation are considered open-ended and allow the client to explain the illness and reason for admission in his or her own words. These are the types of questions that are most important to ask.[16] For example, ask, "Could you tell me why you have come to the hospital?" instead of, "Do you know where you are?" Similarly, when asking about pain, allow the client to describe the pain for you, rather than asking if the pain is sharp or dull. Often, health-care providers ask the client if the pain "goes anywhere" and then supply a list of possible locations for where the pain might be. Clients may want to provide you with possible locations where they think you expect the pain to be, rather than where it really is.

Another important aspect of the interview is silence.[17] This is a real challenge for busy health-care providers. Silence gives people the chance to think about the question and is often necessary. Remember, if you do not have the time to sit and allow the client to proceed at his or her own pace, you will not get the full perspective from the client.

During the interview, as well as obtaining the client's specific medical history, nurses obtain information that will allow them to determine how the client's health is affected by social determinants of health. Some of this data will come from closed questions that seek specific information (e.g., demographic information).[18] The following case study provides an opportunity to write about and demonstrate the communication skills you would use in the health assessment interview with the identified client. If you wish, you can choose to review the relevant chapters in your nursing textbook before engaging with the case study. Alternately, you can review *Clinical Procedures for Safer Patient Care* at https://opentextbc.ca/clinicalskills/

The Health History Checklist

In hospitals and other LPN work environments, there may already be a form that addresses components of this checklist. Always review and follow your local policies regarding this skill.

Assessment Steps	Additional Information
Determine the following: 1. Biographical data	• Source of history • Name • Age • Occupation (past or present) • Marital status/living arrangement
2. Reason for seeking care and history of present health concern	• Chief complaint • Onset of present health concern • Duration • Course of the health concern • Signs, symptoms, and related problems • Medications or treatments used (ask how effective they were) • What aggravates this health concern • What alleviates the symptoms • What caused the health concern to occur • Related health concerns • How the concern has affected life and daily activities • Previous history and episodes of this condition
3. Past health history	• Allergies (reaction) • Serious or chronic illness • Recent hospitalizations • Recent surgical procedures • Emotional or psychiatric problems (if pertinent) • Current medications: prescriptions, over-the-counter, herbal remedies • Drug/alcohol consumption
4. Family history	• Pertinent health status of family members • Pertinent family history of heart disease, lung disease, cancer, hypertension, diabetes, tuberculosis, arthritis, neurological disease, obesity, mental illness, genetic disorders

Assessment Steps	Additional Information
5. Functional assessment (including activities of daily living)	• Activity/exercise, leisure and recreational activities (assess for falls risk) • Sleep/rest • Nutrition/elimination • Interpersonal relationships/resources • Coping and stress management • Occupational/environmental hazards
6. Developmental tasks	• Current significant physical and psychosocial changes/issues
7. Cultural assessment	• Cultural/health-related beliefs and practices • Nutritional considerations related to culture • Social and community considerations • Religious affiliation/spiritual beliefs and/or practices • Language/communication

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. "2.4 Health History." In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

Case Study: The Healthy Adult

For this course, the following scenario is provided for your use. Please refer to this case when you are completing each of the assessments in the course, as directed.

Before you read the next passage, consider the following:

- How does the client's lifestyle contribute to his personal health?
- What pertinent family history would you ask for from this client?

The Healthy Adult

Mr. Surjeet Gill is a 32-year-old gentleman whose family arrived from the Punjab area in India 25 years ago. Mr. Gill has a family, consisting of a wife and two children, aged 8 and 11 years. He has a degree in commerce and works with a major bank as a financial planner. He states, "I work about 14 hours per day and seldom take a full weekend off." His wife works as a librarian three days per week. Mr. Gill indicates it is difficult to make ends meet with two growing children and the concerns of providing a good future for them.

Mrs. Gill's parents live in the area and are thrilled to have the grandchildren living close to them. They provide before- and after-school care for the children.

Mr. Gill has been healthy for the most part and is required to undertake a physical exam for life insurance. His immunization status is up to date; however, his family is not receiving annual flu vaccines. He had the flu this past year and missed ten days of work.

He reports that there is a family history of hypertension, coronary artery disease, and diabetes, especially on his father's side of the family. His father has had a myocardial infarction (MI) and has recently been diagnosed with type 2 diabetes. Mr. Gill smokes one pack of cigarettes

per day and started smoking at the age of 15. He also enjoys a beer after work and "a few drinks with friends on the weekend" and considers himself a social drinker. While going through school, Mr. Gill worked on a large farm, where his jobs ranged from driving a tractor and spraying the fields to harvesting the crops. He admits he spent many hours in the sun without the use of sunscreen and often went about his work without a hat or long-sleeved shirt.

Currently, Mr. Gill is not engaged in any organized sports. He does attend his son's tae kwon do classes and watches his daughter play soccer and field hockey. Because of his work hours, he is not able to get out to the gym as often as he would like.

Current health information: BP 132/74; HR 78 and regular; respirations 14 with a slight crackle at the bases; oxygen saturation 97 percent on room air; height 167 cm; weight 72 kg.

Directions to the Reader

Based on the information in the case study, complete a health interview and pull together all the relevant information that will form the first phase of the health history.

- What factors may be worsening the client's stress?
- How does his lifestyle relate to more significant pathology?
- What information do you feel you need for a more focused health assessment?

Example of a Nurse's Response

Social Determinants of Health: Both Mr. and Mrs. Gill are employed; they have child support in the way of grandparents. The curiosity about this arrangement is that we do not know the age or health statuses of the grandparents. This is relevant as it could have the potential of adding stress to the family situation if something should happen that would prevent them from taking care of the children.

Mr. Gill works 14 hours per day and gets very little exercise. This is relevant information because we know that consistently working long hours contributes to chronic health challenges—heart, lung, arthritis, and diabetes; the lack of exercise also contributes to the development of these conditions.[19, 20] There are financial concerns that also contribute to the stress. There is also a family history of these chronic conditions, setting Mr. Gill up for a genetic risk increase. Since Mr. Gill smokes one pack of cigarettes a day and has smoked since the age of 15, the risk of chronic respiratory and cardiovascular illness is increased significantly.

Stress → inflammation → coronary artery disease and chronic illness

We do not know much about the Gill family's diet—this will need to be explored further. We do know that Mr. Gill drinks alcohol, and the actual amount will need to be understood, as this too has health implications.

Mr. Gill has worked in farming and admitted to exposure to pesticides and herbicides. This information is relevant as many of the chemicals used in farming contribute to heart, lung, and kidney issues as a result of prolonged exposure. Additionally, the exposure to dust and sun have significant health implications and could contribute to chronic respiratory disease and melanoma.

Vital signs, height, and weight appear to be satisfactory.

Follow-Up Questions

- How did you feel your assessment compared to the example?
- What would you like to emphasize during your next assessment that would elevate your history?
- What would you emphasize during a report to a fellow nurse? A physician?

Concluding Comments

This chapter reviews the health history and a common approach to obtaining it. As you move forward into the next chapter, recall the order of the interview. Special considerations and adjustments may be needed, depending on the client population you are treating.

Review Questions

- Can you list a few reasons why a cultural assessment is important when taking a health history?
- What situations can you recall where the client's history prompted you to perform an extended assessment that addressed more than the chief complaint?

Chapter 4: Emergency and Comprehensive Assessments

This chapter provides content and direction regarding the conduct of initial emergency and comprehensive (head-to-toe) assessments. It highlights the roles of critical thinking, critical inquiry, and clinical reasoning in the interpretation of data gathered from these assessments.

Chapter Outcomes

- State the difference between systems and a head-to-toe assessment.
- Describe the techniques nurses use to complete physical assessments.
- State the components included in the emergency assessment.
- Describe pain assessment tools used in comprehensive assessments.
- Apply comprehensive assessments to client care.

Questions to Consider

- What is your general approach with a new client you have not met?
- Is a comprehensive assessment part of your regular duties? What tools do you have to help guide you through the process?

The Initial Emergency Assessment

The airway, breathing, circulation, consciousness, and safety (ABCCS) assessment is the first assessment you will do when you meet your client. This assessment is repeated whenever you suspect or recognize that your client's status has become, or is becoming, unstable. (Ask yourself, "Can I safely leave this client for 30 minutes?)[21] For example, if you assess that your client is short of breath (dyspneic) with an increased respiration rate (tachypneic), you should proceed with an ABCCS assessment and a focused respiratory assessment with appropriate interventions.[22]

The ABCCS assessment includes the steps in the initial emergency assessment checklist.[23]

The Initial Emergency Assessment Checklist

In a hospital and other LPN work environments, there may already be a form that addresses components of this checklist. Always review and follow your local policies regarding this skill.

Assessment Steps	Additional Information
A—Airway • Is the client's airway compromised?	Does the client's position need to be changed? If the client is choking on thick secretions, consider oral suctioning. If the client is able to talk clearly, the airway is unobstructed.
B—Breathing • Assess rate and ease of breathing. • Assess the effectiveness of the oxygen delivery.	Is the oxygen flow connection intact? Is the rate, flow, and percentage as ordered? Based on your assessment, consider the need for potential oxygen supplementation. Is the client working hard to breath? Are respirations regular and easy? Determine the depth of breathing.
C—Circulation • Assess for the presence of a radial pulse. • Assess skin colour, moisture, and temperature for signs of decreased tissue perfusion (pale, dusky, cool, or clammy skin).	Note whether the pulse is too fast, too slow, or absent. If a radial pulse is not detectable, check for a carotid pulse. If no pulse is present, call for help and start CPR.
C—Consciousness • Check the client's level of consciousness (LOC).	Is the client alert, drowsy, disoriented, restless, agitated, or unconscious? Note if there is a change from the client t's normal or previously noted LOC. Is the client responding to you when you enter the room? Determine if the client is oriented to person, place, time, and events.

Assessment Steps	Additional Information
S—Safety • Ensure the client is safe and free from the risk of harm or injury at all times. • Complete this check prior to leaving the room as well.	Check for name band and allergy band. Check oxygen saturation level. Check that suction is working. Check brakes on the bed, bedrail position (up, if required), bed is at the appropriate level, and call bell is within reach. Are there any fall risk indicators? Are there any dysphagia (difficulty swallowing) guidelines, or should there be some requested? Going in: Check medications from the source to the client, and confirm settings are correct on all devices. Coming out: Check that tubes are in place and there are no dependent loops. Note colours and amounts of drainage.

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. "2.6 Initial and Emergency Assessment." In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

A novice should be able to complete an initial emergency assessment within five minutes. With practice, this assessment should be completed within two minutes. This assessment establishes baseline data regarding the current status of the client and assists in establishing the current care needs. This assessment should be done when you enter the room and with each encounter.

Vital signs are not necessary during this assessment. Oftentimes, if there are devices used for taking vital signs, they are all tied up at the start of the shift, so it is acceptable to postpone vital signs until you have assessed your other clients.

The Comprehensive (Head-to-Toe) Assessment

Generally, these assessments will take longer than a focused assessment. You need to complete a comprehensive systems or head-to-toe assessment when a client is admitted to your care or when there is an unanticipated change in his or her condition. Check with facility policy to determine if there is a standing protocol for a full assessment to be completed every four hours.

Regardless of whether you use a systems approach (neurological, respiratory, etc.) or a top-down (head-to-toe) approach to a full holistic assessment, the assessment must:

- be comprehensive
- be complete
- incorporate the interpersonal aspects of the client's health

Whatever system you use, create a framework and system for your data collection and stick to it. If you do not use a system, you are more likely to miss important aspects of the assessment. Remember that *how* a person lives (social determinants of health) is as important as the physical findings. If the person cannot afford to pay the heating bills, he or she is unlikely to be able to afford fresh fruit and vegetables or medications. Never make assumptions about the person you are caring for. (Full information on each system will be included in the next section.)

> A comprehensive head-to-toe assessment is done on client admission, at the beginning of each shift, and when it is determined to be necessary by the client's hemodynamic status and the context. The head-to-toe assessment includes all the body systems, and the findings will inform the health care professional on the client's overall condition. Any unusual findings should be followed up with a focused assessment specific to the affected body system.[24]

Techniques for Completing the Physical Exam

It is essential that all physical assessments—whether head-to-toe or systems—include the following:

1. **Observation**: Make eye contact with the client when you enter the room. Remember to ask permission prior to starting the assessment. While you are doing this, however, you are looking at the client and determining if the information you received about this client matches what you are seeing. Look at his or her position in the bed or chair and whether he or she is attentive, appears comfortable, or is looking distressed, is having difficulty breathing, or is attending to you coming into the room. If you have seen this client before, do you see anything different? Who else is in the room? What are the visual cues to who this client is? Are there papers or magazines that would indicate hobbies or interests? Are there pictures that show a family or a pet?
2. **Inspection**: When you are asking questions, take note of the expression on the client's face and his or her position in the bed. Also look for things that should not be there: bruises, lumps, lacerations, wounds, scars from a previous surgery or injury, oxygen tubing, hearing aids, glasses, artificial limbs, and the like. You should look at each area you assess. For example, if you are assessing the respiratory area, the gown or shirt must be open to allow you to visualize the movement of the ribs, if there is any

intercostal indrawing or bulging, the shape of the chest, and the symmetry of movement of the chest. (Each area will be covered in detail as we go through each system.)

3. **Auscultation**: A good-quality stethoscope is essential when you are listening to heart, lung, and bowel sounds.

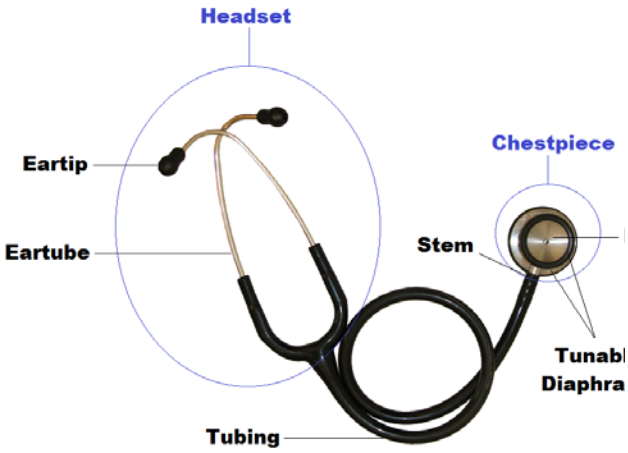


Figure 1. A diagram of a stethoscope.

Some stethoscopes come with a diaphragm that can be turned over so you can listen through the bell. The diaphragm is best for higher-pitched sounds, like breath sounds and normal heart sounds. The bell is best for detecting lower-pitched sounds, like some heart murmurs and some bowel sounds. It is used for the detection of bruits and heart sounds. (For a cardiac exam, you should listen with the diaphragm and repeat with the bell.) If you use the bell, hold it to the client's skin gently for the lowest sounds and more firmly for the higher ones.

Some stethoscopes have two tubes running beside each other, while the one in figure 1 has only one. Depending on what and where you are going to use the stethoscope, a single tube is often preferred. The issue with the double tubing is that the tubes can bump together, causing artefact or unwanted sounds that are not related to what you are listening to.

a. **Percussion**, while not routinely used by LPNs, is a useful tool for determining if underlying tissues are filled with fluid or air, or are solid.[25] Percussion defines pitch, quality, intensity, and duration. The technique is accomplished by tapping with the hyperextended tip of one finger with the tip of another finger while keeping the rest of the hand off the client's body. Please see the videos below for a clear demonstration. The technique is awkward to learn and is not often used, especially by novices. In some situations when an abnormal finding is discovered, the client is referred to radiology for X-ray or ultrasound to determine exactly what is going on.

Percussion Sounds

Note	Intensity	Pitch	Duration	Quality	Location
Hyper-resonant	Very loud	Low	Long	Booming	Emphysematous lungs
Resonant	Loud	Low	Long	Hollow	Healthy lungs
Tympanic	Loud	High	Moderate	Drum-like	Stomach
Dull	Moderate	High	Moderate	Thud	Liver
Flat	Soft	High	Short	Dull	Bone

Adapted from Stephen, Tracey C., D. Lynn Skillen, Rene A. Day, and Sharon Jenson. *Canadian Jensen's Nursing Health Assessment*, 1st ed. Philadelphia, PA: Lippincott Williams & Wilkins, 2013. 62.

Watch the following videos as a review of percussion techniques:

Percussion Techniques: – https://www.youtube.com/watch?v=mSJKI9Pkxxw

Percussion for Beginners – https://www.youtube.com/watch?v=mSJKI9Pkxxw

b. **Light palpation** is used to feel pulses, skin temperature, and moisture. Palpation is performed using the fingertips to gently push on the area of the body to determine areas of firmness, pulsation, or masses under the skin that may not be located through inspection alone. You will also be able to feel crepitus—a feeling of crunching rice cereal under the skin—if the client has an injury to the trachea, lungs, or diaphragm. The presence of crepitus is a danger sign. The air trapped is likely to rise or move toward the neck and face, making respiratory distress/arrest a possibility.

The Comprehensive (Head-to-Toe) Assessment Checklist

In hospitals and other LPN work environments, there may already be a form that addresses components of this checklist. Always review and follow your local policies regarding this skill.

Safety Considerations[26]

- Perform hand hygiene.
- Check room for contact precautions.
- Introduce yourself to the client.
- Confirm client ID using two client identifiers (e.g., name and date of birth).
- Explain the process to the client.
- Be organized and systematic in your assessment.
- Use appropriate listening and questioning skills.
- Listen and attend to client cues.
- Ensure client's privacy and dignity.
- Assess ABCCS/suction/oxygen/safety.
- Apply principles of asepsis and safety.
- Check vital signs.
- Complete necessary focused assessments.

Assessment Steps	Additional Information
1. General appearance: • Affect/behaviour/anxiety. • Level of hygiene. • Body position. • Client mobility. • Speech pattern and articulation.	Alterations may reflect neurologic impairment, oral injury or impairment, improperly fitting dentures, differences in dialect or language, or potential mental illness. Unusual findings should be followed up with a focused neurological system assessment.  *Figure 2. Assess general appearance (Doyle and McCutcheon 2015).*
This is not a specific step. Evaluating the skin, hair, and nails is an ongoing element of a full-body assessment as you work through steps 3–9. 2. Skin, hair, and nails: • Inspect for lesions, bruising, and rashes. • Palpate skin for temperature, moisture, and texture. • Inspect for pressure areas. • Inspect skin for edema. • Inspect scalp for lesions and hair and scalp for the presence of lice and/or nits. • Inspect nails for consistency, colour, and capillary refill.	Check for and follow up on the presence of lesions, bruising, and rashes. Variations in skin temperature, texture, and perspiration or dehydration may indicate underlying conditions. Redness of the skin at pressure areas such as heels, elbows, buttocks, and hips indicates the need to reassess client's need for position changes. Unilateral edema may indicate a local or peripheral cause, whereas bilateral-pitting edema usually indicates cardiac or kidney failure. Check hair for the presence of lice and/or nits (eggs), which are oval and adhere to the hair shaft.
3. Head and neck: • Inspect eyes for drainage. • Inspect eyes for pupillary reaction to light. • Inspect mouth, tongue, and teeth for moisture, colour, dentures. • Inspect for facial symmetry.	Check eyes for drainage, pupil size, and reaction to light. Drainage may indicate infection, allergy, or injury. Slow pupillary reaction to light or unequal reactions bilaterally may indicate neurological impairment.

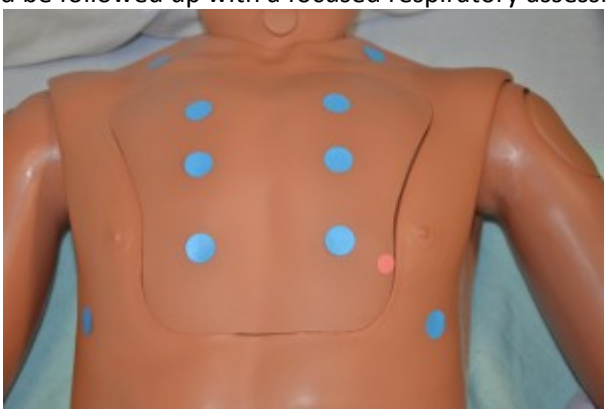
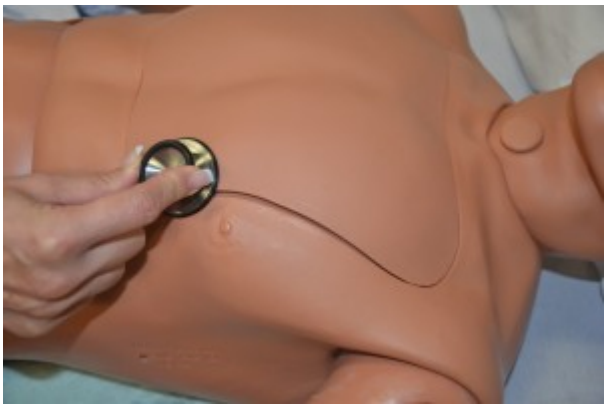
	 *Figure 3. Check pupillary reaction to light (Doyle and McCutcheon 2015).* Dry mucous membranes indicate decreased hydration. Facial asymmetry may indicate neurological impairment or injury. Unusual findings should be followed up with a focused neurological system assessment.
4. Chest: • Inspect: o Expansion/retraction of chest wall/work of breathing and/or accessory muscle use. o Jugular distension. • Auscultate: o For breath sounds anteriorly and posteriorly. o Apices and bases for any adventitious sounds. o Apical heart rate. • Palpate: o For symmetrical lung expansion.	Chest expansion may be asymmetrical with conditions such as atelectasis, pneumonia, fractured ribs, or pneumothorax. Use of accessory muscles may indicate acute airway obstruction or massive atelectasis. Jugular distension of more than three centimetres above the sternal angle while the client is at 45 degrees may indicate cardiac failure. The presence of crackles or wheezing must be further assessed, documented, and reported. Unusual findings should be followed up with a focused respiratory assessment.  *Figure 4. Auscultate anterior chest; blue dots indicate stethoscope placement for auscultation (Doyle and McCutcheon 2015).*

	 *Figure 5. Auscultate posterior chest; blue dots indicate stethoscope placement for auscultation (Doyle and McCutcheon 2015).*  *Figure 6. Auscultate apical pulse at the fifth intercostal space and midclavicular line (Doyle and McCutcheon 2015).* Note the heart rate and rhythm, identify S1 and S2, and follow up on any unusual findings with a focused cardiovascular assessment.
5. Abdomen: • Inspect: a. Abdomen for distension, asymmetry. • Auscultate: b. Bowel sounds (RLQ). • Palpate: c. Four quadrants for pain and bladder/bowel distension (light palpation only). • Check urine output for frequency, colour, odour. 6. Determine frequency and type of bowel movements.	Abdominal distension may indicate ascites associated with conditions such as heart failure, cirrhosis, and pancreatitis. Markedly visible peristalsis with abdominal distension may indicate an intestinal obstruction. Hyperactive bowel sounds may indicate bowel obstruction, gastroenteritis, or subsiding paralytic ileum. Hypoactive or absent bowel sounds may be present after abdominal surgery or with peritonitis or paralytic ileus. Pain and tenderness may indicate underlying inflammatory conditions such as peritonitis. Unusual findings in urine output may indicate compromised urinary function. Follow up with a focused gastrointestinal and genitourinary assessment.

	Unusual findings with bowel movements should be followed up with a focused gastrointestinal and genitourinary assessment.  *Figure 7. Auscultate abdomen (Doyle and McCutcheon 2015).*  *Figure 8. Palpate abdomen (Doyle and McCutcheon 2015).*
7. Extremities: • Inspect: o Arms and legs for pain, deformity, edema, pressure areas, bruises. o Compare bilaterally. • Palpate: o Radial pulses. o Pedal pulses: dorsalis pedis and posterior tibial. o CWMS and capillary refill (hands and feet). • Assess handgrip strength and equality. • Assess dorsiflex and plantarflex feet against resistance (note strength and equality).	Limitation in the range of movement may indicate articular disease or injury. Palpate pulses for symmetry in rate and rhythm. Asymmetry may indicate cardiovascular conditions or postsurgical complications. Unequal handgrip and/or foot strength may indicate underlying conditions, injury, or postsurgical complications. **CWMS**: Colour, warmth, movement, and sensation of the hands and feet should be checked and compared to determine the adequacy of perfusion. Check skin integrity and pressure areas, and ensure follow-up and in-depth assessment of client mobility and the need for regular changes in position.

• Check skin integrity and pressure areas.	 *Figure 9. Assess plantar flexion (Doyle and McCutcheon 2015).*  *Figure 10. Assess dorsiflexion (Doyle and McCutcheon 2015).*  *Figure 11. Assess CWMS—colour, warmth, movement, and sensation (Doyle and McCutcheon 2015).*

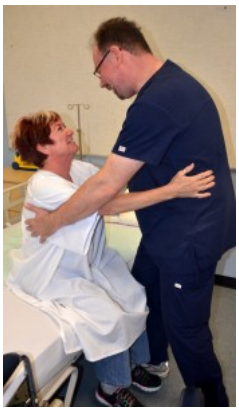
Figure 12. Assess bilateral hand strength (Doyle and McCutcheon 2015).

Palpate and inspect capillary refill and report if more than three seconds.

Figure 13. Assess pedal pulses (Doyle and McCutcheon 2015).

Figure 14. Check capillary refill (Doyle and McCutcheon 2015).

To check capillary refill, depress the nail edge to cause blanching and then release. Colour should return to the nail instantly or in less than three seconds. If it takes longer, this suggests decreased peripheral perfusion and may indicate cardiovascular or respiratory dysfunction. Unusual findings should be followed up with a focused cardiovascular assessment.

	Clubbing of nails, in which the nails present as straightened out to 180 degrees, with the nail base feeling spongy, occurs with heart disease, emphysema, and chronic bronchitis.
8. Tubes, drains, dressings, and IVs: • Inspect for drainage, position, and function. • Assess wounds for unusual drainage.	Note amount, colour, and consistency of drainage (e.g., Foley catheter) or if infusing as prescribed (e.g., intravenous).  *Figure 15. Urinary catheter bag (Doyle and McCutcheon 2015).* Assess wounds for large amounts of drainage or for purulent drainage, and provide wound care as indicated.
9. Mobility: • Check if full or partial weight bearing. • Determine gait/balance. • Determine need for and use of assistive devices.	Assess client's risk for falls. Document and follow up any indication of falls risk. Note the use of mobility aids, and ensure they are available to the client on ambulation.  *Figure 16. Patient position prior to standing (Doyle and McCutcheon 2015).* See "Functional Assessment in the Older Adult Client" for more information
10. Report and document assessment findings and related health problems according to agency policy.	Accurate and timely documentation and reporting promote client safety.

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. "2.5 Head-to-Toe Assessment." In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

Pain Assessment

Pain can be assessed using the **OPQRSTUV** acronym:

O: Onset	When did it start? Acute or gradual onset? Pattern since onset?
P: Provoking/Palliating	What brings it on? What makes it better or worse (e.g., rest, meds)?
Q: Quality	Identify neuropathic pain (burning, tingling, numb, itchy, etc.).
R: Region/Radiation	Primary location(s) of pain, radiation pattern(s).
S: Severity	Use verbal descriptors and/or 1–10 scale.
T: Treatment	Current and past treatment; side effects.
U: Understanding	Meaning of the pain to the sufferer, "total pain."
V: Values	Goals and expectations of management for this symptom.

Functional Assessment of the Older Adult Client

Comprehensive functional assessment of older adults includes the independent performance of basic activities of daily living (ADL), social activities, the assistance needed to accomplish these tasks, and the sensory ability, cognition, and capacity to ambulate.

Older adult clients may view their health in terms of how well they can function rather than in terms of disease alone.

The clinician should document baseline functional status and recent or progressive declines in function. Any acute change in ADLs should be evaluated for an underlying reversible cause. The function should be assessed at baseline and over time to validate capacity, decline, or progress.

Concluding Comments

This chapter reviews the processes for emergency and comprehensive assessments. Remember, the emergency assessment is done at the beginning of every client encounter. When performing the comprehensive assessment, recall the order of inspect, auscultate, percuss, and palpate. Palpation, the most invasive procedure, is done last. This is to prevent changing the conditions of organs; for example, palpating the abdomen may encourage gastric motility, which may not have been present prior to this. As you continue into the next chapter, remember this order as it is commonly applied to further assessments.

Review Questions

1. Initial assessment of your client reveals that the client is having trouble speaking. What are your next steps?
2. What is included in the safety check on your unit? Is there anything that is not listed here?[27]

Chapter 5: Focused Assessment

This chapter is directed toward discussion and instruction regarding focused assessments. After explaining the rationale for using a focused assessment and its relationship to the emergency assessment, the assessment of each body system is described in turn, including the data to be obtained from that system. Age-related data is also provided as a consideration. Documentation of health assessments in general is discussed in the final part of this chapter. The implications of creating and maintaining accurate documentation in relation to health assessment are emphasized. A case study is provided with example nurse responses to assist the participant with the application of the content of this chapter to an older adult and with self-reflection and self-awareness in comparing responses with that of the example.

Chapter Outcomes

- Define the term *focused assessment*.
- Determine what data is required for a focused assessment of each body system.
- Record assessment data in an accurate and timely manner.

Questions to Consider

- With a client who is complaining about general malaise, what assessments would you consider performing during a focused exam?
- Can you recall a time when a focused exam led to further tests and a diagnosis?

Focused Assessment

"Health care professionals do focused assessments in response to a specific client health problem recognized by the assessor as needing further assessment of a body system or systems."[28]

Focused assessment is typically done

- at the beginning of your shift
- at least every 2–4 hours or more frequently, depending on client acuity
- at the end of your shift

If you can perform a head-to-toe assessment, to perform a focused assessment is to identify the body system(s) that you wish to assess in depth. For example, if you have decided that a respiratory assessment is a priority based on the emergency assessment and client's diagnosis, this is the system you would pull out from the head-to-toe assessment.

What does a focused assessment mean? Why would you perform a focused assessment and not just a quick priority assessment or a complete head-to-toe assessment?

A focused assessment is based on the client's diagnosis or medical condition and the findings in the emergency assessment. It is neither realistic nor reasonable to perform a head-to-toe assessment on all clients, so the focused assessment is meant to capture the status of the current body system. However, an increasing number of clients are hospitalized for multiple health problems, and a focused assessment does not capture all the data you want to assess. What do you do in these situations?

Neurological Assessment

The neurological system is responsible for all human function. It exerts unconscious control over basic body functions, and it also enables complex interactions with others and the environment (Stephen et al., 2012). A focused neurological assessment includes collecting subjective data about the client's history of

head injury or dysfunction, collecting the client's and the patient's family's history of neurological disease, and asking the client about signs and symptoms of neurological conditions, such as seizures, memory loss (amnesia), and visual disturbances. Objective data is also assessed.[29]

Neurological assessment can be a very challenging skill to master and begins with a clear understanding of the anatomy and physiology of the brain and appropriate techniques for determining pathophysiological conditions that could potentially jeopardize a client.

A change in the level of orientation can be an early indicator that an individual's health status is declining. If a client is experiencing a neurological decline, short-term memory will be lost first. This means that the client will first lose orientation to place and time. Long-term memory is lost last. A loss of orientation to person (name, birth date, etc.), therefore, is a late sign of neurological decline.

A change in level of orientation can be caused by the following:

- Increased intracranial pressure from swelling of the meninges or brain tissue
- Bleeding from an injury or an aneurysm
- A buildup of cerebral spinal fluid (CSF) within the ventricles of the brain (hydrocephalus)
- Hypoxia
- Hypoglycemia
- Dehydration
- Infection
- Electrolyte imbalance
- Toxic drug levels

A critically thinking nurse is able to identify yearly neurological changes and intervene appropriately. Unfortunately, the neurological decline is often either not detected early enough or is attributed to a "norm" of an older adult client, causing serious, permanent client harm and, in many cases, death.

All acute clients at risk of increased intracranial pressure MUST have a complete neurological assessment done on a regular basis with vital signs.

The focused neurological assessment checklist outlines the process for gathering objective data.

Safety Considerations[30]

- Perform hand hygiene.
- Check room for contact precautions.
- Introduce yourself to the client.
- Confirm client ID using two patient identifiers (e.g., name and date of birth).
- Explain process to the client.
- Be organized and systematic in your assessment.
- Use appropriate listening and questioning skills.
- Listen and attend to client cues.
- Ensure client's privacy and dignity.
- Assess ABCCS/suction/oxygen/safety.
- Apply principles of asepsis and safety.
- Check vital signs.
- Complete necessary focused assessments.

<table>
<tr><th>Assessment Steps</th><th>Additional Information</th></tr>
<tr><td>1. Conduct a focused interview related to the neurological system.</td><td>Ask relevant questions related to past or recent history of head injury, neurological illness, or symptoms, confusion, headache, vertigo, seizures, recent injury or fall, weakness, numbness, tingling, difficulty swallowing (dysphagia) or speaking (dysphasia), and lack of coordination of body movements.
 
Figure 17. Focused exam (Doyle and McCutcheon 2015).</td></tr>
<tr><td>2. Assess mental health status.</td><td>Assess mental status by observing the client's appearance, attitude, activity (behaviour), mood, and affect, and asking questions similar to those outlined in this example of a mini-mental state examination (MMSE).</td></tr>
<tr><td>3. Assess neurological function using the Glasgow Coma Scale (GCS):
a. Assess best eye-opening response.
b. Assess best motor response.
c. Assess best verbal response.

A maximum score of 15 points represents no neurological impairment. A lowest possible score of 3 is indicative of severe neurological damage and/or impending death.</td><td>
<table>
<tr><td rowspan="4">Best eye-opening response. Record "C" if eyes closed due to swelling.</td><td>Spontaneously</td><td>4</td></tr>
<tr><td>To speech</td><td>3</td></tr>
<tr><td>To pain</td><td>2</td></tr>
<tr><td>No response</td><td>1</td></tr>
<tr><td rowspan="6">Best motor response (to painful stimuli). Press at fingernail bed and record best upper-limb response.</td><td>Obeys verbal command</td><td>6</td></tr>
<tr><td>Localizes pain</td><td>5</td></tr>
<tr><td>Flexion—withdrawal</td><td>4</td></tr>
<tr><td>Flexion—abnormal</td><td>3</td></tr>
<tr><td>Extension—abnormal</td><td>2</td></tr>
<tr><td>No response</td><td>1</td></tr>
<tr><td rowspan="5">Best verbal response. Record "E" if the endotracheal tube is in place, and "T" if tracheostomy is in place.</td><td>Oriented x 3 (person, place, time)</td><td>5</td></tr>
<tr><td>Conversation—confused</td><td>4</td></tr>
<tr><td>Speech—inappropriate</td><td>3</td></tr>
<tr><td>Sounds—incomprehensible</td><td>2</td></tr>
<tr><td>No response</td><td>1</td></tr>
</table>
</td></tr>
</table>

4. Note client's LOC (level of consciousness, oriented x 3), general appearance, and behavior.	Note hygiene, grooming, speech patterns, facial expressions.
5. Assess pupils for size, equality, reaction to light (PERL), and consensual reaction to light.	Unequal pupils may indicate underlying neurological disease or injury.  *Figure 18. Assess pupillary reaction to light (Doyle and McCutcheon 2015).*
6. Assess motor strength and sensation. • Arms and legs for strength (compare bilaterally). • Handgrips, drift. • Extremities for sensation, numbness, tingling.	Unequal motor strength and unusual sensation may indicate underlying neurological disease or injury, such as stroke or head injury.  *Figure 19. Assess motor strength and sensation of extremities (Doyle and McCutcheon 2015).*  *Figure 10. Assess motor strength and sensation of extremities (Doyle and McCutcheon 2015).*

	 *Figure 21. Assess motor strength and sensation of extremities (Doyle and McCutcheon 2015).*
7. Report and document assessment findings and related health problems according to agency policy.	Accurate and timely documentation and reporting promote client safety.

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. "Focused Neurological System Assessment." In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

Cardiovascular Assessment

The assessment of the cardiovascular system includes the use of inspection, palpation, percussion, and auscultation. Remember to compare right side to left side.

Interview

Discuss with the client if they have any family history of heart disease or any incidents of irregular heartbeats. Ask if they have had any experience with any midsternal or radiating pain that does not have a muscular or skeletal cause. This is an opportunity to assess for risk factors such as smoking, diet, and exercise.

Inspection

Observe the client for chest symmetry. In some cases you may actually observe the heart beating in the chest; this is especially true of thin clients who are in severe distress. Always observe the client from the right side as this will show the movement of the heart more easily. Assess the neck to see if you can visualize the heart rate (HR). In cases of supraventricular tachycardia (SVT), a rapid HR is distinctly visible in the external carotid arteries.

Observe the colour of the skin and the amount of hair growth on lower extremities. Areas of the body that are not well perfused will be absent of hair (e.g., peripheral vascular disease in clients with diabetes).
Capillary refill is assessed by pressing down on the nail beds until blanching occurs and then releasing and assessing the time it takes the capillaries to refill with blood. If the nail bed refills within three seconds, peripheral perfusion is adequate; if not, perfusion is considered inadequate.

Observe the lower extremities for edema or marks on the lower legs that would indicate that the socks and shoes might have been too tight. Pitting edema is common in a client with cardiac

insufficiency and indicates a backup of fluid away from the heart.

Palpation of the Cardiovascular System

Using your fingertips, feel the apical beat. Palpate the point of maximum impulse (PMI) at the apex of the heart at the fifth intercostal space at the midline. The apical beat is palpable in the supine in 25–40 percent of healthy adults and in the left lateral positions in approximately 50 percent of adults. If you are unable to palpate the apical pulse in the supine position, attempt the left lateral position. Many variables may make this assessment challenging and the pulse impalpable. Variables may include pregnancy, obesity, and breast tissue. When assessing this beat in the lateral position, the location will be offset slightly to the left of the midclavicular line. If the diameter of the beat is greater than three centimetres, the ventricles may be enlarged. Should the PMI be greater than four or five centimetres, the left ventricle is more likely to be overloaded.[31]

Auscultation of the Cardiovascular System

Always compare right and left sides. Start at the head and work down.

Place the bell of the stethoscope over each carotid artery. Listen for a bruit, which is a blowing or rushing sound. Sounds can be transmitted from a heart murmur. A bruit is often, but not always, a sign of narrowing of the artery and a risk of stroke.

Ask the client to hold his or her breath while you assess the carotids. This will reduce the risk of confusing the breath sounds with a bruit.

Palpate the carotid arteries one at a time. Never occlude both the arteries at the same time as this may cause a total occlusion of the arteries if there is narrowing.

Listen to the heart for rate, quality, and regularity. Describe what you hear. As people age the valves in the heart that prevent blood from flowing the wrong way become stiff with calcium deposits. When this happens, the valves do not work as well, and you may hear murmurs. Murmurs are the sounds of blood leaking back into the chambers of the heart after the valve has closed.

Normal heart sounds occur with the closure of cardiac valves. Normally, two heart sounds occur during each cardiac cycle. S1 (sounds like “lub”) is the closure of the tricuspid and mitral valves that occurs at the beginning of systole (contraction). S2 (sounds like “dub”) occurs when the pulmonic and aortic valves close, marking the end of systole.[32]

Peripheral Pulses

The peripheral pulses are assessed for rate, rhythm, quality, and equality. This means that the right and left sides are assessed and compared again. If the pulse is regular, assess for 30 seconds; if it is irregular, assess for a full minute. Pedal pulses (posterior tibialis and dorsalis pedis) are important to palpate to assess the strength. The strength of the pedal pulses can give an indirect assessment of the strength of the contractility of the heart because this is the most distal area from the heart.

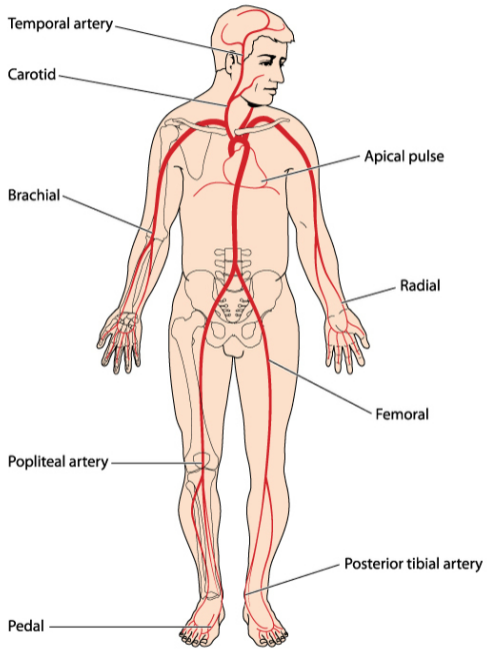


Figure 22. Image from Blamb/Shutterstock

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Pulse Points

1. Temporal artery at the temple above and to the outer side of the eye
2. External maxillary (facial) artery at the point of crossing the mandible (lower jaw)
3. Carotid artery on the side of the neck
4. Brachial artery on the inner side of the biceps
5. Radial artery on the radial bone side of the wrist
6. Femoral artery in the groin
7. Popliteal artery behind the knee
8. Posterior tibial pulse behind the inner ankle
9. Dorsalis pedis artery on the upper front part (anterosuperior aspect) of the foot

Rating of Peripheral Pulses in the Adult Population

4+: Full volume, bounding
3+: Full volume
2+: Normal, not easily eliminated
1+: Diminished, barely palpable, and easily eliminated
0: Not palpable, absent; try using a Doppler to determine the pulse

Pitting Edema and Capillary Refill

Figure 23. Pitting edema during and after the application of pressure to the skin (James Heilman, MD, CC-BY-SA 3.0).

While assessing the pulses of the lower extremities, take note of edema. When you feel the pulse, there should be little or no indentation left from the finger on the skin. Edema may be dependent (in areas located below the level of the heart) or positional (such as in the sacrum while in the supine position).

Grading the Severity of Pitting Edema

Grade of +1: Trace	Grade of +2: Mild	Grade of +3: Moderate	Grade of +4: Severe
Slight depression with rapid skin recoil.	Up to a depression of 4 mm or 1/4 in with a delayed skin recoil of 10–15 seconds.	Up to a depression of 6 mm or 1/2 in with a delayed skin recoil of 1–2 minutes.	Up to a depression of 8 mm or 1 in with a delayed skin recoil of 2–5 minutes.

The client may present with a variety of symptoms that may indicate a cardiovascular problem, including the following:

- Headaches
- Shortness of breath on exertion (SOBOE)
- Dizziness or lightheadedness when the client gets up in the morning or when standing up
- Chest, shoulder, jaw, or arm pain
- "Indigestions"
- Heaviness in the chest
- Anxiety
- Swelling of the legs and ankles

Age-Related Changes to the Cardiovascular System

Age-Related Change	Effect on the Individual	Interventions
Blood vessel walls are more rigid and narrow.	Lower cardiac output. Increased systolic blood pressure. Shortness of breath, fatigue.	Monitor blood pressure. Diet low in fats. Maintain an active lifestyle. Smoking cessation. If using antihypertensive or diuretic medications, stay on them. Modify potassium intake if necessary. Restrict salt intake as necessary. Reduce stress.
Fibrotic changes in the heart muscle and conduction system.	Decreased or irregular heart rate. Possible edema of the lower legs. Potential for shortness of breath.	Caution the person that a heart rate that is too slow or too fast may cause dizziness and falls. Edema represents pooling of blood in the lower legs, with potential for clot formation.
Decreased number of heart muscle fibres.	Capacity of the left ventricle is reduced, causing pooling into the lungs and shortness of breath.	Pace activities to allow for rest periods. Stage getting up from a lying position to prevent sudden position change.

Age-Related Change	Effect on the Individual	Interventions
	Dizziness from rapid changes in position. Shortness of breath.	
Decreased elasticity and calcification of heart valves.	Murmurs. Fatigue. Shortness of breath.	This may require surgical intervention if severe. Pace activities to allow for rest.
Decreased effectiveness of the valves in the veins.	Poor venous return leads to pooling of blood that is most noticeable in the lower legs. Risk of stasis dermatitis, varicosities, stasis ulcers.	Maintain active lifestyle. Encourage frequent stops when driving long distances. Wear support stockings. Active and passive leg exercises when sitting. Avoid sitting for too long. Do not cross the legs at the knees or ankles.
Ability of cells to absorb oxygen decreases.	Heart rate takes longer to return to normal after exercise or stress.	Will require longer rest breaks after activity. Avoid stressful situations. Encourage rest when the client has a cold or fever as these common illnesses will put additional stress on the heart.

Adapted from Boundless. "Aging and the Heart." In *Boundless Anatomy and Physiology*. 2016. https://www.boundless.com/physiology/textbooks/boundless-anatomy-and-physiology-textbook/appendix-b-development-and-aging-of-the-organ-systems-1417/development-of-the-heart-1524/aging-and-the-heart-1525-2179/.
Clarke, S. "Health Assessment for Nurses Working in Residential Care." Lecture, Richmond, BC, June 4, 2015.

Cardiovascular Checklist[33]

- Perform hand hygiene.
- Check room for contact precautions.
- Introduce yourself to the client.
- Confirm client ID using two client identifiers (e.g., name and date of birth).
- Explain the process to the client.
- Be organized and systematic in your assessment.
- Use appropriate listening and questioning skills.
- Listen and attend to client cues.
- Ensure client's privacy and dignity.
- Assess ABCCS/suction/oxygen/safety.
- Apply principles of asepsis and safety.
- Check vital signs.
- Complete necessary focused assessments.

Assessment Steps	Additional Information
1. Conduct a focused interview related to cardiovascular and peripheral vascular disease.	Ask relevant questions related to chest pain/shortness of breath (dyspnea), edema, cough, fatigue, cardiac risk factors, leg pain, skin changes, swelling in limbs, history of past illnesses, history of diabetes, injury.
2. Inspect: a. Face, lips, and ears for cyanosis. b. Chest for deformities, scars. c. Bilateral arms/hands, noting CWMS, edema, colour of nail beds, and capillary refill. d. Bilateral legs, noting CWMS, edema to lower legs and feet, presence of superficial distended veins, colour of nail beds, and capillary refill. e. Calf size/pain for signs of DVT.	Cyanosis is an indication of decreased perfusion and oxygenation.  *Figure 24. Assess capillary refill (Doyle and McCutcheon 2015).*  *Figure 25. Assess bilateral lower legs (Doyle and McCutcheon 2015).* Alterations and bilateral inconsistencies in colour, warmth, movement, and sensation (CWMS) may indicate underlying conditions or injury. Sudden onset of intense, sharp muscle pain that increases with dorsiflexion of the foot is an indication of deep venous thrombosis (DVT), as is increased warmth, redness, tenderness, and swelling in the calf. **Note**: DVT requires emergency referral because of the risk of developing a pulmonary embolism.
3. Auscultate apical pulse for one minute. Note the rate and rhythm.	Note the heart rate and rhythm. Identify S1 and S2 and follow up on any unusual findings.

	 *Figure 26. Auscultate apical pulse at the fifth intercostal space and midclavicular line (Doyle and McCutcheon 2015).*
4. Palpate the radial, brachial, dorsalis pedis, and posterior tibialis pulses.	The absence of pulse may indicate vessel constriction, possibly due to surgical procedures, injury, or obstruction.  *Figure 27. Assess tibial pulses (Doyle and McCutcheon 2015).*  *Figure 28. Assess pedal pulses (Doyle and McCutcheon 2015).*
5. Report and document assessment findings and related health problems according to agency policy.	Accurate and timely documentation and reporting promote client safety.

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. "Focused Cardiovascular and Peripheral Vascular System Assessment." In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

Assessment of the Respiratory System

Inspection

Anatomical Landmarks for Chest Assessment

Chest assessment are easier using universal landmarks. You should be familiar with all the landmarks to ensure your assessment is thorough and accurate.

Viewing the Client from the Front

When first assessing the client, view him or her from the front, paying explicit attention to the face (e.g., colour, facial expressions, mouth breathing, nasal flaring, etc.). Also pay attention to the chest (e.g., sternum, ribs, abdomen). Observe the rate, rhythm, depth, and effort or work of breathing and how easily the client is able to talk.

The sternum is composed of three portions:

1. **Manubrium**: The most proximal portion of the sternum that contains the jugular notch, which is the little notch at the top of the sternum at the base of the trachea. This anatomical landmark is a critical location during a thorough respiratory assessment. If a client is struggling for air, there may be tracheal indrawing at the jugular notch. The manubrium also articulates with the first ribs.
2. **Body**: Articulates with ribs two to ten. The ribs provide protection and support for the lungs and are connected by intercostal muscles that assist in rib cage movement and expansion. A thorough respiratory assessment includes assessing for intercostal indrawing (i.e., use of these accessory respiratory muscles).
3. **Xiphoid process**: The distal portion of the sternum that connects to the diaphragm and assists in moving it up and down. Assess for abdominal breathing, which is an indicator that the abdominal muscles are working as accessory respiratory muscles to move air in and out of the lungs.

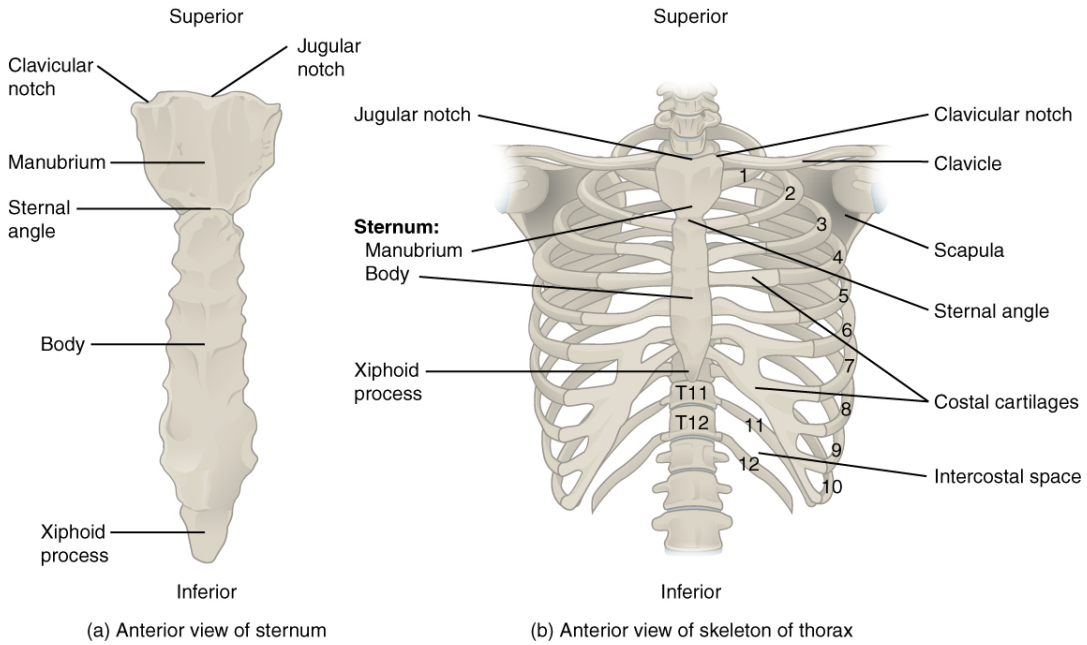


Figure 29. Illustration of anterior views of the sternum and thorax (Anatomy & Physiology, http://cnx.org/content/col11496/1.6/. CC-BY-3.0).

Tracheal Deviation (Tracheal Shift)

Normally, the trachea is located at the midline of the neck. Visible deviation from its normal position signals an underlying condition that can compromise pulmonary function and possibly cause respiratory distress (e.g., tension pneumothorax, mediastinal shift due to asymmetrical thoracic volume or pressure, etc.).

Anatomy of the Lungs

The right lung is slightly larger than the left and is divided into three lobes. The left lung is slightly smaller, is deviated slightly to the left to make room for the heart and associated vessels, and is divided into two lobes. The tracheal branch, as it enters the left lung, is straighter than on the right. This anatomical characteristic increases the risk of aspiration into the left lung.

Viewing the Client from the Back

When assessing the client from the back, pay explicit attention to the scapulas (i.e., shoulder blades), the posterior portion of the rib cage, and the spine (posture and curvatures that could be impeding lung expansion, etc.). Also look for scars, wounds, bruising, etc. Assess for bilateral expansion of the rib cage, intercostal indrawing, and general position and appearance of the client.

Inspection

- Observe the rate, rhythm, depth, and effort or work of breathing.
- Note the duration of the expiratory phase of ventilation. Is it prolonged? Is the client working to move air in or out or both?
- Is the chest rising and falling in symmetry?
- Is the trachea in the middle of the chest? Is the thyroid gland obvious?
- Listen for abnormal noises or sounds when the client is breathing.
- Are there any accessory muscles being used to assist the client in breathing?
- Is the mouth open? Does the client breathe through his or her nose? Is there nasal flaring?
- What posture does the client assume when breathing?
- Can the client speak in complete sentences, or does he or she pause and breathe between words?
- Does the client look distressed, anxious, pale, or diaphoretic?
- Is the client cyanotic? Remember that cyanosis is a very late sign of respiratory distress. (By the time cyanosis occurs, the blood has lost over 50 percent of circulating oxygen.)

Palpation

Gently place your hands on the front, back, and sides of the client's chest and ask him or her to take a deep breath. Is there a symmetrical movement of the chest? Can you feel any crackles under the skin (subcutaneous emphysema, or crepitus, which is caused by air leaking into the layers of the skin)?

Auscultation

The primary goal of auscultation is to listen to the chest for air entry throughout all lung fields. It is important to note baseline lung sounds and be able to detect changes. Use the diaphragm of the stethoscope to auscultate breath sounds, starting with either the anterior or posterior chest, comparing the sites from right to left. Work in a top-down pattern, assessing the six anatomical locations of the anterior chest, the two anatomical locations on the lateral chest, and the six anatomical locations on the posterior chest.

Anterior auscultation will provide a good assessment of the upper, middle, and lower lobes,

while lateral and posterior auscultation will provide a good assessment of the lower lobes. If you detect sounds you are unfamiliar with, seek a colleague's input (such as a respiratory therapist) or simply describe what you hear as best you can and report your findings appropriately. Document the location and the quality of the sounds you hear.

Oxygen Saturation (SaO_2)

Important Terms

- Hypoxemia: Insufficient oxygen in the blood.
- Hypoxia/hypoxic: Insufficient oxygen reaching body tissues.
- Anoxia/anoxic: Absence of oxygen in body tissues.
- Oxygen saturation: The percentage of hemoglobin (Hgb) in the blood that is carrying (i.e., is saturated with) oxygen. Expressed as a percentage.

Measurement of oxygen saturation should be thought of as an additional vital sign for at-risk clients (sometimes referred to as the fifth vital sign). Most units have "sat monitors" readily available, making assessment fast and easy. The oxygen molecules dissolved in plasma determine the SaO_2 using a clip that can fit on a finger, toe, or ear lobe. (In infants and young children, the probes can be wrapped around the sides of the hand or foot.) Saturation monitors measure peripheral oxygen saturation, not central oxygen saturation (for which arterial blood gas analysis is the best assessment option).

Oxygen-saturation-monitor measurement is not affected by the amount of hemoglobin in the blood; therefore, it is not affected by anemia. However, the following variables can interfere with a SaO_2:

- Poor circulation in the fingers or toes
- Bright lights
- Poor-fitting sensors
- Clients who are moving
- Smoking just before testing
- Nail polish on fingernails/toenails

Baseline oxygen saturation is very useful. Remember that many clients may function quite well at a lower oxygen saturation level than average, and this is "normal." Assessing for a decline from this baseline becomes the focus of ongoing assessment.

Auscultating the Lungs

Anterior View

1. Position client supine. HOB up in a comfortable resting or sitting position.
2. Instruct the client to breathe deeply through the mouth.
3. Listen to one full breath (inspiration and expiration) at each anatomical location.
4. Compare left and right sides at each anatomical location.
5. Begin at the apex and finish at the base of each lung.
6. Observe the client for hypoventilation or hyperventilation (or any other signs of distress as indicated previously).

Caution: If clients are very sick, reverse the order so they do not tire.

Posterior View

1. Position the client in a sitting position with shoulders forward (some clients may need to be positioned over a table for comfort purposes).
2. Refer to steps 2–6 above.

Normal Breath Sounds

Breath sounds are produced by the turbulent flow of air through the various portions of the airway. Sound generation varies according to the size of the airway. Generally, the larger the airway, the louder and higher pitched the breath sound.

In a healthy client, inspiration is usually twice as long as expiration. Additionally, vesicular (normal) sounds are usually lower pitched than breath sounds heard in a compromised lung.

Assessment Steps	Normal	Abnormal	Finding
Rate	12–20	Tachypnea Bradypnea	>20< depth <12> depth
Rhythm	Regular I:E=2:1	Hyperventilation Air trapping (COPD) Kussmaul (renal failure, metabolic acidosis) Cheyne-Stokes Neuro lesions	>20 and > depth Forced expiration Pursed-lip breathing >20> depth, no pauses, laboured Alternating hyperventilation and apnea
Symmetry	Same findings bilaterally	Unequal findings	Equal movement of rib cage up and out during inspiration and down and in on expiration
Use of accessory muscles	No accessory muscle use Equal movement of chest wall	Intercostal retractions Use of accessory muscles Unequal chest wall movement	Abdominal breathing, intercostal and tracheal indrawing

Adapted from Clarke, S. "Health Assessment for Nurses Working in Residential Care." Lecture, Richmond, BC, June 4, 2015.

Abnormal Breath Sounds

Descriptions used for breath sounds include the following:

- Decreased: Usually associated with disease states such as emphysema, pneumothorax, or pleural effusions.
- Bronchial: When there is fluid in the lung itself, as with pneumonia.
- Adventitious: Extra/abnormal sounds. In some cases, such as wheezes, this may be cleared by having the client cough to clear the airway.

Description of Adventitious Sounds

Sound	Description	Potential Cause[34]
Crackles (Rales)	High-pitched sounds, similar to the sound made when you rub your hair between your fingers.	Inhaled air collides with previously deflated airways; airways suddenly pop open, creating crackling sound.
Wheezes	High-pitched, musical. Stridor is an inspiratory sound associated with upper airway obstruction (croup).	Air squeezed or compressed through passageways narrowed almost to closure by collapse, swelling, secretions, or tumours.
Gurgles (Rhonchi)	Often have a snoring or gurgling quality. Usually associated with air moving through fluid in the large airways. Often heard upon waking and clears with coughing.	Fluid or mucus in larger airways, causing turbulence.
Rubs	Has the quality of sandpaper being rubbed over wood; the client may complain of chest pain on inspiration.	Caused when pleura become inflamed and lose their normal lubricating fluid; their opposing roughened pleural surfaces rub together during respiration.
Absent breath sounds	No air movement or sound is heard.	When anything obstructs transmission of sounds such as pleurisy, pleural thickening, pneumothorax, or pleural effusion.

Adapted from Clarke, S. "Health Assessment for Nurses Working in Residential Care." Lecture, Richmond, BC, June 4, 2015.

Age-Related Changes to Respiratory System

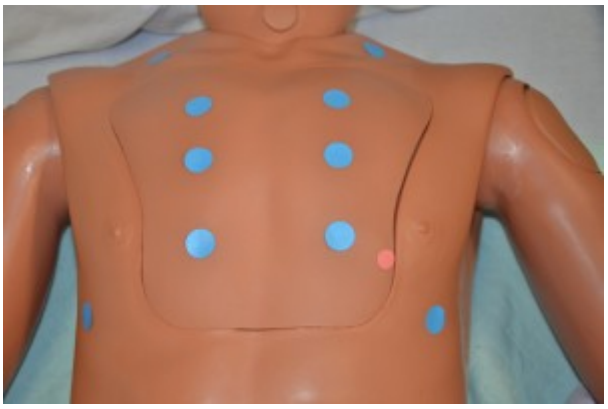
Age-Related Change	Effect on the Individual	Interventions
Connective tissue changes in the nose associated with drooping of the tip of the nose.	Snoring. Mouth breathing. Sore throat.	Do not encourage the use of decongestant nose spray; these will not help. Severe snoring may be an indication of heart problems and requires a full workup.
Calcification of the cartilage of the upper airway and trachea.	Increased risk of choking. Decreased ability of the airways to trap and expel dust and irritants.	Instruct client to chew food well and eat slowly. Avoid talking while eating. Choking on food is common.
Decreased cough and laryngeal reflexes. Reduced cilia action (decreased movement of mucus up to the oropharynx).	Decreased effectiveness of a cough. Decreased gag reflex.	Limit exposure to people with upper airway infections. Try to avoid getting a cold or flu. Annual influenza vaccination and routine pneumococcal vaccination is recommended.
Costal cartilage becomes calcified or arthritic. Respiratory muscles become weaker.	Kyphosis. Shortened thorax. Chest wall stiffens. Increased anterior/posterior diameter of the chest. Decreased respiratory efficiency.	Maintain an exercise program—walking and cycling will promote good posture, strong muscles, and increased respiratory reserve, as well as yoga to promote muscle strength and flexibility. Pace activities to allow for adequate rest periods.
Fewer alveoli, reduced pulmonary circulation, decreased lung elasticity.	Decreased endurance. Decreased oxygen exchange.	Include frequent rest periods during exercise and other ADLs.

Adapted from Clarke, S. "Health Assessment for Nurses Working in Residential Care." Lecture, Richmond, BC, June 4, 2015.

Respiratory Checklist[35]

- Perform hand hygiene.
- Check room for contact precautions.
- Introduce yourself to the client.
- Confirm client ID using two client identifiers (e.g., name and date of birth).
- Explain the process to the client.
- Be organized and systematic in your assessment.
- Use appropriate listening and questioning skills.
- Listen and attend to client cues.
- Ensure client's privacy and dignity.
- Assess ABCCS/suction/oxygen/safety.
- Apply principles of asepsis and safety.
- Check vital signs.
- Complete necessary focused assessments.

Assessment Steps	Additional Information
1. Conduct a focused interview related to the history of respiratory disease, smoking, and environmental exposures.	Ask relevant questions related to dyspnea, cough/sputum, fever, chills, chest pain with breathing, previous history, treatment, medications, etc.
2. Inspect: a. For the use of accessory muscles and work of breathing. b. Configuration and symmetry of the chest. c. Respirations for rate (one minute), depth, rhythm pattern. d. Skin colour of lips, face, hands, feet. e. O_2 saturation with a pulse oximeter.	Clients in respiratory distress may have an anxious expression, pursed lips, and/or nasal flaring. Asymmetrical chest expansion may indicate conditions such as pneumothorax, rib fracture, severe pneumonia, or atelectasis.  *Figure 30. Assess respiration rate (Doyle and McCutcheon 2015).* With hypoxemia, cyanosis of the extremities or around the mouth may be noted.
3. Palpate.	Assess for subcutaneous emphysema and equal chest rise.
4. Auscultate (anterior and posterior) lungs for breath sounds and adventitious sounds.	Fine crackles (rales) may indicate asthma and chronic obstructive pulmonary disease (COPD). Coarse crackles may indicate pulmonary edema. Wheezing may indicate asthma, bronchitis, or emphysema. Low-pitched wheezing (rhonchi) may indicate pneumonia. Pleural friction rub (creaking) may indicate pleurisy.

	 *Figure 31. Auscultate anterior chest; blue dots indicate stethoscope placement for auscultation (Doyle and McCutcheon 2015).*  *Figure 32. Auscultate posterior chest; blue dots indicate stethoscope placement for auscultation (Doyle and McCutcheon 2015).*
5. Report and document assessment findings and related health problems according to agency policy.	Accurate and timely documentation and reporting promote client safety.

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. "Focused Respiratory System Assessment." In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

Abdominal Assessment

The gastrointestinal and genitourinary system is responsible for the ingestion of food, the absorption of nutrients, and the elimination of waste products. A focused gastrointestinal and genitourinary assessment includes collecting subjective data about the client's diet and exercise levels, collecting the client's and the client's family's history of gastrointestinal and genitourinary disease, and asking the client about any signs and symptoms of gastrointestinal and genitourinary disease, such as abdominal pain, nausea, vomiting, bloating, constipation, diarrhea, and characteristics of urine and faeces. Objective data is also assessed.[36]

Inspection

- Look at the skin for scars, hernias, lesions, rashes, bruises, and discoloration (e.g., jaundice).
- Note any movement associated with peristalsis or pulsations.
- Look for symmetry of the left and right sides.

Auscultation

Bowel sounds arising from the small intestine are normally high pitched and gurgling; the sounds from the large intestine are normally low pitched. Normal bowel sounds occur approximately every 5 to 15 minutes. When a client reports diarrhea, expect the bowel sounds to be hyperactive, gurgling, and very loud.

Bowel sounds may be absent in cases where the intestine has become blocked. In such cases, there will be audible sounds above the blockage and no sounds below the blockage. In postsurgical clients, in clients with peritonitis or paralytic ileus, or in clients receiving morphine, for example, bowel sounds may be very sluggish (infrequent). Always listen in each quadrant for at least 90 seconds if you cannot hear the bowel sounds right away. Listening for as long as five minutes may be necessary if you think bowel sounds are absent.

If a client has a bowel obstruction, the bowel sounds may fluctuate between hyperactive and absent between peristaltic waves. The client will express pain when the bowel sounds are heard. This is consistent with the peristaltic wave attempting to move the bowel contents along.

Vascular sounds are heard throughout the abdomen and are associated with the aorta, renal, and iliac arteries. Listen for bruits over these areas. If there is an aortic aneurysm, you will see pulsation of the aorta. If you hear whooshing or blowing sounds often in the LUQ, this may represent hypertension or impaired circulation.

Descriptions of the Various Bowel Sounds

- High pitched
- Gurgling
- Tinkling (like breaking glass)
- Absent
- Infrequent
- Sluggish
- Hyperactive

Palpation

Before you palpate the abdomen, make sure the client has an empty bladder. If the client is experiencing pain or discomfort in a specific location, inform him or her that you will be pressing on that area. The client should be instructed to breathe out when pressure is applied and breathe in during rest periods between the applications of pressure. Assess the client's facial expressions during palpation and request clarification of sensations if the client is

not providing a description of what he or she is experiencing during the assessment. The older adult client, however, may not be able to report his or her symptoms due to various diseases or mental status changes, so close observation of other signs and symptoms is essential.

Terms Associated with Abdominal Discomfort

- Guarding: Muscle contraction secondary to palpation.
- Tenderness: Pain associated with palpation.
- Rebound tenderness: This pain is often associated with appendicitis; the pain increases in severity when pressure is removed.
- Rigidity: Hard to touch.

Assess for distension (e.g., ascites) or emaciation.

Note any feeding tubes (gastrostomy, jejunostomy) or elimination ostomies (vesicostomy, ileostomy, and colostomy).

Age-Related Changes to the GI System

Age-Related Change	Effect on the Individual	Interventions
Tooth enamel becomes harder and more brittle. Decreased saliva production, resulting in dental caries. Shrinking gums (causing ill-fitting dentures and pain).	Teeth wear down. Difficulty chewing. Cavities/gingivitis. Pain.	Continue to floss and brush regularly. Encourage regular dental checkups. Ensure dentures are fitting appropriately.
The mouth becomes drier.	May lead to poor nutrition secondary to reduced enzymatic breakdown of food in the mouth. Choking.	Drink at least eight glasses of water per day. Chew gum to increase the production of saliva. Sip water when eating to provide moisture.
Loss of taste discrimination between sweet and sour. The tongue may shrink.	Salt and sugar intake increases. Loss of enjoyment in eating d/t loss of flavour (weight loss, malnutrition).	Discourage the use of salt and sugar; consider using herbs to spice up meals. Use more pungent flavours to enhance the smell of the food when cooking. Variety—change dining venues; make eating more socially enjoyable.
Reduced peristaltic waves in the esophagus.	Food is not moved into the stomach as quickly, causing it to get "stuck." May be nonsymptomatic.	Usually not aware of this situation unless there is underlying pathology (a hiatus hernia).

Age-Related Change	Effect on the Individual	Interventions
Decreased smell perception.	Seventy percent of taste is reliant on the sense of smell; therefore, the client may not be able to perceive the flavour of the food as easily, thus reducing enjoyment.	Stop smoking; nonsmokers tend to have a better smell perception than smokers. Variety—change dining venues; make eating more socially enjoyable.
Loss of intercellular fluid volume. Reduced thirst sensation.	Illness or fasting can have a significant impact on the older adult as fluid reserves are limited. Dehydration. Constipation. Decreased bladder reserve.	Drink at least eight glasses of water per day. Limit dehydrating fluids (caffeinated). Take water along when exercising.
Decreased insulin production.	Maintain an appropriate weight.	This change is usually insignificant to the adult with normal weight and activity levels.
Decreased activity of the liver. Increased risk of gallstone formation d/t dehydration.	Unless gallstones are creating problems, the client will usually experience few symptoms that require surgical intervention.	Encourage a low-fat diet and moderate alcohol intake. Encourage adequate hydration.

Adapted from Clarke, S. "Health Assessment for Nurses Working in Residential Care." Lecture, Richmond, BC, June 4, 2015.

Genitourinary Assessment

Inspection

- Volume, colour, clarity, and odour of urine.
- Blood, mucus, cloudy particles, crystals, discoloration (brown, red, etc.).
- Signs of fluid retention or dehydration (e.g., edema, jugular vein distension with HOB up 45–90 degrees).
- Grey-Turner Sign—local areas of discolouration about the umbilicus and in the region of the loins in acute hemorrhagic pancreatitis and other causes of retroperitoneal hemorrhage. The kidneys are located in the retroperitoneal space outside the peritoneal membrane of the abdomen.
- Dribbling, incontinence.

Auscultation

- Bruit may be heard at renal arteries (above and to left and right of umbilicus).
- Heart and lung sounds may provide information about the absence or presence of fluid.
- Blood pressure.

Palpation

- The bladder may be gently palpated to assist in the detection of urine retention. A urinary bladder scanning device (bladder scanner) may be useful.
- Other palpation is the responsibility of the physician.

Percussion

- Performed to detect pain in the area of a kidney.
- Not a routine part of nursing assessment.

Additional Assessments

- Daily weight.
- Strict ins and outs (I&O; this refers to restricting fluids and food while monitoring bowel and urinary output).
- Mental status assessment.
- Electrolyte imbalances (watch closely).
- Mucous membranes.
- Respiratory status (assess for fluid overload).
- Skin breakdown.

Age-Related Changes to the Genitourinary System

Age-Related Change	Impact on the Individual	Intervention
Thickening of the bladder muscle and of the bladder.	Reduced storage capacity of the bladder. Frequency of urination increases.	Ensure adequate fluid intake. Monitor for bladder infections. Allow time for frequent bathroom breaks.
Bladder and ureters muscles weaken.	Decrease holding capacity of the bladder from 1000 mL to approximately 200 mL. Decrease time between sensation of bladder fullness and need to void. Incomplete emptying of the bladder.	Reduce the amount of fluids taken in the evenings. Allow time for frequent bathroom breaks. Monitor for bladder infections.
Weak pelvic muscles in women due to childbirth or decreased estrogen levels.	Frequent bladder infections. Incontinence. Uterine or bladder prolapse.	Encourage pelvic exercises. Proper feminine hygiene. Hormone replacement therapy.
Benign hypertrophy of the prostate gland.	Frequency. Urgency. Difficulty starting the stream. Dribbling.	Testicular exam. Patience.
Blood flow to the kidneys is diminished.	Reduced urine production.	Continue to drink eight glasses of water per day. Watch for edema in the dependent extremities.
Kidney shrinks by 20 percent.	No noticeable impact.	Drink plenty of water. Monitor edema. Monitor BP.
Decreased blood flow to kidney.	Urine may be more dilute.	Drink plenty of water. Monitor for infection.
Nephron membrane becomes thicker. BUN, creatinine, and urea increase.	Development of gout in the joints of the fingers and toes.	Have painful joints assessed. Annual physical assessment.

Adapted from Clarke, S. "Health Assessment for Nurses Working in Residential Care." Lecture, Richmond, BC, June 4, 2015.

Abdominal and Genitourinary Assessment Checklist[37]

Safety considerations:

- Perform hand hygiene.
- Check room for contact precautions.
- Introduce yourself to the client.
- Confirm patient ID using two patient identifiers (e.g., name and date of birth).
- Explain the process to the client.
- Be organized and systematic in your assessment.
- Use appropriate listening and questioning skills.
- Listen and attend to client cues.
- Ensure client's privacy and dignity.
- Assess ABCCS/suction/oxygen/safety.
- Apply principles of asepsis and safety.
- Check vital signs.
- Complete necessary focused assessments.

Assessment Steps	Additional Information
1. Conduct a focused interview related to gastrointestinal and genitourinary systems.	Ask relevant questions related to the abdomen, urine output, last bowel movement, flatus, any changes, diet, nausea, vomiting, diarrhea.
2. Inspect: a. Abdomen for distension, striae, scars, contour, and symmetry. b. Observe any abdominal movements associated with respiration, or any pulsations or peristaltic waves.	Abdominal distension may indicate ascites associated with conditions such as heart failure, cirrhosis, and pancreatitis. Markedly visible peristalsis with abdominal distension may indicate an intestinal obstruction.
3. Auscultate abdomen for bowel sounds in all four quadrants before palpation.	Hyperactive bowel sounds may indicate bowel obstruction, gastroenteritis, or subsiding paralytic ileus. Hypoactive or absent bowel sounds may be present after abdominal surgery or with peritonitis or paralytic ileus.  *Figure 33. Auscultate abdomen for bowel sounds in all four quadrants (Doyle and McCutcheon 2015).*

<table>
<tr><td>4. Palpate abdomen lightly in all four quadrants.</td><td>Palpate to detect the presence of masses and distention of bowel and bladder.
 
Figure 34. Palpate abdomen lightly in all four quadrants (Doyle and McCutcheon 2015).

Pain and tenderness may indicate underlying inflammatory conditions such as peritonitis.</td></tr>
<tr><td colspan="2">Note: If the client is wearing a brief, ensure it is clean and dry. Inspect skin underneath for signs of redness/rash/breakdown.

Note: If the client has a Foley catheter, inspect bag for urine amount, colour, and clarity. Inspect skin at insertion site for redness/breakdown.</td></tr>
<tr><td>5. Report and document assessment findings and related health problems according to agency policy.</td><td>Accurate and timely documentation and reporting promote client safety.</td></tr>
</table>

Adapted from Doyle, Glynda Reese, and Jodie Anita McCutcheon. “Focused Gastrointestinal and Genitourinary Assessment.” In *Clinical Procedures for Safer Patient Care*, 1st ed. British Columbia Institute of Technology, 2015. CC-BY 4.0.

Documentation of Health Assessments

The documentation of the health assessment is located in a number of different places in the client's health record. While nurses record their findings in forms similar to the charts used in the case studies in this course, other data will be located elsewhere. For example, in the client's chart lab, the results and diagnostic tests are filed under a separate tab, as are social assessments (social work) and medical progress notes, and demographic information is recorded on a separate form. In electronic versions, although accessed through one site, the nurse may need to click on various tabs to view the different forms of information.

There are numerous possibilities for the forms used to record the data that forms part of the client's health assessment. Some nursing units use a particular model to organize and record nursing assessment data (e.g., Gordon's functional health patterns). This model includes eleven categories: health perception-health management; nutrition-metabolic; elimination; activity-exercise; sleep-rest; cognitive-perceptual; self-perception–self-concept; role-relationship; sexuality-reproductive; coping-stress tolerance; and value-belief. Units that use this tool create nursing documentation according to these categories and include areas under each heading where nurses can enter the requisite assessment data. For a detailed explanation of this model, see the nursing health assessment textbook.[38]

Vital signs may be recorded in a graph, while intake and output are recorded using "in and out" forms. Screening tools are also commonly used in many specialities (e.g., pediatrics, mental health). For some assessment tools, such as the Glasgow Coma Scale, pain scales, the CAGE, or depression rating scales, the forms are particular to the tool, and data is entered directly on the form. Forms are often specific to the type of health service being provided and to the function of the unit. To mention all of them is beyond the scope of this course. The important point of note here is that the nurse is responsible for ensuring that assessments are completed as required and that the data is entered accurately in each location in the client's health record. These records must then be updated and kept current, as per the unit's or organization's policy.

Concluding Comments

This chapter concludes the health assessment by providing a limited list of focused assessments that may be completed. The focused assessment may be improved with further study.

The "Study with CLPNA" website (http://www.clpna.com/members/continuing-education/study-with-clpna/) presents courses that provide more detail in regard to various aspects of documentation and other related nursing responsibilities. The site also contains quizzes related to the content of this health assessment course.

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