

## Chapter 3 Introduction to Pathology

### OVERVIEW

The purpose of this chapter is to introduce the concepts of pathology regarding the human body.

Chapter figures can be found in the Online Learning Center (OLC). Discussion points, group activities, and quizzes listed in the summary table below are explained under their individual outcomes following the table. Answer keys to the text chapter review questions, workbook concept maps, and workbook review questions are located at the end of the chapter.

A review guide is also available on the OLC. This guide lists all of the learning outcomes for the chapter and gives space for students to take notes and make sketches.

This can be an important tool to encourage students to pay attention to what they are learning and to use to either take initial notes or to organize their existing notes before exams.

### COMPETENCY CORRELATION GRID

Learning Outcome	CAAHEP Competencies	ABHES Competencies
3.1 Define Pathology.	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.b. Identify and apply the knowledge of all body systems, their structure and functions, and their common diseases, symptoms and etiologies.
3.2 Define disease and describe the relationship between disease and homeostasis	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.b. Identify and apply the knowledge of all body systems, their structure and functions, and their common diseases, symptoms and etiologies.
3.3 Define predisposing factors of disease and explain how specific predisposing factors affect disease.	I.C.8. Discuss implications for disease and disability when homeostasis is not maintained.	2.b. Identify and apply the knowledge of all body systems, their structure and functions, and their common diseases, symptoms and etiologies.
3.4 Differentiate between signs and symptoms of disease and give an example of each.	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.b. Identify and apply the knowledge of all body systems, their structure and functions, and their common diseases, symptoms and etiologies.
3.5 Explain the function of pain and inflammation.	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.b. Identify and apply the knowledge of all body systems, their structure and functions, and their common diseases, symptoms and etiologies.

		and etiologies.
3.6 Explain six disease classifications.	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.b. Identify and apply the knowledge of all body systems, their structure and functions, and their common diseases, symptoms and etiologies.
3.7 Define diagnosis and list the steps involved in diagnosing diseases.	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.c. Assist the physician with the regimen of diagnostic and treatment modalities as they relate to each body system.
3.8 Define differential diagnosis and explain when it may be used.	I.C.6. Identify common pathology related to each body sytem.	2.c. Assist the physician with the regimen of diagnostic and treatment modalities as they relate to each body system.
3.9 Summarize four types of treatment plans.	I.C.9.Describe implications for treatment related to pathology.	2.c. Assist the physician with the regimen of diagnostic and treatment modalities as they relate to each body system.
3.10 Define epidemiology and explain how epidemiology affects health care.	I.C.7. Analyze pathology as it relates to the interaction of body systems.	2.c. Assist the physician with the regimen of diagnostic and treatment modalities as they relate to each body system.

SUMMARY TABLE 4

LEARNING OUTCOME	LECTURE OUTLINE	ACTIVITIES – TALKING POINTS	ASSESSMENTS
3.1 Define Pathology.	I. Overview Word roots and combining forms Pronunciation key		<b>WkBk Chapter Review Questions:</b> <ul style="list-style-type: none"> <li>MS 2</li> <li>Critical thinking: 2</li> </ul>
3.2 Define disease and describe the relationship between disease and homeostasis	II. Introduction to disease  <b>Chapter Figures:</b> 3.1 (A sick little boy)		<b>Spot Check:</b> 1 <b>WkBk Chapter Review Questions:</b> <ul style="list-style-type: none"> <li>Critical thinking: 1</li> </ul>
3.3 Define predisposing factors of disease and explain how specific predisposing factors	III. Predisposing factors of disease A. Age	<b>Coloring book:</b> Predisposing factors of disease	<b>WkBk Chapter Review Questions:</b> <ul style="list-style-type: none"> <li>MS: 3</li> </ul>

affect disease.	<ol style="list-style-type: none"> <li>1. Children <ol style="list-style-type: none"> <li>a. Congenital disorders</li> <li>b. Genetic disorders</li> <li>c. Developmental disorders</li> </ol> </li> <li>2. The elderly <ol style="list-style-type: none"> <li>B. Gender</li> <li>C. Lifestyle</li> <li>D. Environment</li> <li>E. Heredity</li> <li>F.</li> </ol> </li> </ol> <p><b>Chapter Figures:</b></p> <p>3.2 (A child suffering with chickenpox)</p> <p>3.3 (Cleft lip)</p> <p>3.4 (A child receiving a vaccination)</p> <p>3.5 (Smoking cigarettes)</p>	<p>Figure:</p> <p>3.2 (Predisposing factors of disease)</p> <p><b>Lab exercises and activities:</b></p> <p>Table 3.1 (Family diseases)</p> <p>Childhood diseases</p> <p>Figure 3.3 (Recommended immunization schedule for persons aged 0 through 6 years)</p>	
3.4 Differentiate between signs and symptoms of disease and give an example of each.	IV. Signs and symptoms of diseases		<p><b>Spot Check: 2</b></p> <p><b>WkBk Chapter Review Questions:</b></p> <ul style="list-style-type: none"> <li>• MS: 4</li> </ul>
3.5 Explain the function of pain and inflammation.	<ol style="list-style-type: none"> <li>A. Pain</li> <li>B. Inflammation</li> </ol> <p><b>Chapter figures:</b></p> <p>3.6 (Woman in pain)</p>		<p><b>Spot Check: 2</b></p> <p><b>WkBk Chapter Review Questions:</b></p> <ul style="list-style-type: none"> <li>• MS 5, 6</li> </ul> <p><b>Completion: 1-5</b></p>

	<p>3.7 (Pain scale)</p> <p>3.8 (Splinter in the skin damages tissues and promotes an inflammatory response)</p>		<i>Case study:</i> 3
3.6 Explain six disease classifications.	<p>V. Classification of disease</p> <p>A. Infectious diseases</p> <p>B. Cancers</p> <ol style="list-style-type: none"> <li>1. Carcinomas</li> <li>2. Sarcomas</li> <li>3. Lymphomas</li> <li>4. Leukemias</li> </ol> <p>C. Immune disorders</p> <ol style="list-style-type: none"> <li>1. Hypersensitivities</li> <li>2. Immunodeficiency disorders</li> <li>3. Autoimmune disorders</li> </ol> <p>D. Genetic disorders</p> <p>E. Mental disorders</p> <p>F. Trauma/Injury</p> <p><b>Chapter figure:</b> 3.9 (Injured man)</p>	<p><b>Concept maps:</b></p> <p>Predisposing factors of disease Figure 3.4 (Predisposing factors of disease concept map)</p> <p>Classification of disease Figure 3.6 (Classification of disease concept map)</p> <p>Cancer Figure 3.6 (Cancer concept map)</p> <p>Immune disorders Figure 3.7 (Immune disorders concept map)</p>	<p><b>Spot Check:</b> 3</p> <p><b>WkBk Chapter review questions:</b></p> <ul style="list-style-type: none"> <li>• Matching: 1-5</li> <li>• MS 10</li> </ul>
3.7 Define diagnosis and list the steps involved in diagnosing diseases.	<p>VI. Diagnosing disease</p> <p><b>Chapter figures:</b> Figure 3.10 (Patient speaking with the doctor) Figure 3.11 (Steps in determining a diagnosis)</p>	<p><b>Coloring book:</b></p> <p>Diagnosing disease Figure 3.1 (Steps to diagnosing disease)</p>	<p><b>Spot Check:</b> 3</p> <p><b>WkBk Chapter Review Questions:</b></p> <ul style="list-style-type: none"> <li>• Matching 6-10</li> </ul> <p><b>Case study:</b> 1, 2</p>

3.8 Define differential diagnosis and explain when it may be used.	<p>VII. Differential diagnosis</p> <p>A. Diagnostic tests and screenings</p> <p><b>Chapter figure:</b> 3.12 (Sample of a diagnostic-test table)</p>		<p><b>WkBk Chapter Review Questions:</b></p> <ul style="list-style-type: none"> <li>MS: 1</li> </ul> <p><b>Case study:</b> 4</p>
3.9 Summarize four types of treatment plans.	<p>VIII. Treatment of the disease</p> <p>A. Palliative treatment</p> <p>B. Curative treatment</p> <p>C. Therapeutic treatment</p> <p>D. Preventive treatment</p> <p><b>Chapter Figures:</b> 3.13 (Home health care of a terminally ill patient) 3.14 (Patient receiving physical therapy)</p>		<p><b>Spot Check:</b> 4</p> <p><b>WkBk Chapter Review Questions:</b></p> <ul style="list-style-type: none"> <li>MS: 7</li> </ul>
3.10 Define epidemiology and explain how epidemiology affects health care.	<p>IX. Introduction epidemiology</p> <p><b>Chapter Figure:</b> 3.15 (Patients suffering from the Spanish flu pandemic of 1918)</p> <p><b>Table:</b> 3.1 (Most prominent chronic diseases in the United States)</p>		<p><b>Spot Check:</b> 5</p> <p><b>WkBk Chapter Review Questions:</b></p> <ul style="list-style-type: none"> <li>MS: 8</li> <li>Critical thinking: 1</li> </ul>

**INDIVIDUAL OUTCOMES:**

**OUTCOME 3.4**

**Spot Check 1:** Bobby had a terrible episode of vertigo (dizziness) that caused him to visit the doctor. Was his vertigo a sign or a symptom, and what is the rationale of our answer?

*Answer: This is a symptom. Symptoms are not measurable with an instrument, etc. The best measurement would be the patient could describe the dizziness on an arbitrary scale of 1-10 for example.*

**OUTCOME 3.5**

**Spot Check 2:** What is the purpose of inflammation?

*Answer: Wounds or illness are generally present with pathogens or caused by pathogens. Since pathogens are most likely present, the body “sends” massive numbers of white blood cells to the pathogenic site. In doing so, red blood cells travel to the site too (since WBCs are mixed in with the RBCs). The redness is due to the massive numbers of RBCs but it’s the WBCs that will do the battle in an effort to kill the pathogens that are present.*

**Case Study 3:** How can a health care provider rate the patient’s level of discomfort?

*Answer: They typically use a pain scale rating of 1-10. For little kids. They use pictures such as those in textbook figure 3.7.*

**OUTCOME 3.6**

**Spot Check 3:** What classification of disease involves oncogenes? What other carcinogens do you know of that might stimulate an oncogene?

*Answer: Cancer: Other carcinogens that activate oncogenes are: HIV, UV light, chemicals present in some food items.*

**OUTCOME 3.7**

**Case Study:**

1. Describe the steps involved in determining a diagnosis for this patient.

*Answer: Refer to the chart on textbook page 82.*

2. What questions may be asked when obtaining the patient's chief complaint?

*Answer: How often do they urinate? How often do they feel thirsty? What is their diet like? Do they exercise? Do they smoke?*

**OUTCOME 3.8**

**Case Study 4:** If the exam and diagnostic tests do not point to one clear cause of the patient's symptoms, what kind of diagnosis would be used?

*Answer: The diagnosis would be a differential diagnosis.*

**OUTCOME 3.9**

**Spot Check 4:** Mary has been diagnosed with a terminal form of cancer. Physicians have tried all treatment options, and there is nothing they can do to cure her cancer. She has been given six months to live. What kind of treatment could Mary benefit from at this point?

*Answer: She would be given palliative treatment. This type of treatment is designed to make Mary as comfortable as possible.*

**OUTCOME 3.10**

**Spot Check 5:** What are some epidemics that affect society today?

*Answer: Some examples are: Heart disease, cancer, diabetes, arthritis, and obesity.*

**Critical thinking:**

1. In the textbook, you learned about the Spanish flu pandemic of 1918 and you discussed various epidemics and pandemics that have affected the world. Pick one of the diseases you discussed in the chapter Spot Check 5 and answer the following: How has the epidemiological study of the disease affected the progression of the disease? What are the recommendations of health care providers to attempt to control the continuous spread of the disease?

*Answer: This answer will vary.*

2. In the textbook you explored how important it is for the body to maintain homeostasis to avoid disease. What are some ways that the body maintains homeostasis? In the presence of disease, what are some examples of the body not maintaining homeostasis?

*Answer:*

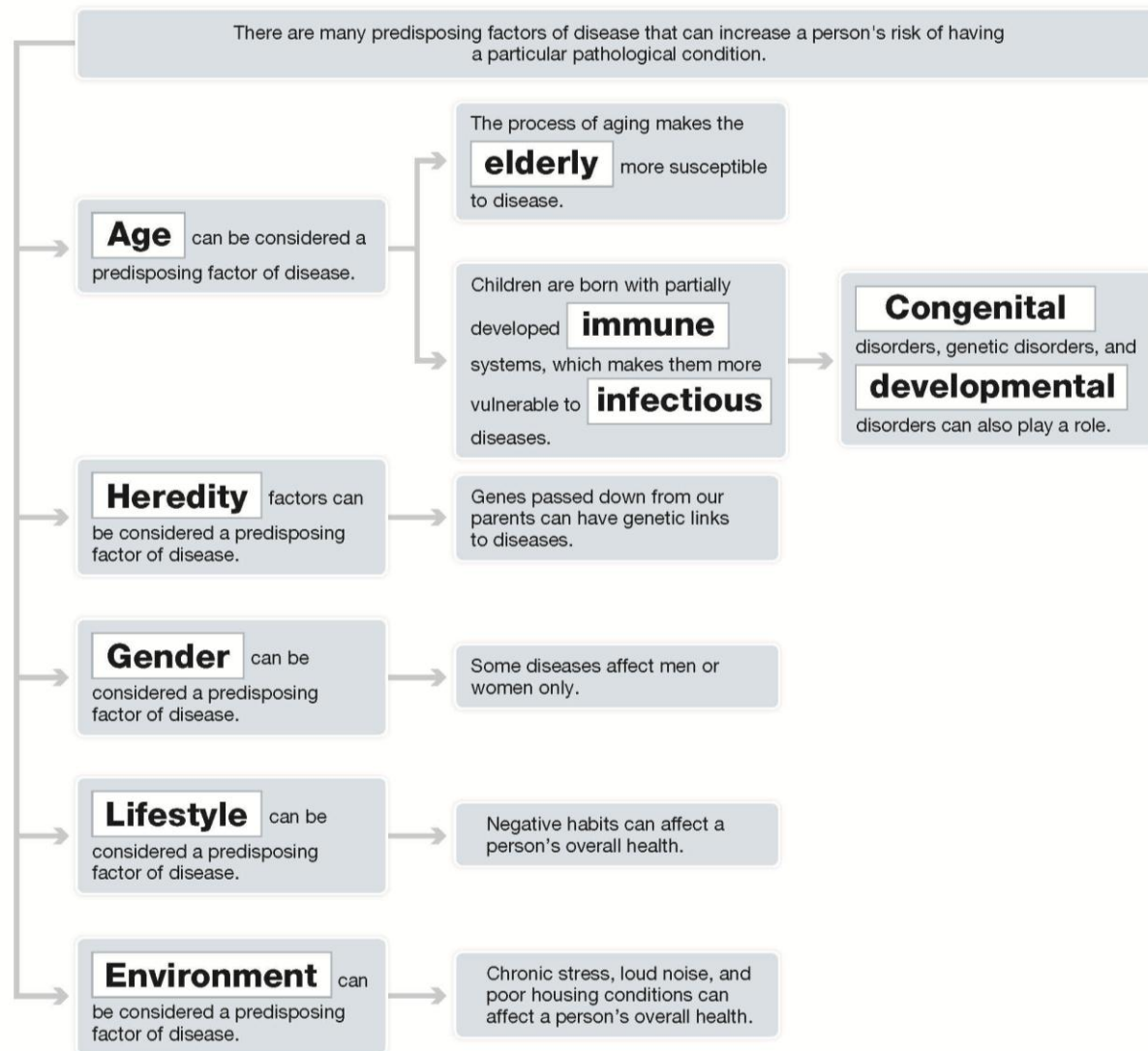


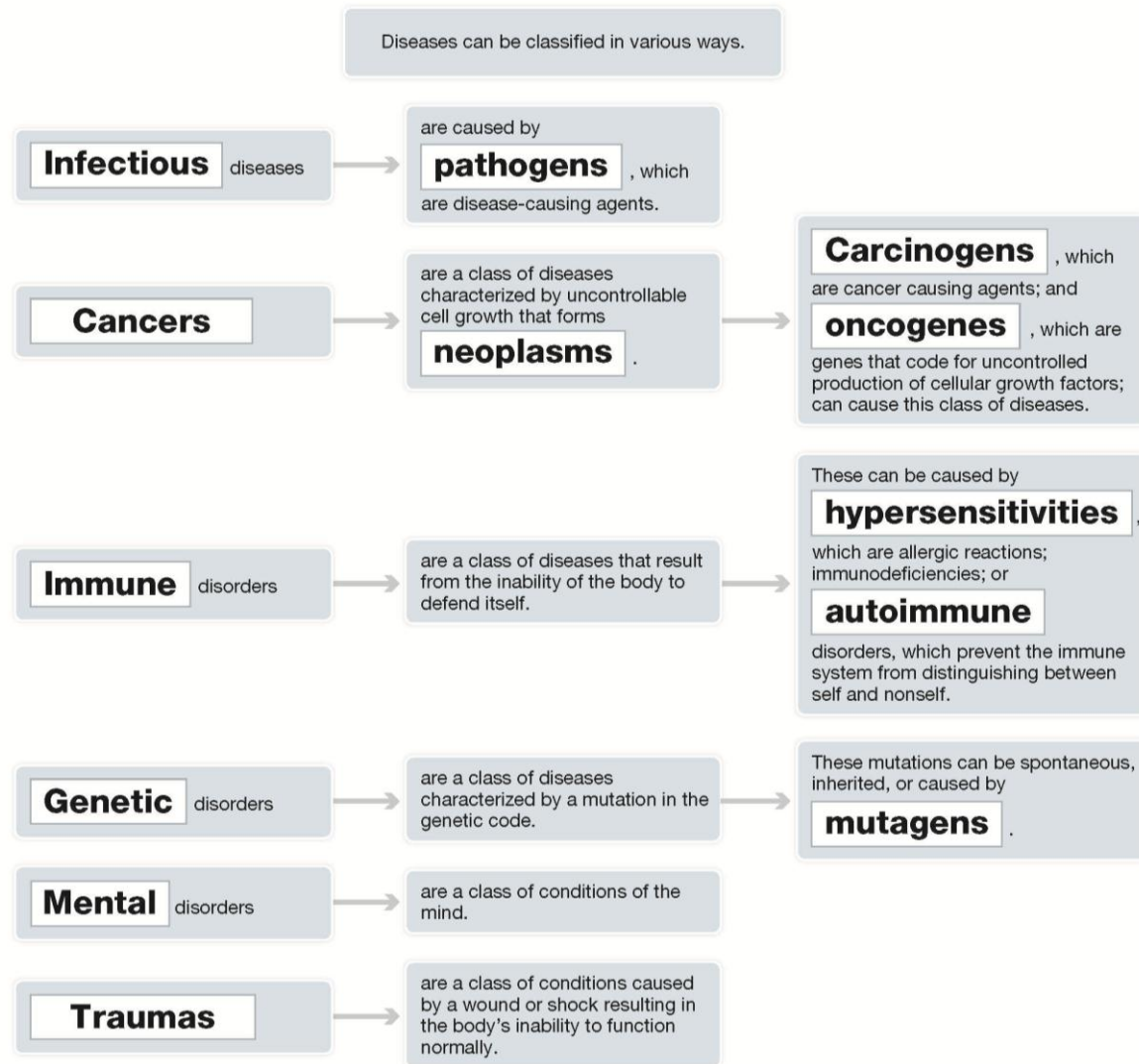
**ANSWER KEYS**

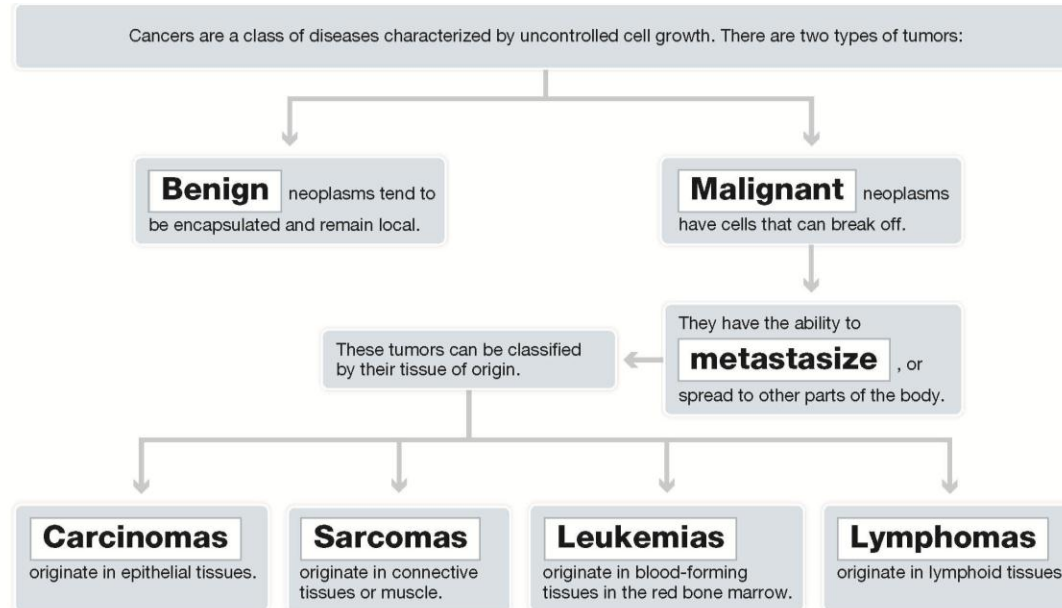
**Chapter Review Questions**

1. C
2. C
3. D
4. A
5. A
6. C
7. A
8. B
9. A
10. D

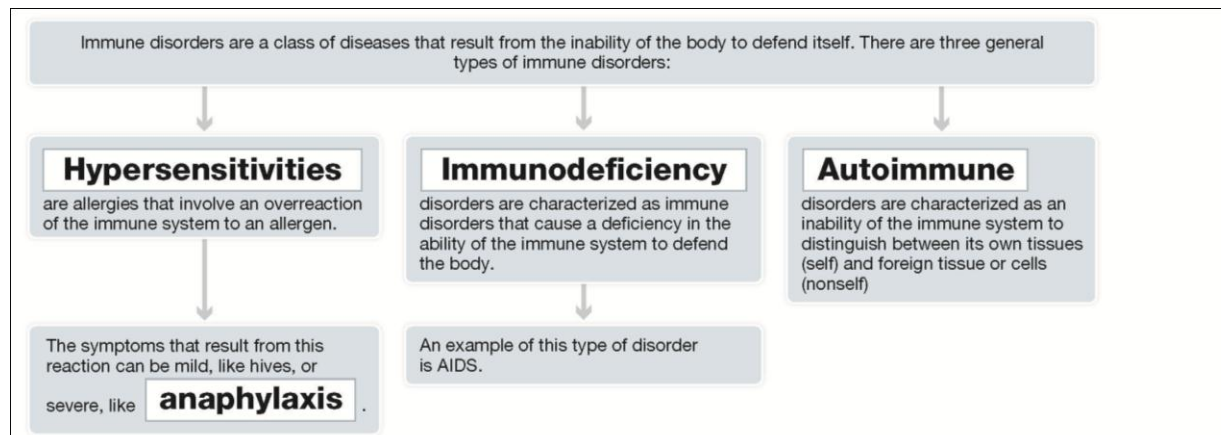
## Predisposing Factors of Disease







## Immune Disorders



**Workbook Chapter Review Questions**

**Multiple select answers:**

1. ABCE
2. ACE
3. BDE
4. AD
5. ABC
6. BCE
7. B
8. E
9. C
10. BCD

**Matching:**

1. A
2. D
3. D
4. C
5. B
6. A
7. BD

8. AC

9. AB

10. D

### Completion:

1. Mediators of inflammation are released by damaged tissues to start inflammation.
2. Dilation of blood vessels during inflammation results in the symptoms of pain, swelling, heat, and redness.
3. In inflammation the symptom swelling is caused by fluid leaking out of vessels because they are dilated.
4. The extra fluid put pressure on the nerve endings causing pain.
5. Dilated blood vessels bring increased blood flow to the area.

### Critical Thinking:

1. In the textbook, you learned about the Spanish Flu Pandemic of 1918 and you discussed various epidemics and pandemics that have affected the world. Pick one of the diseases you discussed in the chapter spot check question number five and answer the following. How has the epidemiological study of the disease affect the progression of the disease? **Answers will vary.** What are the recommendations of healthcare providers to attempt to control the continuous spread of the disease? **Answers may vary but should include the mention of vaccinations, isolation of sick individuals, hand washing, and minimizing direct contact with sick individuals.**

2. In the textbook you explored how important it is for the body to maintain homeostasis to avoid disease. What are some ways that the body maintains homeostasis? **Answers may vary.** In the presence of disease, what are some examples of the body not maintaining homeostasis? **Answers may vary but should include fever, malaise, inflammation, pain, and abnormal results of diagnostic exams.**

**Case study:**

1. Determining a diagnosis is a step-by-step process that involves collecting a patient history through routine health screenings and patient interviews with healthcare providers, performing an examination, utilizing diagnostic screening tools and tests, and interpreting the results of the medical examination and diagnostic tests.
2. Answer will vary.
3. The level of pain can be rated using a pain scale.
4. A differential diagnosis can be used if the medical exam and diagnostic tests do not point to one clear cause of the disease.