Focused Gastrointestinal Assessment

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…Kim Maryniak, RNC-NIC, MSN, PhDc. Kim has over 25 years nursing experience with medical/surgical, psychiatry, pediatrics, and neonatal intensive care. She has been a staff nurse, charge nurse, educator, instructor, manager, and nursing director. Her instructor experience includes med/surg nursing, mental health, and physical assessment. Kim graduated with a nursing diploma from Foothills Hospital School of Nursing in Calgary, Alberta in 1989. She achieved her Bachelor in Nursing through Athabasca University, Alberta in 2000, and her Master of Science in Nursing through University of Phoenix in 2005. Kim is certified in Neonatal Intensive Care Nursing and is currently pursuing her PhD in Nursing. She is active in the National Association of Neonatal Nurses and American Nurses Association. Kim's current and previous roles include research utilization, nursing peer review and advancement, education, use of simulation, quality, process improvement, leadership development, infection control, patient throughput, nursing operations, and professional development.

…Nadine Salmon, RN, BSN, IBCLC. She is a South African trained Registered Nurse, Midwife and International Board Certified Lactation Consultant. Nadine obtained an MSN at Grand Canyon University, with an emphasis on Nursing Leadership. Her clinical background is in Labor & Delivery and Postpartum nursing, and she has also worked in Medical Surgical Nursing and Home Health. Nadine has work experience in three countries, including the United States, the United Kingdom and South Africa. She worked for the international nurse division of American Mobile Healthcare, prior to joining the Education Team at RN.com as the Lead Nurse Planner.

… Lori Constantine MSN, RN, C-FNP, a nurse of nine years with a broad range of clinical experience. She has worked as a staff nurse, charge nurse and nurse preceptor on many different medical surgical units including vascular, neurology, neurosurgery, urology, gynecology, ENT, general medicine, geriatrics, oncology and blood and marrow transplantation. She received her Bachelor's in Nursing in 1994 and a Masters in Nursing in 1998, both from West Virginia University. Additionally, in 1998, she was certified as a Family Nurse Practitioner. She has worked in staff development as a Nurse Clinician and Education Specialist since 1999 at West Virginia University Hospitals, Morgantown, WV.

Purpose and Objectives

The purpose of this course is to offer the healthcare provider an overview of basic gastrointestinal (GI) assessment including normal and abnormal findings.

After successful completion of this course, you will be able to:

1. Discuss the components of a focused gastrointestinal assessment.
2. Discuss history questions which will help focus your assessment.

3. Discuss specific assessment findings that are determined by the history and examination, including inspection, palpation, percussion, and auscultation.

Introduction

The functions of the gastrointestinal (GI) tract and its accessory organs are essential for life.

The process of digestion supplies nutrients to each and every cell in our body. If there is a disruption in any of these mechanisms, the whole body suffers.

This course will discuss specific information needed to obtain an adult patient's gastrointestinal history and will introduce exam techniques for your adult patient.

Physical exam techniques such as inspection, palpation, percussion, and auscultation will be highlighted.

Throughout the course, you will learn that deviations in your assessment findings could indicate potential gastrointestinal problems.

Glossary

Ascites - An abnormal accumulation of serous fluid in the abdominal cavity containing large amounts of protein and electrolytes.

Bulge - A protruding part; an outward curve or swelling.

Cirrhosis - Cirrhosis of the liver is a chronic disease of the liver characterized by the replacement of normal tissue with fibrous tissue and the loss of functional liver cells.

Digestion - The process by which food is converted into substances that can be absorbed and assimilated by the body.

Dysphagia - Difficulty in swallowing.

Esophageal varices - Abnormally dilated or swollen vessels in the esophagus, which can lead to bleeding.

Food allergy - An abnormally high sensitivity to certain foods.

Food intolerance - Inability to completely digest a type of food, usually due to an enzyme deficiency.

Hernia - The protrusion of an organ or other bodily structure through the wall that normally contains it; a rupture.

Mass - An aggregate of cells clumped together, such as a tumor.

Referred pain - Pain sensation experienced in one part of the body that is different to the actual area of pathology.

Spider nevi (or angioma) - A dilation of superficial capillaries with a central red dot from which blood vessels radiate.

Visceral pain - Pain related to the internal organs.

Focused Gastrointestinal Assessment

When conducting a focused gastrointestinal assessment on your patient, both subjective and objective data are needed.

Components may include:

- Chief complaint
- Present health status
- Past health history
- Current lifestyle
- Psychosocial status
- Family history
- Physical assessment

Communication during the history and physical must be respectful and performed in a culturally-sensitive manner. Privacy is vital, and the healthcare professional needs to be aware of posture, body language, and tone of voice while interviewing the patient (Jarvis, 2011; Caple, 2011). Take into consideration that a patient's ethnicity and culture may affect the history that the patient provides.

Taking a Focused Gastrointestinal History

It is important to begin by obtaining a thorough history of abdominal or gastrointestinal complaints. You will need to elicit information about any complaints of gastrointestinal disease or disorders.

Gastrointestinal disease usually manifests as the presence of one or more of the following:

- Change in appetite
- Weight gain or loss
- Dysphagia
- Intolerance to certain foods
- Nausea and vomiting

- Change in bowel habits
- Abdominal pain

(Jarvis, 2011).

Appetite

Ask your patients if they have had any changes in appetite or food intake. If they have, ask for more information about the change. Appetite and eating can be influenced by many factors that may indicate gastrointestinal disease or that can be attributed to socioeconomic considerations such as food availability, family norms, peers, and cultural practices. A loss of taste sensation can contribute to loss of appetite and potentially result in poor nutrition, especially in older individuals. Attempts at voluntary control can be a factors, such as dieting or eating disorders (National Institute of Mental Health [NIMH], 2011).

Weight Loss or Gain

Document any change in weight. If weight loss or gain is substantial or has happened rapidly, investigate further. Dieting to a body weight leaner than recommended health standards tends to be highly promoted by current fashion trends, sales campaigns for special foods, and is encouraged in some activities and professions. Young women are especially at risk for diet related alterations in normal gastrointestinal functions. Weight loss may also be associated with illness, while weight gain may be attributed to fluid retention or a mass (Jarvis, 2011).

Dysphagia

People with dysphagia have difficulty swallowing and may also experience pain while swallowing. Some people may be completely unable to swallow or may have trouble swallowing liquids, foods, or saliva. Eating becomes a challenge, making it difficult to take in enough calories and fluids to nourish the body.

Ask your patient if they have any difficulty swallowing and when the difficulty first occurred. More than 50 pairs of muscles and many nerves work to move food from the mouth to the stomach. It is important to note what the patient has difficulty swallowing (e.g. solids versus liquids), and the area that the patient feels is where food gets “stuck” (Altman, 2010).

People with diseases of the nervous system, such as cerebral palsy or Parkinson's disease, often have problems swallowing. Additionally, stroke or head injury may affect the coordination of the swallowing muscles or limit sensation in the mouth and throat. An infection or irritation can cause narrowing of the esophagus. People born with abnormalities of the swallowing mechanism may not be able to swallow normally. In addition, cancer of the head, neck, or esophagus may cause swallowing problems. Sometimes the treatment for these types of cancers can cause dysphagia. Injuries of

the head, neck, and chest may also create swallowing problems (National Institute of Health [NIH], 2011).

Intolerance to Food

Ask your patient if they have any intolerance to certain foods. If so, ask which foods and the type of reaction to the food. Food intolerance should not be confused with food allergies. An intolerance to certain foods is generally based on the presence of a gastrointestinal imbalance such as having too little of a particular enzyme that can hinder proper breakdown and use of the food by the body. Food intolerance may be related to disorders such as celiac disease, insulin-dependent diabetes, and inflammatory bowel disease. Symptoms of intolerance to a particular food might include stomach discomfort, gas, bloating, burping, flatulence, abdominal pain, and diarrhea (NIH, 2011). Food intolerance may also increase with older adults (Ahmed & Haboubi, 2010).

Nausea and Vomiting

Nausea and vomiting can be side effects of medications, a manifestation of many diseases, and can occur frequently in early pregnancy. Ask your patients about the frequency of these symptoms. Nausea and vomiting may also indicate food poisoning. Questions about types of food eaten in the past 24 hours should be asked to rule out potential poisoning.

If vomiting is present, you will want to ask about the amount, frequency, color, and odor of the vomitus. Ask if there is any blood in the vomit or if the vomit appears to be like coffee grounds. Hematemesis, or blood in the vomitus, is a common symptom of gastric or duodenal ulcers and may also indicate esophageal varices. Coffee ground emesis indicates an “old” gastrointestinal bleed. The old, partially digested blood appears to look like coffee grounds (Jarvis, 2011).

Changes in Bowel Habits

Particular emphasis should be placed on changes in bowel habits, as it is a common manifestation of gastrointestinal disease. The frequency, color, and consistency of bowel movements should be assessed. Assess the use of laxatives at this time.

Black, tarry stools may indicate an upper gastrointestinal bleed or may simply be from the ingestion of iron supplements or over the counter medications for gastrointestinal upset (Shaw, 2012).

Bright red blood in the stools may indicate hemorrhoids or localized lower gastrointestinal bleeding.

Currant jelly stools are usually foul smelling and resemble maroon or purple colored jelly. The presence of currant jelly stools often indicates a massive bleeding episode and the patient’s hemodynamic status must be assessed quickly (Shaw, 2012).

Test Yourself

What can occur as a result of the aging process?

A. Dysphagia
B. Blood in the stools
C. Increase in food intolerance

The correct answer is: C.

Past Gastrointestinal Disease and Medication History

Past Gastrointestinal Disease

Ask about any past history of gastrointestinal disorders such as ulcers, gall bladder disease, hepatitis, appendicitis, hernias. Ask the patient if they received treatment and if the treatment was successful. History should also include past abdominal surgeries, any abdominal problems after the surgery, and abdominal x-rays or tests (including colonoscopy) and their results (Jarvis, 2011).

Medication History

Many medications can produce gastrointestinal symptoms. Almost every class of drugs has the potential for gastrointestinal side effects. Most of the side effects include nausea, vomiting, diarrhea, and/or constipation.

Aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) may cause abdominal pain and may increase the likelihood of gastrointestinal bleeding. Dietary supplements and the use of over the counter medications should also be included (Jarvis, 2011).

Social History and Lifestyle Risk Factors

In taking a complete history, it is important to address lifestyle risk factors and social behaviors that may contribute to unhealthy lifestyles and increase the risk of gastrointestinal disorders.

Ask your patients about the frequency and duration of alcohol consumption, caffeine intake, and cigarette smoking at this time. Alcohol can cause liver cirrhosis and esophageal varices. Cigarette smoking and regular ingestion of caffeine can lead to gastric reflux and gastric ulcers.

Also ask about recreational drug use such as marijuana, opiates, or amphetamines. The use of illicit drugs can increase or suppress appetite and affect GI function (Shaw, 2012).

Test Yourself

Alcohol can cause liver cirrhosis and _____ .

Esophageal varices is the correct response.

Nutritional Assessment

Assessing nutritional status of your patients is important for several reasons. A thorough nutritional assessment will identify individuals at risk for malnutrition and provide baseline information for nutritional assessments in the future.

Some of your patients that will require a thorough nutritional assessment include those patients with:

- Recent unintentional weight loss
- Chemotherapy or radiation
- Recent weight gain
- Food allergies or intolerance
- Decreased appetite
- Multiple medications
- Alterations in sense of taste
- Dieting history
- Difficulty chewing or swallowing
- Vomiting
- Mobility problems
- Diarrhea
- Inability to feed self
- Recent surgery or major illness or injury
- Substance abuse
- Chronic conditions
- Potential for social isolation
- Low income

(Jarvis, 2011 & Shaw, 2012)

The Physical Exam

When performing a focused assessment, you will use at least one of the following four basic techniques during your physical exam: inspection, auscultation, percussion, and palpation. These techniques should be used in an organized manner from least disturbing or invasive to most invasive to the patient (Jarvis, 2011). Inspection is first, as it is non-invasive. Auscultation is performed following inspection; the abdomen should be auscultated before percussion or palpation to prevent production of false bowel sounds.

For accurate assessment of the abdomen, patient relaxation is essential. The patient should be comfortable with knees supported and arms at the sides, and should have an empty bladder. The environment should include a comfortable temperature, with good light.

The Physical Exam: Inspection

Visualization of the entire abdomen is needed. When assessing the abdomen, it is important to document the location of the physical exam finding. The abdomen can be divided into four or nine quadrants.

The Physical Exam: Inspection

With your patient in the supine position, inspect for:

- Bulges
- Masses
- Hernias
- Ascites
- Spider nevi
- Enlarged veins
- Pulsations or movements
- Inability to lie flat

Normally, blood vessels are not evident on the abdomen. However they may be present in the elderly or pregnant client due to the loss of subcutaneous fat.

During inspection ask your patient to lift their head slightly. If you notice a protrusion around the umbilicus or any incisions, a hernia may be present (Jarvis, 2011).

The Physical Exam: Auscultation

You should always auscultate the abdomen after inspection and before percussion or palpation so you do not produce false bowel sounds by percussion or palpation.

Auscultation should begin in the right lower quadrant. If bowel sounds are not heard, in order to determine if bowel sounds are truly absent, listen for a total of five minutes (Jarvis, 2011).

Bowel sounds echo the underlying movements of the intestines. It is normal to hear high-pitched clicking and gurgling sounds approximately every 5 to 15 seconds.

It is suggested that you listen to bowel sounds for a full minute before determining if they are normal, hypoactive, or hyperactive. Refer to the table to see how different bowel sounds are produced and what they may indicate.

An example of a video demonstrating abdominal auscultation can be viewed at: http://www.youtube.com/watch?v=oCsNpzEQ4OA

Table of Bowel Sounds

Bowel Sound	How it is Produced	Possible Cause
Normal Bowel Sounds	Intestines transporting fluid and digested food through intestinal lumen at normal rate. Sounds are approximately every 5 to 15 seconds.	• Normally functioning intestine
Hypoactive Bowel Sounds	Intestines transporting fluid and digested food through intestinal lumen at a decreased rate probably due to inactivity of smooth muscle in the bowel. Sounds are approximately every 20 to 30 seconds; can be longer.	• Paralytic ileus • Peritonitis • Decreased bowel motility • Late intestinal obstruction
Hyperactive Bowel Sounds	Intestines transporting fluid and digested food through intestinal lumen at an increased rate probably due to rapid passage of air and fluid through the intestines. Sounds can be as frequent as every second.	• Diarrhea • Early intestinal obstruction • Gastroenteritis • Anxiety
High-pitched Rushing or Tinkling Sounds (Borborygmi)	Hyperperistalsis from intestinal straining to push fluid and/or air past an obstruction, or fluid and/or air under pressure. Very loud sounds; may be heard without a stethoscope.	• Intestinal obstruction • Dilated bowel loops • Fecal impaction • Gastroenteritis
Absent Bowel Sounds	Absence of intestinal motility Ominous finding	• Peritonitis • Late obstruction (ileus) • Perforation • Trauma
Abdominal Bruits	Whooshing sound over an artery from increased turbulence of blood flow in that artery	• Aneurysm • Thin, emaciated patient • Renal artery stenosis
(Jarvis, 2011; Shaw 2012)		

The Physical Exam: Percussion

Percussion is used to elicit tenderness or sounds that give clues to underlying problems. When percussing directly over suspected areas of tenderness, monitor the patient for signs of discomfort. Percussion requires skill and practice. Shaw (2012) best describes the method of percussion, in Assessment Made Incredibly Easy.

“Press the distal part of the middle finger of your non-dominant hand firmly on the body part. Keep the rest of your hand off the body surface. Flex the wrist, but not the forearm,

of your dominant hand. Using the middle finger of your dominant hand, tap quickly and directly over the point where your other middle finger contacts the patient's skin, keeping the fingers perpendicular. Listen to the sounds produced."

The Physical Exam: Percussion

When examining the abdomen, percuss for general tympany, liver span, and splenic dullness. Tympany should be the predominant sound when percussing the abdomen. Air "floats" to the top of the abdomen in the supine position and tympany reflects a drum-like sound (Shaw, 2012).

Dullness is usually heard over solid organs or masses such as the liver, spleen, or a full bladder (Shaw, 2012).

The Physical Exam: Percussion

Percussing over the kidneys does not usually produce pain or discomfort. If tenderness is present, a urinary tract infection or kidney inflammation may be present. Costovertebral angle tenderness may be elicited when the patient is in a standing or upright position. Place the palm of your non-dominant hand near the posterior costovertebral margin over the kidney. Gently, but firmly, tap on your hand with the fist of your other hand. An example of a video demonstrating abdominal percussion can be viewed at: http://www.youtube.com/watch?v=5ERuM1JDYAA

To determine if abdominal distention is due to fluid or air, you may want to ask a nursing assistant or another nurse to assist you in percussing a fluid wave. When percussing a fluid wave, your assistant should place her arm and hand along the mid-line of the patient's abdomen, with the patient in the supine position. Her arm should be placed firmly on the abdomen to prevent the transmission of fat waves. You should then place your palm of one of your hands in the lateral lumbar region of the patient's abdomen. With your other hand, quickly pat or tap the other lateral lumbar region of your patient's abdomen. If a fluid wave is present, as with ascites, you will feel the resulting wave with your opposite hand. If the distention is due to air you will not feel any wave (Stephen et al., 2009).

Did You Know?

Tympany should be the predominant sound when percussing the abdomen. Air "floats" to the top of the abdomen in the supine position and tympany reflects a drum-like sound (Jarvis, 2011).

The Physical Exam: Palpation

Palpation is another commonly used physical exam technique that requires you to touch your patient with different parts of your hand using different strength pressures. During light palpation, you press the skin about ½ inch to ¾ inch with the pads of your fingers. When using deep palpation, use your finger pads and compress the skin about 1½ to 2 inches. Palpate lightly then deeply noting any muscle guarding, rigidity, masses or

tenderness. Palpate tender areas last. Only if indicated, palpate the liver margins, the spleen or the kidneys and percuss the abdomen for general tympany, liver span, splenic dullness, costovertebral angle tenderness, presence of fluid wave, or shifting dullness with ascites (Jarvis, 2011).

Palpation allows you to assess for texture, tenderness, temperature, moisture, pulsations, masses, and internal organs (Shaw, 2012). Normally, you should elicit no tenderness on either light or deep palpation of the abdomen. If inguinal lymph nodes are palpated, they should be small and freely moveable.

Test Yourself

During light palpation compress the skin:

A. ½ inch to ¾ inch
B. ½ inch to 2 inches
C. 1 ½ inches to 2 inches
D. 1 ½ inches to 3 inches

The correct answer is: A.

Abdominal Pain

Introduction

If your patient is experiencing abdominal pain, have them point to the exact location of the pain.

Abdominal pain can be classified as:

- Visceral
- Parietal
- Referred

Visceral Pain

Visceral pain is usually described as dull, crampy, squeezing, or aching. It can be constant or intermittent. The pain may be difficult to localize orand may be located over an abdominal organ (Jarvis, 2011).

Parietal Pain

Parietal pain is usually from inflammation over the peritoneum. Peritoneal inflammation usually indicates an underlying emergency and should be assessed quickly. Parietal pain is usually intense, constant, and on one side. It can be aggravated by extension of the lower extremity on the affected side, coughing, or eliciting rebound tenderness (Jarvis, 2011).

Referred Pain

Referred pain is usually visceral pain that is felt in another area of the body when a common nerve pathway is shared. It occurs with specific gastrointestinal disorders such as appendicitis (can cause umbilical pain in early stages), gall bladder disease (referred to right upper scapula), and pancreatitis (referred to the mid-back) (Jarvis, 2011).

Mnemonic for Pain Assessment

Introduction

In general, the mnemonic, PQRST, is very useful in assessing abdominal pain and other gastrointestinal symptoms, such as distention, nausea, and vomiting. It provides a methodology in which communication to other healthcare providers will be efficient and informative.

After eliciting information about any experienced signs or symptoms of gastrointestinal disease, ask about your patients past abdominal or gastrointestinal history, medications, and nutritional status.

P

Provocative or Palliative: What makes the pain or symptom(s) better or worse?

Q

Quality: Describe the pain or symptom(s) (burning, dull, sharp)

R

Region or Radiation: Where in the body does the pain or symptom(s) occur? Is there radiation or extension or the pain or symptom(s) to another area of the abdomen?

S

Severity: On a scale of 1-10, (10 being the worst) how bad is the pain or symptom(s)? Another visual pain scale may be appropriate for patients that are unable to identify with this scale.

T

Timing: Does it occur in association with something else? (e.g. eating, exertion, movement)

Assessing Abdominal Pain: Muscle Tests

The patient history is extremely important in assessing abdominal pain. Pain may be chronic or acute and related to inflammation, infection, allergy, or food intolerance. It

can also result from trauma or obstruction. There are also a few physical exam techniques that can be used to assess acute abdominal pain. These are the iliopsoas muscle test, obturator test, and Blumberg test (Altman, 2010; Shaw, 2012).

Iliopsoas Muscle Test

The iliopsoas muscle test is used most often when acute abdominal pain is present and appendicitis is suspected.

When your patient is lying in the supine position ask him or her to lift their right leg straight up, flexing only at the hip. Push down on the lower part of the thigh when your patient is trying to hold their leg up. If the patient feels pain in the iliopsoas muscle (the right lower quadrant of the abdomen) the test is positive and may indicate a perforated or inflamed appendix.

Anticipate further investigatory tests to confirm a suspected diagnosis (Altman, 2010).

The Obturator Test

The obturator muscle test is also performed when acute abdominal pain is present and appendicitis is suspected. When your patient is lying in the supine position ask him or her to lift their right leg straight up, flexing at the hip, and 90 degrees at the knee. Hold the ankle and rotate the leg internally and externally. If the patient feels pain in the area of the internal obturator muscle (the right lower quadrant of the abdomen and pelvis) the test is positive and may also indicate a perforated or inflamed appendix (Altman, 2010).

The Blumberg Sign

Blumberg Sign is also known as rebound abdominal tenderness. Choose a site away from the suspected area of tenderness. Holding your hand 90 degrees to the abdomen, press inward deeply, then release quickly. Pain on release of pressure is an indicator of peritoneal irritation (Altman, 2010).

Assessing and Interpreting Associated Laboratory Values

There are many common lab values that will help you in your assessment of your patient's gastrointestinal system and accessory organs. Lab values should be looked at collectively in the context of a complete abdominal history and examination. The following table illustrates examples of lab values and the possible related gastrointestinal disturbance.

Normal lab value reference ranges differ between labs and institutions. Check with your facility for normal ranges.			
Lab	Normal Value	Alteration	Potential Gastrointestinal Cause of Abnormal Value
Lipase	7-60 u/L	↑	Pancreatitis
Amylase	30-170 u/L	↑	Pancreatitis
Calcium	8.5-10.3 mg/dL	↓	Pancreatitis, malnutrition
Platelets	130-400 x 10^3/mm^3	↓	Liver dysfunction, cirrhosis, hepatitis, GI bleed
AST	< 42 u/L	↑	Liver dysfunction, cirrhosis, hepatitis
ALT	< 48 u/L	↑	Liver dysfunction, cirrhosis, hepatitis
Fibrinogen	200-400 mg/ dL	↓	Liver dysfunction, cirrhosis, hepatitis
Prothrombin Time (PT)	(PT) 10.0-12.5 sec	↑	Liver dysfunction, cirrhosis, hepatitis
Albumin	3.5-5.0 g/dL	↓	Liver dysfunction, cirrhosis, hepatitis, malnutrition
Bilirubin	≤ 1.3 mg/dL	↑	Liver dysfunction, cirrhosis, hepatitis, cholecystitis
Ammonia	0.17-0.80 mcg/mL	↑	Liver failure
Hemoglobin	12.0-17.2 g/dL	↓	GI bleed, hemorrhagic pancreatitis
Hematocrit	35-50%	↓	GI bleed, hemorrhagic pancreatitis
Electrolytes	variable	↑	Hemoconcentration in early GI bleed or hemorrhagic pancreatitis
BUN	7-30 mg/dL	↑	Hemoconcentration & absorption of protein (blood) in GI bleed hemorrhagic pancreatitis
WBC	3.8-10.8 x 10^3 /mm^3	↑	Infection of stress response of pancreatitis, GI bleed
(Merck Manual Online, 2013)			

Conclusion

Digestion, transport, and absorption are the processes by which the digestive system supplies nutrients to each and every cell of our body. If there is a disruption to this process, the whole body suffers.

By asking specific questions about a patient's gastrointestinal history and performing focused abdominal exam techniques for your adult patient, you will be able to assess for the slightest changes in gastrointestinal function.

Alterations in your gastrointestinal assessment findings could indicate potential problems.

Being knowledgeable about the focused, gastrointestinal assessment will allow you to intervene quickly and appropriately for gastrointestinal disorders.

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