

# CME CE

## FEATURED COURSE

### ■ LEARNING OBJECTIVES

After completing the activity, the participant should be better able to:

- Identify common medical conditions in patients with IDD
- Recognize unique presenting symptoms of common medical conditions in patients with IDD
- Apply evidence-based treatment/management strategies as pertaining to individuals with IDD

■ COMPLETE THE POSTTEST: Page 59

■ ADDITIONAL CME/CE CREDIT: Page 76, 81, 86

This activity is provided by Haymarket Medical Education (HME) for physician credit.

This activity is co-provided by Medical Education Resources (MER) for nursing contact hours.

**Release Date:** February 13, 2015

**Expiration Date:** February 12, 2016

**Estimated time to complete the educational activity:** 30 minutes

**Statement of Need:** A large percentage of primary care clinicians do not receive specialty training that focuses on the unique needs of patients with IDD. Due to federal mandates, patients with IDD are now being moved from institutions to community living environments, which means primary care clinicians in the community setting will be providing services to these individuals. This is why it is important for primary care clinicians to become more knowledgeable of the common medical conditions and presenting symptoms that the individuals with IDD possess.

**Target Audience:** This activity has been designed to meet the educational needs of primary-care health-care professionals who will treat persons in the community setting with IDD and associated medical conditions.

#### Faculty

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Name of faculty	Reported Financial Relationship
Mary Atkinson Smith, DNP, FNP-BC	No relevant financial relationships
Craig L. Escude, MD	No relevant financial relationships

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# Intellectual and Developmental Disabilities

As more patients with IDD move into community settings, clinicians will need to be familiar with common medical conditions in these individuals.



Community settings are becoming more commonplace for patients with IDD.

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Patients who are intellectually and developmentally disabled (IDD) are extremely vulnerable and often present with symptoms of medical conditions in a unique manner that is not consistent with mainstream society. Many patients with IDD who have significant medical issues live in congregate residential facilities where most of their medical care is provided by health care providers who have experience in treating persons with IDD. The current trend focuses on shifting patients with IDD from congregate residential facilities to community-based living arrangements. In congregate residential facilities, clinicians provide health care within the facility and have experience managing and treating these individuals. As more patients with IDD move into community settings, it will be imperative for community-based primary care clinicians to be familiar with the presenting symptoms and common medical conditions that are frequently seen among individuals with IDD and to recommended evidence-based management and treatment regimens. This article describes experiences encountered by health care providers who treat patients with IDD with the intent being to provide general approaches to commonly faced issues.

## Defining IDD

Intellectual disability is defined as having significant limitations in intellectual functioning and adaptive behavior in relation to the expression of adaptive skills from conceptual, social, and practical standpoints that originate before age 18.<sup>1</sup> The following points are

## Clinicians need to be familiar with evidence-based treatment regimens that promote quality, safety, and availability of medical and social resources.

essential when applying the definition of intellectual disability:

- The limitations in present function should be considered in relation to the community environments that are typical of the individual's age, peers, and culture.
- A valid assessment takes into account cultural and linguistic diversity, in addition to factors that pertain to differences in communication, sensory, motor, and behavioral aspects.
- For each individual, limitations frequently coexist with strengths.
- A chief purpose for describing limitations is to develop a patient-centered profile of necessary support.
- With a patient-centered, personalized support system in place for a sustained period of time, the life functionality of a patient with IDD will generally improve.

An accurate diagnosis of intellectual disability requires three components: an IQ score of approximately 70 or lower, a determination of deficits in adaptive behavior, and manifestation of disability prior to age 18.<sup>1</sup> Developmental disability is defined as a severe, chronic disability that is attributable to a mental and/or physical impairment.<sup>1</sup> The condition manifests before age 22 and is likely to continue indefinitely.<sup>1</sup> Developmental disability results in substantial functional limitations in three or more areas of life activity: self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency.<sup>1</sup>

### Background

In 2009, the US Department of Justice's Civil Rights Division began actively enforcing the Supreme Court's 1999 ruling in *Olmstead v. L.C.*, which mandates individual states to eradicate unnecessary segregation of individuals with disabilities.<sup>2</sup> This ruling is also referred to as the Olmstead decision, as well as Title II of the Americans with Disabilities Act (ADA). This ruling also ensures that services are delivered to patients with disabilities in appropriate integrated settings and are based on individualized needs. This has led to the Civil Rights Division working closely with individual state and federal government officials, nationwide groups for disability rights, and attorneys, in addition to the Department of Health and Human Services, to develop a national program to carry out the integration order of Title II of the ADA. Recent investigations by the Department of Justice have revealed that some states have failed to meet their obligations regarding Title II of the ADA.

During the last three decades, a national trend toward community living for patients with IDD has emerged in place of

living in institutional settings. A total of 15,702 individuals with IDD were residing in community settings in 1982, compared with 206,841 in 2007.<sup>3</sup> In 2011, approximately 88% of people with IDD in the United States were living in community settings.<sup>4</sup> This increase in patients with IDD returning to community settings has also led to recommendations such as the diversion of new admissions to institutions and to the thorough assessment of currently institutionalized individuals with IDD based on the principle that with appropriate support, all such persons can be served in community settings.

### Challenges

Medical issues among patients with IDD can be challenging and complex for community-based clinicians due to the presence of multiple chronic conditions and the atypical presentation of symptoms. A person with IDD often presents with nontraditional symptoms, compared with unaffected individuals, which can pose a challenge for community-based clinicians who are not experienced in providing care to patients with IDD. Many community-based clinicians have limited experience with providing care for the specific medical issues commonly experienced by individuals with IDD. There is also little support or consultation opportunities for community-based clinicians who need resources to assist with care for patients with IDD, especially in rural areas.

It is imperative for community-based clinicians to be familiar with the common medical conditions and usual presenting symptoms among persons with IDD, as well as evidence-based treatment regimens that promote quality, safety, and availability of necessary medical and social resources. This will assist the community-based clinician in addressing the health care needs of at-risk individuals with IDD more effectively, with the overall goal being the prevention of institutionalization. Increased awareness among community-based clinicians will also influence a more patient-centered approach to care that will lead to an individualized plan of care and improved outcomes. A holistic, patient-centered approach to care may also increase the available support of people with IDD by encouraging active involvement among family and community members.

### Common Themes

There are common themes among individuals with IDD from a health care standpoint. The global theme is that the approach to assessment, treatment, and management of patients with

## Constipation, aspiration, dehydration, and seizures are the four major medical conditions commonly observed in patients with IDD.

IDD is different from that of the general population. A common theme among individuals with IDD is that they often present with symptoms that are subtle and not obvious. Also, side effects of treatment regimens can be different for the average individual. Common chief complaints include “He is just not acting right,” and “He has quit eating.” Another common theme is that individuals with IDD rely heavily on family and caregiver support, meaning that much of your history will come from them rather than from the individual with IDD.

An additional common theme among patients with IDD includes the extreme importance and challenges of conducting the history of present illness (HPI) during the assessment. The HPI is extremely important because it provides vital information to assist with the determination of needed diagnostic testing, diagnosis, and treatment. However, the challenge is that an HPI cannot always be obtained when treating individuals with IDD. When gathering an HPI from the family or caregiver of a patient with IDD, there are several core questions to ask, as outlined in Table 1.1.

### “The Fatal Four”

Four major medical conditions that are more commonly seen among individuals with IDD can lead to serious medical

**TABLE 1.1 Common core questions to ask while obtaining an HPI of a patient with IDD**

When did the symptoms start?
Have new medications been given?
Have there been new routines or a change in daily routine?
Has there been vomiting?
When was the last bowel movement?

**TABLE 1.2 “The Fatal Four” major medical conditions associated with IDD**

Constipation
Aspiration
Dehydration
Seizures

complications: constipation, aspiration, dehydration, and seizures. They can prove to be fatal if not recognized timely and treated appropriately. Community-based primary care clinicians should be familiar with the ways that these common medical conditions present themselves in patients with IDD, in addition to recommended preventive measures. *Table 1.2* contains an overview of “The Fatal Four,” and *Table 1.3* provides a guide for considerations for each potentially fatal complication.

### Constipation

Constipation is defined as a condition that consists of fewer than three bowel movements in a week or having bowel movements with stools characterized as dry or hard in consistency, or small in size that lead to painful and difficult passage of stool.<sup>5</sup> Normal frequency of bowel movements may vary from three times a day to three times a week, and the patterns vary in each individual.<sup>5</sup> In persons with regular bowel movements, constipation can cause symptoms such as bloating and abdominal pain. These symptoms are not easily conveyed or expressed in patients with IDD.

In individuals with IDD, constipation should be considered as a possible primary cause of many other conditions. Common co-existing symptoms of constipation include fever, anorexia, vomiting, pneumonia, seizures, decreased level of consciousness, and behavioral outbursts. Constipation may also lead to medication intoxication due to increased absorption time as a result of slower bowel transit time and even death among patients with IDD. Community-based clinicians must be aware of the presenting symptoms of bowel obstruction so that this potentially life-threatening condition can be recognized and treated in a timely manner. Common presenting symptoms of constipation among persons with IDD include decreased bowel sounds, vomiting, abdominal bloating and rigidity, fever, seizures, or behavioral outbursts. Many medical conditions present as behavioral conditions in patients with IDD, as this may be the only way that they can communicate discomfort.

**Causes.** Several common causes exist for increased frequency of constipation among patients with IDD, including decreased gastrointestinal motility, immobility, lack of sensation, diet, certain medications, and the presence of pica. Medications that are commonly prescribed to individuals with IDD that can lead to constipation include anti-epileptic drugs (AEDs), antipsychotics, and

**TABLE 1.3 Considerations based on the four potentially fatal complications**

	<b>Constipation</b>	<b>Aspiration</b>
<b>Common presenting symptoms:</b>	<ul style="list-style-type: none"> <li>• Decreased bowel sounds</li> <li>• Vomiting</li> <li>• Abdominal bloating and rigidity</li> <li>• Fever</li> <li>• Seizures</li> <li>• Behavioral outbursts</li> </ul>	<ul style="list-style-type: none"> <li>• Coughing after swallowing foods or liquids</li> <li>• Recurrent pneumonia</li> <li>• Reactive airway disease</li> <li>• Fever</li> <li>• Burping</li> <li>• Hoarseness</li> <li>• Decreased appetite</li> <li>• Shortness of breath</li> <li>• Increased or decreased respiratory rate</li> <li>• Cyanosis</li> <li>• Recurrent wheezing</li> <li>• Halitosis</li> <li>• Excessive sweating</li> <li>• Colored sputum</li> </ul>
<b>Assessment findings:</b>	<ul style="list-style-type: none"> <li>• Fever</li> <li>• Anorexia</li> <li>• Vomiting</li> <li>• Pneumonia</li> <li>• Seizures</li> <li>• Decreased level of consciousness</li> <li>• Behavioral outbursts</li> </ul>	<ul style="list-style-type: none"> <li>• Rales or rhonchi of lung fields</li> <li>• Decreased oxygen saturation</li> <li>• Tachycardia</li> <li>• Altered mental status due to an underlying illness</li> </ul>
<b>Potential complications:</b>	<ul style="list-style-type: none"> <li>• Always consider the possibility of bowel obstruction</li> <li>• Potential for medication intoxication due to increased absorption time as a result of slower bowel transit time</li> <li>• Death</li> </ul>	<ul style="list-style-type: none"> <li>• Development of aspiration pneumonia or sepsis</li> <li>• Acute lung injury</li> <li>• Development of acute respiratory distress syndrome</li> <li>• Respiratory arrest</li> <li>• Death</li> </ul>
<b>Diagnostics:</b>	<ul style="list-style-type: none"> <li>• Chemistry panel</li> <li>• CBC</li> <li>• Flat and upright radiograph of the abdomen</li> <li>• Useful tests that may not be well tolerated in patients with IDD:               <ul style="list-style-type: none"> <li>— Computed tomography scanning</li> <li>— MRI</li> <li>— Ultrasonography</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• CBC</li> <li>• Arterial blood gas</li> <li>• Blood cultures</li> <li>• Sputum cultures</li> <li>• Chest radiograph</li> <li>• Bronchoscopy</li> <li>• CT of chest</li> </ul>
<b>Treatment</b>	<ul style="list-style-type: none"> <li>• Medications may be needed on a daily basis               <ul style="list-style-type: none"> <li>— Laxatives</li> <li>— Stool softeners</li> <li>— Suppositories</li> </ul> </li> <li>• Manual modalities               <ul style="list-style-type: none"> <li>— Enemas</li> <li>— Disimpaction</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Antibiotic therapy</li> <li>• Hospitalization and ventilation to support breathing in severe cases</li> <li>• Inpatient vs. outpatient treatment for pneumonia               <ul style="list-style-type: none"> <li>— Use CURB-65 calculator</li> </ul> </li> </ul>
<b>Prevention:</b>	<ul style="list-style-type: none"> <li>• Diet modifications               <ul style="list-style-type: none"> <li>— Increased fiber intake</li> <li>— Promotion of adequate fluid intake</li> </ul> </li> <li>• Various agents:               <ul style="list-style-type: none"> <li>— Bulking agents</li> <li>— Softening agents</li> <li>— Osmotic agents</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Feeding evaluation may help guide prevention plan</li> <li>• Inclined position</li> <li>• Thickened liquid diet</li> <li>• Placement of a percutaneous endoscopic gastrostomy tube or a jejunostomy tube</li> </ul>

AED, antiepileptic drug; BUN, blood urea nitrogen; CBC, complete blood count; CMP, comprehensive metabolic panel; CT, computed tomography; EEG, electroencephalography;

Dehydration	Seizures
<ul style="list-style-type: none"> <li>• Hypotension</li> <li>• Dry mouth</li> <li>• Decreased skin turgor</li> <li>• Delayed capillary refill</li> <li>• Tachycardia</li> <li>• Seizures</li> <li>• Signs of circulatory or cardiovascular collapse               <ul style="list-style-type: none"> <li>— Low blood pressure</li> <li>— Shallow breathing</li> <li>— Weak pulse</li> <li>— Clammy skin</li> <li>— Cyanosis</li> <li>— Low urine output</li> <li>— Unconsciousness</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Generalized convulsions</li> <li>• Loss of consciousness</li> <li>• Body stiffness and jerking</li> <li>• Deep sleeping following seizure activity</li> <li>• Involuntary, coordinated motions while conscious               <ul style="list-style-type: none"> <li>— Lip smacking</li> <li>— Fidgeting</li> <li>— Chewing</li> <li>— Other repetitive motions</li> </ul> </li> </ul>
<p>Refer to commonly presenting symptoms listed above</p>	<p>Refer to commonly presented symptoms listed above</p>
<ul style="list-style-type: none"> <li>• Alterations in electrolytes</li> <li>• Death</li> </ul>	<ul style="list-style-type: none"> <li>• Bodily injury</li> <li>• Permanent neurologic damage</li> <li>• Death</li> </ul>
<ul style="list-style-type: none"> <li>• CBC</li> <li>• Chemistry profile</li> <li>• Urinalysis</li> <li>• Serum creatinine level</li> <li>• BUN</li> </ul>	<ul style="list-style-type: none"> <li>• New onset of seizure activity               <ul style="list-style-type: none"> <li>— EEG</li> <li>— CT or MRI of brain</li> <li>— CBC</li> <li>— CMP</li> <li>— Stat glucose</li> </ul> </li> <li>• Known seizure disorder without changes in seizure pattern/presentation may not need diagnostic workup</li> <li>• A change in seizure pattern should warrant consideration of:               <ul style="list-style-type: none"> <li>— Constipation</li> <li>— Infection</li> <li>— Medication noncompliance</li> <li>— Hypoglycemia</li> <li>— Shunt malfunction</li> </ul> </li> <li>• Maintaining an accurate log of seizure activity</li> </ul>
<ul style="list-style-type: none"> <li>• Fluid and electrolyte replacement</li> <li>• Intravenous fluids for severe dehydration</li> <li>• Hospitalization for symptoms of circulatory collapse</li> </ul>	<ul style="list-style-type: none"> <li>√ Rule out precipitating factors to assist with determination of treatment</li> <li>√ Consider early referral to neurologist</li> <li>√ Consider AEDs once underlying precipitating factors have been ruled out</li> <li>√ Consider maximizing an AED's dosage and level before declaring the drug to be a failure</li> <li>√ Remember slow induction and tapering of all AEDs</li> <li>√ Consider a vagal nerve stimulator or other modalities if failure occurs with two to three different AEDs</li> </ul>
<ul style="list-style-type: none"> <li>√ Consider dietary consultation to assist with prevention plan that addresses fluid and nutritional needs</li> <li>√ Remember adequate fluid intake in those with alternate feeding routes such as a gastrostomy tube</li> <li>√ Be aware of increased incidence for dehydration during the following:               <ul style="list-style-type: none"> <li>— Fever</li> <li>— Elevated blood glucose</li> <li>— Diarrhea</li> <li>— Vomiting</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Most seizure disorders cannot be truly prevented</li> <li>• Effective management is key               <ul style="list-style-type: none"> <li>— AED compliance</li> <li>— Prevention of precipitation factors such as constipation or hypoglycemia</li> <li>— Early treatment of presenting infections</li> </ul> </li> </ul>

HPI, history of present illness; IDD, intellectual and developmental disabilities; MRI, magnetic resonance imaging.

## Evidence-based treatment of constipation includes medications and manual modalities, such as laxatives, suppositories, enemas, and disimpaction.

iron supplements. According to *DSM-5* criteria, pica is considered as eating non-nutritive substances for longer than one month, consuming non-nutritive substances that are not appropriate for an individual's developmental level, or consumption that is not related to a cultural or social norm practice.<sup>6</sup> Pica is often seen in the presence of other mental health disorders that are associated with impaired intellectual or developmental functioning and can lead to bowel obstruction among individuals with IDD.

**Potential Complications.** The potential complications of a bowel obstruction are many. There is risk of many different complications due to electrolyte imbalances, which can alter sodium and potassium levels and can lead to metabolic alkalosis or acidosis. Dehydration and jaundice are also possible complications of a bowel obstruction. The most life-threatening complications are an intestinal perforation, tissue necrosis, and infection. If constipation leads to vomiting, this can result in aspiration, which can also lead to pneumonia or death.

**Diagnostics.** Initial diagnostic testing that can be ordered to detect the presence of an early bowel obstruction may include laboratory testing such as a chemistry panel and a complete blood count (CBC). A flat and upright radiograph of the abdomen is a relatively inexpensive diagnostic test that can be very helpful in the case of a simple small bowel obstruction. These radiographs may also be used to identify fecal impaction or fecal stasis and allow for bowel-cleansing regimens before symptoms worsen. However, plain radiographs are of little assistance when it comes to determining the differential regarding strangulation versus simple obstruction.<sup>7</sup> Other diagnostic testing that can be helpful in determining the presence of a bowel obstruction include computed tomography (CT) scanning, magnetic resonance imaging (MRI), and ultrasonography. However, obtaining these diagnostics may likely not be well tolerated in some patients with IDD. It is important to consider how well a person with IDD might tolerate or cooperate with certain procedures compared with the value of the information that will be revealed by the test. Sometimes it may be too stressful for the patient to undergo a particular test, and it may cause more harm by leading to an unpleasant experience that could sensitize him or her against having future needed medical procedures.

**Treatment.** Evidenced-based treatment of constipation includes medications and manual modalities. Medications including laxatives, stool softeners, and suppositories are

often needed on a daily basis among patients with IDD. Manual modalities include enemas and disimpaction. If a bowel obstruction is present, treatment may include placement of a nasogastric tube to alleviate abdominal swelling and vomiting. If symptoms do not improve, an immediate referral to general surgery for consideration of surgical intervention is warranted.

**Prevention.** Diet modifications play an important role in the prevention of constipation. Diet-related modalities pertaining to prevention include increased fiber intake and promotion of adequate fluid intake. It is important to ensure adequate fluid intake when increasing fiber intake to avoid the increased incidence of fecal impaction. Due to the presence of increased risk factors for constipation among individuals with IDD, various agents may be given daily as part of the preventive plan of care. Common agents given for prevention are bulking agents, osmotic agents, and softening agents.

### Aspiration

Aspiration is defined as the movement of saliva, liquid, food, vomit, or other endogenous or exogenous matter into the airway.<sup>8</sup> Aspiration among patients with IDD may present with very subtle signs and symptoms. It can be a potentially life-threatening condition. The subtle signs and symptoms often seen with aspiration include coughing after swallowing solid food or liquids, recurrent pneumonia, and reactive airway disease. A cough during eating or drinking can be the only presenting sign of aspiration. Other symptoms that may be present with aspiration include fever, burping, hoarseness, decreased appetite, shortness of breath, recurrent wheezing, halitosis, excessive sweating, or colored sputum. Assessment findings may reveal rales or rhonchi of lung fields, decreased oxygen saturation, tachycardia, and altered mental status due to an underlying illness such as acute pneumonitis. Aspiration can cause acute pneumonitis and increase the incidence of aspiration pneumonia. Community-based clinicians need to be aware of the signs and symptoms that are indicative of aspiration so that early intervention and treatment can be initiated to prevent further complications.

**Causes.** Aspiration in a patient with IDD is often aggravated by constipation, gastroesophageal reflux (GERD), dysphagia, gastrointestinal dysmotility, mechanical alterations in swallowing, and sedatives. Sedation can interfere with swallowing and may be related to medication effects or

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## If aspiration pneumonia is present, initiating treatment early with antibiotics before culture results are obtained is strongly recommended.

sedation related to postictal states after seizures. Pneumonia may develop as a result of the aspiration of oral cavity or nasopharynx microorganisms such as *Streptococcus pneumoniae*, *Staphylococcus aureus*, other gram-negative bacilli, or respiratory viruses such as *Haemophilus influenzae* and respiratory syncytial virus.<sup>9</sup> Aspiration pneumonia is considered a form of community-acquired pneumonia (CAP) and is the only form that is caused by multiple aerobic and anaerobic oral bacteria. By definition, aspiration pneumonia is the development of an infection in the lower airways as a result of bacteria that are a common component of the normal flora in a susceptible individual who is prone to experiencing aspiration.<sup>9</sup> Aspiration pneumonia is considered to be one of the main risk factors that contributes to acute lung injury (ALI) and acute respiratory distress syndrome (ARDS).<sup>10</sup>

**Potential Complications.** The development of acute pneumonitis or aspiration pneumonia is more likely when there are insufficient normal defenses to protect the lower airways, such as the lack of glottis closure, ineffective cough reflex, or the absence of other clearing mechanisms.<sup>9</sup> Additional contributing factors include the introduction of a toxic substance into the lower airways such as gastric acid, the activation of the inflammatory process due to the presence of a bacterial infection, or an obstruction.<sup>9</sup> The early reactive response to aspiration is considered an acute pneumonitis, defined as inflammatory in nature with the presence of fever and leukocytosis.<sup>10</sup> Antibiotics are not always needed for the treatment of pneumonitis. However, it is often challenging to determine between aspiration pneumonitis and pneumonia, and strong consideration should be given for aggressive treatment in patients with IDD due to the difficulties they have in communicating worsening symptoms, which may lead to a rapid worsening of their condition.

**Diagnostics.** Various diagnostic testing can be ordered to evaluate patients for the presence of aspiration and possible complications associated with aspiration. Lab values that may need to be obtained include a CBC, arterial blood gases, and blood cultures. Sputum cultures may also be considered, but a patient's ability to cooperate with this procedure may be very limited. A chest radiograph can prove to be a very beneficial baseline study when diagnosing pneumonia. Bronchoscopy and chest CT may also be useful, particularly in severe cases or in those resistant to standard treatment. Additional diagnostics that may be used to help determine the cause of the

aspiration episode include swallowing function studies such as a modified barium swallow. Despite the increased incidence of aspiration pneumonia, it is still considered a diagnosis of exclusion due to the presence of ill-defined infiltrates on radiographs of the chest, in addition to hypoxia.<sup>10</sup>

**Treatment.** If aspiration pneumonia is present, initiating treatment early with antibiotics before culture results are obtained is strongly recommended.<sup>11</sup> Once culture results are obtained, empiric therapy can be guided by the findings and tailored to the specific pathogen. This is especially so in patients who experience aspiration that is secondary to a small bowel obstruction or in patients who have gastric content colonization.<sup>12</sup> However, it is important to discontinue antibiotic use if quantitative cultures do not reveal significant growth of bacteria.<sup>10</sup> Severe cases of aspiration pneumonia may require hospitalization and ventilation to support breathing.

Selection of antibiotic therapy should be based on the most likely causative pathogen, current evidence-based guidelines, patient risk factors for antibiotic resistance, and existing comorbidities. The presence of certain comorbidities may play a role in the specific causative pathogens, in addition to the increased incidence of treatment failure.<sup>13,14</sup> Therefore, taking these factors into consideration prior to initiating antibiotic therapy will increase the likelihood of successful treatment and positive outcomes.

*Streptococcus pneumoniae* is the most common bacterial pathogen that causes CAP. Therefore, this should be taken into consideration when initiating antibiotic therapy before culture results have been obtained. Factors that increase the incidence of antibiotic-resistant *Streptococcus pneumoniae* include age older than 65, treatment with fluoroquinolone, macrolide, or beta-lactam antibiotics during the previous three to six months, alcoholism, immunosuppressive conditions, and exposure to other infected individuals.<sup>13,14</sup> The presence of comorbidities such as cystic fibrosis, chronic obstructive pulmonary disease, recent influenza infection, recurrent aspiration, diabetes mellitus, and presence of various diseases related to the lungs, liver, or kidneys should be taken into consideration. Other factors that should be considered include recent hospitalizations, residing in a long-term care living arrangement, and allergies.

If a patient with IDD has no risk factors for antibiotic-resistant *Streptococcus pneumoniae*, none of the previously mentioned comorbidities, no contraindications (ie, allergies),

## Potential complications of dehydration can lead to life-threatening conditions, if not recognized and treated in a timely manner.

and has been previously healthy, the initial, first-line antibiotic of choice for aspiration pneumonia may include a macrolide antibiotic (ie, azithromycin or clarithromycin) **or** a tetracycline antibiotic (ie, doxycycline).<sup>13,14</sup> If an antibiotic has been administered within the previous three months, consideration of combination antibiotic therapy may include azithromycin or clarithromycin **in addition** to a beta-lactam antibiotic (amoxicillin or amoxicillin-clavulanate) **or** a fluoroquinolone (ie, levofloxacin or moxifloxacin).<sup>13,14</sup> If previously mentioned comorbidities are present, treatment with a single antibiotic may include levofloxacin **or** moxifloxacin **or** combination therapy of a beta-lactam antibiotic (amoxicillin, amoxicillin-clavulanate, cefuroxime, or ceftriaxone intramuscularly) **plus** a macrolide antibiotic (ie, azithromycin or clarithromycin).<sup>13,14</sup>

The evidence recommends antibiotic therapy for a minimum of five days or until the patient is afebrile for at least three days; however, extended duration of treatment should be considered if the identified pathogen is shown to be resistant to the initial antibiotic or if extrapulmonary infections are present.<sup>13,14</sup> Community-based clinicians should always keep in mind that unnecessary extended use of antibiotics may increase the incidence of further complications, such as antibiotic-associated pseudomembranous colitis, which is most commonly caused by *Clostridium difficile*.<sup>15</sup>

The CURB-65 calculator can be used to assist community-based clinicians with determining inpatient versus outpatient treatment for pneumonia.<sup>16</sup> The CURB-65 stands for **C**onfusion, **U**rea (blood urea nitrogen [BUN] > 19 mg/dL), **R**espiratory rate  $\geq$  30 per minute, **B**lood pressure < 90 mm Hg systolic or  $\leq$  60 mm Hg diastolic, and age 65 or older.<sup>16</sup> The presence of each finding counts as one scored point. Based on the CURB-65 calculator, patients with a score of 0 to 1 have a low risk and can likely be treated on an outpatient basis. A score of 2 should warrant consideration of hospital admission. Patients with a score of 3 or higher should be considered for treatment in an intensive care unit, especially with a score of 4 or 5.<sup>16</sup> Community-based clinicians may find a simplified version called CRB-65 to be more practical to use to assist with decision-making, because it does not require a BUN value.<sup>16</sup> However, hospital admission should be considered with either version if the score equals two or more points.

**Prevention.** The prevention plan for aspiration is determined by the frequency and severity of symptoms. Prevention

may consist of simple modalities such as use of a reclined position or a thickened liquid diet. A feeding evaluation may yield valuable recommendations when developing a prevention plan. Recurrent aspiration that does not respond to a conservative prevention plan may require placement of a percutaneous endoscopic gastrostomy (PEG) tube or a jejunostomy tube (J-tube).

### Dehydration

Dehydration is defined as the lack of sufficient body water and fluids.<sup>17</sup> Dehydration may occur due to inadequate intake of fluids or loss of fluids. This is a common problem experienced by patients with IDD. There is an increased risk for dehydration due to the inherent intellectual and developmental disabilities that are present among this vulnerable population. Dehydration may be mild, moderate, or severe.<sup>17</sup> Symptoms of dehydration can include hypotension, dry mouth, decreased skin turgor, delayed capillary refill, tachycardia, seizures, and signs of circulatory or cardiovascular collapse. Signs of circulatory or cardiovascular collapse include low blood pressure, shallow breathing, weak pulse, clammy skin, cyanosis, low urine output, and unconsciousness.

**Causes.** Patients with IDD are prone to experiencing loss of appetite, nausea and vomiting, poor oral health, or insufficient mechanical means to chew food, all of which may lead to dehydration. Loss of fluids can occur through excessive sweating, fever, vomiting, or diarrhea or loss due to difficulty swallowing. These are also unique situations experienced by patients with IDD that may contribute to dehydration. It could be as simple as the patients' inability to express that they are thirsty or to walk to get a glass of water. Caregivers should be aware of their patients' needs for adequate fluid intake.

**Potential Complications.** The potential complications of dehydration can lead to life-threatening conditions, if not recognized and treated in a timely manner. Dehydration that is mild to moderate can cause alterations in electrolytes. This can happen more quickly among individuals with IDD due to their already vulnerable physiologic state. If mild signs or symptoms are left untreated, dehydration among patients with IDD can become a life-threatening condition very quickly.

**Diagnostics.** Testing that can be ordered to determine the presence and extent of dehydration includes a chemistry profile and a urinalysis. Blood tests such as serum creatinine

## Testing that can be ordered to determine the presence and extent of dehydration includes a chemistry profile and a urinalysis.

level, BUN, or a CBC can be very helpful in the diagnosis of dehydration. Dehydration may cause an elevated sodium level, a decreased potassium level, and an increase or decrease in bicarbonate level and elevated BUN. A urinalysis may reveal increased urine-specific gravity. Dehydration may also cause an elevated serum creatinine level and elevated BUN level.

### Case Study

A 34-year-old male with IDD presents to your office with a staff person who is his caregiver at the residential community home where he lives with two other people. The staff member says that the patient has not eaten much during the past three days and that this morning when he woke up he felt hot all over and was making a funny noise when he breathes. His vital signs were: blood pressure, 124/82 mm Hg; heart rate, 96 beats per minute; respiratory rate, 24 breaths per minute; and axillary temperature, 100.8° F. His O<sub>2</sub> sat on room air is 96%.

The chest x-ray, which is the test that you should order first, shows a right lower-lobe infiltrate. Start him on antibiotics.

Other questions that may need to be answered to help determine the etiology of the pneumonia include the following:

- Was there any vomiting episode?
- When was his last bowel movement?
- Does he put things in his mouth that he shouldn't?

A vomiting episode could indicate that there was an aspiration episode that caused the pneumonia, which might change your treatment regimen.

If the patient has not had a bowel movement in a few days, constipation could be the cause of the vomiting, which may have led to the pneumonia. Further evaluation with a digital rectal exam and possibly a kidneys, ureters, bladder (KUB) x-ray would be warranted. If a fecal impaction or a considerable amount of bowel feces is noted on a KUB, proper cleansing of the bowel may prevent another vomiting episode. Asking about a PICA could also help identify a possible cause of pneumonia or decreased appetite and may warrant a chest x-ray or KUB to look for an aspirated or ingested foreign body that could cause pneumonia or gastrointestinal upset.

**Treatment.** Treatment for dehydration includes fluid and electrolyte replacement. For mild dehydration, drinking small amounts of fluids occasionally or consuming electrolyte solutions may be beneficial in preventing further dehydration. For moderate to severe dehydration, intravenous fluids may be needed to improve hydration. Severe dehydration that leads to signs and symptoms of circulatory collapse may require hospitalization to stabilize the individual with IDD.

**Prevention.** In patients with IDD, prevention of dehydration is key to avoiding potentially life-threatening conditions. Understanding the way persons with IDD may communicate their needs including thirst is important. Some patients may not be able to communicate their thirst at all. A dietary consultation can help determine their fluid and nutritional needs. In those who have alternate feeding routes such as a gastrostomy tube, it is important that they are given adequate fluids. Conditions such as fever, elevated blood glucose, diarrhea, and vomiting may cause increased loss of fluids, and more fluids may be needed when these conditions are present.

### Seizures

A seizure is defined as an involuntary alteration in behavior or physical findings that is present after abnormal electrical brain activity.<sup>18</sup> Seizures are fairly common among patients with IDD and can be severe and fatal. Seizures can also be very challenging to manage due to the variations in presentation among individuals with IDD. Patients with seizures may present with generalized convulsions, loss of consciousness, body stiffness and jerking, and deep sleeping following the seizure activity. Patients with seizures may also present with less obvious symptoms while maintaining consciousness such as lip smacking, fidgeting, or other repetitive, coordinated motions that are involuntary.

**Causes.** Besides congenital issues, seizures among people with IDD can be caused by a variety of conditions that may be exacerbated by anything that could lead to a change in a patient's biologic pattern, such as the presence of an infection, an impaction due to constipation, medication noncompliance, or shunt malfunctioning. Seizures may also be caused by a head injury, a stroke, hypoglycemia, or an electrolyte imbalance. All of these should be taken into consideration when attempting to determine the cause and the appropriate treatment of seizures in patients with IDD.

**Potential Complications.** The potential complications of seizures are multiple. Bodily injury may occur due to

the involuntary spasms and jerking of the body. Loss of consciousness can lead to falls and the potential for head injuries. Some of the most serious complications of seizures include permanent neurologic damage and death.

**Diagnosics.** Following an initial seizure, diagnostics to consider obtaining include EEG, head CT or MRI, and blood work such as a stat glucose to rule out hypoglycemia as a cause. If a person has a known seizure disorder that has previously been evaluated, repeat EEG or brain imaging studies are not usually necessary. If the individual has a change in his or her seizure pattern, consideration should be given to identifying a treatable cause such as constipation, infection, medication noncompliance, hypoglycemia, a shunt malfunction, or other issue. History that can be given by witnesses regarding details pertaining to the type of seizure activity may be extremely beneficial in diagnosing and treating seizures, and keeping an accurate log of seizure activity is very valuable to the treating clinician.

**Treatment.** Treatment should begin by ruling out precipitating factors first. Addressing precipitating factors such as constipation, infection, medication noncompliance, or hypoglycemia may be all that is needed. AEDs may be considered if underlying precipitating factors have been ruled out. General considerations include maximizing an AED's dosage and level before declaring the drug to be a failure. It is also important to remember slow induction and tapering of all AEDs. Once treatment has failed on two to three AEDs, consideration may be given to other modalities such as a vagal nerve stimulator. Consider early referral to a neurologist who specializes in seizure treatment and management.

**Prevention.** Although most seizure disorders cannot be truly prevented, managing constipation, early treatment of infections, and addressing medication compliance issues may be very helpful in improving the quality of life for patients with IDD who have seizure disorders.

## Conclusion

Treatment and management of health care needs among patients with IDD can be very challenging in the primary care setting. Individuals with IDD have unique needs that are not always consistent with those of the general population. Therefore, the presentation of symptoms and management of medical conditions often differ from the usual approaches and require astute clinical skills to diagnose and manage them. As more patients with IDD begin to slowly migrate into community settings, it is vital that primary care clinicians are familiar with commonly presenting features and

evidence-based treatment guidelines pertaining to this vulnerable population. It is also important for community-based primary care clinicians to have available access to health care resources particular to patients with IDD to assist with the diagnosis, treatment, and management of health care issues faced by these individuals. This will serve to improve the quality and safety of health care services provided to everyone, including those with IDD.

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## References

1. Schalock RL, Borthwick-Duffy SA, Bradley VJ, et al. *Intellectual Disability: Definition, Classification, and Systems of Supports*. 11th ed. Washington, DC: American Association on Intellectual and Developmental Disabilities; 2010.
2. Americans with Disabilities Act, US Department of Justice Civil Rights Division. Olmstead: Community Integration for Everyone. Available at <http://www.ada.gov/olmstead/index.htm>
3. Lakin KC, Larson SA, Salmi P, Webster A. 2010. Residential services for persons with developmental disabilities: Status and trends through 2009. Minneapolis: University of Minnesota, Research and Training Center on Community Living, Institute on Community Integration.
4. Hewitt AS, Nord D, Bogenschutz M, Reinke J. American Association on Intellectual and Developmental Disabilities. *Community Living*. 2013;1(1):17-27. doi: <http://dx.doi.org/10.1352/2326-6988-1.1.017> Available at <http://aaidjournals.org/doi/abs/10.1352/2326-6988-1.1.017?journalCode=incl>
5. National Digestive Diseases Information Clearinghouse, US Department of Health and Human Services. Constipation. Available at <http://digestive.niddk.nih.gov/ddiseases/pubs/constipation/>
6. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. 5th ed. Arlington, Va.: American Psychiatric Association; 2013.
7. Nobie BA. Small-bowel obstruction workup. Medscape; March 2014. Available at <http://emedicine.medscape.com/article/774140-workup#aw2aab6b5b2>
8. Medline Plus: US National Library of Medicine, National Institutes of Health. Aspiration Pneumonia; 2014. Available at <http://www.nlm.nih.gov/medlineplus/ency/article/000121.htm>

9. Bartlett JG. Aspiration pneumonia in adults. UpToDate; 2013. Available at <http://www.uptodate.com/contents/aspiration-pneumonia-in-adults>
10. Raghavendran K, Nemzek J, Napolitano L, Knight P. Aspiration-induced lung injury. *Crit Care Med*. 2011;39(4):818-826.
11. Iregui M, Ward S, Sherman G, et al. Clinical importance of delays in the initiation of appropriate antibiotic treatment for ventilator-associated pneumonia. *Chest*. 2002;122(1):262–268.
12. Marik PE. Aspiration pneumonitis and aspiration pneumonia. *N Engl J Med*. 2001;344(9):665–671.
13. Mandell GL, Bennett GE, Dolin R, eds. Acute pneumonia. In: *Principles and Practice of Infectious Diseases*. Vol 1. 7th ed. Philadelphia, Pa.: Churchill Livingstone; 2010:904.
14. Donovan FM, Herchline TE, Windle ML, Struble K. Community-acquired pneumonia empiric therapy. Medscape; 2013. Available at <http://emedicine.medscape.com/article/2011819-overview>
15. Centers for Disease Control and Prevention. Healthcare-associated infections: *Clostridium difficile*. 2012. Available at [http://www.cdc.gov/HAI/organisms/cdiff/Cdiff\\_clinicians.html](http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_clinicians.html)
16. File TM, Bartlett JG, Thorner AR. Treatment of community-acquired pneumonia in adults who require hospitalization. UpToDate; 2014. Available at <http://www.uptodate.com/contents/treatment-of-community-acquired-pneumonia-in-adults-who-require-hospitalization>
17. Medline Plus: US National Library of Medicine, National Institutes of Health. Dehydration; 2014. Available at <http://www.nlm.nih.gov/medlineplus/ency/article/000982.htm>
18. Medline Plus: US National Library of Medicine, National Institutes of Health. Seizures; 2014. Available at <http://www.nlm.nih.gov/medlineplus/ency/article/003200.htm>

## POSTTEST

Expiration date: February 12, 2016

### FEATURED COURSE

CREDITS: 0.5

For more credit information, please turn to p. 48.

1. A common medical problem in patients with IDD that can be a factor in other medical and behavioral issues that should not be overlooked is:
  - a. Diabetes
  - b. Colon cancer
  - c. Constipation
  - d. Ingrown toenails
2. Common causes of aspiration in patients with IDD include all of the following except:
  - a. Dysphagia
  - b. Sedation
  - c. GERD
  - d. Dehydration
3. Presenting symptoms of a person with IDD who is dehydrated could include all of the following except:
  - a. Hypotension
  - b. Delayed capillary refill
  - c. Bradycardia
  - d. Dry mouth
4. One of your patients with IDD who has a known seizure disorder had a recent episode of seizures. Which of the following would you NOT consider as part of your treatment strategy for this patient?
  - a. Repeat an MRI.
  - b. Check the patient for possible infections.
  - c. Check the patient for a fecal impaction.
  - d. Review the patient's seizure record.

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