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Pulmonary Embolism

Includes 1 Pharmacotherapeutic/Pharmacology Hour

Audience

This course is designed for nurses, physicians, and PAs involved in assessing, triaging, and managing patients with suspected pulmonary embolism.

Course Objective

The purpose of this course is to provide healthcare professionals with the knowledge and clinical strategies necessary to optimally triage and treatment patients with pulmonary embolism.

Learning Objectives

Upon completion of this course, you should be able to:

1. Define a thromboembolic event.
2. Explain pathogenesis, risk factors, and demographics of pulmonary embolism (PE).
3. Review the diagnostic workup of PE.
4. Compare the different types of PE treatments in both inpatient and outpatient settings.

Faculty

Dalia Saha, MD, is a board-certified internal medicine physician with more than 15 years of clinical experience. With experience in both academic and private healthcare settings, Dr. Saha has vast exposure to many aspects of patient care and clinical medicine. Always interested in the didactic component of health care, Dr. Saha works on the education committee for the American College of Physicians and is an instructor and teaching staff for medical students and residents in George Washington University and Johns Hopkins Medical Schools. Lauded by her colleagues for her dedication and work ethic in the field of medicine, she has been awarded the Top Doctor Award in Washington, DC.

Faculty Disclosure

Contributing faculty, Dalia Saha, MD, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the study questions and course material for better application to your daily practice.

INTRODUCTION

How are pulmonary emboli categorized?

Pulmonary embolism (PE) is very common in both inpatient and outpatient settings [1; 2]. It should be one of the first considerations when a patient presents with acute-onset dyspnea, shortness of breath, and chest pain. Other common symptoms include cough, hemoptysis, diaphoresis, and feverishness.

A PE is an abrupt occlusion of the pulmonary artery and/or one of its branches. The occlusion may consist of blood clot/thrombus, air, fat, or malignancy/tumor originating in another part of the body, which dislodges and travels through the venous system to the right side of the heart and thence the pulmonary vasculature. In most cases, PE arises from deep vein thrombophlebitis in the lower legs or pelvis, following trauma, surgery, infection, or an acquired hypercoagulable state.

The natural history of PE is variable. PE may be single or multiple (pulmonary emboli), small and clinically silent, large or recurrent with progressive obliteration of the pulmonary vascular bed, causing cardiorespiratory failure. Symptomatic PE is commonly associated with significant morbidity and mortality risk; the challenge for clinical care providers is early recognition and prompt therapeutic intervention to relieve pulmonary artery obstruction and prevent additional pulmonary emboli, any one of which could prove fatal [1; 2]. With modern technology, which can detect small embolic events, the condition is identified much earlier, making possible effective treatment prior to complete hemodynamic collapse [1; 2; 3]. Assessment and prevention in outpatient settings have also led to improvements in mortality. Research indicates that small, subclinical pulmonary emboli probably occur with some frequency but are transient in nature and go unnoticed; however,when there is predisposition to venous stasis (e.g., inflammation, injury, heart failure, coagulopathy), single large or recurrent PE becomes a challenging clinical illness requiring prompt diagnosis and treatment.

Classification of PE typically categorizes the disease as hemodynamically stable or unstable. The most common type is hemodynamically stable, which can range from small, mildly symptomatic or asymptomatic PE (previously referred to as low-risk PE or small PE) to those who present with right ventricular dysfunction but who are hemodynamically stable (previously referred to as submassive or intermediate-risk PE) [3; 4]. While PE characterized by right ventricular dysfunction can be hemodynamically stable, more severe (unstable) disease is characterized by the presence of systemic arterial hypotension, which indicates at least half of the pulmonary vascular tree is affected [4; 5]. Hemodynamically unstable PE (previously referred to as massive or high-risk PE) will result in significant hypotension. Hemodynamic instability is defined as the presence of cardiac arrest requiring resuscitation, or obstructive shock or persistent hypotension not caused by other pathologies [36].

EPIDEMIOLOGY

The annual incidence of PE is difficult to pinpoint but is estimated to be about 60 to 70 cases per 100,000 population [6]. General autopsy studies from all-cause mortality have found PE, variable in number and age, to be present in 30% to 45% of cases [6; 7; 8; 9].

Behind only stroke and coronary artery disease, PE is one of the most common types of cardiovascular disease. It is more common in patients 60 to 70 years of age, with the highest incidence in patients 70 to 80 years of age. Although death following a diagnosis of PE is relatively common, as high as 30%, many of these patients have coexisting serious conditions, such as cancer, recent surgery, or sepsis. The direct mortality associated with undiagnosed/untreated PE during the course of diagnosis and treatment is about 5% to 8%. An estimated 10% of patients with acute PE die suddenly; approximately two-thirds of patients who die from PE do so within two hours of presentation. The mortality rate for those treated for hemodynamically unstable PE is about 20%, and those with cardiogenic shock have a mortality rate of 25% to 30%. Those with a hemodynamically stable PE have a mortality rate of 1% to 25%, depending on the degree of right ventricular dysfunction [2; 4; 5; 10].

PATHOPHYSIOLOGY

What is the most common underlying cause of PE?

Most commonly, a PE occurs when a deep vein thrombus detaches and migrates, or embolizes, into the pulmonary circulation. This can lead to blockage of the pulmonary vasculature, causing a ventilation-perfusion (VQ) mismatch and impairing gas exchange and circulation. PE is more common in the lower lung fields, compared with the upper ones, and both lungs are typically involved. Peripheral PE, as opposed to central PE, can lead to a pulmonary infarction coupled with alveolar hemorrhage. As further obstruction of the pulmonary artery occurs, there is an increase in dead space ventilation and elevation of pulmonary arterial pressure by increasing pulmonary vascular resistance. This further worsens VQ mismatch, with vascular occlusion of the arteries.

Various serum factors are released during a PE formation, including serotonin and thromboxane, which are produced from activated platelets [1; 2; 4]. This induces a cascade of hormonal triggers and related vasoconstriction. Pulmonary arterial pressure increases, which worsens right ventricular afterload and can lead to right ventricular failure and eventually left ventricular system failure. Further clinical progression will lead to a myocardial ischemia due to inadequate coronary circulatory flow, systemic hypotension, and eventual death [1; 4; 5].

DIAGNOSIS

What conditions are included in the differential diagnosis of PE?

A strict (confirmatory) diagnosis of PE would require direct anatomic evidence of pulmonary artery obstruction, which by modern imaging technique (e.g., computed tomography [CT] angiography) would involve invasive measures and exposure to radiation. As the size and distribution (severity) of PE are variable, the preferred strategy for selecting diagnostic testing relies on degree of clinical suspicion, clinical judgment, and assessment of pre-test probability. Selection of noninvasive testing to rule out the diagnosis, based on the assessed clinical probability of PE, has proved effective in reducing the use of CT imaging, thereby minimizing lung and breast-tissue exposure to irradiation [27]. The differential diagnosis includes heart failure, pneumothorax, pneumonia, sepsis, acute chest syndrome, chronic obstructive pulmonary disease (COPD) exacerbation, and anxiety or other psychotropic illnesses. A systematic review and meta-analysis found that a history of sudden dyspnea, syncope, thrombophlebitis, previous deep vein thrombosis, leg swelling, active cancer, or recent surgery was associated with an increased probability of PE [54]. An inability to increase alveolar oxygen pressure (PaO_2) greater than 8.0 kPa (60 mm Hg) despite high-flow oxygen should also raise suspicion for PE.

When a patient does not speak the same language as the clinician, a professional interpreter should be consulted to ensure accurate communication. A retrospective chart review found that, for non-English-speaking patients suspected of having sustained a PE, the positive diagnostic yield of pulmonary angiogram for those who requested an interpreter (7.37%) was nearly double that of those who did not request an interpreter (3.23%) [49].

DIAGNOSTIC WORKUP

Vital Signs

In initial evaluation, vital signs such as blood pressure, heart rate, and rapid estimation of oxygenation by pulse oximetry are critical to assessing severity of vascular compromise and the stability of the patient. Arterial blood gas (ABG) testing will confirm if a patient has hypoxemia and can be used to obtain the arterial-alveolar gradient to determine if there is a PE or other VQ mismatch [10; 11; 12; 13].

D-dimer Level

Assessment of D-dimer levels can be used for screening purposes and to rule out PE if the pretest probability is intermediate or low. D-dimer is a byproduct of intrinsic fibrinolysis. It is considered to be a highly sensitive test for the absence of PE and has a very high negative predictive value. A normal D-dimer level effectively rules out PE or deep vein thromboembolism. In the event that the d-dimer is elevated, further testing (e.g., computed tomography [CT] angiography, planar VQ scanning) can be performed [10; 14; 15; 16]. Because the test is not specific, an elevated finding is not diagnostic. The specificity of D-dimer decreases with age, and the use of age-adjusted cut-offs is recommended for patients older than 50 years of age. The formula is age (years) x 10 mcg/L for patients older than 50 years of age.

Cardiac Biomarkers

Cardiac biomarker testing may also be useful, particularly as it can identify other diagnoses (e.g., myocardial infarction) [10; 11; 17]. It may help identify signs of right ventricular strain and/or ischemia. An elevated brain natriuretic peptide (BNP) level may indicate right ventricular dysfunction, and higher levels correlate with greater severity of dysfunction.

Various cardiac troponins have also been assessed for diagnostic significance in patients with PE. While these measurements are not diagnostic, elevated troponin is significantly associated with higher mortality in patients with PE [18].

Imaging

Diagnostic imaging is indicated for patients in whom PE cannot be ruled out based on clinical assessment and noninvasive testing. For these patients, CT pulmonary angiography is usually an easily accessible diagnostic imaging modality. It is fast, accurate, and both specific and sensitive. It is also useful for identifying other lung pathology, such as pneumonia and effusions [15; 16]. However, it does require that the patient have good renal function due to the use of iodinated contrast, and it also entails lung and breast-tissue irradiation. Ventilation-perfusion single-photon-emission CT (VQ scan) is a low-radiation option to minimize radiation exposure in younger patients.

Chest x-ray is nonspecific but can help identify pleural effusions and diaphragmatic changes. The classic Westermark sign, which shows a clarified area (loss of vascular markings) distal to a large occluded vessel, and Hampton hump, a dome-shaped, pleural-based opacification, may be present on x-ray. These findings are strongly specific for PE (92% and 82%, respectively) but are not sensitive (14% and 22%, respectively). Chest x-ray can also assist in ruling out pneumonia as part of the differential.

VQ scans visualize areas that are ventilated but not perfused (i.e., VQ mismatch). This testing requires more time, is less specific than CT angiography, and should be done with clinical correlation. However, it is the imaging modality of choice for patients with suspected PE and normal chest x-ray for whom CT angiography is contraindicated, including those with impaired kidney function and pregnant patients. Normal ventilation is 4 L air/minute, and normal perfusion is 5 L blood/minute; thus, a normal VQ ratio is 0.8. A high VQ ratio (>0.8) indicates that the patient's ventilation is exceeding perfusion, while a low VQ ratio indicates a VQ mismatch caused by poor

MODIFIED PROSPECTIVE INVESTIGATION OF PULMONARY EMBOLISM DIAGNOSIS (PIOPED-II) CRITERIA

Probability of PE	Criteria
High probability	Two or more large mismatched segmental perfusion defects or the arithmetic equivalent of moderate and/or large defects
Normal perfusion or very low probability	No perfusion defects Nonsegmental perfusion defects without other perfusion defects in either lung Perfusion defects smaller than corresponding chest x-ray opacity One to three small subsegmental perfusion defects Two or more matched ventilation and perfusion defects with a regionally normal chest x-ray and some areas of normal perfusion elsewhere Solitary triple-matched defect in a single segment in the middle or upper lung zone Stripe sign Large pleural effusion without other perfusion defects in either lung
Low or intermediate probability	All other findings

Source: [19] *Table 1*

ventilation. When blood is diverted away from the occluded section, overperfusion can occur in the normally ventilated regions. The modified Prospective Investigation of Pulmonary Embolism Diagnosis (PIOPED-II) criteria score the probability of PE based on VQ scan findings (***Table 1***).

Duplex ultrasonography for detection of lower extremity venous thrombi is a useful noninvasive test to assess risk and probability in a patient suspected of having PE. It has both high sensitivity and specificity for thrombus [14; 20; 21; 22]. However, a negative test result does not rule out PE, as the thrombus may have dislodged and embolized prior to the testing.

Electrocardiogram

Electrocardiographic signs of right ventricle strain, such as T wave inversions in V1–V4, QR pattern in V1, the S1Q3T3 pattern, and incomplete or complete right bundle-branch block, are useful but insensitive for the assessment of right ventricle dysfunction in acute PE. However, the presence of right ventricular strain on electrocardiogram has been shown to correlate with the extent of pulmonary vascular obstruction and outcomes of acute PE [10; 11; 12; 14; 17; 24].

Echocardiogram

Echocardiography can demonstrate if there was a clot in the right atrium or ventricle and can also be used to show if there are signs of right ventricular dilatation and hypokinesis [12]. When performed, echocardiography has been shown to reduce other testing and lead to more aggressive early therapy [12; 22].

Pulmonary Arteriography

Pulmonary arteriography is a rare test typically performed only on patients with suspected PE for whom CT and chest x-ray are not feasible. It may also be used with cardiac catheterization to assess patients who have chronic thromboembolic pulmonary hypertension to determine if they are good candidates for pulmonary endarterectomy.

GENETIC TESTING

Factor V Leiden (FVL) and prothrombin (PT) genetic variants are associated with an increased risk of future venous thrombosis or PE. Genetic tests for FVL and PT variants are widely available and commonly used. One current use of these tests is to inform decisions regarding anticoagulant medication in order to decrease the risk of future clots (i.e., secondary prevention). The independent Evaluation of Genomic Applications in Practice and Prevention (EGAPP) Working Group found enough evidence to recommend against routine testing for FVL and PT gene variants in adults who have idiopathic venous thromboembolism, since longer term preventive treatment with anticoagulant medication offers similar benefits to patients whether or not they have these genetic variations. They also recommend against routine testing for adult family members who do not have a history or symptoms of venous thromboembolism, when the testing is conducted to help decide whether to treat them preventively with anticoagulant medication [50]. However, for patients with venous thromboembolism associated with commonly recognized modifiable risk factors (e.g., contraceptive use, estrogen replacement), genetic testing may help guide preventive treatment decisions.

WELLS CRITERIA	
Clinical Features	**Points**
Clinical symptoms of deep vein thromboembolism	3
Other diagnosis less likely than PE	3
Tachycardia (>100 beats per minute)	1.5
Immobilization for three or more days OR surgery in the past four weeks	1.5
Previous deep vein thromboembolism or PE	1.5
Hemoptysis	1
Malignancy	1
Source: [25]	*Table 2*

CLINICAL SCORING SYSTEMS

The Wells criteria (***Table 2***) and the PE Rule-Out Criteria (PERC) assist clinicians with determining clinical probability for PE [14]. One of the important criteria in the determination of PE is if there is a more likely alternate diagnosis, and this is somewhat subjective. If the Wells criteria are used, a score greater than 6 is considered high probability of PE, 2–6 is moderate probability, and less than 2 is low probability. A modification of the Wells criteria simplifies scoring to either likely (>4) or unlikely (≤4).

The PERC rule was developed for use in emergency care to rule-out PE in patients whose likelihood of PE is low (<15%), so unnecessary diagnostic workups can be avoided. The PERC rule includes [26]:

- Age younger than 50 years
- Heart rate less than 100 beats per minute
- Oxygen saturation of at least 95%
- No prior deep vein thrombosis or PE
- No unilateral leg swelling
- No hormonal estrogen use
- No hemoptysis
- No history of surgery or trauma requiring prior hospitalization in the previous four weeks

If all eight criteria are fulfilled, the patient's risk for PE can be considered sufficiently low and further testing is not necessary [10; 11; 13; 17]. In practice, clinicians tend to overestimate the probability of PE. In cases in which the clinician judges that the patient is very unlikely to have PE but is uncertain whether the estimated likelihood is <15%, the PERC rule or Wells score ≤4 in combination with a normal D-dimer level is reassuring and can be used to safely rule out PE.

TREATMENT

INITIAL MANAGEMENT

The mainstays of initial PE management focus on rapid assessment of clinical severity and stabilization of the patient. As noted, when a patient initially presents, the most critical pieces of information lie in their vital signs (e.g., heart rate, blood pressure, oxygenation). The initial goal for the patient with PE is to maintain oxygen levels. If mechanical circulatory support is required, cardiopulmonary bypass permits right ventricular recovery by decompressing the dilated and dysfunctional ventricle through diversion of the cardiac output to a pump and oxygenator [51]. Alternatively, venoarterial extracorporeal membrane oxygenation (VA-ECMO) functions similarly but is more mobile, allowing for support to be initiated and continued in more diverse settings.

For patients who are hemodynamically unstable, intravenous fluid should be given with caution, because this can lead to right ventricular overload. Hemodynamically stable, low-risk patients should receive anticoagulation alone; those who are at high risk and have hemodynamic compromise may require systemic thrombolysis or surgical- versus catheter-directed therapy. Those who are at intermediate risk have more complicated cases and can be treated with either anticoagulation alone or anticoagulation with potential procedures. As discussed, the risk level will depend on the severity of right ventricular dysfunction on echocardiography, the degree of troponin elevation, the amount of oxygen and vasopressor required, and clot burden and location [10; 11; 12; 13]. The American Society of Hematology (ASH) recommends that patients with PE at low risk for complications be offered home treatment rather than hospital treatment [27].

The therapeutic treatment strategy for patients with a new diagnosis of PE, and venous thromboembolism in general, can be divided into three phases: initial treatment (the first three weeks after diagnosis), primary treatment (three to six months, or longer), and secondary prevention (beginning upon completion of primary therapy and continuing indefinitely) [27]. For primary treatment of patients with PE, whether unprovoked or provoked by a transient or chronic risk factor, the ASH suggests a shorter course of anticoagulation therapy (3 to 6 months) be preferred over a longer course (6 to 12 months). Anticoagulation therapy may be continued indefinitely in select patients for whom the risk for bleeding complications is less than the risk of recurrent PE.

PRIMARY PHARMACOTHERAPY

In selecting initial pharmacotherapy, European guidelines and a 2022 clinical practice review recommend that treatment be guided by risk stratification of PE as high, intermediate, or low based on the patient's clinical presentation [36; 55]. Approximately 5% of patients present with signs of high-risk PE (e.g., shock, end-organ hypoperfusion/dysfunction, blood pressure <90 mm Hg) not caused by arrhythmia, hypovolemia, or intrinsic heart failure [55]. Intermediate-risk patients are those who present with echocardiographic evidence of right heart strain, elevated cardiac biomarkers, or both; those who are hemodynamically stable with normal cardiac biomarkers and no evidence of right ventricular strain are classified as having low-risk PE. Patients classified as having high-risk PE are candidates for initial reperfusion (thrombolytic) therapy; those with intermediate- and low-risk PE should receive immediate anticoagulation therapy [36; 55]. Treatment should be started promptly whenever PE is strongly suspected and the patient's risk of serious bleeding complications is low. Pharmacotherapy options for initial anticoagulation include intravenous unfractionated heparin, subcutaneous low-molecular-weight heparin, subcutaneous fondarinux, factor Xa inhibitors (e.g., apixaban, rivaroxaban), direct thrombin inhibitors (e.g., dabigatran), and intravenous argatropan for patients with heparin-induced thrombocytopenia.

Thrombolytic Therapy

Patients who present with high-risk PE warrant consideration for immediate reperfusion therapy, there being no contraindications (e.g., brain metastases, bleeding disorders, recent surgery) [36; 55]. Intravenous systemic thrombolysis is a readily available option for reperfusion. Thrombolytic agents act to dissolve the thrombus by converting plasminogen into plasmin. With early thrombus resolution, the elevated pulmonary arterial pressure/resistance and accompanying right ventricular dysfunction improve rapidly. Thrombus resolution within the first 24 hours in particular is much faster in thrombolytic therapy than with heparin [52].

The first recombinant tissue plasminogen activator, and the most commonly used thrombolytic agent used in patients with PE, is alteplase (rtPA); other available agents include streptokinase, urokinase, reteplase, and tenecteplase. The main indication for thrombolysis is high-risk PE with thrombus and hemodynamic instability. rtPA is administered at a rate of 50 mg per hour for two hours; the dose should be reduced for patients with weight less than 65 kg. If streptokinase, is used, a loading dose of 250,000 IU is given, followed by and infusion of 100,000 IU per hour for 24 hours. Urokinase is started with a loading dose of 4,400 IU and an infusion of 4,400 IU/kg/hour for 12 hours [29; 52].

According to the American College of Physicians, catheter-directed thrombolytic therapy can be considered if cardiopulmonary deterioration is imminent [53]. There is some evidence that ultrasound-assisted catheter-directed thrombolysis is superior to heparin anticoagulation alone in improving right ventricular dilatation within 24 hours without major bleeding complications or recurrent embolism. Absolute contraindications to thrombolytic therapy include history of intracranial hemorrhage, known structural cerebral vascular lesion, known malignant intracranial neoplasm, recent history (within past three months) ischemic stroke, active bleeding (excluding menses), and recent history (within past three months) significant closed-head trauma or facial trauma [52; 53].

Oral Anticoagulants

Direct oral anticoagulants (DOACs) (factor Xa inhibitors or direct thrombin inhibitors) are recommended over vitamin K antagonists (e.g., warfarin) for most patients; however, those with renal insufficiency (i.e., creatinine clearance <30 mL/min), moderate-to-severe liver disease, or antiphospholipid syndrome are not good candidates for DOAC therapy [27].

EVIDENCE-BASED PRACTICE RECOMMENDATION

The European Society of Cardiology (ESC) and European Respiratory Society (ERS) recommends direct oral anticoagulants (DOACs) as first choice anticoagulants over warfarin even in those who are warfarin eligible.

(https://academic.oup.com/eurheartj/article/41/4/543/5556136. Last accessed August 18, 2023.)

Level of Evidence: Expert Opinion/Consensus Statement

Factor Xa inhibitors such as apixaban and rivaroxaban have the advantage of fixed dosing and no need for monitoring laboratory values, both of which are required of vitamin K antagonists. Rivaroxaban and apixaban do not require any kind of overlap with an intravenous agent. Dose reductions are indicated for those with renal insufficiency. Apixaban can be used in patients with renal insufficiency and is safe for patients on dialysis [2; 28]. Reversal agents are available: idarucizumab for reversal of dabigatran, and andexanet alfa apixaban and rivaroxaban.

The half-life of factor Xa inhibitors is much shorter than the half-life of warfarin. If bleeding develops and requires reversal, a four-factor prothrombin complex concentrate can be used. Direct thrombin inhibitors such as dabigatran can also be used for treatment for these patients. For those with heparin-induced thrombocytopenia, intravenous argatroban or subcutaneous fondaparinux can be used for anticoagulation. The dosage varies according to agent (***Table*** **3**).

Drug-drug interactions with DOACs are common and may increase risk of bleeding or thrombosis. Important DOAC interactions are often due to medications that affect cytochrome P450 (CYP450) enzymes or transport proteins or increase bleeding propensity.

ORAL ANTICOAGULATION THERAPY	
Agent	**Dosage**
Vitamin K Antagonist	
Warfarin	5 mg once daily for most patients[a]
Direct Thrombin Inhibitor	
Dabigatran etexilate	After at least 5 days of initial therapy with a parenteral anticoagulant, transition to oral 150 mg twice daily.
Factor Xa Inhibitors	
Apixaban	10 mg twice daily for 7 days, followed by 5 mg twice daily
Edoxaban	After at least 5 days of initial therapy with a parenteral anticoagulant, transition to once-daily oral 60 mg for patients >60 kg or 30 mg for patients ≤60 kg.
Rivaroxaban	15 mg twice daily with food for 21 days, followed by 20 mg once daily with food
[a]For patients who are expected to be more sensitive to warfarin, a starting dose of 2.5 mg daily is recommended. After three days of treatment, dosage should be adjusted based on INR values.	
Source: [29]	*Table 3*

Warfarin, which used to be the mainstay of therapy, is no longer considered first choice, as the other DOACs have better safety profiles and patient satisfaction. Bleeding is common with warfarin usage and is more likely to be develop in patients who are older (65 years of age and older) and with comorbidities, such as diabetes, recent myocardial infarction, and other chronic conditions (e.g., kidney disease, stroke). If it develops, bleeding can be reversed with vitamin K at a dose of 2.5–10 mg intravenously or orally. Fresh frozen plasma can also be used with elevated prothrombin complex concentrates [5; 30; 31]. Drug interactions are also a concern with warfarin. Another potential complication is warfarin-induced necrosis, which is more likely to occur in patients with a history of heparin-induced thrombocytopenia. If warfarin is used, the dose should be adjusted to reach and maintain a target goal of an international normalized ratio (INR) of 2.5 (range: 2.0–3.0).

Heparin

Intravenous unfractionated heparin has a short half-life and can be reversed with protamine [28]. An initial bolus is given followed by an infusion, during which partial thromboplastin time (PTT) values are monitored. The dosage is based on a weight-based protocol. Although relatively safe to use, the pharmacokinetics of this drug are unpredictable, resulting in the need for close clinical monitoring. However, due to its short half-life, it can quickly be reversed, if needed.

Subcutaneous low-molecular-weight heparin has several advantages, including increased bioavailability and more predictable anticoagulation, as opposed to intravenous unfractionated heparin [28; 32]. There is also decreased incidence of bleeding and potentially better outcomes. Low-molecular-weight heparin is given at a dosage of 1 mg/kg body weight. All heparin products include similar bleeding risk profiles as well as a risk for thrombocytopenia, urticaria, and anaphylaxis. For patients with breakthrough deep vein thrombosis and/or PE during therapeutic warfarin treatment, the ASH suggests using low-molecular-weight heparin over DOAC therapy [27].

Fondaparinux

Fondaparinux is a factor Xa antagonist given subcutaneously in the management of acute PE instead of heparin. Advantages include fixed-dose administration once or twice per day, lack of need for clinical monitoring, and lower risk of thrombocytopenia. The dose is 5 mg for patients who weigh less than 50 kg, 7.5 mg for patients weighing 50–100 kg, and 10 mg for those weighing more than 100 kg. The dose should be adjusted in persons with kidney disease. It is contraindicated for patients with a creatinine clearance less than 30 mL/minute. When used for thromboprophylaxis, some experts recommend a 50% dose reduction or use of low-dose heparin instead [29].

SURGICAL MANAGEMENT

Pulmonary embolectomy is indicated for patients that have high- or intermediate-risk PE with contraindications to thrombolysis; failed thrombolysis or catheter-assisted embolectomy; or hemodynamic shock that is likely to cause death before thrombolysis can take effect [52]. Surgical pulmonary embolectomy is a procedure performed on cardiopulmonary bypass through a midline sternotomy, involving either central or femoral vessel initiation. Management involves moderate hypothermia for better visualization and protection during moments of reduced cardiopulmonary bypass flows. Aortic cross-clamping and cardioplegic arrest are sometimes unnecessary to prevent negative effects on right ventricular recovery [51]. Dual incisions offer improved visualization and better clot extraction. Various methods, such as suction, retrograde perfusion, manual manipulation, or balloon-tipped catheters, can aid clot extraction, but balloon catheters may lead to increased postprocedural complications [51].

SECONDARY PREVENTION

Maintenance anticoagulation for secondary prevention is done for patients who have extensive clot burden or to reduce the risk of new clot formation. There are multiple pharmacotherapeutic options for this phase of treatment, including factor Xa inhibitors (e.g., apixaban), dabigatran, and aspirin. Warfarin and low-molecular-weight heparin are second-line options.

Factor Xa anticoagulants, such as apixaban and rivaroxaban, are the most common first-line option for secondary prevention. Though warfarin was previously used, research has shown a decreased risk for intracranial hemorrhage with factor Xa anticoagulants compared with warfarin. When used for maintenance therapy, the dosage of apixaban is 2.5 mg twice per day; the dosage of rivaroxaban is 10 mg once per day. Cessation of therapy should be considered again after 6 to 12 months [4; 5].

Those with incidental PE, very small clot burdens, and minimal symptoms should likely be treated in an outpatient setting—unless other risk factors are present. However, patients with hemodynamically unstable PE (e.g., extensive clot burden, low blood pressure, abrupt clinical deterioration) often require an intensive care stay.

Aspirin has also been studied for long-term maintenance therapy and is more effective than placebo. However, anticoagulation is typically preferred over aspirin. When anticoagulation therapy is initiated in patients with PE with stable cardiovascular disease who were previously taking aspirin for cardiovascular risk modification, clinicians should consider suspending the aspirin during anticoagulation therapy. Enoxaparin sodium or low-molecular-weight heparin may be used in high-risk cancer patients with recurrent PE [2; 28].

Duration of Pharmacotherapy for Secondary Prevention

How long should anticoagulation therapy continue in patients who have experienced PE?

As noted, the duration of anticoagulation therapy for secondary prevention is dependent on a variety of factors, such as bleeding risk and risk factors for PE, and can range from three months to lifelong therapy [3; 28; 32]. If the patient experienced PE following a transient risk factor (i.e., a provoked event), such as immobilization or recent surgery or trauma, at least three months of treatment is warranted, after which therapy should be reassessed. However, those who have chronic provoked factors for PE, such as active cancer, a hypercoagulable state, or chronic immobility, may benefit from long-term (indefinite) anticoagulation therapy. When creating the treatment plan, the goal is to weigh the benefits of PE and deep vein thrombosis prevention with the risk of anticoagulation events (e.g., bleeding). Risk factors for bleeding include age 65 years or older, frequent falls, alcohol abuse, renal failure, previous stroke, diabetes, and anemia.

For patients who develop PE provoked by a transient risk factor and who have a history of a previous thrombotic event also provoked by a transient risk factor, the ASH guideline panel suggests stopping anticoagulation after completion of the primary treatment phase of therapy [27].

PE IN THE OUTPATIENT SETTING

When possible, patients at assessed low risk for complications (i.e., minimal risk of PE-related death) should be discharged from the hospital and continue to receive treatment at home. Such patients are hemodynamically stable, with have no right heart strain and normal cardiac biomarkers. Most patients with low-risk PE can be treated with an oral anticoagulant or a brief period of low-molecular-weight heparin followed by oral therapy. The presence or absence of comorbidities and proper care and anticoagulation therapy, which can be provided on an outpatient basis, should be noted. Scoring systems have been developed to stratify these patients, including the HESTIA rule (***Table 4***), the PE Severity Index (PESI), and its simplified version (sPESI) (***Table 5***) [33; 34; 35].

The PESI scales identify those with a low risk of 30-day mortality [33]. The criteria used include age, sex, history of cancer, history of chronic pulmonary disease, heart rate, systolic blood pressure, and oxygen saturation [33]. The scales relate the risk stratification score to an associated 30-day mortality and risk of death and can assist in identifying patients who may appropriately be managed at home. The patient's social situation, access to supportive care, and ability to transfer to higher level care should all be considered before shifting to outpatient management.

Anticoagulation options to manage confirmed PE in an outpatient setting include subcutaneous low-molecular-weight heparin, fondaparinux, unfractionated heparin, or DOACs [28; 32; 38; 39]. The treatment duration is generally three to six months [38; 39]. Following the initial three-month period, the decision of whether or not to continue treatment will be made based on continued risk of recurrent thromboembolic balanced against the risks of continued anticoagulation [4; 5; 40].

PE AND COVID-19

Hospitalized patients with advanced COVID-19 may have laboratory signs of a coagulopathy and increased risk for arterial and venous thromboembolic complications, including PE [41; 42; 43]. The pathogenesis is unknown but likely involves some combination of systemic inflammation, endothelial dysfunction, platelet activation, immobility, and stasis of blood flow [43]. The earliest abnormalities are elevated D-dimer levels and mild thrombocytopenia; with disease progression,

HESTIA EXCLUSION CRITERIA FOR OUTPATIENT TREATMENT

Criteria	Points[a]
Hemodynamically unstable	1
Thrombolysis or embolectomy needed	1
Active bleeding or high risk of bleeding	1
More than 24 hours on supplemental oxygen needed to maintain oxygen saturation >90%	1
PE diagnosed during anticoagulant treatment	1
Severe pain requiring IV pain medication for more than 24 hours	1
Medical or social reason for hospital treatment for more than 24 hours (e.g., infection, malignancy, no support system)	1
Creatinine clearance of <30 mL/min	1
Severe liver impairment	1
Pregnancy	1
History of heparin-induced thrombocytopenia	1

[a] A score of 1 or more is defined as high risk and rules out outpatient treatment.

Source: [36] *Table 4*

THE ORIGINAL PULMONARY EMBOLISM SEVERITY INDEX (PESI) AND THE SIMPLIFIED PESI (S-PESI) CLINICAL RISK SCORES

Parameter	PESI	s-PESI
Age	Age in years	1 if older than 80 years
Male sex	10	—
Cancer diagnosis	30	1
Chronic heart failure Chronic pulmonary disease	10 10	1
Pulse ≥110 beats per minute	20	1
Systolic blood pressure <100 mm Hg	30	1
Respiratory rate ≥30 breaths per minute	20	—
Temperature <36°C	20	—
Altered mental status	60	—
Arterial oxyhemoglobin saturation <90%	20	1
Risk Stratification (PESI)		
Class I (≤65 points)	Very low 30-day mortality risk (0% to 1.5%)	
Class II (66–85 points)	Low mortality risk (1.7% to 3.5%)	
Class III (86–105 points)	Moderate mortality risk (3.2% to 7.1%)	
Class IV (106–125 points)	High mortality risk (4% to 11.4%)	
Class V (>125 points)	Very high mortality risk (10% to 24.5%)	
s-PESI Score		
0 points	30-day mortality risk 1%	
1 or more points	30-day mortality risk 10.9%	

Source: [37; 56; 57] *Table 5*

fibrin degradation products are elevated and prothrombin time becomes prolonged. Laboratory measure of coagulation factors in patients hospitalized with COVID-19 provides a way to track disease severity. The presence of an elevated D-dimer on admission carries a poor prognosis and has been associated with increased risk of requiring mechanical ventilation, intensive care unit admission, and mortality [43; 44]. The most frequently reported complications of COVID-19 coagulopathy are deep venous thrombosis and PE. In a prospective study of 150 critically ill patients from two centers in France, 25 patients developed PE and 3 developed deep vein thrombosis, despite prophylactic anticoagulation [45]. In a report of 184 patients with severe COVID-19 from three centers in the Netherlands, the cumulative incidence of venous thromboembolism was 27%, including PE in 80% of the cases affected [46]. Other centers have reported lower rates. Among 393 patients from New York, venous thromboembolism was diagnosed in only 13 patients (3.3%), 10 of whom were on mechanical ventilation [47]. The National Institutes of Health recommends all hospitalized patients with COVID-19 who experience rapid deterioration of pulmonary, cardiac, or neurological function or sudden, localized loss of peripheral perfusion be evaluated for thromboembolic disease [48].

At present, there are limited data available to inform clinical management around prophylaxis or treatment of venous thromboembolic complications in patients with COVID-19 [41]. One source of interim guidance recommends regularly monitoring hemostatic markers—namely D-dimer, prothrombin time, and platelet count—in all patients presenting with COVID-19 and prophylactic use of low-molecular-weight heparin in all hospitalized patients, unless there are contraindications [43]. The National Institutes of Health recommends that hospitalized, nonpregnant adults with COVID-19 who do not require intensive-level care and have no evidence of venous thromboembolism receive a therapeutic dose of heparin if their D-dimer levels are above the upper normal limit and they require low-flow oxygen, as long as they do not have an increased risk of bleeding [48].

Contraindications for the use of therapeutic anticoagulation in patients with COVID-19 include [48]:

- Platelet count <50 x 10^9/L
- Hemoglobin <8 g/dL
- Need for dual antiplatelet therapy
- Bleeding within the past 30 days that required an emergency department visit or hospitalization
- History of a bleeding disorder or an inherited or active acquired bleeding disorder

Low-molecular-weight heparin is preferred over unfractionated heparin because of its ease of administration and because low-molecular-weight heparin was the predominant form of heparin used in the clinical trials for COVID-19 [48].

In patients without venous thromboembolism who have started treatment with therapeutic doses of heparin, treatment should continue for 14 days or until they are transferred to intensive care or discharged from the hospital, whichever comes first. A prophylactic dose of heparin is also recommended for patients who do not meet the criteria for receiving therapeutic heparin or are not receiving a therapeutic dose of heparin for other reasons, unless a contraindication exists [48].

For those patients who develop a PE in the setting of a COVID-19 infection, about 50% will report persistent fatigue, reduced exercise tolerance, and dyspnea [14; 23]. Of these patients, one-half will also have signs of right ventricular dysfunction on echocardiogram after the diagnosis is made, referred to as post-PE syndrome. This further leads to dyspnea on exertion, damage to the venous valves in the leg, prolonged lower extremity swelling and aching, venous ulcers, and impaired quality of life.

CONCLUSION

PE is a common cause of acute-onset breathlessness and chest pain, often confused for many other diagnoses. It should remain on one's clinical differential due to the fact that it can be life-threatening and is treatable if caught and managed early. A variety of treatment options are at the forefront for ensuring that patients are given the best possible outcome.

Customer Information/Evaluation insert located between pages 48–49.

COURSE #97770 — 5 CONTACT HOURS RELEASE DATE: 05/01/23 EXPIRATION DATE: 04/30/26

Counseling Patients at the End of Life

Audience

This course is designed for all members of the interprofessional team responsible for supporting patients at the end of life.

Course Objective

The purpose of this course is to provide physicians, nurses, physician assistants, and allied health professionals with the knowledge and strategies necessary to best assist patients to seek and receive optimal end-of-life care.

Learning Objectives

Upon completion of this course, you should be able to:

1. Define palliative and end-of-life care.
2. Outline the role of health and mental health professionals in end-of-life counseling.
3. Identify psychological concerns present at the end of life.
4. Discuss key components of end-of-life conversations.
5. Analyze mental health interventions that can be incorporated into end-of-life care and bereavement.
6. Describe practical, ethical, and legal issues that can arise in the provision of end-of-life care.
7. Examine the impact of culture and culturally competent care on end-of-life decisions and support.

Faculty

Lisa Hutchison, LMHC, has more than 20 years of experience providing individual and group counseling with adults. She specifically focuses on teaching assertiveness, stress management, and boundary setting for empathic helpers. Ms. Hutchison graduated from the University of Massachusetts, Boston, with a Master's degree in education for mental health counseling.

Faculty Disclosure

Contributing faculty, Lisa Hutchison, LMHC, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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Division Planner/Director Disclosure

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E B
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INTRODUCTION

End-of-life decisions can be complex and challenging. Health and mental health professionals can help with their expertise, whether it is for the person facing death, their family, surrogate decision makers, or caregiver. It is vital for health and mental health professionals to learn when and how to include end-of-life discussions into their sessions, assist with decision making and planning, and learn the differences between palliative and end-of-life care.

DEFINING END-OF-LIFE CARE

What is the goal of palliative care?

The terms palliative care and end-of-life care often are used interchangeably, but there are some differences. The goal of palliative care is to improve the quality of life of patients and their families when faced with life-threatening illness. This is achieved through the prevention and relief of suffering and treatment of pain and other physical, psychosocial, and spiritual problems [1]. Palliative care includes measures used to achieve comfort for the patient. Palliative care can be provided at any stage of a serious illness, including as early as the time of diagnosis. Unlike patients receiving end-of-life care, those receiving palliative care may still be pursuing curative treatment [2].

End-of-life care (which may include palliative care) is generally defined as care that is provided to seriously ill patients who have a prognosis of six months or less. It is care intended for the last few weeks or months of a patient's life. End-of-life care can be provided in a variety of settings, including the patient's home, nursing homes or assisted living facilities, or inpatient hospice facilities [2]. End-of-life care is a multidisciplinary team approach toward "whole person care." It is intended for people with advanced, progressive, incurable, or life-limiting illness to enable them to live as well as possible before they die [3]. This course will focus on end-of-life care.

THE ROLE OF HEALTH AND MENTAL HEALTH PROFESSIONALS IN END-OF-LIFE COUNSELING

Which professionals can provide end-of-life counseling?

The transition of care from eliminating or mitigating illness to preparing for death can be difficult for patients, families, and caregivers, and it can be equally difficult for healthcare professionals, who are expected to meet the physical and emotional needs of dying patients and their families [4]. By understanding the experiences of the dying patient, health and mental health professionals can best support the unique needs of each patient and the patient's loved ones as well as self and other members of the patient's healthcare team [4; 5; 6; 7]. Mental health professionals are uniquely positioned to address the cognitive, mental, and emotional needs that arise during this period of life-limiting illness [8; 9]. They work to normalize emotions during a difficult time; provide spiritual support; educate about normal physical, emotional, and social changes; and assist in managing practical problems. They also may develop relationships with survivors to provide a continuity of care following the patient's death. Health and mental health professionals work in a variety of settings that address end-of-life care, including health agencies, hospitals, hospice and home care settings, nursing homes, and courts [10].

Both end-of-life and palliative counseling are services provided by clinicians who work with the terminally ill. End-of-life counseling helps patients struggling with death or families struggling with the death of a loved one and may be provided by counselors, therapists, social workers, psychologists, critical care nurses, physicians, hospice workers, and others trained in working with emotions related to death, dying, grief, and bereavement [8].

Health and mental health providers provide services to diverse individuals in a variety of settings, including end-of-life settings, as part of an interprofessional team. In the end-of-life setting, clinicians help dying patients prepare for death with education and supportive therapeutic interventions that address the patient's physical, emotional, social, spiritual, and practical needs [10]. They also help patients and their families navigate the many challenges associated with dying, including end-of-life planning; managing stresses associated with life-limiting illness; assessing patients to develop interventions and treatment planning; advocating for patients' treatment plans; overcoming crisis situations; and connecting them with other support services [11; 12]. Life-limiting illness is mentally taxing and can exacerbate or incite symptoms of anxiety, depression, and trauma and make manifest complex presentations of cognitive decline. Providers can help differentiate between trauma symptoms, mental illness, or medical decline. Reducing mental health symptoms can help patients engage more meaningfully, including in the participation of end-of-life decisions [9]. A cohesive, standardized approach to end-of-life care addresses issues related to the patient, family, caregivers, and the team of healthcare professionals involved in providing care [12].

PSYCHOLOGICAL CONCERNS FOR PATIENTS AT THE END OF LIFE

Psychological suffering is a universal experience for patients at the end of life. It exists on a continuum and has many sources, including grief over anticipated loss or worry about unresolved issues. It is important to assess and differentiate the major types of distress in the dying patient and among their families to effectively treat these sources of suffering.

LIFE-CYCLE ISSUES/RELATIONSHIPS

Psychological responses to the news of a life-limiting illness will vary according to the patient's developmental stage. The young adult, about to become independent, might struggle with being thrust back into dependence upon parents or other adult figures. Parents of young children with life-limiting illness often are consumed with what and how much to tell their ill child, the impact of the child's illness on other siblings, and how to cope with the loss of the child's future. Worries about a spouse or partner are a common concern for older adults. They may feel cheated out of the expected rewards of a life of hard work. Worries about family members are a major issue for most patients at the end of life [13]. One study found that 92% to 97% of patients rated as extremely or very important "feeling appreciated by my family," "saying goodbye to people closest to me," "expressing my feelings to family," and "knowing that my family will be all right without me" [14]. Caregivers of patients with terminal illness also experience significant strains (e.g., adverse impact on work and finances) [15]. Awareness of these life-cycle and relationship issues can help the clinician listen for and inquire about concerns and emotions, normalize patient responses, and explore areas of distress [13].

MEANING AND IDENTITY

Illness comes with practical and emotional challenges that are unique to each patient. The clinician who understands what the illness means to the patient can identify specific concerns, address fears, provide reassurance, and help the patient make plans. Providing patients with the opportunity to share what their illness means can be therapeutic in and of itself [13]. Some patients state that finding meaning in illness is derived from the belief that their life has a purpose that extends beyond self. Others find that meaning enhances their ability to cope with their illness. Still others experience a loss of meaning when faced with life-limiting illness. The patient's ability to find and maintain a sense that life has purpose and meaning is associated with the ability to tolerate physical symptoms of the illness and protect against depression and a desire for hastened death [13]. Meaning and hope are closely allied in patients at the end of life, and hopes for the future reflect the patient's priorities.

Maintaining a sense of self is a high priority among patients with life-limiting illness, yet serious illness has a profound impact on patient self-identity. The physical and psychological losses (e.g., loss of feeling whole, loss of independence, loss of control) present major challenges to the patient's emotional health. Control and independence often are combined in the literature to mean the patient's dignity, or the "quality or state of being worthy, honored, or esteemed" [13]. Preservation of this dignity should be a primary concern of end-of-life care practitioners.

COPING AND STRESS

What is a possible negative effect of denial in patients at the end of life?

Confronting a life-limiting illness causes patients to make psychological adjustments to preserve equilibrium. Coping responses can include seeking information about the illness, staying busy to avoid thinking about the illness, resigning one's self to the illness, examining alternatives, and talking about feelings. Effective coping occurs when the patient is able to use active problem-solving strategies. Yet, as illnesses progress, patients' ability to perform cognitive tasks can decline. Some patients cope by defending against or denying the reality of their illness to fend off acute emotional distress. The dynamic tension between coping and defending/denying causes most patients to use a combination of these responses [13]. While denial is a powerful mechanism that helps preserve psychological equilibrium, it can have many negative effects, including refusal to accept death; lost trust in the healthcare team; focus on unrealistic treatment goals; and failure to make legal, financial, and healthcare arrangements [13]. Life-limiting illness represents a major adaptational challenge to patients' learned coping mechanisms. Psychosocial stressors enhance the likelihood that a patient will become depressed. Practical stressors (e.g., relationships, work, finances, legal matters) also can impact patients' ability to cope with their illness. Economic circumstances have been found to be a major stressor for patients and their families, often resulting in a decline in family economic well-being [13]. In one study, 20% of family members of seriously ill adult patients had to make a major life change (including quitting work) to care for their loved one; up to 31% of families lost all or most of their savings while caring for their ill loved one [14].

Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) may first emerge, re-emerge, or worsen as individuals approach the end of life and may complicate the dying process. Unfortunately, lack of awareness of the occurrence and/or manifestation of PTSD at the end of life can result in it being unaddressed in these patients. Even if PTSD is properly diagnosed, traditional evidence-based, trauma-focused treatments may not be feasible or advisable for patients at the end of life, as they often lack the physical and mental stamina to participate in traditional psychotherapy [16]. Many therapies for PTSD require a longer window of treatment than a typical hospice period. Providers can tailor treatment for short-term interventions or use approaches such as the Stepwise Psychosocial Palliative Care (SPPC) model. The SPPC model is a multidimensional approach, integrating environmental, problem-solving, and other psychosocial interventions with patient advocacy in a patient-centered, time-sensitive manner. It incorporates techniques drawn from evidence-based approaches to PTSD, deploying them in a stage-wise manner appropriate for patients at the end of life [17]. Debriefing interventions have been widely used to treat PTSD and the psychological sequelae of traumatic events, and these approaches can be appropriate in the end of life. Further, antidepressant, antianxiety, and antipsychotic agents may be used to manage intense symptoms. Support groups and psychoeducational approaches are also common approaches, but evidence of their effectiveness in this setting is lacking [13].

ANTICIPATORY GRIEF

Anticipatory grief is the experience of grieving the loss of a patient or loved one in advance of their death [18]. It is a response to impending loss of life, identity, function, hopes, and future plans and is associated with anxiety, depression, hopelessness, and strained communication [19]. Other intense emotions, such as fear and panic, can appear as a result of unexplained symptoms and uncertainties regarding treatment [20]. One study evaluated anticipatory grief in 57 family members of patients with terminal illness receiving palliative care services [18]. Elevated anticipatory grief was found in families characterized by relational dependency, lower education, and poor grief-specific support. These families also experienced discomfort with closeness and intimacy, neuroticism, spiritual crisis, and an inability to make sense of the loss [18]. Patients, families, caregivers, and clinicians all can experience anticipatory grief. Several factors (e.g., spiritual beliefs, quality of relationships, attitudes of close others or colleagues/peers) can influence the anticipatory grief toward either positive or negative outcomes [21].

As a core component of psychological flexibility, acceptance is beneficial in situations in which individuals have little or no control over circumstances, such as when faced with a life-limiting illness. Acceptance becomes an active process wherein the patient acknowledges and opens up to their situation in order to make the most of their remaining time. Although acceptance shares a strong relationship with anticipatory grief, depression, and anxiety, it is independent of anxious and depressive symptomatology and more likely to predict the level of anticipatory grief than anxiety or depression. A higher degree of acceptance is associated with lower anticipatory grief in patients in palliative care [19]. When anticipatory grief is an expression of past or current trauma, it may develop into complicated grief if left untreated. A thorough assessment is warranted to determine if the grief is current or connected to unresolved trauma. Consider treating the initial trauma before the anticipatory grief. At the end of life, if time does not allow for intensive treatment, look to reduce individual trauma symptoms or grief.

ANXIETY AND FEAR

Death is an ever-present reality despite increasingly technologically advanced health systems, longer survivals, and novel curative treatments for life-threatening conditions [22]. Fear of the unknown has been described as the propensity to experience fear caused by the perceived absence of information at any level of consciousness or point of processing [23]. Fear of death and dying is common. In one study, a majority (70%) of participants reported some, a little, or no fear of death and dying; 30% reported more severe fears [24]. A common fear in Western society is that the process of dying will be painful and prolonged and will reduce the quality of life. Other fears associated with death include [25]:

- Fear of separation from loved ones, home, and job
- Fear of becoming a burden to others
- Fear of losing control
- Fear for dependents
- Fear of pain or other worsening symptoms
- Fear of being unable to complete life tasks or responsibilities
- Fear for the fears of others (reflected fear)
- Fear of being dead

It is important that clinicians allow patients a full expression of these fears, without judgment. Patients with anxiety often cannot take in information and may ask the same questions over and over again. They may seek detailed information or not ask reasonable questions. They may be suspicious of the physician's recommendations or not ask questions because of regression or high levels of fear. They may over-react to symptoms or treatments or behave inexpressively and stoically. Their behavior may seem inconsistent and impulsive [13]. An ongoing assessment of anxiety symptoms and anxiety's various presentations is critical to maintaining the patient's mental health. Equally important is that the clinician recognize that anxiety in end-of-life care also may be the result of a pre-existing anxiety disorder or other undertreated symptoms, especially pain. A multidrug treatment regimen in the palliative care setting also can contribute to anxiety [13].

Thanatophobia

Thanatophobia is an extreme fear of death or of the dying process [26]. Fear of death as a disease entity behaves much like initial anxiety due to trauma that leads to PTSD [27]. Evidence suggests that thanatophobia is highest in patients who do not have high self-esteem, religious beliefs, good health, a sense of fulfillment in life, intimacy, or "a fighting spirit" [27]. While anxiety, depressive symptoms, and beliefs about what will happen after death can contribute to a patient's fear, death anxiety does not always follow after a diagnosis of life-limiting illness [27]. It appears to be a basic fear at the core of a range of mental disorders, including hypochondriasis, panic disorder, and anxiety and depressive disorders [28]. Antecedents of death anxiety include stressful environments and the experience of unpredictable circumstances, diagnosis of a life-threatening illness or the experience of a life-threatening event, and experiences with death and dying. Consequences of death anxiety include both adaptive and maladaptive presentations. When encountering death anxiety in a patient, assess for PTSD and the various anxiety disorders to determine whether it is anxiety-based or associated with an underlying trauma [22].

Death anxiety is a central feature of health anxiety and may play a significant role in other anxiety disorders [29]. Exposure to death-related themes has been found useful for the treatment of death anxiety [29]. A 2015 study that assessed death anxiety among patients with life-limiting cancer found that life stage, particularly having dependent children, and individual factors, such as lower self-esteem, increased patients' vulnerability to death anxiety [30]. Depressive symptoms also have been reported in health professionals who work with dying patients [31]. A 2011 study sought to assess the impact of death and dying on the personal lives of clinicians involved in end-of-life care [32]. Early life experiences and clinical exposure to death and dying helped the clinicians to live in the present, cultivate spirituality, and reflect on their own mortality and the continuity of life. Despite reporting accounts of death's ugliness, participants consistently described the end of life as a meaningful life stage [32]. Yet, not all clinicians find that working with patients at the end of life decreases their death-related anxiety, and many will require support and guidance.

PHYSICAL DEPRESSIVE SYMPTOMS VERSUS REPLACEMENT PSYCHOLOGICAL SYMPTOMS	
Physical Symptoms	**Replacement Psychological Symptoms**
Change in appetite	Tearfulness, depressed appearance
Sleep disturbance	Social withdrawal, decreased talkativeness
Fatigue	Brooding, self-pity, pessimism
Diminished ability to think or concentrate	Lack of reactivity, blunting

Source: [43] *Table 1*

Burnout and death anxiety can be emotionally devastating, resulting in impaired performance that makes the goal of quality patient care almost impossible to accomplish [33]. All providers of end-of-life care should be reminded that they are not alone and that they can rely on other members of the healthcare team [34].

Education about death also may be helpful. In a 2015 study of 86 human services professionals, participation in a course on death, dying, and bereavement was shown to significantly reduce clinicians' fear of death and death anxiety [35]. In a study that included 42 nurses enrolled in death education programs, some affirmative impacts on the death distress of participants was observed [31]. Younger nurses consistently reported a stronger fear of death and more negative attitudes towards end-of-life patient care, indicating that workplace education might be beneficial [36]. One study investigated whether a brief induction of gratitude could reduce death anxiety [37]. Participants (mean age: 62.7 years) were randomly assigned into one of three conditions (gratitude, hassle, and neutral) and asked to write about a variety of life events before responding to measures of death anxiety. Participants in the gratitude condition reported lower death anxiety than those in the hassle and neutral conditions; no difference was observed between hassle and neutral conditions [37]. Even a temporary relief of death anxiety may help facilitate the making of important end-of-life decisions [37].

PAIN

Pain management is an integral part of palliative care. Pain management in end-of-life care presents unique opportunities in the patient-physician relationship [38]. In some instances, pain can be reduced when the patient has a sense of control and knows what to expect. Patients report feeling empowered by participating in treatment decisions with their physicians [39]. Pain management in children presents special challenges. A multidisciplinary team with an open attitude to differences, listening skills, availability, flexibility, creativity, resourcefulness, and empathy can help the child and his or her family live with the least pain possible [40]. For both adult and pediatric patients at the end life, planning for what could happen is often key. Honest, dynamic discussions about treatment goals and possible options and their respective side effects allows patients and their families to make choices that best fit their wishes [40]. Treating pain at the end of life means caring for all possible manifestations, including physical symptoms as well as psychological symptoms and reduced well-being. This can be achieved by integrating pharmacotherapy with psycho-socio-spiritual interventions [41].

DEPRESSION

Evidence of hopelessness, helplessness, worthlessness, guilt, and suicidal ideation are better indicators of depression in the context of life-limiting illness than neurovegetative symptoms [42]. Yet, diagnosing and treating depression in patients with life-limiting illness remains challenging for several reasons. Typical symptoms of depression (e.g., impaired concentration, anergia, sleep disturbances) also are common symptoms of advanced mental illness, and side effects from medications commonly used at the end of life can mimic depressive symptoms. Delirium occurs in up to 90% of patients at the end of life. A mistaken diagnosis of depression in a patient with hypoactive delirium can lead to a prescription for an antidepressant or psychostimulant, which can exacerbate the delirium. To further complicate assessment, patients frequently do not report or may disguise symptoms of depression at the end of life [43]. It can also be difficult to determine if pharmacotherapy or reflective listening would be the appropriate intervention for the specific patient.

An assessment of available screening tools and rating scales for depressive symptoms in palliative care found that the tool with the highest sensitivity, specificity, and positive predictive value was the question: "Are you feeling down, depressed, or hopeless most of the time over the last two weeks?" [43]. One structured approach was found to help clinicians differentiate major depressive disorder from common physical symptoms of the patient's illness. With this approach, physical criteria for a diagnosis of major depressive disorder are replaced by psychological symptoms (***Table 1***) [43].

Some patients fear that being diagnosed with depression will cause their medical providers to stigmatize them or treat their physical symptoms less aggressively. It may then be necessary to address these issues before the patient will be willing to accept treatment for depression [42]. Left untreated, depression in seriously ill patients can be associated with increased physical symptoms, suicidal thoughts, worsened quality of life, and emotional distress. It also can impair the patient's interaction with family and erode patient autonomy [43]. Although patients with terminal illness often have suicidal thoughts, they are usually fleeting. Sustained suicidal ideation should prompt a comprehensive evaluation [42].

SUICIDALITY

Suicide is a response to two stimuli (i.e., pain and despair) that often overlap. The pain can be physical or psychological, but in either aspect, it consumes the person to the point of seeking release. Despair is the result of believing that there is no longer any hope of having a good life [44]. Uncertainty about how death will unfold and whether they will be able to cope can be intensely stressful for patients. For some, suicide may seem preferable to a protracted period of anxiety, uncertainty about the process of dying, and fear of substantial physical suffering [29]. Diagnosis of severe physical illness (e.g., chronic obstructive pulmonary disease, low-survival cancer, degenerative neurological conditions) is associated with higher suicide risk [162].

A Wish to Die

Despite research efforts to deepen understanding of why some patients with terminal illness express a wish to die, there is consensus that there is more to learn about the factors that influence such a wish [45]. A case study review of patients with terminal cancer diagnoses in palliative care sought to understand possible motivations and explanations of patients who express or experience a wish to die [45]. Intentions, motivations, and social interactions were key to understanding and analyzing a patient's wish-to-die statements. The study focused on motivations, which address the question (from the patient's perspective) of why a wish to die is present. Motivations appear to consist of three layers: reasons (the causal factors), meanings (explanatory factors), and functions (effects of the wish) [45]. Patients' motivations were not able to be explained by a single reason, and, for most, their wish to die had broader significance that reflected their personal values and moral understandings—that is, the "meaning" of their wish to die [45]. Patients reported nine types of meanings, with some appearing more frequently than others. The meanings were shaped by patients' personal experiences, cultural background, and relationships. Patients expressed that a wish to die can be a wish to [45]:

- Allow a life-ending process to take its course
- Let death put an end to severe suffering
- End a situation that is seen as an unreasonable demand
- Spare others from the burden of oneself
- Preserve self-determination in the last moments of life
- End a life that is now without value
- Move on to another reality
- Be an example to others
- Not have to wait until death arrives

Health and mental health professionals cannot properly address a patient's wish to die if the meanings of the wish remain unexplored. Meanings are loaded with moral beliefs that need to be understood and respected in communication, disease management, and care of patients and their families [45].

END-OF-LIFE CONVERSATIONS

Helping a patient appoint a surrogate decision maker is part of which step in an end-of-life conversation?

Dr. Elisabeth Kübler-Ross is credited as one of the first clinicians to formalize recommendations for working with patients with life-limiting illness. Her book, *On Death and Dying*, identified a gap in our understanding of how both patients and clinicians cope with death [46]. She wrote that it could be helpful if people could talk about death and dying as an intrinsic part of life [47]. In writing specifically about psychotherapy with the terminally ill, Dr. Kübler-Ross stated: "It is evident that the terminally ill patient has very special needs which can be fulfilled if we take time to sit and listen and find out what they are" [47].

Patients who receive the news that they do not have long to live will experience strong emotions accompanied by questions, which can be viewed as opportunities for clinicians to provide answers and open a broader discussion about the end of life. Such questions (and answers) may include [48]:

- *How long have I got?*

  Giving patients a sense of how much time is left allows them to focus on what is important to them. Answers to this question should be clear and as accurate as possible, while acknowledging that exact timeframes are impossible to know.

- *Will palliative care help?*

  When palliative care is appropriate, it supports patients and their families/caregivers by helping them to manage their physical, mental/emotional, spiritual, and practical needs. For patients at the end of life, palliative care is almost always appropriate.

- *What is a "good death?"*

  The answer to this question varies depending on each patient's attitudes, cultural background, spiritual beliefs, and medical treatments. Patients' wishes regarding where they prefer to die (e.g., at home, in hospital) also should be discussed.

- *How will I know that the end is near?*

  The answer depends on the patient and the patient's illness, but events that commonly occur during the dying process include reduced appetite, gradual withdrawal from the outside world, and sleeping more.

Data derived from a national survey of physicians, nurses, social workers, chaplains, hospice volunteers, seriously ill patients, and recently bereaved family members indicate an overwhelming preference for an opportunity to discuss and prepare for the end of life [39]. And while a majority (92%) of Americans say it is important to discuss their wishes for end-of-life care, only 32% have had such a conversation [49]. A majority of patients also prefer that a healthcare provider initiate end-of-life discussions [50]. It is important to note that these discussions do not have to wait for the end of the patient's life. The American Psychological Association has identified four time periods when health and mental health professionals can contribute to end-of-life care [51]:

- Before illness strikes
- After illness is diagnosed and treatments begin
- During advanced illness and the dying process
- After the death of the patient, with bereaved survivors

The end-of-life conversation can be divided into four simple steps [50]:

- Initiate the discussion:
  - Establish a supportive relationship with the patient and the patient's family.
  - Help the patient to appoint a surrogate decision maker.
  - Elicit general thoughts about end-of-life preferences through the use of probing questions.
- Clarify the prognosis:
  - Be direct yet caring.
  - Be truthful but sustain spirit.
  - Use simple, everyday language.
- Identify end-of-life goals:
  - Facilitate open discussion about desired medical care and remaining life goals.
  - Recognize that, as death nears, most patients share similar goals (e.g., maximizing time with family and friends, avoiding hospitalization and unnecessary procedures, maintaining functionality, minimizing pain).
- Develop a treatment plan:
  - Provide guidance in understanding medical options.
  - Make recommendations regarding appropriate treatment.
  - Clarify resuscitation orders.
  - Initiate timely palliative care, when appropriate.

Optimal end-of-life care begins with an honest discussion between clinicians and patients about disease progression and prognosis [52]. Patients and families are sensitive to verbal and nonverbal cues during these discussions. It is therefore incumbent on the healthcare team to train themselves in active listening skills, correct body language, and appropriate empathic responses in order to convey information in a clear, concise, and empathic manner [3]. Physicians also must balance their desire to honor patient wishes and autonomy against the concern of inflicting psychological harm. A 2008 study sought to determine whether end-of-life discussions were associated with fewer aggressive interventions and earlier hospice referrals [53]. The study enrolled advanced cancer patients and their informal caregivers (332 dyads) and followed them up to the time of death, a median of 4.4 months later. Quality of life and psychiatric illness was assessed in bereaved caregivers a median of 6.5 months later. Thirty-seven percent of patients reported having end-of-life discussions at baseline. These discussions were associated with lower rates of ventilation, resuscitation, intensive care unit (ICU) admission, and earlier hospice enrollment. Overall, end-of-life discussions were associated with less aggressive medical care near death, better patient quality of life, and earlier hospice referrals [53].

PATIENT WISHES

What do patients consider important in the process of preparing for the end of their lives? How do their perspectives differ from the values of family members or healthcare providers [39]? A 2015 study was conducted to define what matters most about end-of-life care [54]. Providers and administrators from 14 specialized palliative care teams were interviewed and their responses were analyzed to derive themes depicting the universal essence of end-of-life care. The most predominate theme, mentioned by almost one-half of the respondents, was that the "patient's wishes are fulfilled" [54]. Honoring patient wishes involves identifying what a patient wants through open communication and end-of-life care planning, providing education

GUIDELINES FOR BREAKING BAD NEWS
Formulate a plan. Mentally rehearse the steps of the conversation.
Schedule a time for the discussion to allow all important family members and medical staff to be present.
Meet in a quiet and private setting.
Make arrangements for a professional translator if English is not the first language of the patient/family. Meet with the professional translator before the discussion to discuss expectations.
Preface bad news with a phrase to prepare the patient or family, such as "I wish the results were different, but..."
Communicate clearly and minimize use of technical language.
Let the patient's and family's reactions guide the flow of the conversation. Allow silence.
Be empathetic and acknowledge the patient's/family's emotions.
Determine the family's level of understanding of the illness/situation to assess misconceptions, aspects of news that will be surprising, and their unique information needs.
Determine if the patient or any family members are "numbers people" so they can be provided the type of information with which they feel most comfortable.
Schedule a future meeting to discuss the bad news and options (e.g., in an hour, the next day, the next week).

Source: [159; 160; 161] *Table 2*

about options, providing realistic expectations, and allowing patients to have control over decision making [54]. Clinicians can regularly promote communication and education about end-of-life care issues by taking the initiative and discussing each patient's goals for end-of-life care. These goals may change over time and with illness and should be regularly re-evaluated and restated [55]. The patient's cultural and/or religious background can influence end-of-life decisions regarding comfort care and patient management, who can be present at the time of death, who will make healthcare decisions, and where the patient wants to die [56]. Encourage patients to elaborate on their wishes with prompts such as [56]:

- "In my religion, we . . ." This will help patients describe religious traditions to be observed at death.
- "Where we come from . . ." This will help patients share important customs to be observed at death.
- "In our family, when someone is dying, we prefer . . ." This will help patients describe what they hope will happen at death.

BARRIERS TO END-OF-LIFE CONVERSATIONS

Barriers to end-of-life discussions can seriously interfere with the quality of remaining life for patients with terminal illness. Barriers have been identified as originating with patients/families, with healthcare professionals, and within the structure of the healthcare system [57].

Patient-Related Barriers

Patients often avoid discussing end-of-life care with their clinicians and may conceal the full extent of what and how they are feeling, given the scope of end-of-life decisions. Family members and significant others also can complicate end-of-life conversations when they either cannot or will not discuss and accept the advanced nature of the patient's disease or the patient's preferences concerning end-of-life care, or when they overestimate the chance of cure, placing unreasonable demands upon the clinician [57].

Clinician-Related Barriers

Clinicians might avoid end-of-life discussions with their patients because they are reluctant to cause pain or be the bearers of bad news. They may lack the necessary communication training and skills, particularly in the delivery of bad news. They may focus solely on clinical parameters or have medical-legal concerns. Clinicians may fear confrontation and/or disagreement with the patient's family, particularly if they feel ill-prepared for such discussions. They may have a lack of confidence in their own judgment of their patient's true condition [57; 58]. Structured and content-based interventions are needed to ensure that critical aspects of the patient's physical, psychological, and spiritual experience are not excluded from care. For healthcare professionals who are delivering bad news, guidelines for the conversation can help give structure and enhance the confidence of the clinician (***Table 2***).

Organizational Barriers

Barriers to end-of-life conversations also originate within the healthcare system. First, end-of-life discussions are not always considered part of routine care; clinicians are not always given the time and structure for discussing end-of-life issues. Next, coordination of these conversations, which becomes more necessary as the patient's illness progresses, may not be included as part of routine care. When patient care is provided by multiple clinicians across multiple sites, there is no clear directive about which clinician should be responsible for initiating and documenting end-of-life conversations. Last, decreased contact time and fewer long-term patient/clinician relationships inhibit end-of-life discussions [57].

No single clinician can successfully undertake all aspects of this challenge. End-of-life planning should be one component of a series of ongoing conversations that together can assist patients with advanced illness to approach death in accord with their own values and wishes. These necessary discussions can draw on the expertise of several disciplines, and the creation of a new professional role specializing in this area might be considered [57].

MENTAL HEALTH INTERVENTIONS FOR END-OF-LIFE CARE

Shortly after Kübler-Ross began to publish her work, group psychotherapists began developing systematic interventions for patients who were dying. This included Irvin Yalom in the 1980s, who was heavily influenced by existential philosophy. Yalom's work formed the basis for what became supportive expressive group psychotherapy (SEGT). SEGT was originally developed to help patients with metastatic breast cancer face and adjust to their existential concerns (e.g., death, meaninglessness), express and manage disease-related emotions, and enhance relationships with family and healthcare providers. SEGT challenged the thinking that group therapy for patients with terminal illness would be demoralizing [47; 59]. Over the next several decades, research in end-of-life care, patients' end-of-life needs, and the role of mental health professionals in these settings increased [47].

In the late 20th century, physician-assisted death (also referred to as medical aid in dying, physician aid in dying, physician-assisted suicide, or euthanasia) became a topic of interest as researchers sought to understand why some patients with life-limiting illness might want to hasten death [47]. Pain, depression, and physical symptoms were at first thought to be the primary motives behind the desire to hasten death, but literature in the 1990s and 2000s emphasized the psychological and existential correlates (i.e., depression, hopelessness, spiritual well-being) of physician-assisted death. This shift in emphasis led to the development of a number of psychotherapeutic interventions that focused on the psychological and spiritual needs of patients [47].

E B
EVIDENCE-BASED
PRACTICE
RECOMMENDATION

According to the Institute for Clinical Systems Improvement, short-term psychotherapy modalities (e.g., dignity therapy) can provide reduction in depression and anxiety symptoms at the end of life.

(https://www.icsi.org/wp-content/uploads/2020/01/PalliativeCare_6th-Ed_2020_v2.pdf. Last accessed April 24, 2023.)

Level of Evidence: Expert Opinion/Consensus Statement

DIGNITY MODEL/DIGNITY THERAPY

Dignity therapy was one of the first interventions developed for use in end-of-life care [60]. This modality aims to relieve psycho-emotional and existential distress to improve the experiences of patients with life-limiting illness. It offers patients the opportunity to reflect on what is important to them and on what they might want to communicate to loved ones [61]. In dignity therapy, patients are invited to reflect on and later discuss what aspects of their life they most want recorded and remembered—often referred to as their "legacy" [62]. The sessions are audiotaped and guided by a framework of questions (provided in advance) that facilitate disclosure of the patient's thoughts, feelings, and memories. The interview is then transcribed and printed for the patient's review and editing, as desired. Once finalized, the document is given to the patient, who may (or may not) share with friends and family, as desired. In addition to providing a tangible legacy for the patient, dignity therapy helps enhance the patient's sense of meaning and purpose, thus contributing to a preservation of the patient's dignity [47].

A 2011 study revealed that the items most commonly included in legacy documents were autobiographical information, lessons learned in life, defining roles (e.g., vocations, hobbies), accomplishments, character traits, unfinished business, overcoming challenges, and guidance for others [63]. Dignity therapy has been shown to positively affect patients' sense of generativity, meaning, and acceptance near the end of life. Positive impacts on families and caregivers of dignity therapy participants provide additional support for the clinical utility of this intervention [64]. However, dignity therapy is not for every patient with terminal illness. Despite the demonstrated beneficial effects, its ability to mitigate outright distress (e.g., depression, desire for death or suicidality) has yet to be proven [65]. Acknowledged limitations of dignity therapy include having adequate time, space, and means to engage in this intervention. Dignity therapy also cannot be used with patients who are nonverbal or unconscious or with those who have severe cognitive limitations [66]. Further studies are needed to determine whether patients with specific types of terminal illnesses (e.g., oncologic, cardiac, renal, pulmonary, neurologic) or in specific age cohorts (e.g., pediatric, adult, geriatric) benefit more or less significantly in certain domains (e.g., measures of spiritual distress, autonomy, death anxiety) [66].

Life Review

Dignity therapy incorporates the concept of life review, which is the systematic and structured process of recalling past events and memories in an effort to find meaning and achieve resolution of one's life. It is conducted over four sessions in which patients chronologically review their childhood, adolescence, adulthood, and present situation. A health or mental health professional takes notes, but no other end product is produced [67]. Life review can be useful for patients of any age at the end of life [68]. Life review is typically structured around life themes (e.g., being a parent/grandparent, first job, life's work, important turning points) [69]. The process can be either reminiscent or evaluative. It also can teach or inform others and pass on knowledge and experience to a new generation. Life review conducted for therapeutic purposes can help patients cope with loss, guilt, conflict, or defeat and find meaning in their accomplishments [69]. In Western culture, life review may subsequently be shared with family or friends. For patients of other cultures, life review may be more communal and may involve rituals that are an important part of the dying process [34]. Few studies have evaluated therapeutic life review interventions, but preliminary results are promising [67].

Narrative Approach

Narrative practice is built on the assumption that people live multistoried lives. This perspective allows patients to shift from one life story to another to give meaning to their lives and shape their identities. A narrative approach frees the care team from the role of "expert" to the role of "helper" who facilitates patients' creation of personal stories of agency at times of life-limiting illness [70]. Narrative therapy is a practical psychotherapeutic process in which the professional and patient collaborate to deconstruct cultural and personal narratives that negatively affect the patient's sense of resources, efficacy, and identity. Together, clinician and patient discover and enrich positive, empowering, and helpful stories that originate in the patient's previous experiences [71]. Narrative therapy is patient-centered and goal-directed. Goals are to help patients improve their sense of self, separate problematic experiences away from their identity, and see themselves outside problems they may be facing. Narrative interventions can help patients and their families create new meaning of the patient's illness and end-of-life experiences [72].

TERROR MANAGEMENT THEORY

The concept of terror management theory was developed in 1986 and was based upon the work of Ernest Becker, a cultural anthropologist who had written about death and anxiety [73; 74]. Terror management theory is the concept that people feel threatened by a deep and terrifying fear of living an insignificant life that is destined to be erased by death. People cope with the awareness of their mortality in different ways. Some will adopt a worldview that allows them to find meaning, purpose, and enduring significance; others simply avoid thinking about death altogether and instead devote themselves to leaving behind a legacy that will make them "immortal" [74; 75]. While the fear of death can promote insecurity and bias or prejudice (based upon one's worldview), terror management theory helps people use their awareness of death to consciously choose to take positive steps to find meaning in their lives [74]. The awareness of mortality can motivate people to prioritize growth-oriented goals, live according to positive standards and beliefs, and foster the development of peaceful, charitable communities [76].

COGNITIVE-BEHAVIORAL THERAPY

The focus of traditional cognitive-behavioral therapy (CBT) is changing maladaptive thought patterns or perceptions that lead to mood disorders, such as anxiety and depression. But changing maladaptive thoughts to more realistic or positive ones does not always meet the needs of patients with life-limiting illness. These patients have very real fears about suffering and uncontrolled pain and other noxious symptoms, and their fears and thoughts are neither maladaptive nor unreasonable [77]. CBT adapted to end-of-life care can help patients identify "all-or-nothing" thinking and help them recognize that core parts of themselves remain unchanged [78].

Studies demonstrate that palliative care professionals have effectively applied CBT techniques to reduce mild-to-moderate anxiety or depression at the end of life and increase the patient's focus on the quality of remaining life [77; 79; 80]. For example, researchers incorporated elements of acceptance and commitment therapy (ACT) and dialectical behavior therapy (DBT). With ACT, patients learn to stop avoiding, denying, and struggling with their emotions. They instead learn to accept their emotions (and the source), accept their private circumstances, and not allow the circumstances to prevent them from moving forward in ways that serve their chosen values [81; 82]. DBT includes a strong educational component designed to provide patients with the skills to manage intense emotions [83].

MEANING-CENTERED PSYCHOTHERAPY

Meaning-centered group psychotherapy, based on the works of Viktor Frankl, was originally conceived as a group-based intervention for individuals with advanced cancer. Frankl's theory is existential in nature and postulates that the creation of meaning is a primary force of human motivation, even during times of great suffering [69]. The group therapy helps patients identify sources of meaning as a resource to sustain meaning, spiritual well-being, and purpose in the midst of suffering [47; 69]. Meaning-centered psychotherapy was later adapted for use with individual patients [84]. The goals of meaning-centered psychotherapy are to provide support for patients to explore personal issues and feelings related to their illness; to help patients identify sources of meaning; and to help patients discover and maintain a sense of meaning in life, even as their illness progresses [47]. Randomized controlled trials conducted to date, totaling nearly 800 patients, have demonstrated support for meaning-centered psychotherapy in improving spiritual well-being and reducing psychological stress in patients at the end of life [85; 86; 87]. The extent to which the observed results can be attributed to the patient's changes in sense of meaning require further study [47]. Like dignity therapy, meaning-centered psychotherapy has fueled multiple adaptations to target unique clinical populations and settings (e.g., bereaved family members, caregivers) [88; 89; 90].

COMPASSION-BASED THERAPY

Compassion-based therapy is rooted in an evolutionary analysis of basic social and emotional systems that motivate humans to live in groups, form hierarchies, help and share through alliances, care for kin, respond to threats, and seek states of contentment/safeness [91]. Compassion-based therapy can be supportive to those facing end-of-life decision making. It is inextricably linked to the inherent values, needs, and expectations of patients, families, and healthcare providers. Compassion coupled with a collaborative framework sustains patient- and family-centered care in end-of-life practice settings [92].

Compassion-based therapy offers a novel, transdiagnostic approach for reducing psychopathology and increasing well-being. It changes the focus of therapy from individual thoughts or unconscious conflicts toward the development of affiliative and prosocial functioning [93]. One overview of compassion-based therapies found at least eight different interventions (e.g., compassion-focused therapy, mindful self-compassion, cognitively based compassion training), six of which have been evaluated in randomized controlled trials. Compassion-based interventions demonstrated reduced suffering and improved life satisfaction for patients [93]. A systematic review conducted to assess the effectiveness of compassion-based therapy analyzed 14 studies, including three randomized controlled studies [94]. Compassion-focused therapy was effective with depressive disorders and for people who are highly self-critical. Compassion-based therapy is most effective when used in conjunction with other types of treatment and therapy [94].

Being Present

One of the most important therapeutic and compassionate aspects a health professional can offer is their presence. Listening to and allowing patients to express their end-of-life experience is healing and can be more comforting than guidance. One study investigated how palliative care chaplains work with patients at the point when it has been decided to cease active treatment, the point at which patients risk losing hope and falling into despair [95]. The author identified four types of presence in the chaplain-patient relationship that were a result of the chaplain's "being with the patient." Each type of presence (i.e., evocative, accompanying, comforting, hopeful) represented a discernable development in the chaplain/patient relationship—a theory of chaplain as hopeful presence [95].

The effects of educating patients and families about the importance of being present was the goal of a descriptive study that included 19 critical care nurses [96]. The nurses were interviewed to understand their experiences and perceptions about caring for patients and families transitioning from aggressive life-saving care to palliative and end-of-life care [96]. The nurses prioritized educating the family, advocating for the patient, encouraging and supporting the family's presence, protecting families, and helping them create positive memories. The family's presence at the end of life also helped them to process the reality of their loved one's death and make peace with it [96].

OTHER INTERVENTIONS

Researchers and clinicians have developed a variety of other interventions for end-of-life care. One proposed treatment is called short-term life review (STLR). Like dignity therapy, STLR interviews the patient for the purpose of creating a legacy album, but STLR differs from dignity therapy in the substance of the interview. A single published randomized controlled trial has examined the utility of STLR, and little research has been conducted to support the STLR approach. The research that has been published has suggested increases in spiritual well-being, sense of hope, and death preparedness among patients with terminal cancer [47; 97; 98].

Managing cancer and living meaningfully (CALM) is a brief, structured intervention developed for patients with advanced and/or terminal cancer [47; 99; 100]. The focus of CALM is similar to meaning-centered psychotherapy, but it provides less emphasis on spiritual well-being and existential issues due to its longer timeframe [47]. The first large-scale randomized controlled trial of CALM reports that individuals demonstrated significantly greater improvements in depressive symptoms and overall quality of life compared to those who received usual care [101].

Mindfulness

Mindfulness is the practice of paying deliberate attention to experiences of the present moment with openness, curiosity, and a willingness to allow things to be as they are [102]. End-of-life care is, by its nature, rooted in mindfulness through [103]:

- The healthcare team providing steady presence and compassion to the dying patient
- Bringing one's full attention to clinical assessments and supportive interactions and acknowledging what arises during these interactions for patients, families, and clinicians
- Being attuned to the dying and their needs, remaining present with their suffering
- Being genuinely interested in the patient's/family's experiences
- Allowing the full expression of personal experiences, with no attempt to change or fix them
- Cultivating compassion and acknowledging our shared humanity

Spiritual Care

Spiritual care is considered a basic tenet of palliative care and a responsibility of the entire end-of-life care team. Patients who receive good spiritual care report greater quality of life, better coping, and greater well-being, hope, optimism, and reduction of despair at the end of life. Despite these benefits, patients and caregivers often refuse spiritual care when offered. One study that sought to understand this reluctance focused on the effect of education. The authors reported that an educational intervention, which included explaining the services of hospice chaplains and the evidence-based benefits of spiritual support, led to greater patient/caregiver acceptance of spiritual care [104]. End-of-life counselors, therapists, and social workers are uniquely positioned to work with patients to explore the variables that they and their families use as guiding principles when making difficult decisions [105]. This requires assessing the patient's spiritual, religious, and existential needs (i.e., spiritual needs) to provide appropriate interventions [106].

The specifics of how to conduct assessment are determined by individual healthcare organizations but usually consist first of obtaining a spiritual history of the patient and the patient's family. A variety of tools are available. The FICA acronym asks four questions about faith, importance/influence of beliefs, community involvement, and addressing issues of care [107]. The HOPE questions inquire about patients' sources of hope and meaning, whether they belong to an organized religion, their personal spirituality and practices, and what effect their spirituality may have on end-of-life care [108]. Reported barriers to spiritual assessment include clinician lack of time/experience, difficulty identifying patients who wish to discuss spiritual beliefs, and addressing concerns not regarded as the clinician's responsibility. Assessing and integrating patient spirituality into end-of-life care can build trust and rapport and strengthen the patient's relationship with the end-of-life care team [108]. Unaddressed spiritual issues may frustrate attempts to treat other symptoms and adversely impact the patient's quality of life [105].

Art and Music Therapy

Art and music therapists are becoming increasingly available to palliative care teams and are advancing the diverse and unique clinical services available to effectively meet the holistic needs of patients with serious illness [109]. Art can connect with deep psychological and physical pain, allowing the patient to find expression and relief. Studies have found that expressive arts (e.g., paint, clay, textiles, drawing) help patients more effectively deal with ambivalent emotions regarding life-death issues and communicate with their families about their feelings. It helps patients articulate their end-of-life journey beyond language [110; 111].

Art therapy also may be helpful in reducing burnout among end-of-life care providers by enhancing their emotional awareness, fostering meaning-making, and promoting reflection on death. One study found significant reductions in exhaustion and death anxiety in end-of-life care providers who participated in an art therapy program [38].

Music therapy incorporates music chosen by the patient in consultation with a qualified music therapist. The music is often chosen to arouse specific emotions that allow the patient to more easily access, recall, and interrogate memories, with the goal of understanding the role those memories play in the patient's current circumstances [38]. Music therapy also may be an effective adjuvant to pain management therapy [38].

BEREAVEMENT

As stated, Kübler-Ross wrote that it could be helpful if people could talk about death and dying as an intrinsic part of life and emphasized the importance of listening as a way for practitioners to support terminally ill patients and their families when confronting the realities of impending death [46; 47]. She subsequently applied her model to the experience of loss in many contexts, including grief and other significant life changes [112]. This model identified five stages of bereavement—denial, anger, bargaining, depression, and acceptance. Though the stages are frequently interpreted strictly and hierarchically, this was not Kübler-Ross's intention. She expressed that individual patients could manifest each stage differently, if at all, and might move between stages in a nonlinear manner [112].

Her model has received criticism in recent years and many alternative models (some based on Kübler-Ross's model) have been developed [112; 113; 114; 115].

PROLONGED GRIEF DISORDER

What are the criteria for the diagnosis of prolonged grief disorder?

The death of a loved one is followed by an intensely emotional and disruptive period that gradually attenuates as the death is comprehended and accepted and its consequences understood (integration). It is a highly stressful period accompanied by the need to attend to a range of things not usually on one's agenda. Most people meet the coping demands and are able to find a pathway through the sorrow, numbness, and even guilt and anger that are part of the normal grieving process. A small minority, however, do not cope effectively. For them, the feelings of loss become debilitating. They do not improve with the passing of time and can become so long-lasting and severe that recovering from the loss and resuming a normal life is impossible without assistance [116]. These people are suffering from prolonged grief disorder, a syndrome in which healing is impeded and acute grief is intense and prolonged.

EVIDENCE-BASED PRACTICE RECOMMENDATION

It is important to differentiate grief from depression. Grieving can be an appropriate response to loss, but if the symptoms persist, the Institute for Clinical Systems Improvement recommends that depression be considered.

(https://www.icsi.org/wp-content/uploads/2020/01/PalliativeCare_6th-Ed_2020_v2.pdf. Last accessed April 24, 2023.)

Level of Evidence: Expert Opinion/Consensus Statement

Prolonged grief disorder is the newest disorder to be added to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). The disorder was added to the DSM-5-TR in 2022 after several decades of studies that suggested "many people were experiencing persistent difficulties associated with bereavement that exceeded expected social, cultural, or religious expectations" [117]. Prolonged grief disorder often co-occurs with other mental disorders (e.g., PTSD, anxiety, depression). Sleep problems, such as poor long-term sleep, occur in an estimated 80% of people with this disorder [118].

Prolonged grief disorder is defined as "intense yearning or longing for the deceased (often with intense sorrow and emotional pain) and preoccupation with thoughts or memories of the deceased. In children and adolescents, this preoccupation may focus on the circumstances of the death" [117]. In adults, this intense grief must still be present one year after a loss to be considered prolonged grief disorder; in children, the timeframe is six months. Additionally, the individual with prolonged grief disorder may experience significant distress or problems performing daily activities at home, work, or other important areas [117]. It is important for clinicians to differentiate prolonged grief disorder from usual acute grief, as well as depression and anxiety disorders [116]. Risk factors for prolonged grief disorder include past losses, separations that can impact current losses, and a history of depressive illness [115]. Symptoms include [117]:

- Identity disruption (e.g., feeling as though part of oneself has died)
- A marked sense of disbelief about the death
- Avoidance of reminders that the person is dead
- Intense emotional pain (e.g., anger, bitterness, sorrow)
- Difficulty reintegrating (e.g., unable to engage with friends, pursue interests, plan for the future)
- Emotional numbness
- Feeling that life is meaningless
- Intense loneliness and feeling of being detached from others

An estimated 7% to 10% of bereaved adults will experience the persistent symptoms of prolonged grief disorder, and 5% to 10% of bereaved children and adolescents will experience depression, PTSD, and/or prolonged grief disorder [118; 119]. Treatments using elements of CBT have been found to be effective in reducing symptoms [117]. Complicated grief treatment incorporates components of CBT and other approaches to help patients adapt to the loss. It focuses on accepting the reality of the loss and on working toward goals and a sense of satisfaction in a world without the loved one [118]. Research has shown that CBT is effective in addressing sleep problems associated with prolonged grief disorder. CBT also has been shown to be superior in long-term effects to supportive counseling in children and adolescents experiencing symptoms of prolonged grief disorder [119; 120].

Bereavement support groups can provide a useful source of social connection and support. They can help people feel less alone, thus helping to avoid the isolation that could increase the risk for prolonged grief disorder. Despite the existence of effective treatments, people experiencing prolonged grief disorder may not seek help. One study of 86 bereaved caregivers with symptoms of prolonged grief disorder found that only 43% accessed mental health services [121].

PRACTICAL, ETHICAL, AND LEGAL CONSIDERATIONS

Planning ahead provides patients with the most control over their end-of-life care, but not all patients have the opportunity to do so. End-of-life planning for the patient will include knowing the type of care they need and want, knowing where they want to receive this care, knowing what documents (e.g., advance directives) and associated costs to include in planning, and determining who will help carry out their wishes [122].

CAREGIVING AND SURROGACY

The vast majority (80%) of care given to hospice patients is provided by informal and unpaid caregivers who are often family members. They can be responsible for everything from the management of household and finances to medical and personal care. Providing this level of care can contribute to increased stress and health problems [123]. Caregivers often report significant levels of anxiety, depression, and perceived stress as well as poorer physical health and decreased quality of life compared with non-caregivers [124]. In one study, nearly one-third (31%) of caregivers reported moderate-to-high levels of anxiety [125]. Even family members who are not caregivers experience distress and require support. Supporting the growing number of family and other unpaid caregivers is an urgent public health issue. The need for adequate support is especially pressing when older patients and the loved ones who assist them are most vulnerable, as at the end of life [126]. Health and mental health professionals can help the caregiver and/or family by preparing them for their loved one's death, treating symptoms of burnout and stress, and offering grief counseling when desired [127].

Family members may be called upon to make decisions on their loved one's behalf if incapacitation becomes an issue. Ideally, the decision-making process will reflect the patient's physiologic realities, preferences, and recognition of what, clinically, may or may not be accomplished [128; 129]. Being a surrogate decision maker is stressful for many and can have negative emotional effects that last months or years [130]. Frequent tension can occur between the desire to respect the patient's values and the fear of responsibility for a loved one's death, a desire to pursue any chance of recovery, and a need to ensure family well-being [131]. Counseling for the surrogate both during and after the decision-making process can be beneficial.

Shared decision making also has been found to be beneficial. Healthcare providers can encourage decision makers to involve other family members. They can repeat relevant information in simple language, prompt them to think about what the patient would or would not want, and frequently remind them that everything that can be done is being done [132]. Support for the surrogate should foster respect for patient preferences and values and help reduce guilt about decisions made following the patient's death [132]. An ideal surrogate will participate in collaborative decision-making with care providers. If a surrogate avoids communication or requests interventions that are clearly not considered in the patient's best interest, counseling should be provided. If counseling is unsuccessful, replacement of the surrogate should be considered [133]. Family members who reside far away and who are not designated as decision maker also can create difficulties by trying to undo, contest, undermine, or alter decisions made by local family members who have long been involved in the patient's care. These disagreements can compromise the ability of the patient's healthcare team to provide quality care. These limits of formal advance care planning have led some practitioners to assert that informal conversations with patients' significant others are most critical to end-of-life planning [134].

Current practice frequently fails to promote patient goals. This is an area for future research and improvement. In the meantime, clinicians should encourage patients to document their own goals, including treatment preferences and preferences regarding how they want decisions to be made for them during periods of decisional incapacity. This is achieved through advance care planning [135; 136].

ADVANCE CARE PLANNING

Advance care planning is widely considered an essential step toward achieving end-of-life care that is consistent with the preferences of dying patients and their families. Advance care planning typically includes a living will and a durable power of attorney for health care, which enable patients to articulate and convey their treatment preferences while they are cognitively intact [136]. Advance care planning documents also can include do not resuscitate (DNR) orders, medical/physician order for life-sustaining treatment (MOLST/POLST), and informal documents of preference or other healthcare proxies. Ideally, these documents reflect discussions among the patient's family, surrogate, and healthcare provider about the patient's preferences for health care in the context of serious illness [129]. Advance care planning is considered an essential step for achieving a "good death" in which physical pain and emotional distress are minimized and the patient's and family members' treatment preferences are respected [134]. Advance care planning is associated with greater use of palliative care among dying patients, lower medical expenditures at the end of life, and less distress among patients and patients' families.

Race and socioeconomic disparities in rates of advance care planning have been documented. Policy advances (e.g., Medicare reimbursement for doctor-patient consultations) may increase rates of planning among populations who may not have access to professionals who encourage such preparations [136]. Health and mental health professionals can assist families in the process of preparing advanced care planning documents. Being a mediator in advance care planning conversations can provide clarity for patients and family members about the patient's wishes regarding death [137].

ETHICAL/LEGAL ISSUES

Ethical concerns and legal considerations can influence counseling at the end of life. Health and mental health providers are on the frontline supporting and guiding the patient and the patient's family through the dying process.

Autonomy

Autonomy, as viewed from the perspective of patients at the end of life, includes two core domains: "being normal" and "taking charge" [138]. These two domains account for the circumstances and clinical realities of people with life-limiting illness and allow clinicians to better understand their needs. Autonomy is, however, not just a concern when making choices of treatment for end-of-life care but also when supporting patients in their daily lives and active preparations for dying. This support can help relieve the patient of stress and the fear of being a burden to family [138]. When a patient expresses a fear over the loss of autonomy, it is important for clinicians to determine the source of the fear. Common sources of such fear include fear of becoming physically dependent on life-supporting technology; fear of losing independence; and fear of loss of engagement in meaningful activity. Often, the patient is simply expressing a desire to preserve self-determination regarding end-of-life care and planning [45]. The healthcare team respects patients' autonomy by giving them the information needed to understand the risks and benefits of a proposed intervention, as well as the reasonable alternatives (including no intervention), so that they may make independent decisions [139].

Distributive Justice

Distributive justice is the fair, equitable, and appropriate distribution of healthcare resources. It requires impartiality in the delivery of health service. Issues of distributive justice encountered in healthcare settings include the allotment of scarce resources, care of uninsured patients, conflicts of interest based on religious or legal grounds, and public health and safety issues. Despite these constraining influences, healthcare providers have an ethical obligation to advocate for fair and appropriate treatment of patients at the end of life [140; 141].

Beneficence

The principle of beneficence is the obligation of health and mental health professionals to act in the best interest of the patient [137]. Beneficence also includes preventing and avoiding harm and defending the most useful intervention for the patient [140; 141]. Beneficence is fundamental to dilemmas about the discontinuation, withholding, or withdrawal of medical treatment [137]. When wishes about end-of-life care are not known or cannot be communicated by the patient, end-of-life decisions should be made by the healthcare team as a result of consultations with the family or healthcare proxy [137].

Nonmaleficence

Nonmaleficence is the principle of refraining from causing unnecessary harm (i.e., first, do no harm) [137]. It also refers to the moral justification behind an intervention that might cause some pain or harm; harm is justified if the benefit of the intervention is greater than the harm to the patient and the intervention is not intended to harm [137]. The emphasis in nonmaleficence is on relieving the symptoms that harm the patient [142]. Health and mental health providers can exercise nonmaleficence by having an understanding of the moral principles and ethical codes governing end-of-life care. They can prevent undue harm by being as knowledgeable as possible about impending illnesses through relationships with the interprofessional team [137].

CULTURALLY COMPETENT CARE AT THE END OF LIFE

What is the role of interpreters at the end of life?

The clinician/patient discussion about end-of-life care is often a challenge and one that can be further complicated when the patient's cultural norms differ from that of the clinician. As discussed, values of medical care emphasize autonomy and individual rights to make life choices [143]. The Patient Self Determination Act of 1990 ensured that those rights are protected. This includes the rights to treatment choices, informed consent, truth-telling, open communication with healthcare providers, and control over the individual's own life and death [143; 144]. However, these core values may be in conflict with the values of many ethnic and culturally diverse groups in the United States and may lead to health disparities, fragmented care, inadequate or inappropriate symptom management, miscommunication with the patient and family, and a difficult and poor death for the patient [143].

EVIDENCE-BASED PRACTICE RECOMMENDATION

The Institute for Clinical Systems Improvement asserts that clinicians caring for patients with serious illness should examine their own cultural values and assumptions about what constitutes "good" care for patients nearing the end of life, recognizing not all patients will share these same values, and ensure goals and decisions remain centered around the patient's values/beliefs.

(https://www.icsi.org/wp-content/uploads/2020/01/PalliativeCare_6th-Ed_2020_v2.pdf. Last accessed April 24, 2023.)

Level of Evidence: Expert Opinion/Consensus Statement

Enhanced cultural competency in end-of-life issues continues to be identified as a need for clinicians who provide care for patients at the end of life [143]. Healthcare providers should understand and recognize the specific influences that culture has on a patient's behavior, attitudes, preferences, and decisions about end-of-life care. It is important to note that a patient's identification as a member of a particular ethnic group or religion does not necessarily mean that the patient or patient's family adheres to beliefs associated with that ethnicity or religion [143]. Other factors (e.g., age, race, sex, ethnicity, health status, religion) also can influence how patients approach the end of life, and their cultural and religious backgrounds influence their definitions of and perceptions about what constitutes quality of life, suffering, and pain [145].

Other areas of end-of-life care that vary culturally include the method used for communicating "bad news," the locus of decision making, and attitudes toward advance directives and end-of-life care specifics [146]. In contrast to the emphasis on "truth telling" in the United States, it is not uncommon for healthcare professionals outside the United States to conceal serious diagnoses from patients, because disclosure of serious illness may be viewed as disrespectful, impolite, or even harmful to the patient. The emphasis on patient autonomy may conflict with the patient's preferences for family-based, physician-based, or shared family-physician-based decision making. Lower rates of completion of advance directives by patients of some ethnic backgrounds suggests a distrust of the healthcare system, healthcare disparities, and underutilization of health care [146; 147; 148].

An assessment should be made of how acculturated a patient and family are, their language skills, and whether an interpreter is needed [143]. The clinician should assess for [149]:

- Openness/willingness of the patient/family to discussing/accepting the diagnosis, prognosis, and death
- How decisions are made and what influences decision making (e.g., age, gender, hierarchy, quality of interfamily communication)
- What does physical pain mean and how should it be managed?
- Is there spiritual pain? Does the patient desire the help of a spiritual advisor? Does the patient/family want time and space for praying, meditation, and other rituals?
- The relevance of religious beliefs regarding the meaning of death
- How the body should be handled following death

The clinician also can take advantage of available resources, including community or religious leaders, family members, and language translators [149]. It is important to note that using professional interpreters for patients and with limited English proficiency will help ensure quality care. Convenience and cost lead many clinicians to use "ad hoc" interpreters (e.g., family members, friends, bilingual staff members) instead of professional interpreters. However, professional interpreters are preferred for several reasons. Several states have laws about who can interpret medical information for a patient, so healthcare professionals should check with their state's health officials about the use of ad hoc interpreters [150]. Even when allowed by law, the use of a patient's family member or friend as an interpreter should be avoided, as the patient may not be as forthcoming with information and the family member or friend may not remain objective [150]. Children should especially be avoided as interpreters, as their understanding of medical language is limited, and they may filter information to protect their parents or other adult family members [150]. Individuals with limited English language skills have actually indicated a preference for professional interpreters rather than family members [151].

Also important is the fact that clinical consequences are more likely with ad hoc interpreters than with professional interpreters [152]. A systematic review of the literature showed that the use of professional interpreters facilitates a broader understanding and leads to better clinical care than the use of ad hoc interpreters, and many studies have demonstrated that the lack of an interpreter for patients with limited English proficiency compromises the quality of care. The use of professional interpreters improves communication (errors and comprehension), utilization, clinical outcomes, and patient satisfaction with care [151; 153]. One review of case studies regarding professional interpretation noted that "patients with limited English proficiency in the United States have a legal right to access language services, and clinicians have legal and ethical responsibilities to communicate through qualified interpreters when caring for these patients" [154].

Culturally competent counseling for patients at the end of life begins with understanding their differing cultural, religious, and other important influential factors. It involves listening to and learning about patients' varying attitudes, preferences, and practices in order to integrate them into an appropriate plan of care [155]. Clinicians should treat all patients with dignity, respecting their rich cultural traditions and incorporating them into the plan of care. It means communicating with the patient and the patient's family in advance about how the plan of care is aligned with their beliefs, concerns, values, and preferences [145]. To deny the expression of different cultural worldviews in the context of end-of-life care would be to rob patients of the security and serenity that their cultural beliefs give them when faced with uncertainty and fear [156].

CONCLUSION

Health and mental health professionals provide services to diverse individuals in a variety of settings, including end-of-life settings, as part of an interprofessional team. In the end-of-life setting, these professionals help dying patients and their families prepare for death with education and supportive therapeutic interventions that address the patient's physical, emotional, social, spiritual, and practical needs using a patient-centered, culturally sensitive approach [10; 157]. Clinicians can regularly promote communication and education about end-of-life care issues by taking the initiative and discussing each patient's goals for end-of-life care [55]. The better informed the patient and family are, the more likely their decisions about end-of-life care will reflect their beliefs, values, and the best interests of the patient. This means having difficult conversations. All professionals should work to become comfortable with the most uncomfortable of topics. This work is not done alone. It is essential to lean on and consult colleagues and other members of the care team. End-of-life care often involves interactions between caregivers and various professionals (e.g., physicians, nurses, social workers, mental health professionals, clergy) who have distinct roles in preparing caregivers for the patient's death [158]. Aligning on key concepts and approaches to care can help to ensure that the best possible care and support are given at the end of life.

Customer Information/Evaluation insert located between pages 48–49.

Substance Use Disorders and Pain Management: MATE Act Training

Includes 8 Pharmacotherapeutic/Pharmacology Hours

This course meets the Federal MATE Act requirement for 8 hours of training for those with a new or renewing DEA license. This course may be completed for general CE.

Audience

This course is designed for all healthcare professionals who may alter prescribing practices or intervene to help meet the needs of patients with substance use disorders.

Course Objective

The purpose of this course is to provide clinicians who prescribe or distribute controlled substances with an appreciation for the complexities of managing patients with substance use disorders and comorbid pain in order to provide the best possible patient care and to prevent a growing social problem.

Learning Objectives

Upon completion of this course, you should be able to:

1. Outline substance use disorder risk factors, screening, and diagnosis.
2. Describe the role of psychosocial therapies in the management of substance use disorders.
3. Compare and contrast available pharmacotherapeutic options for the treatment of alcohol, tobacco, and opioid use disorders.
4. Discuss the impact of polysubstance use and co-occurring mental disorders and substance use disorder presentation and treatment.
5. Review legal and ethical issues related to substance use disorder treatment.
6. Create comprehensive treatment plans for patients with pain that address patient needs as well as drug diversion prevention.
7. Evaluate behaviors that may indicate drug seeking or diverting as well as approaches for patients suspected of misusing opioids.
8. Identify state and federal laws governing the proper prescription and monitoring of controlled substances.

Faculty

Mark Rose, BS, MA, LP, is a licensed psychologist in the State of Minnesota with a private consulting practice and a medical research analyst with a biomedical communications firm. Earlier healthcare technology assessment work led to medical device and pharmaceutical sector experience in new product development involving cancer ablative devices and pain therapeutics. Along with substantial experience in addiction research, Mr. Rose has contributed to the authorship of numerous papers on CNS, oncology, and other medical disorders. He is the lead author of papers published in peer-reviewed addiction, psychiatry, and pain medicine journals and has written books on prescription opioids and alcoholism published by the Hazelden Foundation. He also serves as an Expert Advisor and Expert Witness to law firms that represent disability claimants or criminal defendants on cases related to chronic pain, psychiatric/substance use disorders, and acute pharmacologic/toxicologic effects. Mr. Rose is on the Board of Directors of the Minneapolis-based International Institute of Anti-Aging Medicine and is a member of several professional organizations.

Faculty Disclosure

Contributing faculty, Mark Rose, BS, MA, LP, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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This course represents an educational model that promotes the importance of learning objectives and individualized learning. Study questions will appear throughout the course to create a link between the learning objectives and the supporting text.

Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the study questions and course material for better application to your daily practice.

INTRODUCTION

Substance use disorders continue to be an important health issue in the United States. The fifth edition (text revision) of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5-TR) includes criteria for substance use disorder involving alcohol; cannabis; hallucinogens; inhalants; opioids; sedatives, hypnotics, or anxiolytics; stimulants; tobacco (nicotine); and other (or unknown) substances [1]. Excluding tobacco use disorder, the most common substance use disorders in the United States are [2]:

- Alcohol use disorder (29.5 million)
- Cannabis use disorder (16.3 million)
- Prescription opioid use disorder (5.0 million)
- Methamphetamine use disorder (1.6 million)

Substance use disorders can lead to significant problems in all aspects of a person's life, and appropriate assessment and management of substance use is a priority in patient care.

The presence of substance use disorders can complicate the treatment or management of comorbid medical conditions. Given the ongoing prescription opioid (and illicitly manufactured fentanyl) use and overdose epidemic in the United States and the widespread incidence of chronic pain, opioid prescribing and optimum safe pain management is a public health concern. All clinicians should have good knowledge of the available options for substance use disorder treatment and for safe opioid prescribing and dispensing.

Coordinated care is critical to achieve positive outcomes. Coordinating treatment for comorbidities, including mental health conditions, is an important part of treating substance use disorders and pain alike.

SUBSTANCE USE DISORDER SCREENING AND DIAGNOSIS

According to the 2021 National Survey on Drug Use and Health, 46.3 million Americans 12 years of age or older had a substance use disorder in the past year [2]. Substance use disorders are treatable, chronic diseases characterized by a problematic pattern of use of a substance or substances leading to impairments in health, social function, and control over substance use. It is a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite harmful consequences. These disorders range in severity and can affect people of any race, gender, income level, or social class.

RISK FACTORS

What are risk factors for the development of a substance use disorder?

Researchers who study risk factors have developed models of how known risk factors may interact to create pathways that lead to substance use disorders. Of course, not all persons who use drugs regarded as having a high liability of misuse end up becoming addicted to the drug.

Genetic Predisposition

Research has shown that genetic factors play a strong role in whether a person develops a substance use disorder, accounting for 40% to 60% of the risk [3; 4; 5]. In fact, family transmission of substance use disorder, particularly alcohol use disorder, has been well established. Individuals who have relatives with substance use disorder are at three- to five-times greater risk of developing substance use disorder than the general population. The presence of substance use disorder in one or both biologic parents is more important than the presence of substance use disorder in one or both adoptive parents. The genetic risk increases with the number of relatives with substance use disorder and the closeness of the genetic relationship [5]. However, most children of parents with substance use disorder do not develop disorders, and some children from families where substance use is not a problem develop disorders when they get older.

Children with Conduct Problems

One model focuses on children who have temperaments that make it difficult for them to regulate their emotions and control their impulses. Clearly, these children are difficult to parent, and if one or both of their parents have a substance use disorder, it is likely that they will be poorly socialized and have trouble getting along in school [6; 7]. Poor academic performance and rejection by more mainstream peers at school may make it more likely for these children to join peer groups where drinking and other risky behaviors are encouraged. Parents with substance use disorders will likely not monitor their children closely and will lose control over them at an early age. These children will begin using substances early, often before 15 years of age [8]. If such a child is genetically predisposed to substance use disorders, these environmental factors may further increase the tendency [9].

Stress and Distress

Another model of risk factors leading to substance use disorder focuses on substance use to regulate inner distress [10]. Some children have temperaments that make them highly reactive to stress and disruption. Regardless of the child's family environment, he or she maintains higher levels of inner distress (anxious and depressed feelings) than other children. When they first drink or use a substance, the inner distress dissipates for a while. This leads to more substance use and may lead

SCREENING AND ASSESSMENT TOOLS CHART						
Tool	**Substance Type**		**Patient Age**		**Administration Method**	
	Alcohol	**Drugs**	**Adults**	**Adolescents**	**Self-Administered**	**Clinician-Administered**
Screening Tools						
Screening to Brief Intervention (S2BI)	X	X		X	X	X
Brief Screener for Alcohol, Tobacco, and other Drugs (BSTAD)	X	X		X	X	X
Tobacco, Alcohol, Prescription medication, and other Substance use (TAPS)	X	X	X		X	X
Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide (NIAAA)	X			X		X
Opioid Risk Tool – OUD (ORT-OUD) Chart		X	X		X	
Assessment Tools						
Tobacco, Alcohol, Prescription medication, and other Substance use (TAPS)	X	X	X		X	X
CRAFFT	X	X		X	X	X
Drug Abuse Screen Test (DAST-10)[a]		X	X		X	X
Drug Abuse Screen Test (DAST-20: Adolescent version)[a]		X		X	X	X
Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide (NIAAA)	X			X		X

[a] Tools with associated fees

Source: [14] *Table 1*

to substance use disorder. More research is required before the role of stress as a risk factor in alcohol use disorders is understood.

Adverse childhood experiences, particularly sexual abuse, family rejection, and parental neglect, are independent risk factors for substance use disorders [11]. Adverse childhood experiences are linked with depression in adulthood, which itself is a risk factor for substance use disorder. This correlation can be modulated by resilience, which can also be a result of adverse childhood experiences.

Other Mental Disorders

Mental disorders can contribute to substance use and substance use disorders. Certain psychiatric disorders, including anxiety, depression, or post-traumatic stress disorder, have been linked to substance misuse, likely a form of self-medication. Additionally, brain changes in people with mental disorders may enhance the rewarding effects of substances, making it more likely they will continue to use the substance [12].

Environmental Stimuli

The expected drug effect and the setting of use (context of administration) play important roles in the social learning of drug use. Opioids and other drugs that increase dopamine turnover lead to conditional responses, and use may become conditioned to the activities of daily living. As a result, environmental stimuli can become powerfully associated with substance use, which can trigger cravings for the drug [13]. The visibility of pharmaceutical marketing and advertising of medications may also play a role by changing the attitudes toward ingestion of these agents [13]. For youth, a social learning aspect to drug use is likely, based on the modeling of drug use by adults in their families and social networks [13].

SCREENING

A variety of screening and assessment tools are available, with applicability for various substances, patient populations, and screening environments (***Table 1***).

The Tobacco, Alcohol, Prescription medication, and other Substance Use (TAPS) Tool is validated for use with adults to generate a risk level for each substance class. It can be self-administered or conducted via clinician interview and combines screening and brief assessment of past 90-day problematic use into one tool [14]. The TAPS Tool has two components. The first component (TAPS-1) is a four-item screen for tobacco, alcohol, illicit drugs, and non-medical use of prescription drugs. If an individual screens positive on TAPS-1 (i.e., reports other than "never"), the tool will automatically begin the second component (TAPS-2), which consists of brief substance-specific assessment questions to arrive at a risk level for that substance. Clinicians are encouraged to provide positive feedback to patients who screen negative and support their choice to abstain from substances. The tool can be accessed online at https://nida.nih.gov/taps2/#/.

DIAGNOSIS

As noted, the DSM-5-TR defines substance use disorder as a problematic pattern of substance use, leading to clinically significant impairment or distress. While criteria are outlined for specific substances in the DSM-5-TR, the components are generally the same regardless of substance used. The diagnosis of substance use disorder is made by meeting two or more criteria in a one-year period [1]:

- Substance taken in larger amounts or over a longer period than was intended
- A persistent desire or unsuccessful efforts to cut down or control use
- Excessive time spent to obtain, use, or recover from using the substance
- Craving, an intense urge to use
- Substance use interferes with obligations
- Continued use despite life disruption
- Reduction or elimination of important activities due to use
- Recurrent use in physically hazardous situations
- Continued use despite physical or psychologic problems
- Tolerance
    - Need for increased doses of the substance for the desired effect
    - A markedly diminished effect with continued use of the same amount
- Withdrawal

In the case of opioid use disorder, the criteria for tolerance and withdrawal are not considered to be met for those taking opioids solely under appropriate medical supervision.

SUBSTANCE USE DISORDER TREATMENT

All substance use disorder treatment plans should reflect the patient's most important goals and establish measurable and achievable steps toward achieving those goals. As such, all treatment plans will be individualized and created in collaboration with the patient. This recovery roadmap also requires that clinicians communicate with clear, nonstigmatizing language regarding the patient's condition and options.

TREATMENT PLANNING

Assessing Readiness to Change

Readiness to Change is Dimension 4 of the American Society of Addiction Medicine's (ASAM's) Six Dimensions of Multidimensional Assessment (also known as the ASAM Criteria) that is the standard for placement, continued stay, transfer, or discharge of patients with substance use disorder and co-occurring conditions [15]. Several factors influence a person's readiness and ability to change behaviors. It is useful to help patients to weigh the risks of continued substance use and benefits of decreasing or eliminating substance use. Healthcare professionals can help motivate the patient to become ready for treatment if the patient appears ready to change.

Is the patient ready to change? The role of motivation is an important part of changing behavior.

Motivational Interviewing

Motivational interviewing is a method of counseling designed to enhance patients' motivation to change by helping them explore and resolve their ambivalence about making the change [16]. It is a collaborative, non-confrontational, "guiding" approach. In substance use disorder, motivational interviewing utilizes active listening to understand how the patient feels about his or her substance use in an effort to uncover any ambivalence [17]. The healthcare provider elicits the patient's own views regarding consequences of continuing to use and benefits of quitting and asks permission to share additional information on risks when necessary. Goals are developed collaboratively, based on the patient's current readiness to change. Originally developed as an intervention for alcohol use disorder, it has shown promise as a successful strategy for other substances as well.

PSYCHOSOCIAL THERAPY

Treatment of substance use and dependence with psychosocial or behavioral therapy is based on the assumption that addictive behavior is developed and maintained by specific mechanisms [18]:

- Expectancies and modeling
- Reinforcing properties of the drug
- Secondary social reinforcement

The goal of these types of treatments is to modify drug-seeking and other behavioral aspects of drug dependency [19]. Psychosocial therapy and pharmacotherapy are not mutually exclusive; in fact, some drug therapies for substance abuse are considered useless without a psychosocial/behavioral component [18; 19].

Psychosocial therapies for substance use disorders can be divided into two broad categories. The first category consists of therapies that were originally developed for patients with anxiety and depression and modified for use with patients with substance use disorders. This group of therapeutic approaches includes cognitive-behavioral therapy (CBT), the behavioral therapies, and interpersonal therapy. The second group of psychosocial therapies was developed explicitly for patients with substance use disorders and includes motivational interviewing and motivation enhancement therapy [19; 20]. All psychotherapies are intended to be delivered in a supportive, empathic manner that minimizes confrontation.

EVIDENCE-BASED PRACTICE RECOMMENDATION

For patients with alcohol use disorder, the Department of Veterans Affairs Work Group recommends offering one or more of the following interventions, considering patient preference and provider training/competence:

- Behavioral couples therapy for alcohol use disorder
- Cognitive-behavioral therapy for substance use disorders
- Community reinforcement approach
- Motivational enhancement therapy
- 12-step facilitation

(https://www.healthquality.va.gov/guidelines/MH/sud/VADoDSUDCPG.pdf. Last accessed April 27, 2023.)

Strength of Recommendation: Strong for

Drug counseling is a widely used therapy approach with patients with substance use disorders. It consists of a focus on abstinence, problem solving, and 12-step orientation and involvement. Drug counseling is usually provided by counselors who have a certificate in addiction counseling. A fair number of addiction counselors are themselves recovering from alcohol and/or substance use disorders [20].

Contingency Management

There is considerable evidence that substance use is sensitive to the application of contingencies. Contingencies occur on a spectrum from contrived to naturalistic. Contingency management and vouchers are examples of contrived interventions, while 12-step programs are examples of naturalistic interventions [21]. Contrived contingencies may be effective in initially engaging patients in abstinence, but relapse to drug use may occur following removal of the reinforcer. In contrast, naturalistic contingencies are more likely to maintain the initial gains made by the patient and to facilitate the sustained change of behavior over time [22].

The goal of contingency management interventions is to increase the opportunity cost of substance use by arranging an environment where drug use results in the forfeiture of a predetermined item or privilege, referred to as an alternate reinforcer [23]. Treatment with a contingency management component was first used with cocaine-abusing methadone patients, a highly suitable population for two reasons: cocaine abuse is prevalent among patients with opioid use disorder receiving methadone maintenance, and methadone patients are required to report to the clinic daily to receive their medication under staff supervision. Daily clinic appointments are often considered a significant constraint on employment, travel, and other activities. Patients who are able to abstain from drugs of abuse, as measured by a urine drug screen, may be allowed several days of take-home methadone doses, which can act as a behavioral contingent [24]. Several studies have shown that this contingent condition has led to greater treatment retention and reductions in cocaine use than those found in comparison treatment conditions, although this effect dissipates with longer-term follow-up [22; 25; 26; 27].

Community Reinforcement

Community reinforcement approaches are biopsychosocial interventions designed to engage and change the lifestyle of the drug abuser by addressing the role of environmental cues and alternative reinforcers in influencing behavior. The theoretical basis of the community reinforcement approach is that substance abuse is maintained by substance-related reinforcers as well as by the absence of competing alternative reinforcers. The primary goal of the community reinforcement approach is to build and strengthen relationships, recognize appropriate leisure activities, and identify vocational interests of the patient to provide competing reinforcement with substance use and the drug-using lifestyle [28]. The community reinforcement approach aims to increase abstinence by increasing or highlighting the opportunity cost of relationships and social support the patient stands to lose through drug use [22]. In addition to integrating cognitive-behavioral and, in some cases, pharmacologic approaches, community reinforcement approaches may also include the use of vouchers, whereby tokens are given to the patient for producing substance-free urine samples, which are then used to purchase goods and services desired by the patient.

A review of four studies utilizing a community reinforcement approach with patients with substance use disorder found evidence that a community reinforcement approach employing abstinence-contingent incentives in the form of vouchers was more effective in promoting abstinence than community reinforcement approaches using noncontingent incentives and usual care. Patients assigned to community reinforcement incorporating abstinence-contingent incentives experienced a greater reduction in disease severity as measured by the Addiction Severity Index than comparison groups [28]. Despite early, promising reports of community reinforcement with patients with alcohol use disorder and evidence that patients receiving community reinforcement approaches have demonstrated more favorable drug use outcomes than patients receiving standard outpatient counseling, a community reinforcement approach is seldom used because of the relatively high cost and labor intensity [19; 29].

Motivational Interventions

Motivational interventions for substance use disorders stem from the theory that targeting and enhancing motivation to quit drugs will increase positive outcome; positive outcome is increased when motivation comes internally rather than when it is externally imposed. Specifically, motivational enhancement therapy is based on the Transtheoretical Stages of Change Theory, which postulates that patients pass through a series of stages of thought, planning, and action in the process of behavior change [30]. Motivational enhancement therapy is intended to enhance motivation and commitment to change, activate patient resources, and facilitate movement along the readiness-to-change spectrum [31]. Motivational enhancement therapy helps patients build internal motivation through the resolution of issues related to ambivalence. The therapeutic approach is characterized by nonconfrontive, nonjudgmental interviewing that helps the patient consider the pros and cons of change. Motivational enhancement therapy also strives to enhance patient self-efficacy [30]. Motivational enhancement therapy seems to be more effective in patients with low initial levels of motivation when used for patients with substance use disorder. It tends to result in less relapse to use and fewer total days of use [32].

Coping and Social Skill Training

What are the primary areas addressed by coping and social skill training (CSST)?

Coping and social skill training (CSST) evolved from social learning theory and is used to improve the inadequate coping skills found in many persons with substance use disorders, including deficits in regulation of emotion and in effectively coping with social situations. CSST addresses four primary areas [33]:

- Interpersonal skills
- Cognitive and affective regulation
- Coping skills to manage stressful life events
- Coping skills when substances or substance-related cues are encountered

An added emphasis on drug-related cues is used when CSST is employed with patients with certain substance use disorders (e.g., cocaine, opioids) [33].

CSST has incorporated these findings into the treatment approach used with patients with substance use disorders. Preliminary results indicate some benefit of substance-specific CSST in reducing frequency of substance use and increasing duration of abstinence, although these results have not been replicated in subsequent research [32; 33].

Drug Counseling

CBT is among the most frequently evaluated approaches used to treat substance use disorders [34; 35]. CBTs have been shown to be effective in several clinical trials of substance users [36]. Characteristics of CBTs include:

- Social learning and behavioral theories of drug abuse
- An approach summarized as "recognize, avoid, and cope"
- Organization built around a functional analysis of substance use (i.e., understanding substance use with respect to its antecedents and consequences)

Skill training focused on strategies for coping with craving, fostering motivation to change, managing thoughts about drugs, developing problem-solving skills, planning for and managing high-risk situations, and cultivating drug refusal skills

Basic principles of CBTs are that [37; 38]:

- Basic skills should be mastered before more complex ones are given.
- Material presented by the therapist should be matched to patient needs.
- Repetition fosters the development of skills.
- Practice is needed for mastery of skills.
- The patient is an active participant in treatment.
- Skills taught are general enough to be applied to a variety of problem areas.

Structured behavior therapy techniques can be effective components of substance use disorder treatment. Contingent incentive procedures are designed to enhance a patient's motivation to meet treatment goals by offering concrete rewards for specific performance outcomes.

Behavioral therapy techniques are often part of CBT. In this approach, substance use is believed to develop from changes in behavior and a reduction in opportunities for reinforcement of positive experience. The goal is to increase the person's engagement in positive or socially reinforcing activities. Techniques such as having patients complete a schedule of weekly activities, engaging in homework to learn new skills, role-playing, and behavior modification are used. Activity, exercise, and scheduling are major components of this approach based on the following:

- Patients with substance use disorders require motivation and skills to succeed in stopping drug use.
- Research has shown that drug abuse behavior can be reduced by offering contingent incentives for abstinence.
- The most striking successes have come from positive reinforcement programs that provide contingent incentives for abstinence using money-based vouchers as rewards.
- Research provides examples, but treatment providers may need to be creative in discovering reinforcers that can be used for contingency management in their own clinical settings.

Family therapy is a highly effective treatment for alcohol use disorder, especially in adolescents. While most treatments emphasize the individual as the target of intervention, the defining characteristic of family therapy is the transformation of family interactions. Repetitive patterns of family interactions are the focus of treatment. Changing these patterns results in diminished antisocial behavior including alcohol abuse. Family therapy can work with a broad range of family and social network populations. Family therapy approaches have developed specific interventions for engaging and keeping reluctant, unmotivated adolescents and family members in treatment.

PHARMACOTHERAPY FOR DETOXIFICATION AND ABSTINENCE

A variety of medications have been approved to assist in cessation of the use of opioids, alcohol, and nicotine (***Table 2***). Any time pharmacotherapy is initiated, is important that a collaborative, patient-centered approach is undertaken, with all members of the care team working together to best meet the needs of the specific patient. Unique, individual physiology and metabolism can impact medication pharmacodynamics; this should be considered in each treatment plan.

Alcohol Use Disorder

Several medications are available to help treat alcohol use disorder [40; 41]. Some are used for detoxification and others are used to prevent relapse. Research has shown that medications are most effective when used in conjunction with other therapies.

Disulfiram

Disulfiram, commonly known as Antabuse, was the first drug to be made available for the treatment of alcohol use disorder. It was approved for treatment of alcohol use disorder by the U.S. Food and Drug Administration (FDA) in 1951 and has been used safely and effectively for decades. It works by blocking an enzyme, aldehyde dehydrogenase, that helps metabolize alcohol. Taking even one drink while on disulfiram causes the alcohol at the acetaldehyde stage to accumulate in the blood. This produces nausea, vomiting, sweating, and even difficulty breathing. More alcohol in the patient's system produces more severe reactions (e.g., respiratory depression, cardiovascular collapse, unconsciousness, convulsions, death) [41; 42]. Patients must also be mindful of consuming even minute amounts of alcohol in foods, over-the-counter medications, mouthwash, and even topical lotions. Disulfiram can be effective for people who have completed alcohol withdrawal, are committed to staying sober, and are willing to take the medication under the supervision of a family member or treatment program [41]. Due to more modern and improved medication modalities, many clinicians prescribe disulfiram as a last-resort intervention. Although widely used, it is less clearly supported by clinical trial evidence [43; 44; 45].

The recommended dose for disulfiram is 250 mg/day, which can be increased to 500 mg based upon whether a patient experiences the disulfiram-ethanol reaction [46]. Doses may need to be reduced in patients older than 60 years of age [41]. Labeling for disulfiram includes several precautions regarding drug-drug interactions; therefore, caution should be used when prescribing it to older adults at risk for polypharmacy [41]. Due to the physiologic changes that occur with use, use of disulfiram is not recommended in patients with diabetes, cardiovascular or cerebrovascular disease, or kidney or liver failure. It also is contraindicated in the presence of psychoses and pregnancy and in those with high levels of impulsivity and suicidality [41].

Naltrexone

Naltrexone (ReVia) is an opioid antagonist that interferes with the rewarding or pleasurable effects of alcohol and reduces alcohol craving [47; 48; 49]. The exact mechanisms by which naltrexone induces the reduction in alcohol consumption observed in patients with alcohol use disorder is not entirely understood, but preclinical data suggest involvement of the endogenous opioid system [41]. Naltrexone has been shown to reduce alcohol relapses, decrease the likelihood that a slip becomes a relapse, and decrease the total amount of drinking [41]. The FDA approved the use of oral naltrexone in alcohol use disorder in December 1994 [41; 49]. In 2006, the FDA approved an extended-release injectable formulation, which is indicated for use only in patients who can refrain from drinking for several days prior to beginning treatment [41]. In 2010, the FDA approved the injectable naltrexone for the prevention of relapse to opioid dependence following opioid detoxification [41].

After a complete history, physical exam, and laboratory testing, most patients are started on 50 mg orally per day [39]. For most patients, this is the safe and effective dose of naltrexone. However, in a four-month study period, the COMBINE study demonstrated efficacy of naltrexone at a dose of 100 mg daily [50]. Some treatment providers give patients a naltrexone identification card or ask them to order a MedicAlert bracelet that clearly indicates that they are maintained on an opioid antagonist, so if they need an opiate drug or medication for

MEDICATIONS USED IN THE TREATMENT OF SUBSTANCE USE DISORDERS					
Drug	**Dose Range**	**Typical Starting Dose**	**Potential Adverse Effects**	**Route(s)**	**DEA Schedule**
Opioid Use Disorder					
Buprenorphine/naloxone (Bunavail, Suboxone, Zubsolv)	Buprenorphine: 0.7–24 mg/day Naloxone: 0.18–6 mg/day	4/1 mg/day	Pain, headache, nausea, diaphoresis	Buccal film, sublingual film, sublingual tablet	CIII
Methadone (Dolophine, Methadose, DISKETS)	20–120 mg/day	20–30 mg/day	Pruritus, constipation, cardiac abnormalities	PO, IV	CII
Naltrexone (Vivitrol)	PO: 25-50 mg/day IM: 380 mg/week	PO: 25 mg/day IM: 380 mg/week	Injection site reactions, anxiety, syncope	PO, IM	Not scheduled
Buprenorphine (Belbuca, Buprenex, Butrans, Probuphine, Sublocade)	SQ: 100–300 mg/month SL: 2–24 mg/day	SQ: 300 mg/month Implant: 4 implants SL: 2–4 mg/day	Few	Sublingual tablet, subdermal implant, SQ injection	CIII
Alcohol Use Disorder					
Acamprosate (Campral)	666 mg TID	666 mg TID	Diarrhea	PO	Not scheduled
Naltrexone (Vivitrol)	PO: 25–100 mg/day IM: 380 mg/month	PO: 50 mg/day IM: 380 mg/month	Injection site reactions, anxiety, syncope	PO, IM	Not scheduled
Disulfiram	125–500 mg/day	250 mg/day	Bitter taste, impotence, drowsiness	PO	Not scheduled
Tobacco Use Disorder					
Bupropion, sustained-release (Zyban)	150 mg daily or BID	150 mg/day	Weight loss, constipation, agitation, xerostomia, nausea	PO	Not scheduled
Nicotine	Gum: Up to a maximum 30 pieces/day Inhaler: 6–16 cartridges/day Lozenge: Titrate to 1 lozenge every 4 to 8 hours Nasal spray: Maximum 80 sprays/day Patch: One patch/day for 8 weeks	Gum: 1 to 2 pieces/hour (2 mg/piece) Inhaler: 6 cartridges/day Lozenge: One lozenge every 1 to 2 hours Nasal spray: 1 spray in each nostril once or twice per hour Patch: One patch/day	Oral irritation, headache, dyspepsia, nasal discomfort, cough, rhinitis	PO, intranasal, transdermal	Not scheduled
Varenicline (Chantix)	1 mg BID up to 12 weeks	0.5 mg/day	Nausea, abnormal dreams, headache	PO	Not scheduled

BID = two times per day, DEA = Drug Enforcement Administration, IM = intramuscular, IV = intravenous, PO = oral, SL = sublingual, SQ = subcutaneous, TID = three times per day.

Source: [39] *Table 2*

pain relief, the dose of the pain medication can be adjusted higher. Meta-analyses have revealed that approximately 70% of previous clinical trials that measured reductions in "heavy or excessive drinking" demonstrated an advantage for prescribing naltrexone over placebo [51]. In another trial, naltrexone was determined to have the greatest impact on reducing daily drinking when craving for alcohol was highest [52]. The approved dose of the extended-release formulation is 380 mg IM once per month. Pretreatment with oral naltrexone is not required before induction onto extended-release injectable naltrexone [41].

The most common side effects of naltrexone are light-headedness, diarrhea, dizziness, and nausea. Pain or tenderness at the injection site is a side effect unique to the extended-release injectable formulation [41]. Most side effects tend to disappear quickly in most patients. Naltrexone is not recommended for patients with acute hepatitis or liver failure, for adolescents, or for pregnant or breastfeeding women [41; 50]. Weight loss and increased interest in sex have been reported by some patients. In general, patients maintained on opioid antagonists should be treated with nonopioid cough, antidiarrheal, headache, and pain medications. The patient's family or physician should call the treating physician if questions arise about opioid blockade or analgesia. It is important to realize that naltrexone is not disulfiram; drinking while maintained on naltrexone does not produce side effects or symptoms.

Naltrexone works best when it is used in the context of a full spectrum of treatment services, possibly including traditional 12-step fellowship-based treatments. Studies show also that naltrexone is effective when coupled with CBT. Patients receiving medical management with naltrexone, CBT, or both fared better on drinking outcomes [50].

Acamprosate

Acamprosate (Campral) is a synthetic compound that has a chemical structure similar to that of the naturally occurring amino acid neurotransmitters taurine and gamma-aminobutyric acid (GABA) [39]. Because chronic alcohol use is associated with decreased GABA and glutamate activity, a hyperexcitable glutamate system is one possible alcohol withdrawal mechanism. Glutamate systems may become unstable for 12 months after a person stops drinking. In a review of published, double-blind, placebo-controlled clinical trials evaluating the safety and efficacy of acamprosate in the treatment of alcohol use disorder, Mason reported that acamprosate appeared to improve treatment completion rate, abstinence rate and/or cumulative abstinence during treatment, and time to first drink, than placebo [53]. The effect on abstinence, combined with an excellent safety profile, lend support to the use of acamprosate across a broad range of patients with alcohol use disorder [54]. It is important to note that medication in combination with therapies can improve outcomes.

In July 2004, after many years of safe use in Europe and around the world, the FDA approved the use of acamprosate for the maintenance of alcohol abstinence [49]. As in the case of naltrexone, acamprosate reduces the reinforcing (pleasurable) effects of alcohol to reduce craving. Oral dosing is two 333-mg delayed-release tablets three times daily [39; 41]. Common side effects include diarrhea, anxiety, insomnia, nausea, dizziness, and weakness. Some research indicates that acamprosate may worsen depression and/or suicidal ideation; so, patients with a history of major depression should be monitored closely or prescribed a different medication [39]. Acamprosate is contraindicated in patients with severe renal impairment [39; 41]. Due to risk of diminished renal function in patients 65 years of age and older, baseline and frequent renal function tests should be performed in this population. Dose reductions also may be necessary [41].

Baclofen

Baclofen is a GABA agonist that may prove to be a unique therapeutic alternative to reduce alcohol craving and consumption. In a small, 12-week trial, patients with alcohol use disorder were given 10 mg of baclofen three times daily paired with motivational enhancement therapy. Patients experienced a reduction in number of drinks, drinking days, anxiety, and craving [55]. In a study of patients with alcohol use disorder and liver cirrhosis, baclofen was also found to work favorably in maintenance of alcohol abstinence. Seventy-one percent of baclofen-treated patients maintained abstinence as compared with 29% of the placebo group [56]. A 2018 meta-analysis of 12 randomized controlled trials that compared the efficacy of baclofen to placebo found that baclofen was associated with higher rates of abstinence than placebo but that its effects were not superior to placebo in increasing the number of abstinent days or in decreasing heavy drinking, craving, depression, or anxiety [57].

Anticonvulsants

Research has demonstrated that topiramate is efficacious in decreasing heavy drinking among individuals with alcohol use disorder [58]. In a controlled study, topiramate produced significant and meaningful improvement in a wide variety of drinking outcomes [59]. Topiramate may suppress the craving and rewarding effects of alcohol [60]. In a double-blind, controlled trial, 150 patients with alcohol use disorder were randomized to escalating doses of topiramate (25–300 mg/day) or placebo. Those on topiramate had a reduction in self-reported drinking (number of drinks and drinking days), alcohol craving, and plasma gamma-glutamyl transferase (an indicator of alcohol consumption) [61]. Side effects of topiramate include numbness in the extremities, fatigue, confusion, paresthesia, depression, change in taste, and weight loss. Use of topiramate for alcohol use disorder is off-label [39].

Carbamazepine has proven effective for treating acute alcohol withdrawal [62]. Its side effects include nausea, vomiting, drowsiness, dizziness, chest pain, headache, trouble urinating, numbness in extremities, liver damage, and allergic reaction [39]. In a 12-month, double-blind, placebo-controlled trial, 29 patients were assigned to carbamazepine three times daily (to reach an average blood level of 6 mg/liter) or placebo. Those treated with carbamazepine showed a delay in time to first drink and a decrease in number of drinks and drinking days [63].

Oxcarbazepine is a carbamazepine derivative, with fewer side effects and contraindications, used to prevent relapse in patients with alcohol use disorder by blocking alcohol withdrawal [62]. A group of 84 patients with alcohol use disorder following detoxification were randomized to 50 mg naltrexone, 1,500–1,800 mg oxcarbazepine, or 600–900 mg oxcarbazepine for 90 days. Approximately 58.6% of the high-dose oxcarbazepine patients remained alcohol-free, a significantly larger number as compared to the low-dose (42.8%) and naltrexone groups (40.7%) [64].

Opioid Use Disorder

Any treatment for opioid use disorder must take into consideration the chronic relapsing nature of opioid dependence, characterized by a variable course of relapse and remission in many patients. Treatments should emphasize patient motivation, psychoeducation, continuity of care, integration of pharmacotherapy and psychosocial support, and improved liaison between the treatment staff and the judicial system. Pharmacotherapy must be offered in a comprehensive healthcare context that also addresses the psychosocial aspects of dependence [65]. Patients with opioid use disorder frequently suffer from physical and psychiatric disorders, and targeted interventions of psychiatric comorbidity are essential in improving treatment outcome for these patients [65]. Polysubstance abuse is the rule rather than the exception in opioid use disorder, and concurrent use of other substances should be carefully monitored and treated when necessary [65]. Incarceration should never automatically result in discontinuation of an existing treatment; imprisonment offers a window of opportunity to initiate or restart treatment with a necessary continuation after release [65].

Crisis Intervention

Which drug is considered the criterion standard in reversing respiratory depression and coma in acute opioid overdose?

In response to acute overdose, the short-acting opioid antagonist naloxone is considered the criterion standard. Naloxone is effective in reversing respiratory depression and coma in patients who have overdosed. There is no evidence that subcutaneous or intramuscular use is inferior to intravenous naloxone. This prompted discussion of making naloxone available to the general public for administration outside the healthcare setting to treat acute opioid overdose, and in 2014, the FDA approved naloxone as an autoinjector dosage form for home use by family members or caregivers [66]. The autoinjector delivers 0.4 mg naloxone intramuscularly or subcutaneously. The autoinjector comes with visual and voice instruction, including directions to seek emergency medical care after use [66]. In 2015, the FDA approved intranasal naloxone after a fast-track designation and priority review. Intranasal naloxone is indicated for the emergency treatment of known or suspected opioid overdose, as manifested by respiratory and/or central nervous system depression. It is available in a ready-to-use 2-mg, 4-mg, or 8-mg single-dose sprayer [67; 68; 69]. In 2023, the FDA approved 4-mg nasal spray naloxone for over-the-counter use [173].

EB
EVIDENCE-BASED PRACTICE RECOMMENDATION

According to the World Health Organization, people likely to witness an opioid overdose should have access to naloxone and be instructed in its administration to enable them to use it for the emergency management of suspected opioid overdose.

(https://www.who.int/publications/i/item/9789241548816. Last accessed April 27, 2023.)

Strength of Recommendation/Level of Evidence: Strong/very low

Harm Reduction

Harm reduction measures are primarily employed to minimize the morbidity and mortality from opioid abuse and to reduce public nuisance [2; 70]. As a part of this effort, measures to prevent and minimize the frequency and severity of overdoses have been identified. Enrollment in opioid substitution therapy, with agents such as methadone and buprenorphine, substantially reduces the risk of overdose as well as the risk for infection and other sequelae of illicit opioid use [2; 70].

Detoxification

The three primary treatment modalities used for detoxification are opioid agonists, non-opioid medications, and rapid and ultra-rapid opioid detoxification [71]. The most frequently employed method of opioid withdrawal is a slow, supervised detoxification during which an opioid agonist, usually methadone, is substituted for the abused opioid [72]. Methadone is the most frequently used opioid agonist due to the convenience of its once-a-day dosing [71]. Methadone is highly bound to plasma proteins and accumulates more readily than heroin in all body tissues. Methadone also has a longer half-life, approximately 22 hours, which makes withdrawal more difficult than from heroin. Substitution therapy with methadone has a high initial dropout rate (30% to 90%) and an early relapse rate. Alternative pharmacologic detoxification choices include clonidine (with or without methadone), midazolam, trazodone, or buprenorphine [72].

Many opioid withdrawal symptoms, such as restlessness, rhinorrhea, lacrimation, diaphoresis, myosis, piloerection, and cardiovascular changes, are mediated through increased sympathetic activation, the result of increased neuron activity in the locus coeruleus. Non-opioid agents (such as clonidine), which inhibit hyperactivation of noradrenergic pathways stemming from the locus coeruleus nucleus, have been used to manage acute withdrawal [72; 73]. The first non-opioid treatment approved for the management of opioid withdrawal symptoms is lofexidine [74]. In studies, patients treated with lofexidine reported less severe withdrawal symptoms and were more likely to complete treatment.

However, some withdrawal symptoms, including anxiety and myalgias, are resistant to clonidine; benzodiazepines and nonsteroidal anti-inflammatory drugs (NSAIDs) may be necessary to treat these symptoms. To mitigate withdrawal symptoms and assist in detoxification, alpha2-agonists, opioid agonist-antagonists, benzodiazepines, and antidepressants have been used [72].

Agonist Replacement Therapy

The goal of opioid replacement therapy is to reduce illicit drug use and associated health risks, with secondary goals of reducing unsafe sexual practices, improving vocational and psychosocial functioning, and enhancing quality of life [71]. The theoretical basis of opioid replacement stems from the finding that chronic opioid use results in an endogenous opioid deficiency as a result of the down-regulation of opioid production. This creates overwhelming cravings and necessitates interventions that shift the dependent patient's attention and drive from obsessive preoccupation with the next use of opioids to more adaptive areas of focus, such as work, relationships, and non-drug leisure activities [71].

EVIDENCE-BASED PRACTICE RECOMMENDATION

For patients with opioid use disorder, the Department of Veterans Affairs Work Group recommends offering one of the following medications, considering patient preferences: buprenorphine/naloxone or methadone (in an opioid treatment program).

(https://www.healthquality.va.gov/guidelines/MH/sud/VADoDSUDCPG.pdf. Last accessed April 27, 2023.)

Strength of Recommendation: Strong for

Methadone is now the most inexpensive and empirically validated agent available for use in opioid replacement therapy. Studies have shown one-year treatment retention rates of 80%, with significant reductions in illicit opioid use [71].

Treatment is initiated with a dose of 25–30 mg and is gradually titrated in 5- to 10-mg increments per day to a desired range of 60–120 mg. Low-dose treatment is associated with less positive outcomes than doses of 60–120 mg/day or greater [71; 75]. One published review of efficacy literature concluded that high doses of methadone (>50 mg daily) are more effective than low doses (<50 mg daily) in reducing illicit opioid use. This may be due to the increased availability of highly pure heroin [75]. Additionally, high doses of methadone are more effective than low doses of buprenorphine (<8 mg daily). High dosages of methadone are comparable to high dosages of buprenorphine (>8 mg daily) on measures of treatment retention and reduction of illicit opioid use [65]. Methadone is contraindicated for the following patients [73]:

- Those with known hypersensitivity to methadone hydrochloride
- Those experiencing respiratory depression
- Those with acute bronchial asthma or hypercapnia
- Those with known or suspected paralytic ileus

EVIDENCE-BASED PRACTICE RECOMMENDATION

When considering initiation of methadone, the American Pain Society recommends that clinicians perform an individualized medical and behavioral risk evaluation to assess risks and benefits of methadone, given methadone's specific pharmacologic properties and adverse effect profile.

(https://www.jpain.org/article/S1526-5900(14)00522-7/fulltext. Last accessed April 27, 2023.)

Strength of Recommendation/Level of Evidence: Strong/low

Buprenorphine offers several advantages over methadone, including lower cost, milder withdrawal symptoms following abrupt cessation, lower risk of overdose, and longer duration of action, allowing alternate-day dosing [71; 76]. Identifying subpopulations of opioid addicts who differentially respond to buprenorphine versus methadone has not been clearly established. However, patients with less chronic and less severe heroin dependence benefit more fully from buprenorphine than from a pure opioid agonist like methadone [71].

The transition to buprenorphine from long-acting opioids is difficult [77]. The ASAM warns that diversion and misuse are possible with buprenorphine, as is physical dependence. Respiratory depression may occur if buprenorphine is used with central nervous system depressants including alcohol, other opioids, and illicit drugs. Neonatal withdrawal has also been reported after use of buprenorphine during pregnancy. Buprenorphine is not recommended for patients with severe hepatic impairment [73].

Higher doses of buprenorphine (12 mg or greater) are more effective than lower doses in reducing illicit opioid use, with some studies reporting similar efficacy to methadone on major treatment-outcome measures. The primary advantage of buprenorphine over methadone is its superior safety profile [77].

Slow-release formulations of morphine that are effective with once-daily dosing are a viable alternative in the treatment of opioid dependence. These formulations considerably delay time to peak concentration after oral administration, resulting in delayed onset of action and making the reinforcing effects very weak when it is administered orally. Several trials have suggested that slow-release morphine has approximately equal efficacy with methadone; however, there is no definitive evidence of this effect [77; 78; 79]. Slow-release oral morphine may be a viable alternative for patients who are intolerant to methadone [80].

Tobacco Use Disorder

The first-line pharmacologic interventions for smoking cessation are nicotine-replacement therapy (NRT), bupropion, and varenicline [81; 82]. However, no pharmacotherapy has been approved for use among pregnant or nursing women.

Bupropion

Bupropion is an atypical antidepressant that has both dopaminergic and adrenergic actions [83]. In 1998, the slow-release preparation of bupropion became available as a prescription item specifically for smoking cessation, with the trade name Zyban. This treatment could be appropriate for smokers who do not wish to use an NRT or for those whose treatment with NRT has failed. Unlike NRT, smokers begin bupropion treatment one week prior to cessation. The suggested dosage is 300 mg/day, and the duration of treatment is 7 to 12 weeks [84]. A double-blind, placebo-controlled trial randomized patients to placebo or sustained-released bupropion (50 mg twice a day, 150 mg once a day, or 150 mg twice a day) and treated them for six weeks. Smokers with active depression were excluded, though smokers with a history of depression were not. The cessation rates at the end of therapy were 10.5%, 13.7%, 18.3%, and 24.4%, respectively. Follow-up at one year suggested a continued benefit of bupropion therapy [85]. Data from a study of bupropion combined with transdermal nicotine showed high long-term quit rates with the combination therapy [86]. Discontinuation of treatment may be appropriate for individuals unable to achieve significant progress after seven weeks, as success after this point is unlikely [39].

Varenicline Tartrate

Another effective non-nicotine therapy for smoking cessation is varenicline tartrate, a partial agonist selective for nicotine acetylcholine receptor subtypes. Released in 2006, varenicline is available in monthly dose packs (0.5 mg and 1 mg tablets) and is approved for a 12-week course of treatment [82]. Patients able to quit smoking may continue the therapy for an additional 12 weeks for increased likelihood of long-term cessation and even up to a year in certain cases, to prevent relapse; however, medication should be stopped and patients should be reassessed if the intervention has not led to smoking cessation within the initial 12 week timeframe [39; 87; 88]. Clinical trials reveal that varenicline may be favorable to bupropion for abstinence (44% versus 30%); the medication has also been shown to help at least 20% of patients remain smoke-free for up to one year [89; 90]. Recognizing that cessation success rates increase when pharmacologic and behavioral therapies are combined, the manufacturer urges patients to combine use of varenicline with a behavioral support plan. Co-administration of varenicline and transdermal nicotine may exacerbate incidence of nausea, headache, vomiting, dizziness, dyspepsia, and fatigue. One study found varenicline alone to be more effective than other treatment options, while a meta-analysis study found that combination therapy (varenicline and NRT) was more effective than varenicline alone [91; 92]. In 2021, the manufacturer of Chantix, a brand of varenicline, halted production of varenicline due to unacceptably high levels of nitrosamines; however, this issue was considered resolved by May 2022 [93]. In addition, all lots of 0.5-mg and 1-mg tablets of Chantix were subject to a voluntary recall. However, the FDA does not recommend that patients halt use of varenicline, and generic formulations and other brands remained available.

Other Options

The two second-line drugs for smoking cessation are clonidine and nortriptyline [81]. Clonidine is an antihypertensive medication that is administered orally or transdermally. It appears to increase the smoking cessation rate by approximately 11%; however, clonidine is known to produce such side effects as dry mouth, dizziness, sedation, and orthostatic hypotension [39; 94]. Clonidine has not been approved by the FDA for smoking cessation but has been used with individuals who have failed NRT or bupropion [39]. Nortriptyline is a tricyclic antidepressant that has been used to assist smoking cessation, although this is an unlabeled use [39]. A 12% improvement in cessation over controls has been reported, but the limited number of trials, combined with the adverse side effects (e.g., dry mouth, weight gain, constipation, drowsiness, sexual problems), makes nortriptyline a second-line intervention [81]. Several controlled trials have failed to show any benefit for either agent [39].

POLYSUBSTANCE USE

Despite the increased prevalence of individuals using multiple substances at the same time, limited research exists on evidence-based treatment practices that have demonstrated improved outcomes for individuals who use more than one substance [95]. Therefore, there is a need to identify and assess the effectiveness of treatment practices so that clinicians and organizations have the necessary resources and evidence-based practices to assist this population.

The Substance Abuse and Mental Health Services Administration (SAMHSA) has identified three evidence-based practices that engage and improve outcomes for individuals with concurrent substance use and concurrent substance use disorders [95]:

- FDA-approved pharmacotherapy together with counseling to treat:
    - Alcohol and cocaine dependence
    - Cocaine and opioid dependence
- Contingency management together with FDA-approved pharmacotherapy and counseling to treat:
    - Cocaine and opioid use and dependence
    - Cocaine dependence and alcohol and opioid use
- Twelve-step facilitation therapy together with FDA-approved pharmacotherapy and counseling to treat:
    - Cocaine and opioid dependence
    - Opioid and other substance dependence

CO-OCCURRING MENTAL DISORDERS

In the United States, 7.7 million adults have co-occurring mental and substance use disorders. Of the 20.3 million adults with substance use disorders, 37.9% also had mental illnesses. Among the 42.1 million adults with mental illness, 18.2% also had substance use disorders [96]. No specific combinations of mental and substance use disorders are defined uniquely as co-occurring disorders, but the most common mental disorders seen in substance use disorder treatment include [96]:

- Anxiety and mood disorders
- Schizophrenia
- Bipolar disorder
- Major depressive disorder
- Conduct disorders
- Post-traumatic stress disorder
- Attention deficit hyperactivity disorder (ADHD)

Patients with comorbid disorders demonstrate poorer treatment adherence and higher rates of treatment dropout than those without mental illness, which negatively affects outcomes [97]. Integrated treatment for comorbid drug use disorder and mental illness has been found to be consistently superior compared with separate treatment of each diagnosis. Integrated treatment of co-occurring disorders often involves using CBT strategies to boost interpersonal and coping skills and using approaches that support motivation and functional recovery.

Assessment

It is important to assess patients with substance use disorder for other psychiatric and substance use disorders. For example, alcohol and cocaine use disorders are frequent comorbidities in patients with opioid use disorder and can aggravate depressive symptoms [73; 99]. Bipolar illness is rare but has substantial treatment implications. Anxiety disorders frequently co-occur with depression, and traumatic experiences and post-traumatic stress disorder are common and should be thoroughly evaluated and treated [98; 99]. Independent disorders are psychiatric conditions occurring during periods of sustained abstinence or having an onset before the substance use disorder. A positive family history can aid in identifying an independent psychiatric disorder.

Comprehensive assessment tools can reduce the chance of a missed or incorrect diagnosis. Patients with psychiatric comorbidities often exhibit symptoms that are more persistent, severe, and resistant to treatment compared to patients who have either disorder alone [100; 101; 102; 103]. Assessment is critical to identify concomitant medical and psychiatric conditions that may need immediate attention and require transfer to a higher level of care [73]. The ASAM recommends that clinicians also assess social and environmental factors to identify facilitators and barriers to treatment, specifically to pharmacotherapy [73].

Treatment Approach

What should be the initial focus of treatment of comorbid mental and substance use disorders?

Treatment should initially focus on stabilization of the patient's substance use disorder, with an initial goal of two to four weeks abstinence before addressing comorbidities. Patients who persistently display symptoms of a psychiatric disorder during abstinence should be considered as having an independent disorder and should receive prompt psychiatric treatment [104].

Although depressive symptoms often improve following treatment admission, significant symptoms will persist in some patients [98]. Antidepressant medications can be effective in patients dually diagnosed with substance use disorder and depression when used at adequate doses for at least six weeks [105]. Factors emphasizing prompt antidepressant treatment include greater severity of depression, suicide risk, and co-occurring anxiety disorders [98].

Selective serotonin reuptake inhibitors (SSRIs) are generally safe and well-tolerated, but clinical trials with these agents in methadone patients have been negative [98]. Therefore, SSRIs may be considered first-line treatment based on their safety profile, but if the patient does not respond, then tricyclic antidepressants or newer generation agents should be considered. SSRIs in combination with CBT have been found to be highly effective for treating clients with comorbid depression [106]. More stimulating antidepressants, such as venlafaxine and bupropion, may be suitable in patients with prominent low energy or past or current symptoms consistent with ADHD [98].

The utility of nonpharmacologic treatments should be emphasized. Psychosocial therapies are as effective as pharmacotherapy in the treatment of mild-to-moderate depressive and anxiety symptoms. Treatment of personality disorders is nonpharmacologic [104]. If depression persists, psychosocial modalities, such as CBT, supportive therapy, or contingency management, have some evidence to support their efficacy in patients with substance use disorders [98; 106].

FACTORS IMPACTING RECOVERY

Stigma

Although substance use disorders affect millions of persons in the United States every year, stigma and shame surrounding these disorders remains. Although it is clear that substance use disorders are complex mental disorders, many continue to view it as a result of moral weakness and flawed character [107]. Experiences of this stigma, especially if expressed by a healthcare professional, can impede patients from seeking help or adhering to treatment.

Trauma

Various studies have found a disproportionately higher number of abuse, neglect, or trauma histories in patients with substance use disorders than in the general population [108; 109; 110; 111; 112]. Furthermore, substance abuse increases the likelihood of victimization, which can further promulgate the cycle of coping with trauma-related stress and self-medicating with addictive substances [113; 114; 115; 116; 117].

Some experts have asserted that traditional models of addiction recovery and relapse prevention do not consider the significant role that unresolved trauma can play in an addicted individual's attempt at recovery [118]. It is possible that traditional approaches tend to marginalize women more than their male counterparts and fail to sufficiently address the role that trauma has played in the development and maintenance of substance use disorder. An integrated, more holistic approach is needed to promote long-term recovery and prevent relapse [119].

Social Determinants of Health

Social determinants of health are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. They can have a major impact on substance use disorder treatment and recovery. Examples of social determinants of health include [120]:

- Safe housing, transportation, and neighborhoods
- Racism, discrimination, and violence
- Education, job opportunities, and income
- Access to nutritious foods and physical activity opportunities
- Polluted air and water
- Language and literacy skills

Social determinants of health also contribute to wide health disparities and inequities. For example, people who lack reliable transportation are less likely to attend follow-up appointments or 12-step meetings, which raises the risk of relapse and treatment nonadherence [120].

LEGAL AND ETHICAL ISSUES IN THE TREATMENT OF SUBSTANCE USE DISORDERS

Which ethical issue should be considered when caring for patients with substance use disorders?

Federal statutes, regulations, and guidelines govern medications for opioid addiction. The SAMHSA's Division of Pharmacologic Therapies, part of SAMHSA's Center for Substance Abuse Treatment, manages the day-to-day oversight activities required to implement federal regulations surrounding the use medications approved by the FDA, such as methadone and buprenorphine for the treatment of opioid use disorder for practitioners and opioid treatment programs [121]. Some medications used to treat substance use disorder are controlled substances governed by the Controlled Substances Act.

Section 1262 of the Consolidated Appropriations Act of 2023 (also known as Omnibus bill), removes the federal requirement for practitioners to submit a Notice of Intent (i.e., have a DATA or X-waiver) to prescribe medications, like buprenorphine, for the treatment of opioid use disorder. All practitioners who have a current Drug Enforcement Administration (DEA) registration that includes Schedule III authority may now prescribe buprenorphine for opioid use disorder in their practice if permitted by applicable state law. This section also removes other federal requirements associated with the waiver, such as discipline restrictions, patient limits, and certification related to provision of counseling. Separately, section 1263 of the Consolidated Appropriations Act requires new or renewing DEA registrants, starting June 27, 2023, upon submission of their application, to have at least one of the following [122]:

- A total of eight hours of training from certain organizations on opioid or other substance use disorders for practitioners renewing or newly applying for a registration from the DEA to prescribe any Schedule II-V controlled medications
- Board certification in addiction medicine or addiction psychiatry from the American Board of Medical Specialties, American Board of Addiction Medicine, or the American Osteopathic Association
- Graduation within five years and status in good standing from medical, dental medicine, advanced practice nursing, or physician assistant school in the United States that included successful completion of an opioid or other substance use disorder curriculum of at least eight hours
- For dentists, the training may also include the safe pharmacologic management of dental pain and screening, brief intervention, and referral for appropriate treatment of patients with or at risk of developing opioid and other substance use disorders

Key ethical issues to consider when caring for patients with substance use disorders include informed consent, confidentiality, autonomy, competence, access to services, and explicit and implicit bias.

PAIN MANAGEMENT AND SUBSTANCE MISUSE

Persistent pain has been reported to affect one in three adults in the United States [123]. As such, a significant portion of persons with substance use disorders will have comorbid and sometimes chronic pain. There is no adequately validated instrument to differentiate pain patients who are at risk of dependence from those who are not. Research suggests that patients, even those with alcohol use disorder, with no history of opioid dependence are not at heightened risk of becoming addicted with short-term opioid exposure. However, those with a positive history of dependence would benefit from active recovery efforts while receiving such medications.

Despite the rise in prescription opioid analgesic use and misuse, definitive data on the rate of dependence among patients administered opioids for acute pain does not yet exist. There is, however, agreement on how to minimize the risk of iatrogenic dependence. These steps include screening for risk potential based on a family history of substance abuse and the exploration of different delivery systems that adequately treat pain but minimize abuse potential. Although a pattern of aberrant behavior may be grounds for caution, a history of opioid misuse does not necessarily preclude a patient from successful treatment with an opioid. Screening for psychologic disorders is also advisable, including psychosomatic causes of pain.

PAIN MANAGEMENT APPROACHES

Healthcare professionals should know the best clinical practices in opioid prescribing, including the associated risks of opioids, approaches to the assessment of pain and function, and pain management modalities. Pharmacologic and nonpharmacologic approaches should be used on the basis of current knowledge in the evidence base or best clinical practices. Patients with moderate-to-severe chronic pain who have been assessed and treated, over a period of time, with non-opioid therapy or nonpharmacologic pain therapy without adequate pain relief, are considered to be candidates for a trial of opioid therapy [124; 125; 127]. Initial treatment should always be considered individually determined and as a trial of therapy, not a definitive course of treatment [126].

The Centers for Disease Control and Prevention (CDC) originally published *Guideline for Prescribing Opioids for Chronic Pain—United States, 2016* in an effort to address an ongoing crisis of prescription opioid misuse, abuse, and overdose [125]. While these guidelines were based on the best available evidence at the time, there was some criticism that they were too focused on limiting opioid prescriptions—to the point of patients and prescribers complaining of stigma and reduced access to needed opioid analgesics. In response to this and to the availability of new evidence, the CDC published updates to the guideline in 2022 [127]. The updated clinical practice guideline is intended to achieve improved communication between clinicians and patients about the risks and benefits of pain treatment, including opioid therapy for pain; improved safety and effectiveness for pain treatment, resulting in improved function and quality of life for patients experiencing pain; and a reduction in the risks associated with long-term opioid therapy, including opioid use disorder, overdose, and death [127].

The 2022 clinical practice guideline includes 12 recommendations for clinicians who are prescribing opioids for outpatients 18 years of age or older with acute (duration <1 month) pain, subacute (duration of 1 to 3 months) pain, or chronic (duration of >3 months) pain outside of sickle cell disease related pain management, cancer pain treatment, palliative care, and end-of-life care. These recommendations are graded according to applicability and strength of the supporting evidence [127].

Acute Pain

Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids in a quantity no greater than that needed for the expected duration of severe pain. In most cases, three days or less will be sufficient; more than seven days will rarely be needed [125; 127]. However, it may be necessary to prescribe for longer periods in patients with acute severe pain. Approximately half of all states have passed legislation limiting initial opioid prescriptions for acute pain to a seven-day supply or less, and many insurers, pharmacy benefit managers, and pharmacies have enacted similar policies [127].

With postoperative, acute, or intermittent pain, analgesia often requires frequent titration, and the two- to four-hour analgesic duration with short-acting hydrocodone, morphine, and oxycodone is more effective than extended-release formulations. Short-acting opioids are also recommended in patients who are medically unstable or with highly variable pain intensity [128; 129; 130].

Chronic Pain

Nonpharmacologic therapy and non-opioid pharmacologic therapy are the preferred first-line therapies for chronic pain. Several nonpharmacologic approaches are therapeutic complements to pain-relieving medication, lessening the need for higher doses and perhaps minimizing side effects. These interventions can help decrease pain or distress that may be contributing to the pain sensation. Approaches include palliative radiotherapy, complementary/alternative methods, manipulative and body-based methods, and cognitive/behavioral techniques. The choice of a specific nonpharmacologic intervention is based on the patient's preference, which, in turn, is usually based on a successful experience in the past.

Implantable intrathecal opioid infusion and/or spinal cord stimulation may be options for severe, intractable pain. Both options require that devices or ports be implanted, with associated risks. With intrathecal opioid infusion, the ability to deliver the drug directly into the spine provides pain relief with significantly smaller opioid doses, which can help to minimize side effects (e.g., drowsiness, dizziness, dry mouth, nausea, vomiting, and constipation) that can accompany systemic pain medications that might be delivered orally, transdermally, or through an IV [131]. However, use of opioid infusion has traditionally been limited to cancer pain. With spinal cord stimulation therapy, the most challenging aspect is patient selection. In order for patients to be considered for spinal cord stimulation, other options should have been ineffective or be contraindicated. Spinal cord stimulation is indicated for severe neuropathic pain persisting at least six months.

If opioids are used, they should be combined with nonpharmacologic therapy and non-opioid pharmacologic therapy, as appropriate. Clinicians should consider opioid therapy only if expected benefits for pain and function are anticipated to outweigh risks to the patient [125; 127].

Opioid therapy for chronic pain should be presented as a trial for a pre-defined period (e.g., ≤30 days). The goals of treatment should be established with all patients prior to the initiation of opioid therapy, including reasonable improvements in pain, function, depression, anxiety, and avoidance of unnecessary or excessive medication use [125; 127; 132]. The treatment plan should describe therapy selection, measures of progress, and other diagnostic evaluations, consultations, referrals, and therapies.

In patients who are opioid-naïve, start at the lowest possible dose and titrate to effect. Dosages for patients who are opioid-tolerant should always be individualized and titrated by efficacy and tolerability [125; 127; 132]. When starting opioid therapy for chronic pain, clinicians should prescribe short-acting instead of extended-release/long-acting opioid formulations [125; 127].

The need for frequent progress and benefit/risk assessments during the trial should be included in patient education. Patients should also have full knowledge of the warning signs and symptoms of respiratory depression. Prescribers should carefully reassess evidence of benefits and risks when increasing the dosage to ≥50 mg morphine milligram equivalents (MME) per day. In its 2016 guideline, the CDC recommended that decisions to titrate dosage to ≥90 mg MME/day should be avoided or carefully justified [125; 133]. This recommendation does not appear in the 2022 revision [127].

Prescribers should be knowledgeable of federal and state opioid prescribing regulations. Issues of equianalgesic dosing, close patient monitoring during all dose changes, and cross-tolerance with opioid conversion should be considered. If necessary, treatment may be augmented, with preference for nonopioid and immediate-release opioids over long-acting/extended-release opioids. Taper opioid dose when no longer needed [134].

Palliative Care and Pain at the End of Life

Unrelieved pain is the greatest fear among people with a life-limiting disease, and the need for an increased understanding of effective pain management is well-documented [135]. Although experts have noted that 75% to 90% of end-of-life pain can be managed effectively, rates of pain are high, even among people receiving palliative care [135; 136; 137; 138].

The inadequate management of pain is the result of several factors related to both patients and clinicians. In a survey of oncologists, patient reluctance to take opioids or to report pain were two of the most important barriers to effective pain relief [139]. This reluctance is related to a variety of attitudes and beliefs [135; 139]:

- Fear of addiction to opioids
- Worry that if pain is treated early, there will be no options for treatment of future pain
- Anxiety about unpleasant side effects from pain medications
- Fear that increasing pain means that the disease is getting worse
- Desire to be a “good” patient
- Concern about the high cost of medications

Education and open communication are the keys to overcoming these barriers. Every member of the healthcare team should reinforce accurate information about pain management with patients and families. The clinician should initiate conversations about pain management, especially regarding the use of opioids, as few patients will raise the issue themselves or even express their concerns unless they are specifically asked [140]. It is important to acknowledge patients’ fears individually and provide information to help them differentiate fact from fiction. For example, when discussing opioids with a patient who fears addiction, the clinician should explain that the risk of addiction is low [135]. It is also helpful to note the difference between addiction and physical dependence.

There are several other ways clinicians can allay patients’ fears about pain medication:

- Assure patients that the availability of pain relievers cannot be exhausted; there will always be medications if pain becomes more severe.
- Acknowledge that side effects may occur but emphasize that they can be managed promptly and safely and that some side effects will abate over time.
- Explain that pain and severity of disease are not necessarily related.

Encouraging patients to be honest about pain and other symptoms is also vital. Clinicians should ensure that patients understand that pain is multidimensional and emphasize the importance of talking to a member of the healthcare team about possible causes of pain, such as emotional or spiritual distress. The healthcare team and patient should explore psychosocial and cultural factors that may affect self-reporting of pain, such as concern about the cost of medication.

Clinicians' attitudes, beliefs, and experiences also influence pain management, with addiction, tolerance, side effects, and regulations being the most important concerns [135; 137; 139; 141]. A lack of appropriate education and training in the assessment and management of pain has been noted to be a substantial contributor to ineffective pain management [139; 141]. As a result, many clinicians, especially primary care physicians, do not feel confident about their ability to manage pain in their patients [139; 141].

Clinicians require a clear understanding of available medications to relieve pain, including appropriate dosing, safety profiles, and side effects. If necessary, clinicians should consult with pain specialists to develop an effective approach.

Strong opioids are used for severe pain at the end of life [136; 137]. Morphine, buprenorphine, oxycodone, hydromorphone, fentanyl, and methadone are the most widely used in the United States [142]. Unlike nonopioids, opioids do not have a ceiling effect, and the dose can be titrated until pain is relieved or side effects become unmanageable. Patients who are opioid-naïve or who have been receiving low doses of a weak opioid, the initial dose should be low, and, if pain persists, the dose may be titrated up daily until pain is controlled.

More than one route of opioid administration will be needed by many patients during end-of-life care, but in general, opioids should be given orally, as this route is the most convenient and least expensive. The transdermal route is preferred to the parenteral route, although dosing with a transdermal patch is less flexible and so may not be appropriate for patients with unstable pain [137]. Intramuscular injections should be avoided because injections are painful, drug absorption is unreliable, and the time to peak concentration is long [137].

CREATING A TREATMENT PLAN AND ASSESSMENT OF ADDICTION RISK

Information obtained by patient history, physical examination, and interview, from family members, a spouse, or state prescription drug monitoring program (PDMP), and from the use of screening and assessment tools can help the clinician to stratify the patient according to level of risk for developing problematic opioid behavioral responses (***Table 3***) [143; 144]. Low-risk patients receive the standard level of monitoring, vigilance, and care. Moderate-risk patients should be considered for an additional level of monitoring and provider contact, and high-risk patients are likely to require intensive and structured monitoring and follow-up contact, additional consultation with psychiatric and addiction medicine specialists, and limited supplies of short-acting opioid formulations [125; 127; 145].

Before deciding to prescribe an opioid analgesic, clinicians should perform and document a detailed patient assessment that includes [132]:

- Pain indications for opioid therapy
- Nature and intensity of pain
- Past and current pain treatments and patient response
- Comorbid conditions
- Pain impact on physical and psychologic function
- Social support, housing, and employment
- Home environment (i.e., stressful or supportive)
- Pain impact on sleep, mood, work, relationships, leisure, and substance use
- Patient history of physical, emotional, or sexual abuse

If substance abuse is active, in remission, or in the patient's history, consult an addiction specialist before starting opioids [132]. In active substance abuse, do not prescribe opioids until the patient is engaged in treatment/recovery program or other arrangement made, such as addiction professional co-management and additional monitoring. When considering an opioid analgesic (particularly those that are extended-release or long-acting), one must always weigh the benefits against the risks of overdose, abuse, addiction, physical dependence and tolerance, adverse drug interactions, and accidental exposure by children [125; 127; 134].

Screening and assessment tools can help guide patient stratification according to risk level and inform the appropriate degree of structure and monitoring in the treatment plan. It should be noted that despite widespread endorsement of screening tools used to help determine patient risk level, most tools have not been extensively evaluated, validated, or compared to each other, and evidence of their reliability is poor [143; 144].

Risk Assessment Tools

Opioid Risk Tool (ORT)

The Opioid Risk Tool (ORT) is a five-item, patient-administered assessment to help predict aberrant drug-related behavior. The ORT is also used to establish patient risk level through categorization into low, medium, or high levels of risk for aberrant drug-related behaviors based on responses to questions of previous alcohol/drug abuse, psychologic disorders, and other risk factors [146].

RISK STRATIFICATION FOR PATIENTS PRESCRIBED OPIOIDS
Low Risk
Definable physical pathology with objective signs and reliable symptoms
Clinical correlation with diagnostic testing, including MRI, physical examination, and interventional diagnostic techniques
With or without mild psychologic comorbidity
With or without minor medical comorbidity
No or well-defined and controlled personal or family history of alcoholism or substance abuse
Age 45 years or older
High levels of pain acceptance and active coping strategies
High motivation and willingness to participate in multimodal therapy and attempting to function at normal levels
Medium Risk
Significant pain problems with objective signs and symptoms confirmed by radiologic evaluation, physical examination, or diagnostic interventions
Moderate psychologic problems, well controlled by therapy
Moderate coexisting medical disorders that are well controlled by medical therapy and are not affected by chronic opioid therapy (e.g., central sleep apnea)
Develops mild tolerance but not hyperalgesia without physical dependence or addiction
History of personal or family history of alcoholism or substance abuse
Pain involving more than three regions of the body
Defined pathology with moderate levels of pain acceptance and coping strategies
Willing to participate in multimodal therapy, attempting to function in normal daily life
High Risk
Widespread pain without objective signs and symptoms
Pain involving more than three regions of the body
Aberrant drug-related behavior
History of alcoholism or drug misuse, abuse, addiction, diversion, dependency, tolerance, or hyperalgesia
Major psychologic disorders
Age younger than 45 years
HIV-related pain
High levels of pain exacerbation and low levels of coping strategies
Unwilling to participate in multimodal therapy, not functioning close to a near normal lifestyle
HIV = human immunodeficiency syndrome, MRI = magnetic resonance imaging.

Source: [143; 144] *Table 3*

Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP-R)

The Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP-R) is a patient-administered, 24-item screen with questions addressing history of alcohol/substance use, psychologic status, mood, cravings, and stress. Like the ORT, the SOAPP-R helps assess risk level of aberrant drug-related behaviors and the appropriate extent of monitoring [146; 147].

Screening Instrument or Substance Abuse Potential (SISAP)

The Screening Instrument or Substance Abuse Potential (SISAP) tool is a self-administered, five-item questionnaire addressing history developed used to predict the risk of opioid misuse. The SISAP is used to identify patients with a history of alcohol/substance abuse and improve pain management by facilitating focus on the appropriate use of opioid analgesics and therapeutic outcomes in the majority of patients who are not at risk of opioid abuse, while carefully monitoring those who may be at greater risk [146].

CAGE and CAGE-AID

What does the CAGE acronym stand for?

The original CAGE (Cut down, Annoyed, Guilty, and Eye-opener) Questionnaire consisted of four questions designed to help clinicians determine the likelihood that a patient was misusing or abusing alcohol. These same four questions were modified to create the CAGE-AID (adapted to include drugs), revised to assess the likelihood of current substance abuse [148].

Diagnosis, Intractability, Risk, and Efficacy (DIRE) Score

The Diagnosis, Intractability, Risk, and Efficacy (DIRE) risk assessment score is a clinician-rated questionnaire that is used to predict patient compliance with long-term opioid therapy [146; 149]. Patients scoring lower on the DIRE tool are poor candidates for long-term opioid analgesia.

Considerations for Pain Management in Patients with Comorbid Opioid Use Disorder

Although identification of an opioid use disorder can alter the expected benefits and risks of opioid therapy for pain, patients with co-occurring pain and substance use disorder require ongoing pain management that maximizes benefits relative to risks. Clinicians should use nonpharmacologic and nonopioid pharmacologic pain treatments as appropriate to provide optimal pain management [150]. For patients with pain who have an active opioid use disorder but are not in treatment, clinicians should consider buprenorphine or methadone treatment for opioid use disorder, which can also help with concurrent management of pain [150]. For patients who are treated with buprenorphine for opioid use disorder and experience acute pain, clinicians can consider temporarily increasing the buprenorphine dosing frequency (e.g., to twice a day) to help manage pain, given the duration of effects of buprenorphine is shorter for pain than for suppression of withdrawal [150; 151]. For severe acute pain (e.g., from trauma or unplanned major surgery) in patients receiving buprenorphine for opioid use disorder, clinicians can consider additional as-needed doses of buprenorphine. In supervised settings, adding a short-acting full agonist opioid to the patient's regular dosage of buprenorphine can be considered without discontinuing the patient's regular buprenorphine dosage; however, if a decision is made to discontinue buprenorphine to allow for more mu-opioid receptor availability, patients should be monitored closely because high doses of a full agonist opioid might be required, potentially leading to oversedation and respiratory depression as buprenorphine's partial agonist effect lessens. For patients receiving naltrexone for opioid use disorder, short-term use of higher-potency nonopioid analgesics (e.g., NSAIDs) can be considered to manage severe acute pain. Patients receiving methadone for opioid use disorder who require additional opioids as treatment for severe acute pain management should be carefully monitored, and when feasible should optimally be treated by a clinician experienced in the treatment of pain in consultation with their opioid treatment program [150]. The *ASAM National Practice Guideline for the Treatment of Opioid Use Disorder (2020 Focused Update)* provides additional recommendations for the management of patients receiving medications for opioid use disorder who have planned surgeries for which nonopioid therapies are not anticipated to provide sufficient pain relief [150].

Informed Consent and Treatment Agreements

The initial opioid prescription is preceded by a written informed consent or "treatment agreement" [132]. This agreement should address potential side effects, tolerance and/or physical dependence, drug interactions, motor skill impairment, limited evidence of long-term benefit, misuse, dependence, addiction, and overdose. Informed consent documents should include information regarding the risk/benefit profile for the drug(s) being prescribed. The prescribing policies should be clearly delineated, including the number/frequency of refills, early refills, and procedures for lost or stolen medications.

The treatment agreement also outlines joint physician and patient responsibilities. The patient agrees to using medications safely, refraining from "doctor shopping," and consenting to routine urine drug testing (UDT). The prescriber's responsibility is to address unforeseen problems and prescribe scheduled refills. Reasons for opioid therapy change or discontinuation should be listed. Agreements can also include sections related to follow-up visits, monitoring, and safe storage and disposal of unused drugs.

Periodic Review and Monitoring

When implementing a chronic pain treatment plan that involves the use of opioids, the patient should be frequently reassessed for changes in pain origin, health, and function [132]. This can include input from family members and/or the state PDMP. During the initiation phase and during any changes to the dosage or agent used, patient contact should be increased. At every visit, chronic opioid response may be monitored according to the "5 A's" [132; 152]:

- Analgesia
- Activities of daily living
- Adverse or side effects
- Aberrant drug-related behaviors
- Affect (i.e., patient mood)

Signs and symptoms that, if present, may suggest a problematic response to the opioid and interference with the goal of functional improvement include [153; 154]:

- Excessive sleeping or days and nights turned around
- Diminished appetite
- Short attention span or inability to concentrate

- Mood volatility, especially irritability
- Lack of involvement with others
- Impaired functioning due to drug effects
- Use of the opioid to regress instead of re-engaging in life
- Lack of attention to hygiene and appearance

The decision to continue, change, or terminate opioid therapy is based on progress toward treatment objectives and absence of adverse effects and risks of overdose or diversion [132]. Satisfactory therapy is indicated by improvements in pain, function, and quality of life. Brief assessment tools to assess pain and function may be useful, as may UDTs. Treatment plans may include periodic pill counts to confirm adherence and minimize diversion.

Involvement of Family

Family members of the patient can provide the clinician with valuable information that better informs decision making regarding continuing opioid therapy. Family members can observe whether a patient is losing control of his or her life or becoming less functional or more depressed during the course of opioid therapy. They can also provide input regarding positive or negative changes in patient function, attitude, and level of comfort. The following questions can be asked of family members or a spouse to help clarify whether the patient's response to opioid therapy is favorable or unfavorable [153; 154]:

- Is the person's day centered around taking the opioid medication? Response can help clarify long-term risks and benefits of the medication and identify other treatment options.
- Does the person take pain medication only on occasion, perhaps three or four times per week? If yes, the likelihood of addiction is low.
- Have there been any other substance (alcohol or drug) abuse problems in the person's life? An affirmative response should be taken into consideration when prescribing.
- Does the person in pain spend most of the day resting, avoiding activity, or feeling depressed? If so, this suggests the pain medication is failing to promote rehabilitation. Daily activity is essential, and the patient may be considered for enrollment in a graduated exercise program.
- Is the person in pain able to function (e.g., work, do household chores, play) with pain medication in a way that is clearly better than without? If yes, this suggests the pain medication is contributing to wellness.

Assessment Tools

VIGIL is the acronym for a five-step risk management strategy designed to empower clinicians to appropriately prescribe opioids for pain by reducing regulatory concerns and to give pharmacists a framework for resolving ambiguous opioid analgesic prescriptions in a manner that preserves legitimate patient need while potentially deterring diverters. The components of VIGIL are:

- Verification: Is this a responsible opioid user?
- Identification: Is the identity of this patient verifiable?
- Generalization: Do we agree on mutual responsibilities and expectations?
- Interpretation: Do I feel comfortable allowing this person to have controlled substances?
- Legalization: Am I acting legally and responsibly?

The foundation of VIGIL is a collaborative physician/pharmacist relationship [155].

The Current Opioid Misuse Measure (COMM) is a 17-item patient self-report assessment designed to help clinicians identify misuse or abuse in patients being treated for chronic pain. Unlike the ORT and the SOAPP-R, the COMM identifies aberrant behaviors associated with opioid misuse in patients already receiving long-term opioid therapy [145]. Sample questions include: In the past 30 days, how often have you had to take more of your medication than prescribed? In the past 30 days, how much of your time was spent thinking about opioid medications (e.g., having enough, taking them, dosing schedule)?

Guidelines by the CDC, the Federation of State Medical Boards (FSMB), and the Joint Commission stress the importance of documentation from both a healthcare quality and medicolegal perspective. Research has found widespread deficits in chart notes and progress documentation with patients with chronic pain receiving opioid therapy, and the Pain Assessment and Documentation Tool (PADT) was designed to address these shortcomings [156]. The PADT is a clinician-directed interview, with most sections (e.g., analgesia, activities of daily living, adverse events) consisting of questions asked of the patient. However, the potential aberrant drug-related behavior section must be completed by the physician based on his or her observations of the patient.

The Brief Intervention Tool is a 26-item, "yes-no," patient-administered questionnaire used to identify early signs of opioid abuse or addiction. The items assess the extent of problems related to drug use in several areas, including drug use-related functional impairment [157].

PATIENT RISK LEVEL AND FREQUENCY OF MONITORING			
Monitoring Tool	**Patient Risk Level**		
	Low	**Medium**	**High**
Urine drug test	Every 1 to 2 years	Every 6 to 12 months	Every 3 to 6 months
State prescription drug monitoring program	Twice per year	Three times per year	Four times per year

Source: [158] *Table 4*

Urine Drug Tests

UDTs may be used to monitor adherence to the prescribed treatment plan and to detect unsanctioned drug use. They should be used more often in patients receiving addiction therapy, but clinical judgment is the ultimate guide to testing frequency (***Table 4***) [158]. The CDC recommends clinicians should use UDT before starting opioid therapy and consider UDT at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs [125; 127]. However, this recommendation was based on low-quality evidence that indicates little confidence in the effect estimate.

Initially, testing involves the use of class-specific immunoassay drug panels [132]. If necessary, this may be followed with gas chromatography/mass spectrometry for specific drug or metabolite detection. It is important that testing identifies the specific drug rather than the drug class, and the prescribed opioid should be included in the screen. Any abnormalities should be confirmed with a laboratory toxicologist or clinical pathologist. Immunoassay may be used point-of-care for "on-the-spot" therapy changes, but the high error rate prevents its use in major clinical decisions except with liquid chromatography coupled to tandem mass spectrometry confirmation.

Urine test results suggesting opioid misuse should be discussed with the patient using a positive, supportive approach. The test results and the patient discussion should be documented.

Concurrent Use of Benzodiazepines

In 2019, 16% of persons who died of an opioid overdose also tested positive for benzodiazepines, a class of sedative medication commonly prescribed for anxiety, insomnia, panic attack, and muscle spasm [159]. Benzodiazepines work by raising the level of GABA in the brain. Common formulations include diazepam, alprazolam, and clonazepam. Combining benzodiazepines with opioids is unsafe because both classes of drug cause central nervous system depression and sedation and can decrease respiratory drive—the usual cause of overdose fatality. Both classes have the potential for drug dependence and addiction.

The CDC recommends that healthcare providers use particular caution prescribing benzodiazepines concurrently with opioids [125; 127]. If a benzodiazepine is to be discontinued, the clinician should taper the medication gradually, because abrupt withdrawal can lead to rebound anxiety and complications such as hallucinations, seizures, delirium tremens, and, in rare instances, death. A commonly used tapering schedule is a reduction of the benzodiazepine dose by 25% every one to two weeks [125; 127].

Consultation and Referral

It is important to seek consultation or patient referral when input or care from a pain, psychiatry, addiction, or mental health specialist is necessary. Clinicians who prescribe opioids should become familiar with opioid addiction treatment options (including licensed opioid treatment programs for methadone and office-based opioid treatment for buprenorphine) if referral is needed [132].

Ideally, providers should be able to refer patients with active substance abuse who require pain treatment to an addiction professional or specialized program. In reality, these specialized resources are scarce or non-existent in many areas [132]. Therefore, each provider will need to decide whether the risks of continuing opioid treatment while a patient is using illicit drugs outweigh the benefits to the patient in terms of pain control and improved function [160].

Medical Records

As noted, documentation is a necessary aspect of all patient care, but it is of particular importance when opioid prescribing is involved. All clinicians should maintain accurate, complete, and up-to-date medical records, including all written or telephoned prescription orders for opioid analgesics and other controlled substances, all written instructions to the patient for medication use, and the name, telephone number, and address of the patient's pharmacy [132]. Good medical records demonstrate that a service was provided to the patient and that the service was medically necessary. Regardless of the treatment outcome, thorough medical records protect the prescriber.

Patient Education on the Use and Disposal of Opioids

Patients and caregivers should be counseled regarding the safe use and disposal of opioids. As part of its mandatory Risk Evaluation and Mitigation Strategy (REMS) for extended-release/long-acting opioids, the FDA has developed a patient counseling document with information on the patient's specific medications, instructions for emergency situations and incomplete pain control, and warnings not to share medications or take them unprescribed [134]. A copy of this form may be accessed online at https://www.fda.gov/media/114694/download.

When prescribing opioids, clinicians should provide patients with the following information [134]:

- Product-specific information
- Taking the opioid as prescribed
- Importance of dosing regimen adherence, managing missed doses, and prescriber contact if pain is not controlled
- Warning and rationale to never break or chew/crush tablets or cut or tear patches prior to use
- Warning and rationale to avoid other central nervous system depressants, such as sedative-hypnotics, anxiolytics, alcohol, or illicit drugs
- Warning not to abruptly halt or reduce the opioid without physician oversight of safe tapering when discontinuing
- The potential of serious side effects or death
- Risk factors, signs, and symptoms of overdose and opioid-induced respiratory depression, gastrointestinal obstruction, and allergic reactions
- The risks of falls, using heavy machinery, and driving
- Warning and rationale to never share an opioid analgesic
- Rationale for secure opioid storage
- Warning to protect opioids from theft
- Instructions for disposal of unneeded opioids, based on product-specific disposal information

There are no universal recommendations for the proper disposal of unused opioids, and patients are rarely advised of what to do with unused or expired medications [161]. According to the FDA, most medications that are no longer necessary or have expired should be removed from their containers, mixed with undesirable substances (e.g., cat litter, used coffee grounds), and put into an impermeable, nondescript container (e.g., disposable container with a lid or a sealed bag) before throwing in the trash [162]. Any personal information should be obscured or destroyed. The FDA recommends that certain medications, including oxycodone/acetaminophen (Percocet), oxycodone (OxyContin tablets), and transdermal fentanyl (Duragesic Transdermal System), be flushed down the toilet instead of thrown in the trash [162; 163]. The FDA provides a free toolkit of materials (e.g., social media images, fact sheets, posters) to raise awareness of the serious dangers of keeping unused opioid pain medicines in the home and with information about safe disposal of these medicines. The Remove the Risk Outreach toolkit is updated regularly and can be found at https://www.fda.gov/drugs/ensuring-safe-use-medicine/safe-opioid-disposal-remove-risk-outreach-toolkit [163]. Patients should be advised to flush prescription drugs down the toilet only if the label or accompanying patient information specifically instructs doing so.

The American College of Preventive Medicine has established best practices to avoid diversion of unused drugs and educate patients regarding drug disposal [161]:

- Consider writing prescriptions in smaller amounts.
- Educate patients about safe storing and disposal practices.
- Give drug-specific information to patients about the temperature at which they should store their medications. Generally, the bathroom is not the best storage place. It is damp and moist, potentially resulting in potency decrements, and accessible to many people, including children and teens, resulting in potential theft or safety issues.
- Ask patients not to advertise that they are taking these types of medications and to keep their medications secure.
- Refer patients to community "take back" services overseen by law enforcement that collect controlled substances, seal them in plastic bags, and store them in a secure location until they can be incinerated. Contact your state law enforcement agency or visit https://www.dea.gov to determine if a program is available in your area.

Discontinuing Opioid Therapy

The decision to continue or end opioid prescribing should be based on a physician-patient discussion of the anticipated benefits and risks. An opioid should be discontinued with resolution of the pain condition, intolerable side effects, inadequate analgesia, lack of improvement in quality of life despite dose titration, deteriorating function, or significant aberrant medication use [125; 127; 132].

Clinicians should provide patients physically dependent on opioids with a safely structured tapering protocol. Withdrawal is managed by the prescribing physician or referral to an addiction specialist. Patients should be reassured that opioid discontinuation is not the end of treatment; continuation of pain management will be undertaken with other modalities through direct care or referral.

As a side note, cannabis use by patients with chronic pain receiving opioid therapy has traditionally been viewed as a treatment agreement violation that is grounds for termination of opioid therapy. However, some now argue against cannabis use as a rationale for termination or substantial treatment and monitoring changes, especially considering the increasing legalization of medical use at the state level [160].

Considerations for Non-English-Proficient Patients

For patients who are not proficient in English, it is important that information regarding the risks associated with the use of opioids and available resources be provided in their native language, if possible. When there is an obvious disconnect in the communication process between the practitioner and patient due to the patient's lack of proficiency in the English language, an interpreter is required. Interpreters can be a valuable resource to help bridge the communication and cultural gap between patients and practitioners. Interpreters are more than passive agents who translate and transmit information back and forth from party to party. When they are enlisted and treated as part of the interdisciplinary clinical team, they serve as cultural brokers who ultimately enhance the clinical encounter. In any case in which information regarding treatment options and medication/treatment measures are being provided, the use of an interpreter should be considered. Print materials are also available in many languages, and these should be offered whenever necessary.

IDENTIFICATION OF DRUG DIVERSION/SEEKING BEHAVIORS

Which behaviors are most suggestive of an emerging opioid use disorder?

Research has more closely defined the location of prescribed opioid diversion into illicit use in the supply chain from the manufacturer to the distributor, retailer, and the end user (the pain patient). This information carries with it substantial public policy and regulatory implications. The 2021 National Survey on Drug Use and Health asked non-medical users of prescription opioids how they obtained their most recently used drugs [2]. Among persons 12 years of age or older, 39.3% obtained their prescription opioids through a prescription from one doctor (vs. 34.7% in 2019), 33.9% got them from a friend or relative for free, 7.9% bought from a drug dealer or other stranger, and 7.3% bought them from a friend or relative [2]. Less frequent sources included stealing from a friend or relative (3.7%); multiple doctors (3.2%); and theft from a doctor's office, clinic, hospital, or pharmacy (0.7%) (vs. 0.2% in 2009–2010) [2].

As discussed, UDTs can give insight into patients who are misusing opioids. A random sample of UDT results from 800 patients treated for pain at a Veterans Affairs facility found that 25.2% were negative for the prescribed opioid while 19.5% were positive for an illicit drug/unreported opioid [164]. Negative UDT results for the prescribed opioid do not necessarily indicate diversion, but may indicate the patient halted his/her use due to side effects, lack of efficacy, or pain remission. The concern arises over the increasingly stringent climate surrounding clinical decision-making regarding aberrant UDT results and that a negative result for the prescribed opioid or a positive UDT may serve as the pretense to terminate a patient rather than guide him/her into addiction treatment or an alternative pain management program [165].

In addition to aberrant urine screens, there are certain behaviors that are suggestive of an emerging opioid use disorder. The most suggestive behaviors are [160; 166; 167]:

- Selling medications
- Prescription forgery or alteration
- Injecting medications meant for oral use
- Obtaining medications from nonmedical sources
- Resisting medication change despite worsening function or significant negative effects
- Loss of control over alcohol use
- Using illegal drugs or non-prescribed controlled substances
- Recurrent episodes of:
  - Prescription loss or theft
  - Obtaining opioids from other providers in violation of a treatment agreement
  - Unsanctioned dose escalation
  - Running out of medication and requesting early refills

Behaviors with a lower level of evidence for their association with opioid misuse include [160; 166; 167]:

- Aggressive demands for more drug
- Asking for specific medications
- Stockpiling medications during times when pain is less severe
- Using pain medications to treat other symptoms
- Reluctance to decrease opioid dosing once stable
- In the earlier stages of treatment:
  - Increasing medication dosing without provider permission
  - Obtaining prescriptions from sources other than the pain provider
  - Sharing or borrowing similar medications from friends/family

EVIDENCE-BASED PRACTICE RECOMMENDATION

The Institute for Clinical Systems Improvement recommends considering screening patients for substance use disorders when there is an unclear etiology of pain.

(https://www.icsi.org/wp-content/uploads/2019/10/Pain-Interactive-7th-V2-Ed-8.17.pdf. Last accessed April 27, 2023.)

Level of Evidence: Expert Opinion/Consensus Statement

INTERVENTIONS FOR SUSPECTED OR KNOWN ADDICTION OR DRUG DIVERSION

There are a number of actions that prescribers and dispensers can take to prevent or intervene in cases of drug diversion. These actions can be generally categorized based on the various mechanisms of drug diversion.

Prevention is the best approach to addressing drug diversion. As noted, the most common source of nonmedical use of prescribed opioids is from a family member or friend, through sharing, buying, or stealing. To avoid drug sharing among patients, healthcare professionals should educate patients on the dangers of sharing opioids and stress that "doing prescription drugs" is the same as "using street drugs" [161]. In addition, patients should be aware of the many options available to treat chronic pain aside from opioids. To prevent theft, patients should be advised to keep medications in a private place and to refrain from telling others about the medications being used.

Communication among providers and pharmacies can help to avoid inappropriate attainment of prescription drugs through "doctor shopping." Prescribers should keep complete and up-to-date records for all controlled substance prescribing. When possible, electronic medical records should be integrated between pharmacies, hospitals, and managed care organizations [161]. If available, it is also best practice to periodically request a report from the state's prescription reporting program to evaluate the prescribing of opioids to your patients by other providers [161].

When dealing with patients suspected of drug seeking/diversion, first inquire about prescription, over-the-counter, and illicit drug use and perform a thorough examination [161]. Pill counting and/or UDT may be necessary to investigate possible drug misuse. Photo identification or other form of identification and social security number may be required prior to dispensing the drug, with proof of identity documented fully. If a patient is displaying suspicious behaviors, consider prescribing for limited quantities.

If a patient is found to be abusing prescribed opioids, this is considered a violation of the treatment agreement and the clinician must make the decision whether or not to continue the therapeutic relationship. If the relationship is terminated, it must be done ethically and legally. The most significant issue is the risk of patient abandonment, which is defined as ending a relationship with a patient without consideration of continuity of care and without providing notice to the patient. The American Medical Association Code of Ethics states that physicians have an obligation to support continuity of care for their patients. While physicians have the option of withdrawing from a case, they should notify the patient (or authorized decision maker) long enough in advance to permit the patient to secure another physician and facilitate transfer of care when appropriate [168]. Patients may also be given resources and/or recommendations to help them locate a new clinician.

Patients with chronic pain found to have an ongoing substance abuse problem or addiction should be referred to a pain specialist for continued treatment. Theft or loss of controlled substances is reported to the DEA. If drug diversion has occurred, the activity should be documented and a report to law enforcement should be made [169].

COMPLIANCE WITH STATE AND FEDERAL LAWS

Which government agency is responsible for formulating federal standards for the handling of controlled substances?

In response to the rising incidence in prescription opioid abuse, addiction, diversion, and overdose since the late 1990s, the FDA has mandated opioid-specific REMS to reduce the potential negative patient and societal effects of prescribed opioids. Other elements of opioid risk mitigation include FDA partnering with other governmental agencies, state professional licensing boards, and societies of healthcare professionals to help improve prescriber knowledge of appropriate and safe opioid prescribing and safe home storage and disposal of unused medication [153].

Several regulations and programs at the state level have been enacted in an effort to reduce prescription opioid abuse, diversion, and overdose, including [170]:

- Physical examination required prior to prescribing
- Tamper-resistant prescription forms
- Pain clinic regulatory oversight
- Prescription limits
- Prohibition from obtaining controlled substance prescriptions from multiple providers
- Patient identification required before dispensing
- Immunity from prosecution or mitigation at sentencing for individuals seeking assistance during an overdose

Controlled Substances Laws/Rules

The DEA is responsible for formulating federal standards for the handling of controlled substances. In 2011, the DEA began requiring every state to implement electronic databases that track prescribing habits, referred to as PDMPs. Specific policies regarding controlled substances are administered at the state level [171].

According to the DEA, drugs, substances, and certain chemicals used to make drugs are classified into five distinct categories or schedules depending upon the drug's acceptable medical use and the drug's abuse or dependency potential [172]. The abuse rate is a determinate factor in the scheduling of the drug; for example, Schedule I drugs are considered the most dangerous class of drugs with a high potential for abuse and potentially severe psychologic and/or physical dependence.

State-Specific Laws and Rules

Most states have established laws and rules governing the prescribing and dispensing of opioid analgesics. It is each prescriber's responsibility to have knowledge of and adhere to the laws and rules of the state in which he or she prescribes.

CONCLUSION

Substance use disorders are associated with serious morbidity and mortality, and advances in the understanding of these disorders have led to the development of effective treatments. More recently, the abuse of prescription opioids has become considerably more widespread, fueled in part by the availability of such drugs over the Internet. Medical, mental health, and other healthcare professionals in a variety of settings may encounter patients with comorbid substance use disorders and pain. The knowledge gained from the contents of this course can greatly assist the healthcare professional in identifying, treating, and providing an appropriate referral to patients with substance use disorders while also addressing pain management needs.

Customer Information/Evaluation insert located between pages 48–49.

COURSE #31961 — 15 CONTACT HOURS *Release Date:* 08/01/22 *Expiration Date:* 07/31/25

Rural Public Health and Nursing Care

Audience

This course is designed for nurses in all practice settings with patients from rural communities.

Course Objective

The purpose of this course is to provide nurses with the knowledge and skills necessary to provide optimum care to rural residents and to advocate for the needs of this population.

Learning Objectives

Upon completion of this course, you should be able to:

1. Describe the role of the public health nurse.
2. Discuss the vital functions of public health.
3. Operationally define rural and urban.
4. Identify varying determinants characterizing rural populations.
5. Describe the chronic illness, tobacco use, and cancer issues of rural populations.
6. Outline the injuries and mental and dental health issues of the rural population.
7. Analyze the access to care service issue for rural areas.
8. Discuss the characteristics and issues of the rural public health workforce.
9. Evaluate the responsiveness of emergency medical services (EMS) in rural regions.
10. Discuss the public health agency, hospital, and the community health center.
11. Describe the health issues of American Indian/Alaska Native (AI/AN) populations and the Indian Health Service (IHS).
12. Identify issues of the aged and U.S. services for the aged.
13. Outline health promotion and disease prevention for the rural population.
14. Discuss how advanced communication technology can improve care access.
15. Discuss initiatives to building nursing workforce capacity.
16. Discuss schools and nurses as community health educators.

Faculty

Mary Schmeida, RN, PhD, completed her Master of Science in Nursing degree from Kent State University in 1984. Her PhD in Political Science with a specialty tract of Public Policy Analysis and Design was completed in 2005. She has more than 40 years experience within the U.S. healthcare service delivery system. As a clinical nurse specialist in psychiatric-mental health nursing, she has held faculty positions at the university level and several research positions. Dr. Schmeida has presented numerous research papers in public health policy and healthcare at many conferences across the country. Her research is published in peer-reviewed journals, books, and international government reports.

Faculty Disclosure

Contributing faculty, Mary Schmeida, RN, PhD, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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Division Planner/Director Disclosure

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This course represents an educational model that promotes the importance of learning objectives and individualized learning. Study questions will appear throughout the course to create a link between the learning objectives and the supporting text.

EVIDENCE-BASED PRACTICE RECOMMENDATION

Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the study questions and course material for better application to your daily practice.

INTRODUCTION

The U.S. rural population differs from the urban sector on many demographic levels, including age, employment, and access to care services. The cultural context of these communities also differs from nonrural communities and can vary across rural counties. Rural residents rank higher on measures of many chronic illnesses, obesity, and unintentional injuries than urban counterparts. In this context, public health nurses are responsive to the unique and diverse needs of the rural setting, assuming a culturally competent practice to promote health, well-being, and a better quality of life for the rural community. In strengthening the rural health system, a collaborative, multi-method approach that involves public and non-public entities is being taken in many states. As new public health infrastructures are being considered and implemented to strengthen the U.S. healthcare system, the role of the public health nurse is evolving.

DEFINITIONS

This section outlines both the role of the public health nurse and the vital services of public health to create a conceptual definition of the public health nurse. Different operational definitions of rural are given to illustrate that the "rural" in rural public health is not the same for all public health stakeholders and/or their work cultures. The definition of the term rural provided by the U.S. Census Bureau is a foundation.

THE PUBLIC HEALTH NURSE

What are the main duties of public health nurses?

Public health nurses are an essential part of a changing care system. Newer roles are evolving as the system evolves. Advancing technology, for example, has largely already been adopted by the system, enabling rural public health nurses working in remote areas to connect electronically with other providers from across miles and to more efficiently do surveillance on public health crises, such as the opioid drug crisis. Technology competence is important, as technology changes are dramatic and rapid. The National Rural Health Association states, "Given the broad and demanding scope of practice and the high level of autonomy that characterizes rural public health nursing, it is essential that these nurses have the strongest backgrounds and highest levels of competency" [1].

Abbreviated, the duties performed by public health nurses include investigating, surveillance/monitoring, diagnosing, and evaluating community health issues (e.g., environmental health hazards); mobilizing partnerships to resolve issues; promoting a competent workforce; promoting quality services and safety ideals; advocating for population health; enforcing policy and program goals; creating policy; and implementing and evaluating health and social policies related to population health needs [2; 3]. The assessment skills of the public health nurse, in addition to their primary prevention focus and system-level perspectives, can "assure that local and state needs are met, services and programs are coordinated, and communities are engaged" [4].

Differing from acute care practice, the public health nurse aims to improve population health through prevention efforts and by attending to multiple determinants of health [4]. With a multi-level view of health, public health nursing action occurs through community applications of theory, evidence, and a commitment to health equity [4]. The Health Resources and Services Administration defines population health as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group. In this concept, the population as a whole is viewed as the patient" [3].

According to the Association of Public Health Nurses, public health nursing is defined as "the practice of promoting and protecting the health of populations using knowledge from nursing, social, and public health sciences," with a focus on "population health, with the goal of promoting health and preventing disease and disability" [5]. These nurses practice in public health departments, schools, homes, community-based health centers, clinics, correctional facilities, and other settings [5]. In some practices, the term public health nursing is interchanged with community health nursing.

PUBLIC HEALTH VITAL FUNCTIONS

What is a vital function of public health?

Public health in the United States has many functions. According to the Centers for Disease Control and Prevention (CDC), public health prevents epidemics and the spread of disease, protects against environmental hazards, prevents injuries, promotes and encourages healthy behaviors, responds to disasters and assists communities in recovery, and assures the quality and accessibility of health services [6]. It aims to promote physical and mental health, prevent disease, injury, and disability. The CDC has identified the following 10 vital services applied to all entities of public health—national, state, local, and tribes and territories [6]:

- Monitor the environmental health status in order to identify and resolve environmental health problems (e.g., community health assessment and registries).
- Diagnose and investigate environmental community health hazards, such as infectious water-, food-, and vector-borne disease outbreaks.
- Provide health education and health promotion, and empower people on environmental health issues.
- Mobilize community partnerships and actions with the private sector, civic groups, non-governmental organizations, faith communities, and other stakeholders toward resolving environmental health issues.

- Develop policies and conduct strategic and community health improvement planning that supports environmental health.
- Enforce laws and regulations, and review laws that protect environmental health and ensure community safety.
- Link people to needed health services and ensure the access to care when it is not available.
- Assure a competent public health workforce and leadership.
- Evaluate the effectiveness, accessibility, and quality of both personal- and population-based health services, and provide continuous quality improvement.
- Research new insights and innovative solutions to public health problems,and identify and share best practices.

The CDC has provided this guide of vital functions to aid public health workers in their practice, planning, implementation of initiatives, and evaluation of actions. It provides practical direction that can be used across all public health entities in their aim to develop healthy and safe community environments [6; 7].

RURAL AND URBAN DEFINITIONS

What qualifies a county to be considered a frontier county?

The definitions of rural and urban are not the same for all public health stakeholders, as definitions vary among researchers, policy decision-makers, program rule-makers, and practitioners. Rural and urban are multi-dimensional concepts, making clear-cut distinctions between the two difficult. Some prefer the definition to be based on population density, while others rely on geographic isolation [8]. Regardless, the choice of a rural definition should be based on the purpose of the application. This variation in definitions can lead to some level of unnecessary confusion and unwanted mismatches in program eligibility. As such, it is important to familiarize oneself with the definition used at one's public health workplace so as to prevent this confusion [9].

The U.S. Census Bureau has historically taken the lead in defining rural and urban. It uses statistical data to analyze population characteristics and changes in population distribution in the development of their definition. For more than 100 years, since 1910, the Bureau has provided an official definition of urban territory, population, and housing, but over time, they have changed the concept behind their definitions or the methods or classification schema. The U.S. Census Bureau first defines urban areas and defines rural areas as those that are not urban. Urban areas may be further classified as urbanized areas or urban clusters. Rural areas are further divided into three categories: completely rural, mostly rural, and mostly urban [10]. For the most part, the definition of urban is based on residential population density and a few other land-use characteristics (e.g., land cover, airports) used to identify densely developed territory [10]. Rural areas encompass a wide variety of settlements, from densely settled small towns and "large-lot" housing subdivisions on the fringes of urban areas, to more sparsely populated and remote areas [10]. Although some sources interchange the entities nonmetropolitan and rural, the U.S. Census Bureau states that these geographic entities are not identical and should not be used interchangeably [10]. Professionals working with public reports and agency data should familiarize themselves with the particular definition of rural and urban used in the report or data.

The U.S. Census Bureau's urban-rural classification, however, provides a common reference for federal government agencies and departments. For example, it provides public health planning with a base to determine eligibility for participation and level of funding [11]. Still, some U.S. agencies have their own method of defining what is considered urban and rural. In fact, U.S. federal agencies apply more than two dozen rural definitions [8]. One reason for the different definitions is that multi-dimensional concepts and elements are involved, making it difficult to make clear-cut distinctions between the areas. Some people reside in areas that are not clearly distinguished as falling within either urban or rural designations [9].

Some may wonder why clearly identifying rural areas is important, but small changes in how rural areas are defined can have large impacts on public planning and implementation, program budgeting, and candidates for program participation. Specific definitions of rural and urban can be attached to a public program for administrative boundaries and to help guide program rule-making. For healthcare practitioners, specific definitions help guide the delivery of everyday services.

Although the U.S. Census Bureau states that the terms "nonmetropolitan" and "rural" should not be used interchangeably, the U.S. Department of Agriculture (USDA) does interchange the terms [10]. In the creation of its definitions, the USDA analyzes conditions in nonmetropolitan areas, such as trends in population, the economy, and social diversity. The USDA considers counties to be the basic unit of analysis or "standard building block" for their research, but the U.S. Census Bureau uses much smaller geographic building blocks to define rural areas as open country and settlements with fewer than 2,500 residents [12]. As of 2020, the total population in nonmetro counties stood at 46.1 million [9; 18; 24]. According to the U.S. Census Bureau definitions, most counties have both rural and urban populations.

Other federal offices use still different methodology to define rural/urban. One example is the Office of Management and Budget within the executive branch of the federal government. Much like the USDA, the Office of Management and Budget uses the terminology "nonmetropolitan," but they rely on a regional-economic concept (e.g., labor markets) to delineate the metropolitan-nonmetropolitan classification [9]. The U.S. Department of Health and Human Services uses an urban-rural county-based classification. This method is preferred by this department for many reasons, not least because health data are more readily available at the county level [13].

So, while the U.S. Census Bureau provides a base for a rural and urban definition, definitions vary across agencies and public departments to best fulfill their own purposes. The National Rural Health Association supports the right of "state and federal programs to select the most appropriate methodology to achieve their program goals rather than being constrained to any single methodology" [14].

The term frontier, much like the terms rural, suburban, and urban, is intended to categorize a portion of the population along a continuum. Defining "frontier" is also an important step for program development and implementation, particularly for program funding. Frontier has been defined many ways, including at the county level, by census tract, by ZIP code, and by government criteria. Having many ways to define frontier helps the decision-maker to align the definition to his or her purpose [14]. Examples of criteria that may be used in defining frontier include the travel time for a resident to reach a population center or the weather changes that occur with different seasons that inhibit a resident's travel to reach needed service. These areas generally have unique health and economic goals and challenges and therefore require special recognition [14].

Frontier health professional shortage areas are also important to conceptualize. According to the U.S. Census Bureau, counties classified as frontier have a population density of fewer than seven people per square mile [15]. The 2010 Patient Protection and Affordable Care Act defines frontier health professional shortage area to mean an area "with a population density less than six persons per square mile within the service area; and with respect to which the distance or time for the population to access care is excessive" [16]. The health professional shortages of primary care, mental health, or dental health professionals, regardless of classification—frontier, rural, suburban, urban, or mixed—can limit service availability for a population. The designation of health professional shortage area may be based on a health professional shortage for a particular population group and/or a shortage for an entire population within a defined geographic area. In some cases, it may be facility-based, such as a Centers for Medicare and Medicaid Services-certified rural health clinic [17].

According to the National Rural Health Association, frontier areas are different from rural areas in that they lack sufficient population numbers to support a range of healthcare services (including primary care services), have less health insurance as compared to rural residents, have less income and more poverty than rural areas, have older populations in demand of health services, and generally lack the capacity to develop and sustain a comprehensive system of care [18]. Historically, public health nurses were the primary support system for frontier health, often providing care via home visits. In 1925, Mary Breckinridge, a public health nurse and midwife, founded the Frontier Nursing Service, which provided nursing care to Appalachian Kentuckians and other underserved and poor regions. The common public health equipment carried by the nurse-midwife on a health visit in the frontier area was two saddlebags; one was for "general health care" and another for newborn deliveries [19].

CHARACTERISTICS OF RURAL POPULATIONS

How does the rural population differ from the urban population?

According to the U.S. Census Bureau, and based on the 2016–2020 American Community Survey, there are differences between rural and urban America in terms of demographic, social, and economic determinants (e.g., age, education, income, health insurance) [20; 78]. Rural residents are more likely to be older, married, and not living alone. They tend to have completed less education and have lower civilian employment, lower health insurance coverage, and less Internet access compared with urban residents [20; 78]. The CDC reports that rural Americans tend to show higher rates of cigarette smoking, higher rates of hypertension and obesity, and less access to healthcare services [21]. Negative determinants (e.g., lower employment) place residents at a higher risk for certain public health conditions, such as chronic disease. All these factors can lead to poor health outcomes [21].

It is important to note that rural areas are not homogenous, and determinants (or factors) can vary across rural counties. Understanding the socioeconomic, demographic, environmental, and health conditions that exist for rural and urban populations gives public health stakeholders insight on the disparities and inequalities of groups and largely influences policy and public programs designed to help the public.

DEATHS AND BIRTHS

Rural counties are facing a demographic change, as many have a greater number of deaths than births. Between 2010 and 2017, 995 nonmetro counties recorded more deaths than births, resulting in a population loss of 284,000 from natural decease in those counties [22]. A county population change is reported to include two parts—a natural change (i.e., births minus deaths) and a net migration change (i.e., people moving in minus people moving out). According to the USDA Economic Research Service, since 2010, the increase in rural population from natural change has not matched the decrease in population from net migration [23]. As a result, there is little or no population growth, with significant declines in some rural areas. This population loss is most widespread in the eastern portion of the United States [24]. The reasons for this rural population loss include mortality of the aged, the opioid epidemic, fewer births, reclassification of counties, and urban employment incentives.

MIGRATION, EMPLOYMENT, AND ECONOMIC OPPORTUNITIES

Outmigration of young adults of childbearing age from rural areas has left an older population behind. In addition to deaths of the older population, younger adults who remain in rural areas have been significantly impacted by the opioid epidemic, with an increase in rural working-age adult mortality related to prescription opioid- and heroin-overdose deaths. Another reason for rural population loss is women having fewer children and couples postponing having children amid economic uncertainty. Urbanization and the reclassification of counties from nonmetro to metro results in smaller rural areas that are characterized as slow-growing with more limited economic potential [24]. Limited economic opportunities for working-age adults can be an incentive to migrate out of rural areas to urban employment areas [24].

Economic recessions have been an incentive for some working-age rural residents to relocate to urban areas in search of employment, and not all relocated residents return to their rural life post-recession. Compared with the economic recovery periods from past U.S. recessions, the recovery in rural growth after the 2008–2009 recession has been more gradual [22].

Rural civilian employment among persons 18 to 64 years of age is lower (67.6%) than that reported for urban residents (70%) [20]. Three major service industries together with manufacturing provide more than 70% of rural employment: education and health (25%); trade, transportation, and utilities (20%); and leisure and hospitality (11%). Manufacturing, farming, and mining have historically been the goods production focus for rural areas [24]. In 2009, rural employment was growing, although it has not yet fully recovered from the recession. According to the USDA, half of the observed decline in the unemployment rate since 2010 is due to a reduction in the size of the labor force, not an increase in employment, which is partly the result of little or no population growth in rural America [25]. Regardless, employment for rural America lags below the 2007 figures. This has been further complicated by the COVID-19 pandemic. By April 2020, mainly due to COVID-19 and related pressures, rural unemployment rates reached 13.6%, a level not seen since the 1930s. As of the end of 2021, unemployment rates among rural residents returned to pre-pandemic numbers, recovering more quickly than unemployment in metropolitan areas [24; 25].

AGE AND RELATIONSHIP STATUS

Age is another determinant characterizing the rural population. As noted, the rural population is considered an older population than urban. Among adults, the median age for the rural person is 51 years, compared with 45 years in urban settings [20]. The marriage rate is significantly higher among rural residents (61.9%) than among urban residents (50.8%). Fewer rural people report living alone (11.6%) than urban people (14.3%) [20].

POVERTY

Although some claim that rural America has a higher poverty rate compared with urban areas, U.S. Census Bureau data show that the urban poverty rate is higher than the rural rate [26; 78]. Poverty is defined as "any individual with income less than that deemed sufficient to purchase basic needs of food, shelter, clothing, and other essential goods and services" [27]. Based on the American Community Survey, all four regions of the United States (Western, Midwestern, Southern, and Northeastern) showed consistently lower poverty rates in rural areas compared with urban areas [26; 78]. The poverty rate for rural adults is 15.4%, compared with 11.9% for urban adults. The poverty rate for rural children (younger than 18 years of age) is 18.9%, compared with 22.3% for urban children [20; 78]. In total, 42 states report lower poverty rates for their rural areas than for their urban areas [26].

The median household income for rural areas is $52,386, while the median household income for urban areas is $54,296 [20]. Rural household income is led by younger householders (44 years of age and younger) whereas urban median household income is greater for households led by an older householder (45 years of age and older). There are 32 states with greater median household incomes for rural households than for urban households [26]. Between 2007 and 2014, rural incomes were highest in rural recreation counties, and incomes were also high in the farming and mining counties [28]. Incomes were lowest in the government-dependent and non-specialized job category for rural counties; these counties have the highest rural poverty rates [28].

EDUCATION

The chance of a rural person reporting a bachelor's degree or higher (19.5%) is less than that for urban residents (29%) [20]. Between 2003 and 2014, rural household heads with a college degree showed an increase from 15.8% to 19.5%. This increase is reported as attributing to a lowering of poverty by 0.9% over the same period [29].

INSURANCE COVERAGE

More adults in rural America have health insurance than urban adults, but the opposite is true for children in rural America. The uninsured rate for rural adults is 12.3%, compared with 10.1% for urban adults [79]. Improvements in adult coverage are largely attributed to expanded Medicaid enrollment following passage of the 2010 Affordable Care Act [20].

INTERNET ACCESS

Internet access is important for rural persons, because it can be a tool to overcome the geographic distance to many services, such as prevention screening. Currently, U.S. Internet access is greater for urban areas than for rural. Based on 2019 survey data, 37.3% of rural residents have no access to moderate- or high-speed broadband in their homes, compared with 16.7% of urban residents [20].

RURAL POPULATION HEALTH

Many health characteristics of the rural population differ from urban areas, including chronic illness, tobacco use, obesity, mental health, dental health, and disadvantaged access to the healthcare system. Although these characteristics are important, the population characteristics (e.g., age, employment, Internet access) are the underlying conditions predisposing the group to chronic illness, obesity, and other poor health outcomes. For example, rural populations without Internet access are less likely to attend online prevention teaching on nutrition, and in turn have a greater chance of obesity than those with access to Internet nutrition programs [30].

CHRONIC ILLNESS

Chronic illness is associated with significant morbidity and mortality in rural America. Chronic disease is defined broadly as a condition that lasts one year or longer and requires ongoing medical attention or limits activities of daily living or both. Most chronic disease is found to be related to risky behaviors such as tobacco use, poor diet, lack of exercise, and high alcohol use, and to inaccessible health care [30]. In addition to physical medical conditions, chronic conditions also include problems such as substance use and addiction disorders, mental illnesses, dementia and other cognitive impairment disorders, and developmental disabilities [31]. In rural America, there is a high incidence of comorbidity (i.e., having two or more illnesses at the same time), and comorbid conditions are often chronic or long-term. Compared with urban residents, rural communities have less access to primary care services and prevention programs that are important to mitigating chronic illness [32; 33].

The CDC reports that the leading cause of rural deaths in 2014 was heart disease, followed by cancer, unintentional injury (e.g., motor vehicle accidents), chronic lower respiratory disease, and cerebrovascular accident [34]. The percentages of deaths that were potentially preventable are higher in rural areas than in urban areas [34]. A considerable number of cases of premature heart and cerebrovascular disease in rural areas are preventable; potentially preventable rural deaths from stroke and heart disease were higher than for urban areas [34]. Risk factors for heart disease include hypertension, elevated low-density lipoprotein cholesterol, smoking, diabetes, obesity, and lifestyles characterized as sedentary with poor nutritional intake and high alcohol intake.

Type 2 diabetes is a chronic illness associated with a variety of long-term complications. Diabetes prevalence is estimated to be 17% higher in rural areas than urban areas [36]. Further, diabetes-related mortality is higher in rural areas, particularly among Black and Hispanic residents [37]. Public health nurses can act to mitigate these conditions with screening, healthy lifestyle teaching, community education on risk factors, and teaching of self-management principles [38].

Chronic lower respiratory disease is a risk factor for long-term disability and a leading cause of rural mortality, with 11,000 deaths reported in 2014 [34]. Rural populations have a higher incidence than urban areas. Chronic lower respiratory disease encompasses a group of respiratory disorders, including asthma, pulmonary hypertension, occupational lung disease, and, perhaps most significantly, chronic obstructive pulmonary disease [39]. Rural economic sectors have specific work-related lung problems. Agricultural workers may develop hypersensitivity pneumonitis and/or idiopathic pulmonary fibrosis after repeated exposures to mold/fungi, animal feed, dust, and pesticides [40]. Exposure to chemicals in manufacturing work can lead to bronchiolitis obliterans (also known as obliterative bronchiolitis or "popcorn lung"), and rural construction and mining industries are at increased risk for pneumoconiosis from inhalation of dust (e.g., silica, coal). Major risk factors for the development of chronic lower respiratory disease include tobacco exposure, occupational and environmental toxin exposures, respiratory infections, and genetic predisposition. Among youth, asthma is one of the most prevalent chronic health conditions [41; 42]. Exposing youth and parents early to prevention programs on respiratory disease can help offset disease.

Arthritis is another prevalent chronic disease in rural America. Arthritis includes more than 100 conditions that affect the joints, tissues around the joint, and other connective tissues [43]. It has significant negative effects for patients, including incurred healthcare treatment costs, the loss of earnings due to limited work ability, impaired activities of daily living, reduced quality of life, and chronic pain. In 2013, U.S. adults with arthritis comprised more than half (53%) of all U.S. adults taking a prescribed opioid [44]. The CDC estimates that more than one in three rural residents have arthritis. Prevalence of the condition increases with age, a considerable consideration given the older median age in rural areas and aging of the U.S. population in general [44; 45].

Interventions for Families

Because chronic illness can vary over time, the medical regimen prescribed to the patient, the prognosis, and the functional capability of the patient will inevitably vary as well. This unpredictability undoubtedly causes stress for every member of the family system. Chronic illness involves a life-long commitment from all parties—patients, their caregiver(s), and their family members. Consequently, it is imperative that public health nurses and all professionals involved in the care of rural persons have an understanding of the various types of interventions that can help families and caregivers mitigate the stress brought on by chronic illness, with particular focus on resources for persons who are geographically isolated and/or lack reliable transportation. This section is meant to provide some general guidelines for those who work with families with a chronically ill member.

Providing Information

Families who have members with chronic illness require information. This sounds simple, but it is crucial for nurses to realize that chronic illness is a new and unanticipated event to the family. Therefore, families need concrete information. At the initial diagnosis, the family may be overwhelmed and struggling to come to terms with the illness. They may also be grappling to understand new medical jargon and trying to assimilate a tremendous amount of information in order to make decisions about medical care plans. Over time, some family members may be required to take on more responsibilities related to the medical care, particularly if they live remote to care centers. This requires practitioners to teach family members necessary skills and to provide support when they feel uncertain about these new responsibilities [46]. At this juncture, the nurse should assist in enhancing communication between the primary physician and the family [47]. Technical information about the illness, prognosis, and care regimen should be conveyed. Healthcare professionals should be sensitive to the fact that this information may need to be relayed on several occasions. During this time, the helping professional may want to begin to coordinate a list of resources and referrals [47].

Over the course of the illness, caregivers and family members continue to need information about how to efficiently care for the patient. The types of information may range widely. Lubkin and Larsen, for example, note that healthcare professionals can provide general information about human development to family members. It is beneficial for caregivers and family members to understand normal changes that are part of human development and the life cycle, changes that are specifically related to the illness, or possibly, an interaction of both [48]. Egocentrism, for example, is a part of adolescence. Chronic illness can magnify this as the adolescent receives a great deal of medical and parental attention, and the adolescent can become overbearing [49]. Yet, simultaneously, an adolescent may believe that he/she is the only one with these problems and feel that no one can empathize [49]. Social isolation may occur or be compounded. Therefore, it becomes a complicated issue to determine whether a particular behavioral change is the result of normal human development or illness-related.

Technical information related to the daily care of the patient should also be relayed. Family members may have to be taught how to lift and move patients around without hurting themselves or the patient and how to administer medications [48]. Family members should be reminded and educated about the physical consequences of the illness. Patients, for example, may experience fatigue as a result of the medications and/or the illness; however, some family members may become frustrated with the patient and interpret the patient as being lazy and taking advantage of the sick role [48]. Healthcare professionals should be fully knowledgeable about resources on both the local and national level to assist families in coordinating care for both the patient and themselves. Resources and services include places to access special equipment, legal and financial information, respite care, counseling, and support groups [48].

Exploring the Meaning of Chronic Illness and Ambiguous Loss

The emphasis is to provide an opportunity for family members to explore their feelings of loss, sorrow, mourning, and grief. Interventions also focus on helping families to accept the ill family member's lost physical functioning and capabilities [50].

Boss and Couden argue for the importance of helping families deal with ambiguous loss [51]. The goal is not necessarily to eliminate this sense of loss, but rather, to increase family tolerance and coping. Interventions are both structural/short-term and solutions-focused as well as psychodynamic [51]. After identifying the loss, the family would work collaboratively to make decisions regarding day-to-day care and activities. Operating from this lens, depression, which is commonly experienced among caregivers, may also be viewed as symptomatic of ambiguous loss. Therefore, practitioners can help encourage caregivers to not assume all the burden of responsibility, but rather to delegate and distribute the work. This may mean obtaining respite assistance [51].

One of the more difficult tasks is for family members to understand and make sense of the ambiguous loss [51]. They can begin by looking at their own family's socialization, spiritual and religious values, and mentality of thinking and viewing the world optimistically, and by evaluating the family's beliefs about mastery [51].

Self-Care for Family Members

In order to prevent burnout, family members and caregivers should learn to take care of themselves. Caregivers often experience a host of conflicting emotions, including guilt, sadness, anxiety, and exhaustion. They often feel that they should not express negative feelings, believing that it will adversely affect the patient [48]. Healthcare professionals should routinely ask caregivers how they are feeling and coping, and then validate their experiences and feelings.

Caregivers should also be encouraged to obtain respite care. Respite refers to any type of service, either informal or formal, that offers relief and assistance for family members to cope with the challenges of chronic illness [52]. Informal respite assistance may include extended family members, neighbors, and friends who might periodically help with meal preparations, transportation, or housekeeping. Formal respite consists of in-home respite or out-of-home respite. In-home respite care involves a paid companion who spends time with the patient and helps with the patient's care, while out-of-home respite care includes adult day-care centers and community recreational services [52].

Unfortunately, access to respite care is difficult in rural areas. Caregiver support programs in rural areas often aim to facilitate the development of caregiver support networks, which can provide support and even respite care. The Rural Health Information Hub website contains links to resources to support family caregivers in rural areas (***Resources***).

Adult day care programs are another good option for respite care, but these are rarely a feasible option in rural communities. To overcome this barrier, mobile programs have been developed, with some success. For example, the Georgia Mobile Adult Day Care Program provides adult social day care and respite services to rural Georgia by sharing staff, who travel between locations [35]. Program staff travels up to 50 miles one way each day to deliver services, generally at a senior center in the community. Staffing varies but typically includes a registered nurse (RN), an activity director, an aide, and community volunteers. Caregivers have reported that the mobile adult day care program helped them keep their family member with dementia at home longer, reduced caregiver burden, and provided them with relief and peace of mind [35].

Caregiver support programs in rural areas often aim to teach hands-on caregiver skills, stress management, care management skills (i.e., ability to identify and coordinate care with outside support services), and self-care skills to elders and people with disabilities [35]. Training within these systems can be conducted using videoconferencing, conference calls, in-person meetings, or web-based trainings.

Mindfulness interventions may also be beneficial for caregivers. These approaches teach caregivers to be aware of what is occurring at the moment without any judgement and to focus on regulating emotions. In a study to evaluate the effectiveness of an online mindfulness intervention, the level of caregiver burden was decreased after eight weeks of weekly, one-hour mindfulness practice and self-compassion training [53].

In collectivist cultures, one's identity is intertwined with the ill family member, and how the ill family member fares also affects the caregiver [54]. As such, interventions may target the patient and caregiver simultaneously [54].

Family Therapy

Based on family systems theory, family therapy can be a useful intervention to assist families in acknowledging and accepting the patient's illness as well as the treatment plan and prognosis [47]. It can help families develop coping skills to manage the challenges of the continual stressors related to chronic illness and identify maladaptive family patterns, such as enmeshment, triangulation, overprotectiveness, and rigidity [47]. Role expectations can be clarified among family members, and lines of communication can be opened, and at times, restored, if certain family members feel overloaded with caregiving responsibilities [82]. Furthermore, assuming a caregiving role for an elderly parent may resurrect previous developmental issues [55].

Again, rural families may struggle to identify therapists or to travel to areas offering these types of services. In these cases, Internet or other technologies may be helpful.

Psychoeducational Groups

Psychoeducational groups were first used in families with members who had schizophrenia; however, they have been adapted for use with other clinical populations. Psychoeducational groups typically involve a didactic and support component, whereby family members (i.e., caregivers) convene (in-person or remotely) for 10 to 12 structured sessions, on a biweekly basis [56]. It assumes that the caregivers are experts and each member can help each other [57]. The didactic component focuses on both cognitive information and behavioral change. Caregivers, for example, listen to a series of mini-lectures that focus on disease etiology, treatment, and management [56]. Problem-solving skills and coping strategies are often discussed. Caregivers are encouraged to use these newly learned skills and apply them at home. The support component of the psychoeducational groups provides a forum for family members to talk about various issues that may come up in the caregiving situation. Facilitators and other family members provide validation and recognition of feelings. Ultimately, when family members feel confident about providing care, their quality of life improves [46]. In terms of the research evaluating the effectiveness of psychoeducational groups for caregivers, the findings are mixed. In one study, nurse-facilitated psychoeducational groups for caregivers resulted in no improvements in perceived caregiver burden [58]. But a separate study found participation in distance or in-person psychoeducational groups was associated with improved caregiver distress and burden [59].

Self-Help Groups

Support and self-help groups focus on a specific client population (e.g., patients diagnosed with cancer) and related caregiver needs. These groups are facilitated either by volunteers or healthcare professionals. They may vary but will provide information regarding the illness and disease process and symptom management, normalize members' experiences, provide emotional support around caregiving, encourage advocacy, or a combination of these services [48; 60]. Trust is a key element for these types of groups [61].

Macro-Oriented Interventions

Findley argues that part of their social justice advocacy role for social workers and other service providers is to challenge issues of marginalization when working with families and family members who have been diagnosed with a chronic illness [62]. It is important to advocate reducing or eliminating barriers that prevent families and patients from receiving the care and support that they need. Practitioners can also work to promote evidence-based interventions and guidelines to ensure greater collaboration between patients and their family members at the various levels of care [62].

TOBACCO USE

Since the 1960s, tobacco use has been recognized as the single most avoidable cause of disease, disability, and death in the United States, and tobacco use is considered a prevalent public health concern for both rural and urban America [38]. The CDC reports the prevalence of adult cigarette smoking is higher among those living in rural areas (27.8%) than among those living in urban areas (22.7%) [63]. Smokers in rural areas are more likely to smoke 15 or more cigarettes daily and have a greater chance of developing heart disease, stroke, and lung disease from smoking [63].

The use of smokeless tobacco is also a greater issue for rural adolescents and adults than for their urban counterparts. Smokeless tobacco is defined as tobacco products that are sucked or chewed (not burned) and includes chewing tobacco, snuff, and dissolvables. An estimated 8.6% of rural adults use smokeless tobacco, compared with 6% of urban adults [63]. Rates of smokeless tobacco use are greatest in states with large rural areas: Wyoming, West Virginia, Mississippi, and Kentucky [64]. Results of studies suggest that factors other than age, gender, poverty level, and region are driving urban-rural differences in tobacco use. In one study, the most likely reasons given for smokeless tobacco use were affordability, choice of flavors, ability to use in public places (as opposed to smoking), and safety to persons around the user (i.e., no secondhand smoke) [65]. While there may be a perception that these products are safer than smoked tobacco, they contain nicotine, are highly addictive, and have been linked to oral, esophageal, and pancreatic cancers [66].

Nurses and other healthcare providers are responsible for advising smoking parents about the harms of passive smoke as well as how to provide a smoke-free environment for their children [67]. There are many smoking cessation resources that may be provided to patients, including several "quitlines." These hotlines provide free telephone access to a smoking cessation counselor. The National Cancer Institute's quitline is 1-877-44U-QUIT (1-877-448-7848), and both English- and Spanish-speaking assistance is available. The website https://smokefree.gov also offers support, tools, and expert advice through their app, text messaging, and social media networks. Assistance for issues unique to different subgroups, such as veterans, women, adolescents, adults older than 60 years of age, and those who speak Spanish, are also available. To help address the growing issue of smokeless tobacco use in rural adolescents, the U.S. Food and Drug Administration (FDA) started the Real Cost Campaign, an initiative to educate adolescents (12 to 17 years of age) on the health consequences and risks of cigarettes, e-cigarettes, and smokeless tobacco [68].

OBESITY

Obesity is a priority in chronic disease prevention and has been linked to increased risk for heart disease, hypertension, type 2 diabetes, arthritis-related disability, and some cancers [38]. The 2016 Behavioral Risk Factor Surveillance System found adult obesity is higher in rural areas, with a rate of 34.2% in nonmetropolitan counties and 28.7% in metropolitan counties [69]. In 24 of the 47 states included in the study, obesity prevalence was higher in nonmetropolitan than metropolitan counties. In only one state (Wyoming) was the prevalence of obesity higher for metropolitan than nonmetropolitan residents [69].

The National Health and Nutrition Examination Survey found an association between lower formal education of head of households and an increased chance of obesity in the youth living in the same household [70]. Between 1999–2002 and 2011–2014, obesity increased among both female and male children and adolescents in households that were headed by someone with high school education or less; obesity was also increased among female children and adolescents in households headed by persons with some college education [70].

SCOPE OF OBESITY AMONG ADULTS ACROSS THE UNITED STATES, 2020	
Percentage of Adult Population with Obesity	**Corresponding States**
20% to <25%	3 states and the District of Columbia
25% to <30%	11 states
30% to <35%	20 states plus Guam and Puerto Rico
≥35% to 38%	12 states
>38%	4 states (Mississippi, West Virginia, Alabama, and Louisiana)

Source: [71] *Table 1*

As of 2020, there were 16 states in which the rate of adult obesity was greater than 35%, compared with 7 states in 2017 [71]. The top four states, with an obesity prevalence of greater than 38%, were Mississippi, West Virginia, Alabama, and Louisiana (***Table 1***). These states have significant rural populations [71]. Because of its impact on public health, obesity has received attention and funding from the government for public programs designed to mitigate the impacts of overweight and obesity. Rural school programs, for example, receive guidance and funding on obesity initiatives, as schools provide an early opportunity to teach youth and families about healthy eating habits and physical activity.

Ample scientific evidence exists that demonstrates an increasing body mass index (BMI) corresponds to increasing morbidity and mortality. Numerous treatments for obesity are available, but the cornerstone of any treatment regimen is behavioral modification, focusing on diet changes and exercise regimens. Additional therapies include drugs and surgery. To improve care for overweight and obese patients, nurses should have a thorough understanding of obesity and its treatment and to understand the importance of addressing the topic with patients. In addition, they must recognize that recidivism and failure are quite high and that successful treatment requires a concerted and sustained effort.

CANCER

Which cancers are associated with higher mortality rates in rural areas?

Although cancer rates are lower in rural areas than urban areas, cancer-related mortality is greater [34; 72]. In particular, higher death rates have been reported for lung, colorectal, cervical, and prostate cancers in rural areas. The highest mortality rates are typically in the rural South. Geography alone cannot predict cancer risk, but it can have an impact on prevention measures, diagnosis, and the treatment opportunities. As such, some cancer cases can potentially be mitigated with public health intervention [72]. Certainly, mortality rates could be improved by ensuring adherence to screening guidelines and access to optimal care.

Despite decreases in cancer death rates nationwide, a 2017 report shows slower reduction in cancer death rates in rural America (a decrease of 1.0% per year) compared with urban America (a decrease of 1.6% per year) [73]. Many cancer cases and deaths could be prevented, and public health programs can use evidence-based strategies from the U.S. Preventive Services Task Force and Advisory Committee for Immunization Practices to support cancer prevention and control. The U.S. Preventive Services Task Force recommends population-based screening for colorectal, female breast, and cervical cancers among adults at average risk for these cancers and for lung cancer among adults at high risk; screening adults for tobacco use and excessive alcohol use, offering counseling and interventions as needed; and using low-dose aspirin to prevent colorectal cancer among adults considered to be at high risk based on specific criteria. The Advisory Committee for Immunization Practices recommends vaccination against cancer-related infectious diseases including human papillomavirus and hepatitis B virus. The Guide to Community Preventive Services describes program and policy interventions proven to increase cancer screening and vaccination rates and to prevent tobacco use, excessive alcohol use, obesity, and physical inactivity [73].

MENTAL HEALTH

Substance Use Disorders

Substance use disorder refers to a set of related conditions associated with the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes [74]. Rural areas can vary on type of substance(s) abused. Residents of rural areas are more likely to experience self-inflicted injuries and unintentional opioid overdose deaths than those in urban areas [74].

The rate of opioid misuse and related fatalities are considered public health emergencies in the United States. The general rate of drug use in urban and rural areas rural areas are similar (10.4% and 10.9%, respectively), with the rate of opioid and methamphetamine misuse being roughly the same among the two groups [75]. The rate of drug overdose deaths is greater in rural areas, with the rural overdose rate (unintentional injury) 50% higher than the urban rate [76]. Between 1999 and 2015, the rural opioid death rate quadrupled among those 18 to 25 years of age and tripled for women [76]. Socioeconomic factors, behavioral factors, and access to services contribute to these rural-urban differences. An understanding of how rural areas are different when it comes to drug use and drug overdose deaths, including opioids, can help public health professionals identify, monitor, and prioritize their response to the opioid epidemic [76]. To develop this understanding, ongoing data collection, analysis of data, and reporting of findings are critical to staying ahead of the drug crisis in public health.

In the past few decades, the manufacture and abuse of methamphetamine in the United States has gained increased attention. The admissions rates for treatment of methamphetamine-related disorders have ballooned alarmingly in some areas, particularly in rural or frontier areas, causing public health concerns. National reports of methamphetamine use have shown an increase since 2014. Regional use of methamphetamine continues to vary widely, with the highest rates in the West and Midwest, and a strong presence in the Southeast, with rural areas being the most severely impacted. According to a 2020 report, the Northeast, an area previously not a major market for methamphetamine, had seen a recent increase in use rates [77]. During the first half of 2012, treatment admissions for methamphetamine use were highest in Hawaii and San Diego, second highest in San Francisco, and third highest in Denver and Phoenix [80]. The higher use of methamphetamine in Western states is also reflected by the number of persons under its influence who come into contact with law enforcement.

Methamphetamine users in rural areas, especially areas designated as frontier regions, are likely to experience great difficulty in accessing medical, psychiatric, or substance abuse services. Even self-help groups are likely to be nonexistent in these areas, and when they are available, the degree of anonymity in a 12-step group in a small town may be compromised. The nearest available small city often serves as the population center for the region. Social services in these cities may be overwhelmed by numbers of transient persons from the surrounding rural areas needing services in addition to the inhabitants of the city [81].

Substance abuse treatment approaches should be tailored to meet the needs of the rural population. One such approach, Structured Behavioral Outpatient Rural Therapy, is designed around the use of storytelling activities, a more culturally acceptable form of therapy than the traditional role-playing techniques [82]. Case management and behavioral contracting have also been identified as useful approaches to engage and maintain rural residents in therapy [83]. It is also important that healthcare professionals in rural settings receive the training necessary to effectively diagnose and treat drug-dependent patients. Kentucky and North Carolina have implemented a system by which specialists in substance abuse are available at welfare or social services offices [83]. Other possible approaches in the treatment of rural substance use disorder include treatment of jail and prison inmates and the use of drug courts [83].

To overcome the geographic barriers to accessing mental health prevention and treatment services, federal policies have authorized funding/grants for rural telehealth programs. For example, the USDA has expanded telehealth in addiction prevention and treatment by awarding monies to rural areas for programs and projects combating the opioid issue. They are giving five distance learning and telemedicine grants for treatment in rural central Appalachia, with about $1.4 million in grants distributed in Kentucky, Tennessee, and Virginia [84]. The U.S. Department of Health and Human Services and the Substance Abuse and Mental Health Services Administration are leading a five-strategy evidence-based response to the opioid crisis, which includes approaches to improve patient access to services (e.g., using advanced technology and telehealth) [85].

Suicide

In rural areas, which of the following racial/ethnic groups is most likely to be affected by suicide?

Suicide is part of a broader class of self-directed violence and is defined as death caused by self-directed injurious behavior with any intent to die as a result of the behavior [86]. The means or method used for self-directed violence varies across geographic areas and across age groups [87; 88]. Suicide has no one underlying cause. It occurs in response to multiple biologic, psychologic, interpersonal, environmental, and societal factors that interact with one another, often over time [86; 87]. However, mental illness, particularly major depression, can be a risk factor [86].

Suicide rates have been increasing across the United States, led by areas considered less urban, with the gap in rates between less urban and urban areas widening between 1999 and 2016; furthermore, suicide with a firearm is two times higher among rural residents than those in urban areas [86; 87; 160]. While White men are at highest risk for suicide nationally, in rural areas American Indians/Alaska Natives (AI/ANs) are the most affected [86; 87]. Geographic disparities in suicide rates might reflect risk factors known to be prevalent in less urban areas, such as limited access to mental health care, social isolation, and opioid misuse [89]. Addressing the opioid crisis in rural areas is one way of reducing suicide rates.

Many organizations have issued consensus statements regarding screening for suicide risk in the primary care setting. The U.S. Preventive Services Task Force states that although suicide screening is of high national importance, it is very difficult to predict who will die from suicide and has therefore found insufficient evidence for routine screening by primary care clinicians to detect suicide risk and limited evidence of the accuracy of screening tools to identify suicide risk in the primary care setting [90]. The Canadian Task Force on Preventive Health Care found insufficient evidence for routine screening by primary care clinicians to detect depression and suicide risk [91].

However, the American Academy of Pediatrics recommends asking about depression, substance abuse, suicidal thoughts, sexual abuse, and other suicide risk factors during the routine history in all ages throughout adolescence [92]. The American Academy of Child and Adolescent Psychiatry recommends clinician awareness of patients at high risk for suicide (i.e., older male adolescents and all adolescents with current psychiatric illness or disordered mental state), especially when complicated by comorbid substance abuse, irritability, agitation, or psychosis; additionally, screening is recommended in all physical and mental healthcare settings [93]. Finally, the American Medical Association recommends that all adolescents be asked annually about behaviors or emotions that indicate risk for suicide, including adverse childhood experiences [94].

The opportunity for an emotionally disturbed patient with vague suicidal ideation to vent his or her thoughts and feelings to an understanding health or mental health provider may bring a degree of relief such that no further intervention is needed. However, in all cases the encouragement of further contact and follow-up should be conveyed to the patient, especially when inadequate social support is present. Independent of the actual catalyst, most suicidal persons possess feelings of helplessness, hopelessness, and despair and a triad of three cognitive/emotional conditions [95]:

- Ambivalence: Most suicidal patients are ambivalent, with alternating wishes to die and to live. The healthcare provider can use patient ambivalence to increase the wish to live, thus reducing suicide risk.
- Impulsivity: Suicide is usually an impulsive act, and impulse, by its nature, is transient. A suicide crisis can be defused if support is provided at the moment of impulse.
- Rigidity: Suicidal people experience constricted thinking, mood, and action and dichotomized black-and-white reasoning to their problems. The provider can help the patient understand alternative options to death through gentle reasoning.

Healthcare professionals should assess the strength and availability of emotional support to the patient, help the patient identify a relative, friend, acquaintance, or other person who can provide emotional support, and solicit the person's help [95]. The engagement of supportive third parties in the patient's life can be a useful tool in preventing suicide completion.

Family members and friends affected by the death of a loved one through suicide are referred to as "suicide survivors." Research-based estimates from 2019 suggest that 1 in 60 individuals (5.4 million) in the United States are survivors of suicide loss. Additionally, an average of 135 individuals (6.9 million annually) are exposed to or affected by each suicide death [97; 98].

The death of a loved one by suicide can be shocking, painful, and unexpected for survivors. The ensuing grief can be intense, complex, chronic, and nonlinear. Working through grief is a highly individual and unique process that survivors experience in their own way and at their own pace. Grief does not always move in a forward direction, and there is no timeframe for grief. Survivors should not expect their lives to return to their previous state and should strive to adjust to life without their loved one. The initial emotional response may be overwhelming, and crying is a natural reaction and an expression of sadness following the loss of a loved one [98].

Survivors often struggle with trying to comprehend why the suicide occurred and how they could have intervened. Feelings of guilt are likely when the survivor believes he or she could have prevented the suicide. The survivor may even experience relief at times, especially if the loved one had a psychiatric illness. The stigma and shame that surround suicide may cause difficulty among the family members and friends of survivors in knowing what to say and how to support the survivor and might prevent the survivor from reaching out for help. Ongoing support remains important to maintain family and other relationships during the grieving process [97; 98].

Many survivors find that the best help comes from attending a support group for survivors of suicide in which they can openly share their own story and their feelings with fellow survivors without pressure or fear of judgment and shame. Support groups can be a helpful source of guidance, understanding, and support through the healing process [98]. The American Foundation for Suicide Prevention maintains an international directory of suicide bereavement support groups on their website, https://afsp.org.

DOMESTIC AND SEXUAL VIOLENCE

A large national study found that lifetime intimate partner violence victimization rates in rural areas (26.7% in women, 15.5% in men) are similar to the prevalence found among men and women in nonrural areas [99]. In 2020, a national review was published confirming the similarity in prevalence of intimate partner violence; however, it was found that emergency department visit rates were higher in rural areas (15.5 per 100,000 population) than in nonrural areas (11.9 per 100,000 population) [96]. In addition, there is some evidence that intimate partner homicide rates may be higher in rural areas than in urban or suburban locales [100]. This disparity is thought to be a result of fewer preventive and medical services [96; 99; 100].

Substance use disorders and unemployment are more common among perpetrators of intimate partner violence in rural areas [100]. It has been suggested that intimate partner violence in rural areas may be more chronic and severe and may result in worse psychosocial and physical health outcomes. Poverty in rural areas is also associated with an increased risk for intimate partner violence victimization and perpetration for both men and women [101]. Residents of rural areas are less likely to support government involvement in intimate partner violence prevention and intervention than urban residents [100].

Although the rates are similar, the risk factors, effects, and needs of rural victims are unique. For example, research indicates that rural women live three times further from their nearest intimate partner violence resource than urban women. In addition, domestic violence programs serving rural communities offer fewer services for a greater geographic area than urban programs [102].

It is important to assess victims' proximity to available resources and to help in times of crisis. Rural victims may benefit from improved access to services, including technology-based outreach (e.g., videoconferencing, telehealth programs) [103].

MOTOR VEHICLE ACCIDENTS

Motor vehicle crash-related injuries are the leading cause of death among people 5 to 34 years of age [104]. Motor vehicle crash fatality rates are especially high in rural areas and for residents of tribal lands, in part because of poor road maintenance, higher rates of alcohol-impaired driving, lower rates of seat belt and child safety seat use, and less access to emergency response and trauma care [104]. The federal government has committed to supporting state, tribal, local, and territorial agencies in implementing, strengthening, and enforcing transportation safety policies and programs.

Deaths from motor vehicle crashes for drivers or passengers are 3 to 10 times higher in rural America than in urban America, depending on the region [105]. In one study, physical inactivity and lack of insurance were associated with higher rates of motor vehicle fatalities, as was having a more racially or ethnically concentrated population and larger percentages of younger or older adults [106]. Seat belt use has been found to be lower in rural areas, and 61% of drivers and passengers in fatal crashes in the most rural counties in America did not have their seat belts on at the time of the crash [105].

The CDC has developed several resources and tools that states and communities can use to identify effective interventions that might help to address rural-urban disparities in seat belt use and passenger-vehicle-occupant death rates. These include the Motor Vehicle Prioritizing Interventions and Cost Calculator for States, which calculates the expected number and monetized value of injuries prevented and lives saved at the state level after implementation of up to 14 proven strategies (https://www.cdc.gov/transportationsafety/calculator), and the Guide to Community Preventive Services, a collection of systematic reviews of evidence-based findings of the Community Preventive Services Task Force that includes motor-vehicle injury prevention reviews (https://www.thecommunityguide.org).

However, experts have argued that policy interventions to address the rate of motor vehicle fatalities in rural communities should go beyond state laws about seat belts, texting, and similar safety issues, which are important but ultimately will not reverse the urban-rural disparity or eliminate all fatalities [106]. Instead, they recommend a multifaceted approach, including addressing rural transportation infrastructure, access to health care, and emergency response capability.

FIREARM INJURIES AND DEATHS

In the United States, those who live in rural areas are more likely to reporting owning a gun (46%) than those who live in the suburbs (28%) or urban areas (19%) [107]. Gun owners in rural areas are less likely to cite protection as a motivator of gun ownership (62%), compared with suburban and urban residents (both 71%), though it is the most cited reason. They are more likely to report having a gun for hunting or collecting purposes. Regardless of the reasons for owning a gun, the presence of a firearm in the home increases the risk of fatality from suicide, domestic violence, and homicide [108; 109]. For providers devoted to preserving life and promoting health, this can make advising patients in risk situations to remove guns from their home seem ethically self-evident [109; 110].

However, a cultural divide can exist between gun-owning patients and clinicians. For many patients who own guns, gun ownership is a core element of a deeply rooted system of beliefs and values referred to as gun culture. Clinicians who are not part of this culture benefit from an understanding of the perceptions, beliefs, and values of gun culture members before initiating gun safety conversations with their patients. Although difficult for some clinicians, this reflects cross-cultural competence, a core element of patient-centered care. Understanding gun culture can make the difference between reaching versus alienating a patient.

VETERAN HEALTH ISSUES

It is estimated that 6 million veterans reside in rural (non-metropolitan) America [111; 123]. They are a rapidly aging and increasingly diverse group of men and women who still comprise more than 10% of rural adults, despite consistently declining numbers. A disproportionate share of men and women serving in the military grew up in rural counties and most return home after completing tours of duty [111]. Thus, rural Americans are disproportionately represented in the veteran population, comprising 19% of all U.S. veterans, compared with 16% of the general population [111].

Despite being more likely to report physical and mental illness, rural veterans are less likely to use the U.S. Department of Veterans Affairs (VA) or public health care [112]. Only 38% of rural veterans live within a 30-minute drive of a VA facility, and only 49% of highly rural veterans live within 60 minutes. As such, the VA may partner with federally qualified health centers to provide care to veterans who live outside of a designated care area [112].

As the number of military conflicts and deployments has increased since 2001, the need to identify and provide better treatment to veterans and their families has become a greater priority. The first step in providing optimal care is the identification of veterans and veteran families during initial assessments, with an acknowledgement that veterans may be any sex/gender and are present in all adult age groups [113]. Unfortunately, veterans and military families often do not voluntarily report their military service in healthcare appointments. In 2015, the American Medical Association updated its recommendations for social history taking to include military history and veteran status [114]. In addition, the American Academy of Nursing has designed the Have You Ever Served? Initiative to encourage health and mental health professionals to ask their patients about military service and related areas of concern [115]. This program provides pocket cards, posters, and resource links for professionals working with veterans and their families.

Several mental health issues are common to veterans of wars, including post-traumatic stress disorder (PTSD), depression/suicide, substance misuse, sexual assault, domestic violence, and intermittent explosive disorder. Military personnel may confront numerous potentially traumatizing experiences, including military-specific events and those experienced by civilians. Research suggests the most common traumatic events experienced during active duty are witnessing someone badly injured or killed or unexpectedly seeing a dead body. Events most likely to result in the development of PTSD include witnessing atrocities, accidentally injuring or killing another person, and other interpersonal traumas, such as rape, domestic violence, and being stalked, kidnapped, or held captive [116; 117; 265].

Exposure to multiple traumatic events is not uncommon during deployment, and exposure to real or threatened death and serious physical injury that can lead to PTSD is likely. Fundamental beliefs about self, the world, and humanity can become severely challenged by the nature of wartime traumatic events, such as exposure to the death of civilians and destruction of communities on an unimaginable scale with little preparation. Veterans may themselves have committed acts of violence they deem with hindsight as atrocities, shattering previously held beliefs about the self [116; 265].

Although the true incidence of suicide among military war veterans is difficult to estimate due to the lack of national suicide surveillance data, the VA estimates that 22% of all deaths from suicide in the United States are in military war veterans [118]. In addition, 12% of all U.S. Army suicides occur within 12 months of hospital discharge [119]. Despite preventive measures taken by the military, the number of suicides in this population continues to increase [120; 121; 122; 123; 124]. Although the majority of military suicides occur among young men shortly after their discharge from military service, military women 18 to 35 years of age commit suicide nearly three times more frequently than nonveteran women of the same age group [125; 126].

The VA defines military sexual trauma as "sexual assault or repeated, threatening sexual harassment that occurred while the veteran was in the military" [127]. This can include rape (nonconsenting, forced, or coerced sexual activity); unwanted sexual touching or grabbing; threatening, offensive remarks about a person's body or sexual activities; and/or threatening or unwelcome sexual advances [127]. In 2020, the Department of Defense received 6,290 reports of sexual assault involving service members [128]. In a survey of 60,000 veterans who served during the Operations Enduring Freedom and Iraqi Freedom eras, approximately 41% of women and 4% of men reported experiencing military sexual trauma [129].

Intermittent explosive disorder is included under the general category of disruptive, impulse-control, and conduct disorders in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) [130]. Approximately 2.7% of the general public meets the diagnostic criteria for this disorder, but it is much more common among military veterans. In one study of nondeployed U.S. Army personnel, 11.2% of participants met the criteria for intermittent explosive disorder in the past 30 days; it was the most prevalent mental disorder, surpassing PTSD and attention deficit hyperactivity disorder [131].

DENTAL HEALTH

Mouth and throat diseases, including tooth decay, periodontal disease, and oral cancers, cause pain and disability for millions of Americans each year [38]. Poor dental health is associated with impaired intake and systemic disease. As compared to decades ago, dental health has improved across the United States, which is primarily attributed to fluoridation of water and toothpaste and greater awareness of optimal oral hygiene. However, rural areas have a variety of factors that contribute to poor oral health [132]:

- Geographic isolation
- Lack of adequate transportation
- Higher rate of poverty compared to metro areas
- Large elderly population (with limited insurance coverage of oral health services)
- Acute provider shortages
- State-by-state variability in scope of practice
- Difficulty finding providers willing to treat Medicaid patients
- Lack of fluoridated community water
- Poor oral health education

The shortage of dental professionals has resulted in some rural residents seeking dental care at the local emergency department [15]. To address this problem, areas with fewer dental professionals may qualify for a federal dental health professional shortage area designation. Having this designation can qualify the area to receive financial aid or recruitment aid from the government [38; 133].

Although the link between oral health and general health is well-established, the divide between the two fields is great. Many healthcare professionals have not received formal training in oral health. Collaborative care with dental professionals is an essential aspect of improving dental care in rural areas.

ACCESS TO CARE

Access to health care involves many components, including health insurance coverage, having a usual source of care, encountering difficulties when seeking care, and receiving care when wanted [134]. According to the National Prevention Strategy, residents of rural areas are more likely to have a number of chronic conditions and less likely to receive recommended preventive services because of the lack of healthcare professionals and patient care sites in rural areas [104]. Inaccessible service is faced by low-income and disabled populations both urban and rural alike. Despite geographic location and socioeconomic context, preventive health care should be accessible to all people [104].

Disparity is a historic issue for rural counties. As discussed, rural demographic groups have higher disease rates and higher death rates for many conditions than urban groups, and one reason for these disparities is lack of quality care [34]. Differences in health status or treatment outcomes that result in a certain demographic or cultural group experiencing negative health status at a greater rate than another group can be the result of a combination of factors such as age, income, primary language, geographic locale (e.g., rural), gender/sex, or race/ethnicity [134]. The presence of rural health disparities has spurred local and state governments to take steps to ensure that all patients have access to culturally appropriate and evidence-based care; one such approach is improving the diversity and cultural competence of the rural workforce [134].

A more recent disparity is rural access to technology, particularly the Internet. This is important because the Internet is a medium that could be used to deliver public programs to isolated rural regions. Telehealth is greatly dependent on the Internet, promising to improve care access for rural communities by linking services to residents in distant places. Yet, studies show poorer populations (both rural and nonrural) are less likely to have any Internet access than wealthier cohorts. According to the U.S. Department of Health and Human Services, broadband infrastructure is not accessible in all regions and can be as much as three times more costly in rural areas [135; 136]. Broadband deployment in rural areas is catching up but may not keep pace with increasing bandwidth demands of high-quality video, graphics, and data offerings [135; 136].

EVIDENCE-BASED PRACTICE RECOMMENDATION

According to the World Health Organization, telemedicine is an alternative to direct healthcare provision. It reduces the difficulties of access to health services by providing links between patients at the contact point and the medical expertise, wherever it may be.

(https://apps.who.int/iris/bitstream/handle/10665/44589/9789241501514_eng.pdf. Last accessed July 21, 2022.)

Level of Evidence: Expert Opinion/Consensus Statement

Prevention programs are key to public health, but rural residents have less access to these programs [33; 137]. The National Rural Health Association states, "despite the initiation of effective health programs by rural health departments to improve community-level health behaviors, many more rural areas lack the public health agencies, personnel, and financial resources required to implement these interventions" [2]. Although professional maldistribution, geographic isolation, and physical immobility are being addressed as barriers to accessing care, other barriers exist—for example, insufficient health insurance. The insurance marketplace under the 2010 Affordable Care Act and its expansion of Medicaid eligibility is an example of federal policy to increase access to sufficient health insurance.

Access to public health services is critical to rural population health, but it is incumbent on rural population health providers expand beyond the traditional healthcare delivery system to address the social and economic conditions of rural communities associated with poor health and poor patient outcomes throughout the lifespan [138]. There is a growing momentum to move beyond disease management and toward disease prevention and population health in rural communities [138].

Transport of Critically Ill Patients

What are drawbacks of transport by ground ambulance?

Airplanes, helicopters, and ambulances are often necessary to transport very ill or severely injured patients from rural community hospitals to higher levels of care or specialty service available at larger hospitals. As such, the mode of transportation available can impact rural patient health.

Ground transport is the cornerstone of the emergency response system in the United States. Ground ambulances are accessed by the public through the 911 system and provide rapid stabilization of ill or injured patients. In large urban areas with well-developed prehospital care systems, the time-to-patient is less than 10 minutes. However, as the population base expands into rural areas, the time-to-patient tends to lengthen, delaying access to medical care. To reduce the patient's out-of-hospital time, air ambulances have been developed to augment ground transport programs, providing rapid transfer.

Ground ambulance transport is an efficient and appropriate method of transport for most ill and injured patients in this country. The number of ground transports increases annually and the appropriateness of these transports is unquestioned. However, there are instances in which ground transport is at a disadvantage. Adverse weather conditions can impact the vehicle's ability to traverse certain terrain. At the same time, this adverse weather can prevent air ambulances from flying, leaving ground transport as the only viable option. Time-in-transit is another drawback of ground transport. Some critically ill or injured patients cannot withstand the stressors of transport and the shorter the out-of-hospital time, the better that patient's chance for survival. Finally, when choosing to utilize a ground ambulance, the needs of the community should be examined. Some isolated rural areas have only a single ground ambulance to service a largely scattered population base. If this vehicle is taken out of service for an interfacility transport, the people of the community are temporarily left without the medical coverage they have come to expect.

Air transport should be considered an adjunct to, not a replacement for, ground transport. There are inherent dangers in transporting by air, and it is an expensive alternative. Many third-party providers are withholding reimbursement for flights, which are considered nonemergent. The advantage of fixed-wing transport is the ability to travel long distances at speeds between 250 and 570 miles per hour. Care is usually provided in a pressurized cabin with sophisticated on-board medical equipment. Many aircraft utilized for air transport of patients have the capability of transporting multiple patients, and in some instances, family members are allowed to accompany the patient. All-weather navigational equipment allows for the transfer of patients during inclement weather. Many of the dedicated aircraft utilized in air transports have been referred to as "flying ICUs."

Fixed-wing transport requires suitable airfields to ensure the safety of the crew and patient. Accessibility to such fields may be a problem in isolated areas. Optimally, a 5,000-foot paved runway located near the site of the patient would erase the disadvantages of air transport. However, because hospitals are located a considerable distance from most airfields, ground transport is utilized at the beginning and the end of the air transport. (Note: A unique situation exists in Anchorage, Alaska, where a regional referral medical center is located on the edge of an appropriate airfield and the patient can be off-loaded from the plane and wheeled directly into the hospital. This is far from the norm.) The patient should be moved in and out of the aircraft to a waiting ground ambulance and then transported from the referring hospital or to the receiving

HEALTHCARE WORKFORCE IN RURAL VS. URBAN AREAS, 2017–2018		
Profession	**Rate in Urban Areas (Per 100,000 Population)**	**Rate in Rural Areas (Per 100,000 Population)**
Primary care physicians	79	53
Nurse practitioners	81	65
Dentists	43	29

Source: [124; 141] *Table 2*

hospital. This increases the likelihood of the dislodgement of tubes, lines, etc. There is an additional cost associated with this supplemental ground transport.

Rotor-wing vehicles provide rapid point-to-point transfers. Helicopters are capable of reaching most areas and can bypass difficult terrain. Landing zones can be made at or near the site of the patient to prevent lengthy ground transport times. Most helicopters operate within a 150-mile radius of their base station to allow for routine flights without refueling. The type of helicopter utilized by a transport program is determined by a number of factors. Most programs now rely on twin-engine helicopters for their enhanced performance and safety records. Certain helicopters perform better at altitude; they are utilized in areas of high terrain, such as in the Rocky Mountains or in the Swiss Alps. The highest helicopter rescue was performed in 2010 at 23,240 feet (density altitude) for injured climbers on the Kamet glacier in the Himalayas. In 2013, a simulated rescue was performed at 25,590 feet on Mt. Everest; however, the practical limit for safe rescue operations is generally agreed to be 23,000 feet [261].

The single largest disadvantage of helicopters is their dependence upon certain minimum weather conditions; if these conditions are not met, the weather can cause delay or cancellation of the flight. Helicopter cabin size often restricts access to the patient once the patient has been loaded into the helicopter. This limited access reduces the number of in-flight interventions possible. Weight limitations restrict the number of passengers and the amount of equipment on board. When transferring a patient by rotor-wing vehicle, comprehensive stabilization of the patient is required prior to departure.

As healthcare dollars become tighter and legislation mandates transport of patients to better-equipped facilities, those caring for patients who need transport should be cognizant of the advantages and disadvantages of the modes of transport. As air ambulance programs continue to proliferate in this country (although the number of programs has leveled off in the last few years), the preparation to choose between ground, helicopter, or fixed-wing transport will be important.

CHARACTERISTICS OF THE RURAL HEALTHCARE SYSTEM

THE PUBLIC HEALTH WORKFORCE

One characteristic of the rural healthcare system is the public health workforce, which encompasses all persons involved in the public health system, including local boards of health, other governance bodies, and non-governmental organizations. Many healthcare professionals contribute to the public health workforce, including nurses, physicians, social workers, pharmacists, and psychologists [2].

A chief characteristic of the rural health workforce is one of maldistribution (***Table 2***). In most of the country, health professionals concentrate in urban areas, creating an insufficient supply and unequal distribution of primary healthcare providers [139; 140]. This disparity is expected to grow as a result of demographic changes, insurance coverage expansions, and a decline in the primary care physician workforce [124; 141]. Specialists and subspecialists are particularly limited in rural areas, as they tend to concentrate in areas with larger population bases where they have enough demand for their services to be economically viable [142; 143].

Rural counties are also historically disadvantaged in terms of mental health services [136]. According to the CDC, more than 85 million Americans live in areas with an insufficient number of mental health providers; this shortage is particularly severe among low-income rural communities [86]. Rural Americans with mental health needs typically enter care later, have more serious symptoms, and require more costly and intensive treatment [141]. Patients in rural care settings are also more likely to be given pharmacotherapy for psychiatric illness due to a shortage of professionals qualified to provide psychotherapy.

As noted, rural areas lacking health professionals may meet the criteria to be federally designated health professional shortage areas. The U.S. Department of Health and Human Services defines a health professional shortage area as having shortage of primary care, mental health, and/or dental providers [144]. These shortage areas may be designated based on geographic characteristics, population characteristics (e.g., low income), or service availability (e.g., a specific type of facility not having the professional workforce to meet needs) [144]. About 7,970 primary care health professional shortage areas exist in the United States, with 65% located in rural areas [145]. These medically underserved areas are more likely to see unfavorable clinical outcomes.

EVIDENCE-BASED PRACTICE RECOMMENDATION

The World Health Organization recommends that health professionals practicing in well-served areas in secondary-level or tertiary-level facilities can support their colleagues working in rural areas, but also serve the population directly. Physical outreach strategies can include remote day consultations, rotation in health structures, and mobile clinics.

(https://apps.who.int/iris/bitstream/handle/10665/44589/9789241501514_eng.pdf. Last accessed July 21, 2022.)

Level of Evidence: Expert Opinion/Consensus Statement

Nurse Workforce

Why are frontier and rural communities more likely to experience a nurse shortage?

Nurses comprise the largest sector of the rural health workforce. According to the U.S. Census Bureau, the greatest portion of the civilian workforce in rural counties (22.3%) is employed in education and health services, which includes physicians, nurses, social workers, home healthcare providers, and school teachers [2; 146]. Studies project by 2030, some states will have a workforce shortage in RNs and licensed practical or vocational nurses (LPNs/LVNs).

The U.S. Department of Health and Human Services projects a national RN excess of about 8% of the projected need and a national LPN deficit (shortage) of 13% of the projected need by 2030 [147]. However, these projections are national and do not necessarily reflect the projected supply or demand for rural areas. In predicting change between 2014 and 2030, California ranked high on an expected future shortage of full-time equivalent RNs. Alternatively, a high "excess" of RNs is expected in Florida, Ohio, Virginia, and New York. Historically, the U.S. supply and shortage for nurses has been cyclical, with periodic shortages of nurses followed by periods of overproduction leading to nursing surpluses [147]. For LPNs/LVNs, 17 states are projected to have an excess in 2030, led by Ohio and California [147]. In total, 33 states are projected to have a shortage of full-time equivalent LPNs/LVNs by 2030, with Texas expected to have the largest shortage followed by Pennsylvania [147]. Of these 33 states, 14 are Southern states, 7 are Midwestern states, 6 are Northeastern states, and 6 are Western states [147]. The growing demand for LPNs/LVNs by 2030 is driven by many determinants, perhaps most importantly a growing and aging population, resulting in increased health service needs in nursing homes, residential care, and hospital settings [147]. Emerging healthcare delivery models are expected to contribute to a new growth in demand for nurses (e.g., with nurses taking on new and increased roles in prevention and care coordination) [148]. Evaluation of these new delivery models and their impact on nurse supply will be needed in the future.

Frontier and rural communities have a greater likelihood of experiencing a nurse shortage than urban areas for multiple reasons. Most rural areas cannot compete economically with the urban areas for nurses, and urban nurses may not have the training preparation to cross over into rural health care [147; 148]. Policy solutions aimed at reducing nursing shortages in frontier and rural communities should consider that it is a different nursing context than an urban environment. Solutions that emphasize improving competitiveness may be short-lived and draw nurses away from and exacerbate the shortage elsewhere—possibly other rural and frontier areas [147; 148]. To improve the healthcare workforce capacity in rural communities, stakeholders should focus on community-based development approaches. Approaches failing to address the well-being of the community in a holistic sense will not improve nursing shortages over the long term. Building the capacity of the public health workforce is a priority policy solution [136]. An adequate rural workforce supply is expected to offset the shortage of preventive services and to prevent hospitalizations [145].

Emergency Medical Services

Why are emergency response services a vital part of the rural healthcare system?

Emergency medical services (EMS) are defined as the practice of medicine involving the evaluation and management of patients with acute traumatic and medical conditions in an environment outside the hospital (prehospital). It combines the disciplines of public safety, acute patient care, and public health [150]. In rural trauma care, rural hospitals are integrated with the local rural public health system, working as part of the state and local trauma care system to provide a collaborative approach to care.

Emergency response services are a vital part of the rural healthcare system. The goal of the EMS system is to provide a coordinated, timely, and effective response to medical emergencies. As discussed, the distances between population centers and the need to transport patients from hospitals and nursing homes in small communities to larger facilities make these services essential in rural areas [151]. Advanced life support units respond to life-threatening events requiring immediate attention (e.g., stroke) and aim for an immediate response time. Rural factors such as difficult geographic terrain, a longer travel time to patient and/or facility, and weather-related factors can be potential barriers for an optimal response time. For prehospital EMS, travel time and distance to the patient location alone can far exceed an eight-minute threshold [152].

Persons living in rural areas have an increased need for prehospital care and emergency transport. Rural residents tend to be older, poorer, and sicker than those living in urban areas [32]. The death rates for rural unintentional injuries (e.g., motor vehicle crashes, drug overdose) are about double that of urban areas [151]. Residents not able to access emergency or prehospital services (e.g., for an acute cardiac event or stroke) are more likely to experience an unfavorable clinical outcome. Furthermore, patients with restricted access to medications, equipment, or special care they need (more common among rural patients) are at increased risk of complications and death during an emergency [151].

The EMS workforce is fewer in number in isolated rural areas as compared to the workforce in larger rural or urban areas. Mostly volunteers, rural prehospital EMS providers often struggle with recruitment, training, and retention of a sufficient workforce to meet the needs of the local population [153]. Medically underserved areas such as isolated rural areas have a greater chance to see negative clinical outcomes because of barriers to timely care as compared with urban areas with fewer barriers. The EMS rural staffing concern is not limited to EMS but is part of the larger picture of a rural-urban disparity in all healthcare staffing.

This unequal distribution of medical specialists, hospitals, and care resources (including EMS) has been defined as a policy problem by the U.S. government, which has passed legislation to advance communications technology as part of the solution. Telemedicine promises to overcome the rural unevenness of professionals and to be a less-costly alternative than recruiting a larger rural workforce. In fact, the original goal for telemedicine was to improve the consumer access to care professionals for those living in federally designated professional shortage areas and other underserved areas [136]. In the context of emergency services, technology can connect the EMS workforce to emergency medicine at a distant site. Device technology can capture various physiologic data, including image, sound, or video, for transmission to emergency centers for immediate interpretation, diagnosis, and instruction to field personnel. Technology enables e-consultation in the field when needed, making it more feasible to treat the geographically isolated patient before arriving at the hospital and ultimately improving outcomes [150].

Dental Workforce

There are fewer rural dentists (per capita) available to address oral disease than in urban settings, and the majority of dental health professional shortage areas lacking access to dental services are rural [154]. As of 2022, an estimated 11,700 additional dentists are required nationally to meet care needs [145; 154].

PUBLIC HEALTH AGENCIES, HOSPITALS, AND COMMUNITY HEALTH CENTERS

Public health agencies, rural hospitals, and community health centers are key players in the rural health infrastructure. Although many rural hospitals have closed, other entities and solutions are being established to meet the needs of the rural population. Ideally, these entities work collaboratively in the rural community toward promoting public health, well-being, and quality of life.

Public Health Agencies

Which federal agencies support public health in the United States?

The U.S. public health system broadly consists of the public, private, and voluntary bodies contributing to the delivery of health services within a jurisdiction. Providing optimum care requires a collaborative and well-coordinated effort among the multiple stakeholders involved in the system. The U.S. government agencies and departments at all levels guide and oversee public health. Federal agencies work in alliance with state and local agencies to provide guidance and support on issues such as workforce recruitment and retention, infrastructure, funding of public services, and information technology use [155].

Of the many federal agencies involved in public health, the CDC guides health promotion, prevention, and preparedness actions. The CDC provides public health resources, including the Division of Scientific Education and Professional Development, to strengthen and develop the public health workforce through historical literature, reports, guidelines, global and local health data for research, legislation, and policy [156].

The USDA also provides financial support and guidance for rural communities through its Rural Development program. This program supports loans to businesses, technical aid to agriculture producers, affordable housing, home safety and health repairs, public safety services, first responder equipment, and a spectrum of infrastructure assistance that addresses the social determinants of rural health [157].

The U.S. Environmental Protection Agency (EPA) is also an important part of the federal infrastructure to improve the health of rural communities. It protects the health and environment with guidance, oversight, and programs that ensure clean air, land, and water, making community life safer and healthier [155].

In all, the federal government has assumed many responsibilities to improving national public health. These agencies ensure all levels of government have the capability to provide essential public health services and respond to emergencies and are supportive to all government levels with scientific research [6].

Although all levels of government work together to support the mission of promoting public health, the state or local health department retains the primary responsibility. State governments vary in the extent of their authority over local health agencies and the types of partnerships and collaborations they engage in with other government and non-government entities [6]. In 2019, the 50 state public health agencies included 2,809 local health departments and 425 regional or district offices, with 71% being freestanding and/or independent agencies and 29% having a unit of a larger combined health and human services organization or umbrella organization [6; 159].

Each state health agency is led by an appointed state health official. State agencies collaborate with a variety of local stakeholders (e.g., local public health departments, hospitals, provider practices/medical groups, community health centers). Today, more states are sharing resources (e.g., surveillance data) across state lines and are collaborating with each other to form multi-state response teams for hazards and health emergencies [159]. States and their territorial agencies engage in a variety of actions to promote resident health—disease screening, primary prevention initiatives, providing treatment for disease, state laboratory testing, technical assistance and training to the workforce, epidemiology and surveillance, and vaccine management and inventory distribution [6; 159].

Local public health infrastructure can vary. Within a state, local health departments can take on a variety of structural arrangements. For example, some local health departments have more decision-making authority and are locally led by their government for funding; other local departments are parts of the greater state health department (referred to as centralization). Theoretically, with centralization, funding and decision-making is centralized at the state level. Still other local departments fall under a mixed or shared structural decision-making arrangement in their state [6]. Local public health agencies receive oversight from the local board of health. As a legal oversight authority, the roles of the local board of health are many and include recommending public health regulations and policy; collaborating with health departments on strategic planning; and recommending and approving the health department budget [6]. The National Association of Local Boards of Health is considered the grassroots of public health and is the national voice for effective and competent public health governance [161]. A functional public health system is expected to have a strong working relationship with the other bodies. Communications channels and the communication feedback loop ideally involve the many public health players and allows for a sharing of objectives and a pooling and sharing of resources [6].

Rural Hospitals

Rural hospitals are a source of primary care for rural populations; in some areas, they are the only source of care. However, rural hospitals have faced many challenges, mostly due to financial pressure. According to the National Conference of State Legislatures, 673 rural hospitals were vulnerable to closing as of 2016; of these hospitals, 355 were identified as being in markets with significant health disparities [141]. In other words, many of the rural hospitals vulnerable to closing are in communities already facing care access issues. This number of vulnerable closings translates to about 700,000 rural residents facing closure of their nearest hospital emergency room, often used for many medical reasons (even dental care). Without an alternative, many residents will have no source of care. In response, the health system is searching for the best alternative(s) to the financially unsustainable rural hospital, such as converting hospitals to emergency or urgent care stand-alone centers, telehealth services, outpatient centers, and skilled nursing facilities [141]. These models may offset the rural community losing their care and are generally more cost-effective. As discussed, telehealth as an alternative model of care (or medium to deliver care) has the potential to offset a number of rural hospital closure issues. It can make healthcare delivery less costly and more efficient, reach more people, and bring better quality of care into the home. Telehealth as a quality improvement component can bring system-wide, sustainable improvements in access to care [136].

Community Health Centers

As part of his war on poverty, former President Lyndon B. Johnson signed into effect the Economic Opportunity Act of 1964, which was the conception of the community health center. Soon after, the first center opened. Aimed to reduce disparities to care across all geographic areas in the United States, community health centers deliver primary care and prevention services to the most vulnerable populations [162]. Community health centers are defined as community-owned, locally administered medical clinics where people can receive preventive care, free vaccine clinics, health alerts, disease screening, and counseling [163]. In 2020, more than 1,400 community health centers serviced nearly 29 million people across the United States and its territories [164]. Federally qualified health centers are community-based, nonprofit or public organizations located in areas where private health providers lack financial incentives to operate, including sparsely populated rural locations with fewer patients or areas where there are high rates of publicly insured or uninsured patients [165]. To assure that these centers are bridging gaps in care provided by the private market, they are required to serve federally designated medically underserved areas or populations [165]. Health centers can help narrow disparities and rural hospital closings, hospitalizations, and emergency department visits for conditions that can be managed by preventive or primary care [140]. The center is an example of a well-coordinated, comprehensive care model that integrates services from various disciplines such as primary care providers, behavioral health practitioners, and dental professionals [166].

The role of these community-based and patient-directed organizations is to provide comprehensive, culturally competent, high-quality services, many times integrating access to pharmacy, mental health, substance use disorder, and oral/dental health services in areas where economic, geographic, or cultural barriers limit access to affordable healthcare services [162]. Compared with other primary care facilities, community health centers provide more screening for diabetes, hypertension, and breast and cervical cancer, and 80% of centers outperform benchmarks on diabetes control [163]. Even while serving more complex patients and more chronic illness than other primary care providers, community health center patient outcomes are reported to be the same or better than the outcome levels of outside providers [163]. One in seven people served by a community health center are rural residents, and because these community health centers are locally governed, the services they provide are more likely to be tailored to meet the needs of the local population. A common element across rural hospitals, clinics, and community health centers is their focus on the local community [138].

The community health center can also be an important economic force in a community, offering employment and training opportunities and purchasing local services [165]. Building the economic force of a rural community is as important as obtaining access to care, particularly because community health is a multi-dimensional concept taking into account socioeconomic determinants [141]. In all, these centers advance a coordinated, comprehensive, patient-centered care model [166]. Although rural community health centers may provide primary care in rural settings, it is important to remember that a responsive rural health delivery system requires collaborative efforts of clinical and behavioral health providers, public health, education, local businesses, and community-based organizations [167].

Other health centers are rural health clinics and school-based health centers, which consist of clinics in schools working to provide primary care and preventive services for youth. Services provided in school settings are broad and not limited to school health education; primary medical care for conditions such as asthma, substance use disorders, and dental care may be provided [141; 165].

Aside from community health centers, schools, and rural hospitals, other creative solutions are being explored to promote the health and well-being of rural communities. Regardless of the mode of care delivery, these efforts are characterized by collaboration and a flexible infrastructure.

INDIAN HEALTH SERVICE

Which persons qualify for Indian Health Service (IHS)?

Compared with other Americans, AI/AN populations have long experienced lesser health and quality of life, having a greater proportion of disease burden and a lower life expectancy [168]. For example, AI/AN individuals are more likely than other Americans to die from chronic liver disease and cirrhosis, diabetes, unintentional injuries, assault/homicide, intentional self-harm/suicide, and chronic lower respiratory diseases [168]. Across all racial/ethnic groups in the United States, AI/ANs have the highest percentage of type 2 diabetes, which can lead to many complications and exacerbation of other chronic illnesses. As compared with the general population and other racial/ethnic groups, AI/AN children are disproportionately affected by dental disease, and oral health for school-aged children 6 to 9 years of age did not change significantly between 2012 and 2017 [169]. The compromised health of this population is believed to be rooted in historic economic adversity and poor social conditions [168].

The federal health program for AI/AN patients is the Indian Health Service (IHS). An agency within the U.S. Department of Health and Human Services, the IHS assumes the large share of responsibility for the well-being of AI/AN populations (rural and urban) by providing a comprehensive health service delivery system for approximately 2.6 million members of the 574 federally recognized tribes in 37 states [170]. The provision of health services to members of federally recognized tribes grew out of the special government-to-government relationship between the federal government and Indian tribes, which has its foundation in the U.S. Constitution [170].

There is an infrastructure of entities within the IHS, including tribal health organizations, IHS units, Indian health boards, and the Tribal Health Department, which operates under the jurisdiction of a federally recognized tribe or an association of these tribes and receives funding to operate from the IHS [6]. In all, many partnerships have been created to meet the needs of AI/AN citizens, but the IHS is considered the primary program for this population.

A person may be regarded as eligible and within the scope of the IHS health care program if he or she is of AI/AN descent and belongs to the Indian community served by the IHS program, as evidenced by such factors as [158]:

- Membership, enrolled or otherwise, in an AI/AN federally recognized tribe or group under federal supervision

- Resides on tax-exempt land or owns restricted property
- Actively participates in tribal affairs
- Any other reasonable factor indicative of American Indian descent

In addition, care and treatment of non-Indians shall be provided for children, spouses, and pregnant women meeting certain requirements. This includes any individual who is 18 years of age or younger; is the natural or adopted child, stepchild, foster child, legal ward, or orphan of an eligible Indian; and is not otherwise eligible for health services provided by the IHS [158]. Any spouse, including a same-sex spouse, of an eligible Indian who is not an Indian, or who is of Indian descent but is not otherwise eligible for the health services provided by the IHS, is eligible for such health services if the governing body of the Indian tribe or tribal organization providing such services deem them eligible by an appropriate resolution as a class. In addition, a non-Indian woman pregnant with an eligible Indian's child may receive IHS services for the duration of her pregnancy and through the postpartum period (usually six weeks after delivery) [158].

Programs and Initiatives

The services provided by the IHS for the AI/AN community are diverse. Diabetes prevention and the treatment of diabetes-associated complications are among the high priorities for the IHS [171]. They have developed diabetes surveillance systems to track diabetes prevalence and complications and an extensive network of professionals (including nurses) who are conducting diabetes treatment and prevention programs [171]. For the IHS, diabetes management and prevention are most critical because unmanaged diabetes can lead to increased morbidity and mortality.

The IHS has received special federal support to prevent and mitigate the diabetes epidemic in the AI/AN population. Following creation of the Special Diabetes Program for Indians in 1997, 301 communities in 35 states, serving more than 780,000 people, have implemented evidence-based best practices diabetes treatment and prevention programs [171]. The IHS has reported a significant improvement for AI/AN program participants, perhaps most importantly a 10% reduction in the average blood glucose levels for those with diagnosed diabetes between 1996 and 2019 [171].

The IHS Early Childhood Caries Initiative provides AI/AN children with oral assessments and interventions to mitigate early childhood dental disease, giving public health nurses the opportunity to be part of a collaborative team effort improving oral health. Similar to the collaborative approach used by public health programs outside the IHS, the IHS Early Childhood Caries initiative involves multiple stakeholders, including dental and medical staff and other programs, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). WIC is a social program for low-income women, infants, and children up to 5 years of age to provide healthy foods and referrals [172]. In order to promote dental health, the nurse assesses the oral health status of children during visits for childhood immunizations and screenings (e.g., vision, hearing, weight). According to the IHS, nurses can do oral health assessments on young children to look for chalky spots, black spots in grooves, and caries and provide positive oral health messages and education to parents on early childhood caries; they may also refer children to dental clinics [172].

The IHS also administers the Alcohol and Substance Abuse Program to decrease the incidence and prevalence of alcohol and substance abuse in AI/AN populations to a level that is at or below the general U.S. population [173]. This program provides access to behavioral health professionals through telemedicine (telebehavioral health), which acts to expand the reach of preventive, educational, and treatment services [173].

Another holistic model initiative is the Substance Abuse and Suicide Prevention (SASP) program (formerly the Methamphetamine and Suicide Prevention Initiative), a national, community-driven program that uses evidence-based practice and culturally appropriate prevention and treatment approaches [174]. From 2009 to 2015, the Methamphetamine and Suicide Prevention Initiative resulted in more than 12,200 individuals entering treatment for methamphetamine abuse; more than 16,560 substance use and mental health disorder encounters via telehealth; more than 16,250 professionals and community members trained in suicide crisis response; and more than 690,590 encounters with youth provided as part of evidence-based and practice-based prevention activities.

The IHS also funds 12 Youth Regional Treatment Centers, which provide culturally sensitive education and prevention to youth experiencing substance abuse and co-existing disorders. The professional services are holistic, collaborative, and evidence-based [175]. These services include clinical evaluation; substance abuse education; group, individual, and family psychotherapy; art therapy; adventure-based counseling; life skills; medication management or monitoring; evidence-based/practice-based treatment; aftercare relapse prevention; and post-treatment follow-up services.

Because compromised AI/AN health is believed to be rooted in economic adversity and poor social conditions, having IHS and other players open access to care is not enough to improve the quality of life and promote public health for the AI/AN [168]. Access to services only accounts for part of the overall determinants of population health [138]. Population health is also affected by healthy lifestyle behaviors (e.g., nutrition, exercise), social conditions, economic factors, the physical environment (e.g., water and air quality), safe housing, law enforcement, and violence [138]. The belief that improvements in health services alone will mean improvements in overall health status is not reasonable. Improvements must take place in all areas that can contribute to a better quality of life, including educational achievement, employment opportunities, and economic development [176]. The federal government, state and local health departments, and tribal health are an integrated system working together to protect the AI/AN population and promote initiatives to improve their well-being [6]. Each brings expertise for developing innovative strategies to benefit the AI/AN population. The idea of integrating systems together to service populations is of interest to others, and the IHS shares its public health approaches and best practices with other countries and their respective indigenous populations, including Canada, Mexico, Australia, and New Zealand [176]. Mutual partnerships may also include non-government stakeholders, such as the business community.

Public Health Nursing and the Indian Health Service

Nurses working in or with the IHS play a vital role in improving the health and well-being of AI/AN populations. The IHS conceptualizes its public health nursing program as autonomous—flexible and individualized. For those in the IHS, the primary focuses of the public health nurse are on prevention of illness; promotion and maintenance of health through the provision of therapeutic services, counseling, and education; and advocacy [158]. This is accomplished through assessment and identification of individual, family, and community needs; consumer participation; and the planning and coordination of community health programs and services. In this environment, the public health nurse takes into account the prevailing economic, cultural, social, and geographic characteristics of his or her patients. Nursing actions are considered dependent, interdependent, and intradependent with other disciplines, and nurses are part of an interprofessional team of providers [158]. Many of the IHS sites throughout 35 states are in rural remote areas, and IHS nurses have connections with patients, the greater community, clinics, and hospitals.

EVIDENCE-BASED PRACTICE RECOMMENDATION

In a consensus Canadian guideline, experts recommend that health professionals inquire about their native patients' use of traditional medicines and practices as part of routine health practices, including prenatal care.

(https://www.jogc.com/article/S1701-2163(15)30915-4/pdf. Last accessed July 21, 2022.)

Strength of Recommendation/Level of Evidence: III-A (There is good evidence based on expert opinion to recommend the clinical preventive action.)

Other Services for AI/AN Populations

The USDA is another public health resource supporting AI/AN populations. As discussed, the USDA's Rural Development program improves the quality of life of rural communities through community development and safety [177]. Through this program, Indian tribes are eligible for a variety of grants, direct loans, loan guarantees, and legal guidance pertaining to rural infrastructure issues, including rural rental housing, community facilities, business development, water and waste disposal, and broadband access. The targeting of these determinants in AI/AN communities is important, as economic adversity and impaired social conditions can compromise health.

Adequate sanitation facilities are lacking in approximately 38,000 AI/AN homes (or 9.5%). Of these homes, approximately 7,100 (or 1.8%) lack access to a safe water supply and/or waste disposal facilities, compared with less than 1% of homes for the U.S. general population [178]. Unregulated and unsafe water sources and poor waste disposal practices increase individuals' risk for infectious diseases (particularly waterborne disease). Lack of potable drinking water may also result in individuals relying on high-calorie drinks for hydration, which has been linked to overweight/obesity and diabetes.

The IHS Sanitation Facilities Construction Program is a preventative health program that yields positive benefits. A cost-benefit analysis indicated that for every dollar IHS spends on sanitation facilities to serve eligible existing homes, at least a 20-fold return in health benefits is achieved [179]. The IHS Sanitation Facilities Construction Program has been the primary provider of these services since 1960.

Telecommunication is a concern for AI/AN populations, and as noted, USDA assistance includes a broadband program and a community connect grant program. Communities in southwestern Alaska, for example, had no access to broadband services due to frontier factors—specifically remoteness, extreme weather, and terrain. The USDA Rural Development program enabled 65 communities through a project spanning 75,000 square miles to receive connectivity, giving the communities access to services through advanced technology and resulting in better connectivity for native communities [177]. Today, more than 9,000 rural Alaskans and 750 businesses and organizations, such as regional healthcare providers, school districts, and Alaska Native organizations, have broadband access, bringing new commerce, social, and educational opportunities to area residents [177]. Technology is also essential for public health personnel to link with each other into a network, working toward mutual goals. Because cultural issues are unique for each tribal nation, the assistance given by the USDA Rural Development program is diverse [177].

States are also involved in advocacy for tribal health. Nebraska, for example, has passed laws to improve the quality of life of native populations in their state. The state established a contractual relationship between the Nebraska Department of Health and Human Services and public health organizations and/or other health clinics having AI/AN clientele for the provision of education and public health services [179].

Case Example: Improving Tribal Dietary Health

The Navajo Nation in New Mexico is improving their dietary intake with help from partnerships. Healthy eating is a critical element to reducing disease risks, such as diabetes and cardiovascular disease, in all population groups. According to minority health experts, as compared with non-Hispanic White Americans, AI/AN adolescents are 30% more likely and AI/AN adults are 50% more likely to be obese [180]. Furthermore, AI/AN adults are nearly 30% more likely to be diagnosed with diabetes and 2.3 times more likely than non-Hispanic White Americans to die from diabetes [180]. Because obesity is a predisposing condition for diabetes and other chronic diseases, a healthy dietary intake is important. According to the CDC, of the AI/AN population, only 24% to 33% had a daily nutritional intake of five or more servings of fruits and vegetables, with many not having the access to required daily nutrition due to a lack of grocery stores and/or a low income (as some healthier foods are more costly than less expensive alternatives) [181].

In partnership with a charity organization, a community outreach and empowerment project was carried out in the Navajo Nation in New Mexico. The Navajo Nation is considered the largest Indian reservation in the United States, geographically covering about 27,000 square miles and home to about 300,000 residents [182]. A variety of factors contribute to an increased risk for obesity among AI/AN populations, including:

- Replacement of the traditional diet (historically high in complex carbohydrates/high-fiber foods) with foods high in refined carbohydrates (e.g. refined sugars), fat, and sodium, and low in fruits and vegetables
- Unemployment and poverty
- Historical trauma and grief
- Differences in weight attitudes and ideas surrounding a healthy or attractive physique
- Depression
- Genetic predisposition
- Sedentary lifestyle

Through outreach, empowerment, and partnerships, fruits and vegetables were made more accessible to help Navajo families living in a food desert (defined as areas lacking food retailers and access to fresh and affordable foods) and needing dietary changes. As part of the outreach and empowerment program, free vouchers are given for produce and nutrition teaching. In response to the outreach empowerment program and increased demand for fruits and vegetables, local food markets expanded their produce selection. The project has brought favorable results. As of 2015, more than 9,050 members of New Mexico's Navajo Nation have increased access to healthy produce and are better educated on nutrition. Reports show, over a five-month period, 26 families in five Navajo communities participated in the project and increased their fruit and vegetable intake by 48%. Also, outcomes show an improvement in the BMI of adults and children participating in the initiative, with a decrease of 41% in BMI measured for participating youth. Due to the favorable outcomes and response from communities, the project continues to evolve. Local stores plan to host cooking demonstrations and support groups and expand the education part of the project to include healthy food preparation. There is also a plan for community health teams consisting of clinics, clinicians, and community health workers to expand the healthy eating initiative across the Navajo Nation [183]. Navajo youth are also taking ownership to better nutrition across the reservation. Trained students from five high schools are teaching across the reservation about nutrition-related illnesses [184].

SERVICES FOR ELDERLY PATIENTS

The U.S. population is aging at an unprecedented rate. Two factors—longer life spans and aging "baby boomers"—will continue to increase the aging population from approximately 58 million in 2021, to 88 million in 2050[149; 185]. By 2050, it is estimated that older adults will account for greater than 20% of the U.S. population [149]. The public health workforce will be increasingly interfacing with the aging population in their daily work, influencing the health and well-being of U.S. seniors.

Historically, responsibility for caring for the elderly largely fell to family, friends, neighbors, and churches (the "informal sector"). Government and private intervention were considered a secondary source of service when the primary option—the informal sector—was insufficient or fragmented. Before the 20th century, poor houses for those without any provision of help grew in number, attempting to service the vulnerable, but access was not equitable. In response, the Social Security Act of 1935 was passed and prompted the development of a more structured safety net for housing to replace the poor house. Incrementally, the social service system for the elderly developed. In 1952, for example, Congress funded social service programs for seniors. Later, the Older Americans Act of 1965 was enacted, assigning responsibility for elder care to all levels of government and aiming to preserve the dignity of elderly Americans with more comprehensive services, including community services [186]. The Act developed the national aging network, made up of many units that are partnered in an effort to service seniors. This network includes the Administration on Aging, state units on aging, and local agencies on aging. The "aging network" is also a resource to meals for older adults in need, and when the network provides meals, it can be an opportunity to provide other services, including falls prevention programs, chronic disease self-management programs, and transportation [187].

The Administration on Aging is considered a major venue for senior services, although other federal programs are also important. In fact, Medicare, VA, and IHS provide much of the financing for health care for elderly in this country [188]. The Administration on Aging authorizes an array of programs through a national network of 56 state agencies on aging, 618 area agencies on aging, nearly 20,000 service providers, 281 tribal organizations, and 1 native Hawaiian organization representing 400 tribes [188]. Community services supported by the Administration on Aging include programs related to elder abuse, nutrition, health promotion, transportation to care, information assistance, and caregiver support [189]. The local area agencies on aging provide social services for elders and are generally administered through state offices of elder services. Low-income seniors requiring assistance with activities of living (e.g., feeding, bathing, grocery shopping, bill paying) greatly rely on state programs [190].

Medicaid is a federal-state joint public program providing health services to children, pregnant women, parents, seniors, and disabled persons, and it is considered the largest U.S. healthcare insurance provider [191]. It is administered by the states, and states have a good amount of discretion on the Medicaid program they provide, resulting in interstate variation in programs. Skilled long-term care that is largely used by disabled seniors is covered under Medicaid, and this coverage was expanded by the 2010 Affordable Care Act, giving consumers the choice of traditional care at a long-term care facility or receiving services in a community-based setting, including home. Although the federal law has authorized community-based services, not all states and their locales offer this option, instead limiting covered care to state-run nursing homes for long-term care [191]. According to the National Conference of State Legislatures, "rural seniors with unmet personal and healthcare needs may be prematurely forced into assisted living or nursing homes because they are unable to live independently in their own home or community. The shift to institutionalization not only restricts consumer choice and satisfaction, but it is a major cost driver for state Medicaid programs" [141]. In rural communities, there are fewer support services for elderly patients and fewer options for long-term care services. Rural health clinics certified to give home health services are an option when there is no home health agency in the area. These clinics can supply visiting nurse services to home-bound patients in areas with shortages of certified home health agencies [192].

Promoting Health in Old Age Through Public Health Services

What percentage of rural households are classified as food insecure?

Public health services, particularly preventive health services (e.g., screenings for chronic disease, immunization programs, health counseling services) are important for maintaining the quality of life and wellness of older adults [193]. However, rural seniors are often disadvantaged in regard to social services and health care due to lack of financial resources in rural areas [190]. Rural residents may find it difficult to access healthy food, with some rural households or residents considered "food insecure," which is defined as having limited access to nutritious and affordable foods. Food insecurity has been associated with chronic disease and poor health, and in the long term, it can affect learning, development, productivity, physical and mental health, and family life [194]. The USDA reports food insecurity rates for rural areas to be 11.6% in 2020 [194]. The factors underlying community-level food security issues are complex and include social, economic, and institutional factors. Households with limited resources use a variety of methods to help meet their food needs. Some participate in federal food and nutrition assistance programs or obtain food from emergency providers in their communities to supplement the food they purchase [195]. There are food assistance programs specifically available for elderly persons living in rural areas. Nutrition services made available by the Older Americans Act include the Congregate Nutrition Program and the Home-Delivered Nutrition Program, which provide healthy meals in group settings, such as senior centers and faith-based locations, as well as in the homes of older adults who live alone [195]. The USDA administers the Senior Farmers' Market Nutrition Program, which awards grants to states, territories, and federally recognized Indian tribal governments to provide low-income seniors with coupons that can be exchanged for eligible foods (i.e., fruits, vegetables, honey, and fresh-cut herbs) at farmers' markets, roadside stands, and community supported agriculture programs. The goal of this program is to provide better access to fresh foods to older adults with poor access to a healthy diet. More information on government nutrition programs for older individuals is available online at https://www.nutrition.gov.

According to the CDC, there are many benefits to physical activity for the older adult, such as decreasing the risk of falls, fractures, coronary artery disease, diabetes, hypertension, stroke, and colon cancer and improving mental and emotional health, skeletomuscular health, and some symptoms of arthritis (e.g., joint swelling). Even a moderate amount of daily physical activity can lead to significant health benefits. It is recommended that older adults first have a consultation with their physician or primary care provider before starting a new physical activity program. Higher levels of physical activity can carry a greater risk for injury, and therefore caution should be taken not to engage in excessive amounts of activity. Communities can offer programs for aerobic, strengthening, and flexibility components specifically designed for older adults [196]. Walking is often a preferred approach, but rural communities tend to lack sidewalks, trails, and parks. Schools and community centers may provide a venue for exercise programs, but not all older adults can reach these locations due to geographic isolation and lack of transportation.

Alzheimer Disease: A Public Health Concern

According to the CDC, Alzheimer disease and other dementias are public health concerns, compromising the health and quality of life for U.S. adults. Projections show the number of people with Alzheimer disease and other dementias is growing. As of 2022, 6.5 million Americans were living with Alzheimer disease. More than 95% of people with dementia have one or more other chronic conditions and are expected to have a functional decline in the future. In 2018, there were 1,545 emergency department visits for every 1,000 Medicare beneficiaries with dementia [198; 200].

Alzheimer disease slowly destroys brain function, leading to cognitive decline (e.g., memory loss, language difficulty, poor executive function), behavioral and psychiatric disorders (e.g., depression, delusions, agitation), and declines in functional status (e.g., ability to engage in activities of daily living and self-care). Alzheimer disease not only impacts the quality of life of the individual with the diagnosis but may impact the health of caregivers who assume responsibility to provide care [200].

In an effort to measure the scope of the caregiver role in caring for those with dementia across the United States, data from the 2015–2016 Behavioral Risk Factor Surveillance System (BRFSS) was analyzed [200; 201]. Based on this data, one in five adults are caregivers, providing regular care or assistance to a friend or family member with a health problem or disability, typically a parent or parent-in-law. About 10% of caregivers are caring for someone with dementia. Based on the BRFSS, nearly one in three home caregivers with duties related to Alzheimer disease report a decline in self-health [200; 201].

The Role of Nurses

Nurses comprise the largest proportion of the rural healthcare workforce and are most likely to participate in senior programs and groups. Because public health nurses in rural areas often have a broad scope of practice and a high level of autonomy, it is essential that they are fully prepared to provide care to elderly patients and are familiar with the aging population [1]. In order to improve health and quality of life for persons and communities at every stage of life, nurses should engage in activities to promote health, prevent injury, manage chronic conditions, facilitate social engagement, and optimize physical, cognitive, and mental health [189]. The National Prevention Strategy recommends educating professionals to assess, identify, and address disparities that could be exacerbated with age [189]. Factors that have potential to exacerbate health disparities experienced by older adults in rural areas include physical disability, isolated living with few contacts, and limited or insufficient retirement income. The National Prevention Council suggests shifting from the traditional, reactive personal health and wellness approach to a more modern, proactive approach that emphasizes prevention [189]. To support healthy aging, the Council encourages a collaborative effort across the disciplines and professions to work together on this approach [189].

IMPROVING THE RURAL PUBLIC HEALTHCARE SYSTEM

HEALTH PROMOTION AND DISEASE PREVENTION

What are the four areas of intervention identified by the CDC to promote population health?

Health promotion and disease prevention are important objectives for the U.S. public health system. As discussed, there are many key players working in partnership to improve the system. Among them is the CDC, which maintains several campaigns for healthier lives, including those focused on smoke-free environments, healthy daily nutrition, physical activity, and health-friendly communities [202]. The CDC promotes a cross-cutting intervention and multi-stakeholder collaboration approach that can be used to mitigate chronic conditions and related risk factors. The CDC offers four areas of intervention for offsetting chronic disease and promoting population health [203]:

- Epidemiology and surveillance
- Environmental approaches
- Healthcare system interventions
- Linking community-level programs to clinical services

Epidemiology and Surveillance

Epidemiology and surveillance are key in promoting population health [203]. Epidemiology is the basic science of public health, defined as the study of the distribution and determinants of health-related states or events in specified populations and the application of this study to the control of health problems [203]. These health-related states or events can be anything that affects the well-being of a population. Determinants are the factors influencing (or associated with) disease occurrence and health-related events [204].

The CDC defines surveillance as the process of continuously monitoring attitudes, behaviors, and health outcomes over time [205]. The health promotion and disease prevention activities of public health agencies rely on data collected through public health screening and treatment services, as well as from laboratories, pharmacies, environmental health monitors, EMS, local public health agencies, and clinical care providers. There are many types of data registries, including ones related to cancer, childhood immunizations, birth defects, autism, asthma, diabetes, human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), blood lead levels, sexually transmitted infections, chronic disease, and traumatic injuries. There are also case reporting systems for monitoring disease outbreaks and trends. There is variation across public health agencies' information systems [206].

Data are systematically gathered, and the CDC has developed data indicators of chronic disease and associated risk factors that impact public health. These indicators enable public health professionals and policymakers to retrieve uniformly defined state-level and selected metropolitan-level data for chronic diseases and risk factors that have a substantial impact on public health. These data are essential for surveillance, setting policy priorities, and analysis of public policy programs [207].

Public programs educate and guide communities toward healthy behaviors, and providing these programs requires accountability. Some of this accountability is represented through evaluation of data during and following program implementation to determine impact and social value and to show the community that providers are accountable for their public health actions. Surveillance data are also used for public agency budget-setting and strategic planning for the future [74]. Some public health nurses routinely conduct surveillance as part of their practice.

One example of a public health surveillance system is the Foodborne Disease Outbreak Surveillance System, which collects data related to foodborne disease outbreaks [208]. In this registry, data are collected to give insight into the cause, the context, and the underlying conditions of the outbreak. Tracking and analysis are ongoing objective efforts intended to inform targeted prevention efforts. This system guides state and local health departments to investigate and report outbreaks through the identification of foods, etiologies, outbreak settings, and specific points of contamination [208]. Analyzed surveillance data are disseminated through different means to stakeholders.

Another example of a public health surveillance system is the BRFSS, a telephone survey of adults 18 years and older conducted by the CDC and state and local public health departments. The BRFSS is considered as the largest continuous telephone health surveillance system in the world, with more than 400,000 adults 18 years of age and older interviewed annually [201]. The system collects data about health risk behaviors, chronic health conditions, and the use of preventive services among U.S. residents. In turn, it provides information to the federal government, states, and local communities for planning, implementing, and evaluating public health programs and actions [201]. States have used BRFSS surveillance data to monitor trends in physical activity, prevalence of obesity, risk factors related to chronic disease, vaccination rates, and prevalence of arthritis. They then prepare grant applications and public health reports, create plans, and evaluate program interventions. For information on how BRFSS data are used in your state, visit https://www.cdc.gov/brfss/state_info.

The CDC disseminates surveillance summaries and interpretation of public health trends and patterns in the *Morbidity and Mortality Weekly Report* (*MMWR*), available to read online at https://www.cdc.gov/mmwr/publications.

Environmental Approaches

Approaches and action to improve environmental health are considered to be more effective than other types of population health interventions, partially because policies tend to have broader implications than other interventions. The stakeholders—policy leaders, private-sector employers, community planning committees, economic development agencies, and grassroots organizations—are involved in developing and implementing these actions [203]. Government leadership is largely involved in the creation and funding of policy/environmental interventions. Funding is critical to public health policy and programs, and historically, wealthier states and locales have been more likely to legislatively adopt innovative policies.

Community interventions based on policy/environment actions can positively impact population health. Several case examples demonstrate the effectiveness of environmental initiatives against obesity. The South Dakota Department of Health, for example, partnered with a coalition of statewide organizations to provide wellness programs at different South Dakota workplaces/employers [209]. Employers establish wellness programs and other incentives to encourage employees to get physically active, such as setting up bike racks to encourage employees to bike to and from work and making work schedule changes that would permit physical activity during paid time. These employer interventions have received positive feedback from the community [209]. Worksite evaluation studies have showed that these types of interventions resulted in an increase in the amount of time spent engaged in moderate aerobic physical activity among workers [209].

In Wisconsin, the state has authorized grants to businesses for the development of worksite wellness programs to include health risk assessments [210]. In Montana, the Department of Public Health and Human Services is teaching community stakeholders to build a healthier environment for residents through designing streets, sidewalks, bike lanes, parks, and trails that help people be more physically active [211]. Participating counties have received awards for their "Complete Streets Policy."

Utah is also involved in policy/environment actions to fight chronic illness and risk factors. Here, multiple stakeholders (including the Utah Department of Transportation, the Utah Department of Health, local health departments, and city planners) have collaboratively formulated transportation policies for Utah residents that provide more physical activity options in the community, such as safe and sustainable walking trails and bike lanes [212]. This is important because residents in rural and low-income areas typically do not have walking trails or bike lanes that support safe, interconnected spaces for people to be physically active [212].

State and local communities have also developed policy/environment actions targeting the need for a healthy daily diet. Healthy nutrition is important for mitigating disease, and the literature overwhelmingly supports the increased intake of fruits and vegetables. Despite health benefits, research shows that far less than the recommended number of fruits and vegetables are being consumed as part of the typical American diet [213]. One reason is inaccessibility and the high cost of fresh, nutritious food, an even greater issue for low-income communities or families. Although the government is already implementing policies to facilitate better access to healthy foods (e.g., through the WIC federal assistance program), states and communities can do more to improve accessibility [213]. For example, policy actions can strengthen the regional food systems for both consumers and producers. According to the CDC, 32 states have an active state food policy council, and there are 234 local food policy councils in the United States. Ten states have adopted a policy on food service guidelines that ensures healthy food options be sold or served in government-owned or -controlled facilities [213]. In addition, about 42% of school districts participate in farm-to-food programs and provide salad bars. Outside schools and government workplaces, farmers' markets have begun to accept WIC and vouchers from the Farmers' Market Nutrition Program [213]. Typically, a combination of policies and environmental interventions is used in order to meet the needs of rural residents.

Healthcare System Interventions

Healthcare system interventions to improve clinical preventive services are necessary in order to more effectively deliver clinical and other services to prevent, detect early, and mitigate diseases in all populations, including those in rural communities [203]. System enhancements can have effect on the organization, the people engaged in the healthcare system, the population being served, and other parties (e.g., insurance carriers). Telehealth and electronic health records are examples of initiatives aimed at enhancing the health system. Federal laws have been enacted largely supporting health technology and more are being passed on the state level, laying a legal foundation to make technology in healthcare work better.

Electronic medical records are real-time, patient-centered records that make information available instantly and securely to authorized users, allowing patient records to be electronically coordinated among various providers [214]. A coordinated system is critical, because coordinated actions by public health and healthcare professionals, communities, and healthcare systems can and will keep people healthy, optimize care, and improve outcomes within priority populations [202]. This healthcare system enhancement is still evolving. Although many care systems report enhanced operations by way of electronic medical records, some sources acknowledge that organizational preparation is critical before implementing a new system. Lack of facility preparation or personnel training on electronic medical records may lead to issues. This technology allows providers to share patient data in a centralized location readily accessible to the entire interprofessional care team. A single electronic record can bring together information from current and past providers, emergency facilities, school and workplace clinics, pharmacies, laboratories, and medical imaging facilities [215]. Some states (e.g., Nebraska, New Mexico) have established statewide telehealth and health information technology systems to better meet the needs of rural and medically underserved areas, promoting efficient and effective care, better quality, and increased access to services [179].

Another example of the use of technology to support the interprofessional healthcare team is the growing use of prescription drug monitoring databases. Prescription drug monitoring programs are one of the most effective measures for reducing opioid analgesic diversion and abuse and are a cornerstone of state efforts to address the opioid crisis. Almost all states have enacted these programs to facilitate the collection, analysis, and reporting of information on controlled substances prescribing and dispensing.

Technology can also enhance surveillance operations, making them more efficient and potentially keeping data safer and enabling efficient data sharing. Health information technology has the potential to link activities between information/data "trading partners," such as health insurance providers, inpatient and outpatient providers, state and local governments, and federal organizations. Technology brings together partners for many reasons, including program planning, direct care, administration, and surveillance sharing. There has been federal support for health information exchange organizations, which are believed to have the potential to enhance the healthcare system by promoting efficiency in connections across jurisdictions. Although federal funding is available, there are factors that may limit (or temporarily limit) public health's use of these initiatives, including lack of trained public health informatics resources; the complexity of local, state, and federal laws; a dearth of leadership and champions to advance integration; and competing priorities [206]. In all, technology is improving connectivity within, among, and across rural public and non-public health systems.

Linking Community Programs and Clinical Services

Linking together community programs and clinical services promises to improve and sustain management of chronic conditions, as it can open up a pool of resources among providers and broaden the scope of community care. When these two entities work closely together, integrated approaches that bundle strategies and interventions may be effectively deployed [203].

Some areas or groups use community outreach programs to bring together prevention programs and clinical services. For example, health and wellness fairs have been used to introduce the public to prevention principles and to clinicians under the same tent; this may involve hosting on-site screening services (e.g., hypertension and/or lipid screening, bone density tests, hearing and vision screenings, nutrition assessments), physical fitness programs, and/or farmers' markets for healthy eating habits. These community health fairs integrate public health principles of prevention and screening with local primary care clinical services. The theory is that population health (not just individual outcomes) may be improved through the use of community partnerships and collaboration with stakeholders [203].

Citizen engagement can also be used to bring together community programs and clinical services. In Oregon, community residents who have experienced colon cancer screening engage in outreach to other residents to encourage participation in similar screening services using multiple communication channels, including radio advertising, social media, websites, billboards, health plans, and local news outlets. The overall campaign resulted in an increase in the rate of screenings among residents across the communities—from 59% in 2010 to 69% in 2015 for those 50 to 75 years of age. Also, late-stage colorectal cancer diagnoses were reported to have decreased by 12% for the years 2009 to 2013 for those who did participate in the screening [218].

A Multi-Intervention Approach: The Healthy Brain Initiative

It is common for decision-makers to employ a multi-intervention approach in rural public health, given the unique rural context and many disparities of rural populations (e.g., economically disadvantaged, insufficient food sources, barriers to broadband connectivity). One example illustrating a multi-intervention and proactive approach to a public health issue is the CDC's initiative addressing the challenge of dementia.

As discussed, dementias are a serious public health concern, affecting 6.5 million Americans and resulting in $321 billion in annual costs [200]. By 2050, these numbers are expected to increase significantly, to 14 million Americans and $1.1 trillion annually. To promote brain health, improve servicing to populations with cognitive decline, and provide support to dementia caregivers, the CDC developed the Healthy Brain Initiative. The Healthy Brain Initiative aims to stimulate changes in policies, systems, and environments and consists of a roadmap of 25 actions for years 2018–2023 to be accomplished by state and local public health agencies and partners [198].

The Healthy Brain Initiative supports informed decision-making by educating policy-makers on the basics of cognitive health and impairment, the impact of dementia on caregivers and communities, and the role of public health in addressing this priority problem. The Healthy Brain Initiative is informed by four essential services of public health [198]:

- Assure a competent workforce
- Educate and empower the nation
- Monitor and evaluate
- Develop policies and mobilize partnerships

Unfortunately, the healthcare workforce appears under-equipped to meet the growing demand for high-quality dementia care in the coming years. As of 2015, only two states required training in dementia for RNs and/or LPNs/LVNs, and only 23 states required dementia training for staff of nursing homes. The majority of states with a mandate only require training for personnel in Alzheimer disease special care units. Less than 3% of medical students choose geriatric electives during their training, which means that most will enter the workforce with little exposure to the needs of older adults [198].

The Healthy Brain Initiative encourages training the healthcare workforce so it is intellectually prepared to provide cognitive impairment and dementia care [198]. To be professionally prepared for dementia care, healthcare professionals should have education on the importance of treating comorbidities, addressing injury risks, and attending to behavioral health needs of patients at all stages of dementia. Caregivers should be given referrals to supportive programs and services and encouraged to make use of available resources. Public health professionals are to have reliable sources of information on brain health and evidence-based dementia education [198].

Educating the community is another key aspect of the Healthy Brain Initiative. Public information campaigns focus on brain health and cognitive decline. Informal caregivers should be given appropriate tools and support for aiding those with dementia. When required, professionals should offer counseling and referrals to dementia caregivers and assist them in gaining access to evidence-based interventions and services. The Initiative encourages environmental policies that engage the workplace and community to support the needs of the aging population. For example, emergency response/preparedness planning should be aligned with dementia care needs and home caregivers needs (e.g., the caregiver having immediate access to critical public health information) [198].

Monitoring and evaluating the growing dementia care issue is aligned with the chronic disease epidemiology and surveillance intervention [203]. The Healthy Brain Initiative emphasizes national monitoring and evaluation of training programs, caregiver support programs, and brain health policy initiative outcomes. To implement dementia surveillance, the BRFSS includes modules measuring level of cognitive capacity for those with dementia and caregiving [198]. More information on the conceptual framework for the Healthy Brain Initiative and its 25 action items for public health professionals can be found online at https://www.cdc.gov/aging/pdf/2018-2023-Road-Map-508.pdf.

IMPROVING ACCESS TO COMMUNITY SERVICES

Rural access to public programs and other services is lacking. Many states have initiatives in place to improve access, including programs to improve the healthcare infrastructure, decrease provider shortages, build up professional workforce competencies, and take advantage of technology (e.g., the Internet). The solution to the problem of access in rural communities requires a comprehensive and collaborative approach with many stakeholders. Despite efforts to date, rural populations still lag behind urban populations in access to needed healthcare and social services. According to the National Prevention Strategy, residents of rural areas are more likely to have a number of chronic conditions and less likely to receive recommended preventive services because of the lack of access to care providers and patient care sites [104].

In order to promote wellness and prevent disease in rural communities, the National Prevention Strategy established the following priorities [104]:

- Support initiatives to increase the availability of healthy and affordable foods in underserved rural and frontier communities.
- Pilot and evaluate models of integrated mental and physical health in primary care, with particular attention to underserved populations and areas, such as rural communities.
- Support local efforts that promote active living by supporting efficient transportation networks that connect people in rural communities to parks and other outdoor recreation venues.
- Improve access to high-quality mental health services and facilitate integration of mental health services into a range of clinical and community settings.

A key government agency working toward eliminating disparities and improving access to care is the Health Resources and Services Administration. This is the primary federal agency responsible for improving health care for people who are geographically isolated and/or economically or medically vulnerable [219]. In an effort to strengthen the healthcare workforce, the Health Resources and Services Administration is aiming to advance professional competencies of health workers and to improve the diversity of the workforce, which will improve the ability of providers to meet the needs of underserved populations and correct the maldistribution of the workforce [220].

In addition to the National Prevention Strategy, the Health Resources and Services Administration, and the 2010 Affordable Care Act, states are also taking action to reduce disparities in care access in rural communities. Some states have passed legislation aimed to eliminate disparities in healthcare access in rural communities, though they have taken different approaches to address this problem [134; 179]. As nurses are a backbone to rural health care, some states have passed laws or enacted campaigns to increase the density of nurses practicing in underserved areas. For example, Arkansas law permits public higher education institutions to give special consideration to recruit students from medically underserved areas interested in nursing or another health-related career [179]. Kansas established the Advanced Registered Nurse Practitioner Service Scholarship Program for students who agree to practice nursing in a medically underserved or rural area in their state upon finishing a program of study as an advanced registered nurse practitioner [179].

EVIDENCE-BASED PRACTICE RECOMMENDATION

The World Health Organization recommends using targeted admission policies to enroll students with a rural background in education programs for various health disciplines, in order to increase the likelihood of graduates choosing to practice in rural areas.

(https://apps.who.int/iris/bitstream/handle/10665/44369/9789241564014_eng.pdf. Last accessed July 21, 2022.)

Strength of Recommendation/Level of Evidence: Strong/Moderate

Loan forgiveness and loan repayment programs have also been instituted by states in an effort to improve the distribution of nurses in rural areas. In Alabama, the Advanced Practice Loan Repayment program awards loans to RNs who are pursuing an advanced practice degree. This program provides students with $15,000 toward their education in exchange for an 18-month commitment to work in a geographical area of critical need (defined as at least 5 miles outside of an "urbanized area") following graduation [221]. The West Virginia State Loan Repayment Program awards nurse practitioners and nurse midwives up to $90,000 in loan forgiveness for four years' commitment working in a health professional shortage area [222]. Such state initiatives promise to increase the density of nurses in rural areas. These same approaches have been applied to other professions, including physicians, dental professionals, and mental health providers, in order to improve access to care in underserved areas.

Use of Technology in Public Health

The possibility for advanced technology to improve population health is growing. As discussed, advanced technology (e.g., Internet, satellite, mobile technology) may be used in rural communities to improve access to and quality of care, to improve health outcomes, and to minimize costs. Despite its promise in meeting healthcare needs in underserved rural areas, research on the topic is mixed. Upon systematic review of a large body of research literature, the Agency for Healthcare Research and Quality concluded there is sufficient evidence to support the effectiveness of telehealth for specific uses with some types of patients, including remote patient monitoring for patients with chronic conditions; communication and counseling for patients with chronic conditions; and psychotherapy as part of behavioral health [223]. Other evaluative studies, including one conducted by the VA on their rural telehealth initiatives, report numerous favorable outcomes associated with telehealth actions [135]. However, some still express doubt as to the real value of telehealth's ability to replace traditional care services [135].

Telehealth approaches can create a network linking rural providers to nonrural providers and agencies and the rural population to online providers and programs, ultimately improving access for populations who are living in rural areas who tend to have higher chronic disease and mortality rates [135]. Federal telehealth pioneers include the U.S. Department of Defense, the VA, National Air and Space Administration, and Medicare.

Telehealth innovation requires a positive legal environment, advocacy, and funding. Federal agencies such as the FDA play a large role in the regulation of safe technology use in health, and the federal government has been a primary funding source for agencies interested in piloting telehealth programs for rural residents [224]. Aside from funding, the federal government has enacted legislation making the Internet and broadband more accessible to rural areas. Many states have passed laws enabling care providers to participate in telehealth and regulating the practice. In particular, Texas and California have been historical innovators in telehealth, using telephone and video technologies to improve access to care for prison inmates in remote correctional facilities [136]. Telehealth practitioner reimbursement and tele-licensure laws have been critical in allowing telehealth to progress. Health interest groups also play a significant role in influencing the adoption and implementation of telehealth practices, as does nurse advocacy. In one study of telehealth implementation, nurse and physician policy networks were found to influence the extent of telehealth program implementation across the entire nation [136].

Collaborative telehealth programs involving public agencies, medical centers, rural and/or urban clinics, universities, and professionals were developed in response to early telehealth projects that required additional funding and stakeholder buy-in in order to continue after federal funding ended. One example of this approach is the South Carolina Department of Mental Health, which partnered with the University of South Carolina School of Medicine and about 18 predominantly rural hospitals to develop a statewide telepsychiatry initiative [225].

Telehealth

What was the original goal for telehealth?

There have been a number of definitions for telehealth, varying across organizations and healthcare work cultures. The American Telemedicine Association defines telehealth as [226]:

> ...a mode of delivering healthcare services through the use of telecommunications technologies, including but not limited to asynchronous and synchronous technology, and remote patient monitoring technology, by a healthcare practitioner to a patient or a practitioner at a different physical location than the healthcare practitioner.

U.S. Congress defines telehealth as the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health, and health administration [227]. Internet-based health care is a form of telehealth, also referred to as "e-health." E-health may also be used to describe any health-related online activity (e.g., searching for wellness information online) or, in some contexts, to cover other technology use in health care.

The original goal for telehealth was to improve consumer access to healthcare professionals for persons living in federally designated professional shortage areas and the other underserved areas [136]. Most rural states have historically used telehealth for this purpose.

EVIDENCE-BASED PRACTICE RECOMMENDATION

The World Health Organization recommends that appropriate outreach activities should be implemented to facilitate cooperation between health workers from better served areas and those in underserved areas, and, where feasible, use telehealth to provide additional support to health workers in remote and rural areas.

(https://apps.who.int/iris/bitstream/handle/10665/44369/9789241564014_eng.pdf. Last accessed July 21, 2022.)

Strength of Recommendation/Level of Evidence: Strong/Low

An early form of Internet use in public health was information sharing or using technology to disseminate health information to the general public. Agencies place information on their websites to educate the public on outbreaks, preventive medicine recommendations, health plans, providers, and health insurance [228]. The CDC uses their website, social media accounts, and listservs to disseminate information to providers and the public, including information on disease outbreaks and pandemics, food recalls, travel health, and health statistics. The Internet can make tracking disease, gathering data, and administrative decisions on population health issues more efficient and reliable. It has the potential to enhance the detection of disease outbreaks by enabling the efficient sharing of surveillance data. In a public emergency, effectively sharing data may influence a better response for outbreak coordination and management [229].

Educating communities is an important component of public health nursing, and the Internet is a health-education medium that can be used to empower patients with knowledge, expose them to information covering a spectrum of health and wellness programs, and link them with providers and services [231]. The Southern Nevada Health District created an Internet and social media educational campaign regarding the health risks of cigarette smoking and e-cigarette use in teens. This online nicotine prevention campaign is reported to have reached at least 2,400 people on social media, 27,130 people via online campaign videos, and 287,000 via online messaging; a reported 1,113 teens took the educational campaign's online training to learn how they can help promote nicotine-free living among their peers using social media [231].

Rural school nurses are in a pivotal position to link health care and education, and Internet technologies can help link nurses with nonrural resources, network with other agencies, make point-of-care decisions, attend distant meetings, enter surveillance data, and access public reports [232]. Technology can also aid in student health and wellness screenings, providing behavioral health services, assessing injuries and illnesses, and communicating with parents/guardian. The role of school nurses in providing rural health care will be discussed in detail later in this course.

Barriers to Internet Use in Rural Areas

Because the Internet has become so important for connecting professionals and transmitting health information, broadband access has become vital. Broadband is particularly important for rural healthcare providers interested in meaningfully using electronic health records, as many of the capabilities of health information technology, such as telehealth and electronic exchange of healthcare information, require broadband capability; access to and use of quality broadband connectivity became increasingly necessary during the COVID-19 pandemic and required lockdown measures [24]. Broadband connectivity has made great strides in recent years, and county-level data indicate that rural household connectivity continues to improve and expand geographically [135]. In 2019, 72% of rural residents and 63% of rural residents in persistent poverty counties had moderate- or high-speed broadband available [24]. Rural counties with higher-than-average connectivity are primarily located in the Northeast, upper Midwest, and Intermountain West; extensive parts of rural Appalachia also saw improvements [24]. Although more rural households are getting connected with broadband, other barriers still exist, including not having the skills to navigate the Internet. Public libraries often have programs to teach computer skills to residents or to help residents access Internet technology. However, public libraries are not as accessible in geographically remote areas. Rural schools may be an alternative option for computer skills training in rural communities, if funded.

BUILDING WORKFORCE CAPACITY

As stated, the U.S. rural health professional workforce is characterized by maldistribution and shortages, particularly in areas of primary care, mental health, and dental services and in specific health subspecialties [136]. The Health Resources and Services Administration has predicted a nurse shortage by 2030, with the largest shortages noted in states with significant rural populations (e.g., Alaska, South Carolina, South Dakota) [147]. Shortages are not new, and building the capacity of the health workforce is part of the national movement to strengthen and transform the healthcare system.

The Role of the Government

In response to need, U.S. Congress has historically passed laws to build the capacity of the nursing workforce. A cornerstone federal legislation to build this workforce is the Public Health Service Act, enacted in 1944 and originally aimed at infection control and the consolidation of the numerous other public health service laws. The succeeding amendments to this 1944 Public Health Service Act expanded nursing training actions and funding.

The Nurse Training Act of 1964 (amendment to the 1944 Public Health Services Act) created the widely cited Title VIII Nurse Training that provides many educational incentives for nursing today [234]. Collectively, Title VIII and its amendments provide a broad spectrum of awards for building the nursing workforce capacity, including for basic nursing practice, RN traineeships to advanced practice, diversity grants for persons with a disadvantaged background, nurse retention grants (e.g., for comprehensive geriatric training, career ladders), and a nurse faculty loan program [235; 236]. These awards have been used to recruit or retain those already in the nursing workforce and/or to expand the possibilities of nurses' careers into rural settings.

Funding is important for program viability. Some funding has been extended over time (often through amendments), and the funding for other programs has been allowed to expire. Title VIII and the Public Health Service Act of 1944 are not the only opportunities to improve nursing. Title III funds a loan repayment incentive for health professionals to work in selected health professional shortage areas, and Title IV supports nurses interested in clinical research [237].

Passage of the Affordable Care Act in 2010 expanded Medicaid eligibility, and rural Medicaid enrollment increased in the following years [16]. As many rural populations now have greater insurance access, a greater demand has been placed on healthcare professionals to implement public health services. National Health Service Corps programs provide scholarships and repay educational loans for primary care, dental, and mental and behavioral health clinicians who agree to two, three, or four years of service in designated high-need areas [17].

In addition to federal government initiatives for building the rural workforce, states have initiatives to address rural shortages, as discussed (e.g., school loan forgiveness, scholarship programs) [134; 179]. These programs often seek students from backgrounds historically under-represented in health care, such as racial and ethnic minorities, with the aim of improving workforce diversity [134; 145].

Workforce Cultural Competency

A culturally competent rural workforce can help improve the care of unique populations. Professionals should be prepared to care for diverse populations with different behaviors, resources, perceptions of health and health care, and outcomes of care, particularly when working with groups whose culture, language, economic status, age, and/or education result in health disparities and poor health outcomes [238].

Workforce policies should also consider cultural differences. Culturally competent healthcare providers and systems provide care in ways that are appropriate and aligned with patients' social, cultural, and linguistic needs, which in turn affects how patients receive and perceive information and the degree to which they adhere to recommendations. In acknowledgment of the importance of a culturally competent rural workforce, states have begun to invest in public health educational programs to build upon the competency of the existing rural workforce [134]. As of 2016, more than 30 states had enacted legislation to improve cultural competency in their healthcare workforces [134]. In a 2015 bill, Maryland legislators required the Office of Minority Health and Health Disparities to provide certain health occupations boards with a list of recommended courses. Courses include cultural and linguistic competency, health disparities, and health literacy [134].

Incentive Laws in Underserved Areas

What are examples of incentive-type laws to improve workforce capacity?

Federal and state governments have passed incentive-type laws to improve the workforce capacity in health professional shortage areas. As discussed, an example of these incentives is loan repayment programs for practitioners who work in shortage areas [239]. The Nurse Corps Loan Repayment Program helps with nursing education debts in return for the registered or advance practice nurse working in an eligible critical shortage facility in a high-need area [240]. A critical shortage facility is defined as a public or private nonprofit healthcare facility located in, designated as, or serving a health professional shortage area having shortages in the primary care or mental-health workforce [240]. As of 2018, 36 states and the District of Columbia have implemented state loan repayment programs and receive grants from the National Health Service Corps to help fund these programs. Some states have expanded the program to other regions. Nevada and New Hampshire, for instance, expanded the criteria for health workers receiving financial support or loan forgiveness to include those who provide services to medically underserved populations and in other needy locations [134]. In all, the majority of states have passed laws providing an incentive for practitioners to seek work in professional shortage areas and other underserved needy areas.

Primary Care Professionals

Rural areas have an unmet need for primary care providers. These unmet needs are expected to intensify as a result of demographic changes, coverage expansions resulting from the 2010 Affordable Care Act, and a decline in the rural primary care workforce [141]. Many solutions are at work to offset the expected increased demand for primary care and preventive services. One strategy is to promote the role of non-physician primary care practitioners, such as advanced practice nurses and physician assistants, and to expand the scope of practice for these providers to practice more independently [140]. The role of the paramedic is also being expanded. In Minnesota, for example, as part of a statewide innovation grant, community paramedics are providing a broader range of services, including primary care (e.g., health assessments, chronic disease monitoring, collecting laboratory specimens). In a study evaluating this program and care provided by paramedics, patients with paramedic contact were more likely to have a future primary care visit, to keep post-discharge mental-health visits, and to safely manage medication [241].

Dental Workforce

Dental care is a rural problem largely because of a lack of practicing dentists and insufficient dental insurance. A shortage of dental practitioners in rural and micropolitan areas has resulted in emergency departments becoming the alternative for evaluation and treatment of dental conditions [15]. To address this problem, states have passed laws intended to expand the dental care workforce. In Minnesota, for example, additional license types (dental therapists and advanced dental therapists) have been added to help meet the need for dental professionals qualified to provide preventive and restorative dental care, in some cases with less direct supervision [145; 241]. In this case, at least half of a dental therapist's patients must be considered underserved—that is, on public assistance, uninsured, or living in an area with a shortage of dentists [242]. Several states permit new dental profession types to provide dental care under varying levels of supervision by dentists, allowing these providers to meet dental care needs in nontraditional, tribal, school-based, and community settings [145]. In Alaska, where the majority of land is classified as rural, some clinics have sent out dental health aide therapists to distant rural sites to deliver routine restorative care. As a result of this initiative, many recipients were able to have regular access to dental care for the first time [242].

Aside from government actions to increase workforce numbers and to expand the scope of practice, dental care workforce capacity can be built using teledentistry. In California, dental hygienists use teledentistry to improve dental care access for the young and disabled. Dental hygienists go to community settings such as schools, Head Start public programs, and nursing homes, where patients are screened and data are transmitted digitally back to the dentist, who creates a treatment plan for the hygienist to implement [242]. These solutions have potential to mitigate dental disease in rural underserved communities.

Community Health Workers

Another initiative to build workforce capacity is the community health worker. Community health workers have a strong understanding of their communities and serve as a liaison between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery [243]. Providing invaluable support to public health and private care, they are found in public health departments, community locations, primary care settings, and hospitals, and are generally well-positioned to reach patients in rural settings [244]. The role of the community health worker is broad and includes conducting outreach for community health promotion programs, providing community education, and collecting assessment data on community health needs [245]. Community health workers have a long history of service in the United States and are known by many titles, such as community health advisors, lay health advocates, outreach educators, community health representatives, peer health promoters, and peer health educators [244]. Some states have passed laws defining the role of the community health worker, developing standards or credentials, defining their training and certification needs, and collecting community health worker workforce data [141].

To intensify the impact on the public health workforce as a whole and to benefit all public health disciplines, integrating the workforce and sharing priorities are vital [246]. This idea of integrating and sharing of aims is well aligned with the trend of using more collaborative networks and partnerships (public and non-public) in delivering health care in the United States.

THE ROLE OF SCHOOLS

Education is an important element to promoting health and well-being in rural populations. Education combined with community-based action promises to increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and injury, improve health, and enhance quality of life in rural communities [247]. Public health education on physical activity and exercise, nutrition, safe food handling, immunizations, and smoking cessation is vital in rural areas, and this education may be delivered in many settings—home health visits, online educational forums, early care and child education settings, secondary schools, and healthcare visits. Historically, the county public health nurse was active in the school community, working alongside and with school personnel, families, and associations.

As a community resource, rural schools are engaging in health-related activities and promoting a better learning experience for youth. Although the primary focus is on education, in many rural counties, schools serve as a health center or a hub for community health education—these schools may be the only centralized place to meet. The extent that schools are a health gathering place to learn and receive service varies, as each county is unique in its needs, leadership, socioeconomic profile, and demographics.

In schools, children can learn the basics of health and wellness, such as principles of physical activity and nutrition, while also having a place to apply the learned principles [248]. Each day, public schools provide a setting for 49.4 million students to learn about health and healthy behaviors [249]. There are many benefits of teaching and applying healthy lifestyle choices to youth at school. Physical activity at school is reported to result in reduced risk for childhood obesity, mitigation of disease risk factors, and better mental health [249]. Physical activity may be integrated into classroom lessons, through intramural or sports programs, at lunchtime, or during recess [250].

Involving schools and school nurses in public health partnerships can help bridge accessibility and outreach gaps. In Iowa, for example, the departments of public health and education have partnered to improve policy and practices for physical education/activity and nutrition [251]. As part of this initiative, additional funding was provided to improve on-grounds access to water for school children and to increase physical education instructional time [251]. In South Dakota, the departments of health and education in collaboration with a state university provided training to personnel on healthy school meals and physical activity [252]. In addition to learning about health, schools can be a venue for youth to receive clinical health services and counseling. As schools play a role for a healthy lifestyle for youth, they may also be a venue for clinical services, when feasible.

Historically, rural public health nurses worked with schools to promote the health and well-being of youth and families. Much like today, health agencies played a vital role in giving adequate health services, in identifying health issues (i.e., surveillance), providing training or in-servicing of teachers on community health services, and training families and teachers in promoting student growth and well-being. Cooperatively, the county public health nurse promoted good nutrition and food safety, helped with safe storage for school lunches, and provided community education on planting vegetables [253]. Many of these principles and practices are still in place today.

Learning programs that engage the rural nurse vary across school districts depending on the need, policy, and support of funding. According to the National Association of School Nurses, school nurses bring together health care and education and collaboratively develop healthy communities [232]. They apply evidence-based concepts in their practice, promoting both the individual and population-based health of students, providing the coordination of care, serving as advocates for quality student-centered care, and acting to advance academic success [232].

CDC Initiatives

Educating children early regarding healthy lifestyle habits (e.g., good nutrition, physical activity) can promote school performance and help mitigate unhealthy living and disease later in life. In 2012, the CDC introduced the early care and education concept to promote healthy practices early in life, bringing "good habits" into early care facilities and schools. This idea of teaching healthy habits early is based on the belief that it is easier to influence children's food and physical activity choices when they are young, before habits are formed. Developing healthy habits for physical activity and diet early in life can influence daily practices as individuals grow and can favorably influence a child's cognitive development [254]. Early care and education programs promote social, emotional, cognitive, and motor skill development for the very young (up to 3 to 4 years of age). In addition to healthy physical activity, some programs include nutritious meals, support for parents, health screening, and social services. Early care and education programs may be delivered in a variety of ways and settings, including state and district programs (available to all children), federal Head Start programs for low-income children and families, and other programs targeting low-income children at risk. These early childhood education programs are reported to lessen the chance for obesity, improve child cognitive development, reduce the incidence of child abuse and neglect, lessen youth violence, and limit use of emergency department services [255].

The CDC has advocated for the early care and education setting as one of the best settings to implement an obesity prevention program, providing early education to prevent childhood obesity and to promote readiness to learn in childcare centers, family childcare, Head Start, and pre-kindergarten programs across the country [256]. The number of states implementing early care and education programs is growing. As an example, in 2016, New Mexico reported that more than 160 early care and education centers had put wellness policies in place to increase physical activity, good nutrition and breastfeeding practices, and family engagement [257]. The CDC initiative on early care and education has been applied in many states, involving many public and private partners and tailored to meet the needs of youth in different locales and cultures [258].

School health services are not limited to learning healthy habits and accessing preventive services; many schools have been hubs for primary care clinical services for conditions such as asthma, substance abuse, and dental care for both youth and parents [141]. Individuals facing the disparities inherent to rural America (e.g., geographic isolation, poverty, lack of health insurance) may not have another "concrete" place to receive care. School-based health centers often operate as a partnership between the school and a community health center, hospital, or local health department to improve the health of students and the community as a whole [248]. School health services staff can help all students with preventive care (e.g., immunizations, vision and hearing screenings) as well as acute and emergency care.

The school nurse and other care providers can play a critical role in the daily management of chronic health issues, such as asthma and allergies, among school-aged children [259]. Many public health nurses monitor at-risk students and engage them in prevention strategies; closely treating and managing chronic conditions can help offset many of the consequences. For example, asthma education programs in school districts can promote improved symptom management and fewer school absences [42]. Ideally, school education can set the foundation for a healthy lifestyle in later years, but some counties/districts may not have the funding to expand the role of the school beyond health education to also include other community health activities.

The Whole School, Whole Community, Whole Child Model

What are elements of the Whole School, Whole Community, Whole Child model?

The CDC framework for promoting classroom health is called the Whole School, Whole Community, Whole Child (WSCC) model. It is a student-centered model that emphasizes the role of the community in supporting the school, the connections between health and academic achievement, and the importance of evidence-based school policies and practices [260]. The WSCC model aligns the goals of education, public health, and school health. Because school education and public health give service to the same population and in the same setting, the WSCC model depends on collaboration between the sectors interested in promoting youth cognitive, emotional, physical, and social development. The elements of WSCC create a model for promoting a whole-child approach to education and include [260]:

- Physical education and physical activity
- Nutrition environment and services
- Health education
- Social and emotional school climate
- Physical environment
- Health services
- Counseling, psychological, and social services
- Employee wellness
- Community involvement
- Family engagement

This model emphasizes the sharing of the school facility as a community health and fitness center for families and youth. Health services, including clinical services, are important to the holistic well-being of rural youth. These services may be provided at schools by school nurses, nurse practitioners, physicians, dental professionals, and allied health and other disciplines in order to mitigate health risks and to manage chronic conditions, with medical care referrals made when needed.

CONSIDERATIONS FOR NON-ENGLISH-PROFICIENT PATIENTS

Language and cultural barriers have the potential for far-reaching effect, given the growing percentages of racial/ethnic populations. The rural community is diversifying, and nurses working in these areas would benefit from an understanding of cultural competence and collaborating with interpreters. When there is an obvious disconnect in the communication process between the practitioner and patient due to the patient's lack of proficiency in the English language, an interpreter is required.

According to U.S. Census Bureau data from 2020, 21.5% of households speak a language other than English at home [262]. Clinicians should ask their patients what language they prefer for their medical care information, as some individuals prefer their native language even though they have said they can understand and discuss symptoms in English [263]. Translation services should be provided for patients who do not understand the clinician's language. "Ad hoc" interpreters (family members, friends, bilingual staff members,) are often used instead of professional interpreters for a variety of reasons, including convenience and cost. However, clinicians should check with their state's health officials about the use of ad hoc interpreters, as several states have laws about who can interpret medical information for a patient [264]. Even when allowed by law, the use of a patient's family member or friend as an interpreter should be avoided, as the patient may not be as forthcoming with information and the family member or friend may not remain objective [264]. Children should especially be avoided as interpreters, as their understanding of medical language is limited and they may filter information to protect their parents or other adult family members [264].

Individuals with limited English language skills have actually indicated a preference for professional interpreters rather than family members [217].

Most important, perhaps, is the fact that clinical consequences are more likely with ad hoc interpreters than with professional interpreters [216]. A systematic review of the literature showed that the use of professional interpreters facilitates a broader understanding and leads to better clinical care than the use of ad hoc interpreters, and many studies have demonstrated that the lack of an interpreter for patients with limited English proficiency compromises the quality of care and that the use of professional interpreters improves communication (errors and comprehension), utilization, clinical outcomes, and patient satisfaction with care [197; 199].

Clinicians should use plain language in their discussions with their patients who have low literacy or limited English proficiency. They should ask them to repeat pertinent information in their own words to confirm understanding, and reinforcement with the use of low-literacy or translated educational materials may be helpful.

CONCLUSION

The rural public health system is working to prevent disease and promote the highest level of well-being and quality of life for rural populations/communities in the United States. The role of the rural public health nurse is ever-evolving, as new public health infrastructures are being considered and implemented and as evidence-based ideas are being applied. Progress has been made in transforming the rural healthcare system and meeting the needs of every public community. However, more work is required, and the public health nurse is in the unique position to help improve rural health care and the health of rural communities.

The need to reach geographically isolated patients in need of care has been a driving goal behind telehealth evolution, and Internet technologies have the potential to bring care and health-promoting programs to remote populations. In the future, advanced communication technology will likely play an even bigger role in improving access to services and broadening the scope of prevention initiatives. With time, technology can improve the coordination of care and decrease fragmentation of services. Currently, more funding and technology infrastructure is required, as not all rural areas have the resources to benefit from these technologies.

Rural health is strengthened from the maturing of partnerships and collaborative efforts of public health stakeholders (e.g., public health agencies, private organizations, community residents) working together and sharing resources. These types of efforts have the potential to improve the rural healthcare system. Although strides have been made, more work is necessary to ensure that all rural populations are functioning at their best level.

RESOURCES

USDA Rural Development Program
https://www.rd.usda.gov

CDC Rural Health
https://www.cdc.gov/ruralhealth

National Rural Health Association
https://www.ruralhealth.us

Rural Nurse Organization
http://www.rno.org

Federal Office of Rural Health Policy
https://www.hrsa.gov/rural-health

Rural Health Information Hub
https://www.ruralhealthinfo.org/toolkits/aging/2/supporting-caregivers

National Rural Health Resource Center
https://www.ruralcenter.org

Customer Information/Evaluation insert located between pages 48–49.

Course Availability List

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POSTOPERATIVE COMPLICATIONS

UPDATE

#30764 • 15 ANCC / 1 Pharm Hour

Book By Mail – $98 • ONLINE – $90

Purpose: The purpose of this course is to provide nurses and all allied health professionals who care for postsurgical patients the knowledge necessary to recognize and manage common postoperative complications, improving patient care and outcomes.
Faculty: Susan Engman Lazear, RN, MN
Audience: This course is designed for all nurses and allied professionals involved in the care of patients who undergo surgical procedures, especially those who work in the preoperative area, the operating room, or the postanesthesia unit in hospitals or free-standing surgical centers.
Additional Approval: AACN Synergy CERP Category A, CCMC

CHILDHOOD OBESITY: IMPACT ON HEALTH CARE

#32013 • 5 ANCC / 1 Pharm Hour

Book By Mail – $38 • ONLINE – $30

Purpose: The impact of childhood obesity on an already stressed healthcare system is high and is estimated to rise as the diagnoses of comorbid conditions continue to occur at a younger age. The purpose of this course is to provide nurses with the information necessary to improve the care of children and adolescents who are overweight or obese.
Faculty: Diane Thompson, RN, MSN, CDE, CLNC
Audience: This course is designed for nurses in all practice settings with a desire to better understand the issues facing obese children and their families and the impact of childhood obesity on national and global health care.
Additional Approval: AACN Synergy CERP Category A, CCMC

WOMEN AND CORONARY HEART DISEASE

UPDATE

#33224 • 15 ANCC / 5 Pharm Hours

Book By Mail – $98 • ONLINE – $90

Purpose: The purpose of this course is to identify the unique challenges that face women with heart disease, including prevention, diagnosis, and treatment.
Faculty: Margo A. Halm, RN, PhD, NEA-BC
Audience: This course is designed for all nurses in family practice or medical/surgical areas, especially critical care or cardiac units.
Additional Approval: AACN Synergy CERP Category A, CCMC

PRESSURE INJURIES AND SKIN CARE

UPDATE

#34344 • 5 ANCC Hours

Book By Mail – $38 • ONLINE – $30

Purpose: The purpose of this course is to provide nurses with the information necessary to accurately identify, treat, and manage skin breakdown (pressure ulcers), thereby improving patient outcomes and quality of life.
Faculty: Maryam Mamou, BSN, RN, CRRN, CWOCN
Audience: This course is designed for nurses in all practice settings, particularly those caring for patients at high risk for developing pressure injuries.
Additional Approval: AACN Synergy CERP Category A, CCMC

DIABETES AND STROKE: MAKING THE CONNECTION

#34943 • 2 ANCC / 1 Pharm Hour

Book By Mail – $23 • ONLINE – $15

Purpose: The purpose of this course is to provide nurses with the information necessary to identify patients with diabetes who are at risk for stroke and intervene early.
Faculty: Diane Thompson, RN, MSN, CDE, CLNC
Audience: This course is designed for nurses in all practice settings who care for patients with diabetes.
Additional Approval: AACN Synergy CERP Category A, CCMC

ETHICAL DECISION MAKING

UPDATE

#37074 • 15 ANCC Hours

Book By Mail – $98 • ONLINE – $90

Purpose: The purpose of this course is to assist healthcare professionals to define the predominant ethical theories and principles used in health care, determine any legal and regulatory implications, and in collaboration with their colleagues and patients/clients, make effective decisions that determine the appropriate course of treatment, or refusal of such, for and with those for whom they care. of treatment, or refusal of such, for and with those for whom they care.
Faculty: Michele Nichols, RN, BSN, MA
Audience: This course is designed for all nurses and allied healthcare professionals.
Additional Approval: AACN Synergy CERP Category B, CCMC

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Course Availability List *(Cont'd)*

HYPERLIPIDEMIAS AND ATHEROSCLEROTIC CARDIOVASCULAR DISEASE

UPDATE

#90844 • 10 ANCC / 7 Pharm Hours

Book By Mail – $68 • ONLINE – $60

Purpose: The purpose of this course is to provide a review of hyperlipidemia in the pathogenesis of cardiovascular disease, as well as the therapeutic benefits of pharmacologic and nonpharmacologic approaches to treatment. The objectives are to promote team-based care, foster patient awareness and shared provider-patient decision-making, and promote implementation of lifestyle changes and compliance with guideline-directed therapy for prevention of cardiovascular disease.

Faculty: A. José Lança, MD, PhD

Audience: This course is designed for physicians, physician assistants, nurses, and pharmacy professionals who may intervene to limit the effects of hyperlipidemias in their patients, promoting better long-term health and preventing cardiovascular disease.

Additional Approval: AACN Synergy CERP Category A, CCMC

METABOLIC SYNDROME: A GROWING EPIDEMIC

UPDATE

#91544 • 5 ANCC / 1 Pharm Hour

Book By Mail – $38 • ONLINE – $30

Purpose: As metabolic syndrome continues to become a more prevalent problem in the United States, healthcare professionals will encounter patients with this constellation of symptoms on a more frequent basis. The purpose of this course is to educate healthcare professionals about the epidemiology and treatment of metabolic syndrome so they may better care for their patients.

Faculty: John J. Whyte, MD, MPH

Audience: This course is designed for healthcare professionals working with adults or adolescent patients who exhibit risk factors for metabolic syndrome.

Additional Approval: AACN Synergy CERP Category A

LOW BACK PAIN

UPDATE

#94102 • 15 ANCC / 10 Pharm Hours

Book By Mail – $98 • ONLINE – $90

Purpose: The purpose of this course is to provide healthcare professionals with a greater understanding of the pathophysiology and differential diagnosis of low back pain conditions so they may effectively treat or manage low back pain, resulting in improved patient health, quality of life, and satisfaction.

Faculty: Mark Rose, BS, MA, LP

Audience: This course is designed for physicians, physician assistants, nurses, and other healthcare professionals involved in the care of patients with back pain.

Additional Approval: AACN Synergy CERP Category A, CCMC

AUTOIMMUNE DISEASES

UPDATE

#94454 • 15 ANCC / 10 Pharm Hours

Book By Mail – $98 • ONLINE – $90

Purpose: The purpose of this course is to provide healthcare professionals with the information necessary to diagnose and treat the most common autoimmune disorders according to evidence-based or guideline-endorsed recommendations in order to improve patient quality of life.

Faculty: Lori L. Alexander, MTPW, ELS, MWC; John M. Leonard, MD

Audience: This course is designed for physicians, physician assistants, nurses, and other healthcare professionals involved in the diagnosis, treatment, and care of patients with autoimmune diseases.

Additional Approval: AACN Synergy CERP Category A, CCMC

PNEUMONIA

New Guidelines

#94673 • 10 ANCC / 5 Pharm Hours

Book By Mail – $68 • ONLINE – $60

Purpose: The purpose of this course is to provide physicians, nurses, and other healthcare professionals who manage the care of patients with pneumonia a foundation for effective management strategies in order to improve outcomes and foster an interprofessional collaborative practice consistent with published guidelines.

Faculty: Carol Whelan, APRN; Lori L. Alexander, MTPW, ELS, MWC

Audience: This course is designed for all physicians, physician assistants, and nurses, especially those working in the emergency department, outpatient settings, pediatrics, nursing homes, and intensive care units.

Additional Approval: AACN Synergy CERP Category A, CCMC

OPIOID SAFETY: BALANCING BENEFITS AND RISKS

Opioid/ Controlled Substance

#95500 • 5 ANCC / 5 Pharm Hours

Book By Mail – $38 • ONLINE – $30

Purpose: The purpose of this course is to provide clinicians who prescribe or distribute opioids with an appreciation for the complexities of opioid prescribing and the dual risks of litigation due to inadequate pain control and drug diversion or misuse in order to provide the best possible patient care and to prevent a growing social problem.

Faculty: Mark Rose, BS, MA, LP

Audience: This course is designed for all physicians, osteopaths, physician assistants, pharmacy professionals, and nurses who may alter prescribing and/or dispensing practices to ensure safe opioid use.

Additional Approval: AACN Synergy CERP Category A

Special Approval: This course is designed to meet the requirements for opioid/controlled substance education.

Prices are subject to change.
Visit www.NetCE.com for a list of current prices.

Course Availability List *(Cont'd)*

FRONTOTEMPORAL DEMENTIA

UPDATE

#96102 • 2 ANCC / 1 Pharm Hour

Book By Mail – $23 • ONLINE – $15

Purpose: The purpose of this course is to provide healthcare professionals with current information on frontotemporal dementia (FTD). Understanding the epidemiology, pathology, clinical features, diagnostic process, genetics, symptom treatment/management, role of brain autopsy, and current research provides a foundation for the care of patients with FTD and support for their families.

Faculty: Ellen Steinbart, RN, MA; Lauren E. Evans, MSW

Audience: This course is designed for physicians, nurses, and allied health and mental health professionals who may intervene to support patients with frontotemporal dementia and their families.

Additional Approval: AACN Synergy CERP Category A, CCMC

OBSESSIVE-COMPULSIVE DISORDER

UPDATE

#96473 • 4 ANCC / 2 Pharm Hours

Book By Mail – $32 • ONLINE – $24

Purpose: The purpose of this course is to provide healthcare professionals with a basic understanding of obsessive-compulsive disorder (OCD), its clinical manifestations, and basic treatment approaches in order to facilitate optimum patient care and outcomes.

Faculty: John J. Whyte, MD, MPH

Audience: This course is designed for healthcare professionals working with adults or adolescent patients who exhibit symptoms of obsessive-compulsive disorder.

Additional Approval: AACN Synergy CERP Category A

ANXIETY DISORDERS IN OLDER ADULTS

#96690 • 3 ANCC / 1 Pharm Hour

Book By Mail – $26 • ONLINE – $18

Purpose: Older adults are the fastest growing demographic in the world, and anxiety disorders are the most common mental disorder in this age group. The purpose of this course is to provide clinicians with the knowledge and skills necessary in order to improve the assessment and treatment of anxiety disorders in older adults.

Faculty: Beyon Miloyan, PhD

Audience: This course is designed for the benefit of a broad range of allied health professionals, including but not limited to physicians, nurses, medical assistants, and nursing home administrators.

Additional Approval: AACN Synergy CERP Category A

CULTURAL COMPETENCE: AN OVERVIEW

NEW!

#97430 • 2 ANCC Hours

Book By Mail – $23 • ONLINE – $15

Purpose: The purpose of this course is to provide members of the interprofessional healthcare team with the knowledge, skills, and strategies necessary to provide culturally competent and responsive care to all patients.

Faculty: Alice Yick Flanagan, PhD, MSW

Audience: This course is designed for all members of the interprofessional healthcare team.

Additional Approval: AACN Synergy CERP Category B

COMMONLY ABUSED SUPPLEMENTS

NEW!

#98020 • 2 ANCC Hours

Book By Mail – $23 • ONLINE – $15

Purpose: The purpose of this course is to provide healthcare professionals in all practice settings the knowledge necessary to increase their understanding of the commonly abused supplements and their adverse effects.

Faculty: Chelsey McIntyre, PharmD

Audience: This course is designed for healthcare professionals whose patients are taking or are interested in taking dietary supplements.

Additional Approval: AACN Synergy CERP Category A

THE SCOOP ON COLLAGEN

NEW!

#98070 • 1.5 ANCC Hours

Book By Mail – $23 • ONLINE – $15

Purpose: The purpose of this course is to provide healthcare professionals in all practice settings the knowledge necessary to increase their understanding of the various collagen products.

Faculty: Chelsey McIntyre, PharmD

Audience: This course is designed for healthcare professionals whose patients are taking or are interested in taking collagen products.

Additional Approval: AACN Synergy CERP Category A

NATURAL PSYCHEDELICS

NEW!

#98320 • 3 ANCC / 3 Pharm Hours

Book By Mail – $26 • ONLINE – $18

Purpose: The purpose of this course is to provide healthcare professionals with an increased understanding of natural psychedelics and the considerations associated with the safety, effectiveness, and legal use of these substances.

Faculty: Chelsey McIntyre, PharmD

Audience: This course is designed for healthcare professionals whose patients are taking or have questions about natural psychedelic products.

Additional Approval: AACN Synergy CERP Category A

ANEMIA IN THE ELDERLY

#99083 • 5 ANCC / 2 Pharm Hours

Book By Mail – $38 • ONLINE – $30

Purpose: The purpose of this course is to provide healthcare providers with the knowledge and tools necessary to identify anemia early and respond appropriately. Better health outcomes for the geriatric population will result from an increase in evidence-based clinical practices.

Faculty: Susan Waterbury, MSN, FNP-BC, ACHPN

Audience: This course is designed for physicians, physician assistants, nurses, and other healthcare professionals involved in the care of elderly patients.

Additional Approval: AACN Synergy CERP Category A, CCMC

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	95300	Substance Use Disorders and Pain Management: MATE Act Training / 8 Contact Hours	$48
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#90120 Pulmonary Embolism 2 Contact Hours	**#97770** Counseling Patients at the EOL 5 Contact Hours	**#95300** Substance Use Disorders 8 Contact Hours	**#31961** Rural Public Health 15 Contact Hours
1. ☐ New ☐ Review	1. ☐ New ☐ Review	1. ☐ New ☐ Review	1. ☐ New ☐ Review
2. _____ Hours	2. _____ Hours	2. _____ Hours	2. _____ Hours
3. ☐ Yes ☐ No	3. ☐ Yes ☐ No	3. ☐ Yes ☐ No	3. ☐ Yes ☐ No
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5. ☐ Yes ☐ No	5. ☐ Yes ☐ No	5. ☐ Yes ☐ No	5. ☐ Yes ☐ No
6. ☐ Yes ☐ No	6. ☐ Yes ☐ No	6. ☐ Yes ☐ No	6. ☐ Yes ☐ No
7. ☐ Yes ☐ No	7. ☐ Yes ☐ No	7. ☐ Yes ☐ No	7. ☐ Yes ☐ No
8. ☐ Yes ☐ No	8. ☐ Yes ☐ No	8. ☐ Yes ☐ No	8. ☐ Yes ☐ No
9. ☐ Yes ☐ No	9. ☐ Yes ☐ No	9. ☐ Yes ☐ No	9. ☐ Yes ☐ No
10. ☐ Yes ☐ No	10. ☐ Yes ☐ No	10. ☐ Yes ☐ No	10. ☐ Yes ☐ No
11. ☐ Yes ☐ No	11. ☐ Yes ☐ No	11. ☐ Yes ☐ No	11. ☐ Yes ☐ No
12. ☐ Yes ☐ No	12. ☐ Yes ☐ No	12. ☐ Yes ☐ No	12. ☐ Yes ☐ No
13. ☐ Yes ☐ No	13. ☐ Yes ☐ No	13. ☐ Yes ☐ No	13. ☐ Yes ☐ No

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#97770 Counseling Patients at the End of Life — If you answered yes to question #13, how specifically will this activity enhance your role as a member of the interprofessional team? ____

#95300 Substance Use Disorders and Pain Management: MATE Act Training — If you answered yes to question #13, how specifically will this activity enhance your role as a member of the interprofessional team? ____

#31961 Rural Public Health and Nursing Care — If you answered yes to question #13, how specifically will this activity enhance your role as a member of the interprofessional team? ____

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