

An Argument for Change in Tobacco Treatment Options Guided by the ASAM Criteria for Patient Placement

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Tobacco use is a major threat to public health in the United States, and the number one cause of preventable death. Although most smokers try to quit unaided, robust data indicate that pairing behavioral support to US Food Drug Administration-approved cessation medications significantly increase cessation rates. Those who do receive assistance in quitting usually receive very low intensity treatment, regardless of the severity of their dependence or their medical and environmental circumstances. This is in stark contrast to how other substance use disorders are treated, where there are varying levels of care depending on addiction severity and biopsychosocial circumstances. The American Society of Addiction Medicine (ASAM) developed a formal algorithm for assessing substance use disorders and determining the optimal level of care. The ASAM Patient Placement Criteria are regularly used to determine the appropriate level of care for all substance use disorders except tobacco. This paper will review key aspects of the ASAM dimensions of care and placement levels, with emphasis on how they apply to tobacco use and present case examples of typical smokers who would benefit from a higher intensity of tobacco dependence treatment. We also present current barriers to reimbursing healthcare providers for these services. We conclude with a commentary and discussion regarding recommendations for improvements in tobacco dependence treatment care.

Key Words: levels of care, nicotine, patient placement, smoking, substance use, tobacco, treatment

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Tobacco use is still the number one cause of preventable deaths and results in more than 480,000 deaths annually. There are effective treatments for tobacco use disorder, which include medications and behavioral counseling, and clinical practice guidelines have been implemented to broadly integrate tobacco treatment into the healthcare system (Fiore et al., 2008). Although there is a dose-response relationship between the amount of time spent counseling a patient about tobacco use, with more counseling time resulting in better outcomes, most treatment for tobacco use disorder consists of brief advice and possibly medication, and treatments have a high rate of relapse, measured as return to smoking at 1 year (Fiore et al., 2008; Hays et al., 2011).

In contrast to the treatment for tobacco use disorder, a range of options exist for other substance use disorders (SUDs). For other SUDs, the appropriate level of treatment is based upon the specific and often complex needs of the patient. For example, a problem drinker with good social support may respond to a brief counseling intervention that can be managed in a primary care setting. Those with more severe alcohol or drug use disorders, who have physical tolerance, heavier use, and more severe psychosocial consequences, often require referral to a specialized treatment facility. At least 2.5 million people with an alcohol or drug problem received treatment in a specialty facility in 2013, which represents about 11% of those in need (SAMHSA, 2014).

The American Society of Addiction Medicine (ASAM) developed a formal algorithm for assessing SUDs and determining the optimal level of care. The ASAM Patient Placement Criteria (Mee-Lee et al., 2013) cover the substance use and psychosocial factors that determine the severity of the person's addiction. The higher the ASAM score, the greater is the need for intensive treatment. The reliability and validity of the ASAM Criteria have been established and these are widely used (Baker and Gastfriend, 2003; Staines et al., 2003; Gartner and Mee-Lee, 1995). Matching services to patient-specific treatment problems is shown to enhance clinical outcomes (McLellan et al., 1997). The guiding principles of the ASAM criteria are that treatment decisions should be based on multidimensional assessment and not based on diagnosis alone.

This study will review key aspects of the ASAM dimensions of care and placement levels, with emphasis on how they apply to tobacco use disorder. We also include information on the availability or lack of reimbursement options for different levels of care because payment is a

key feature linked to service availability. We then present 3 case examples of typical tobacco using patients seen in the healthcare system. We will apply the ASAM criteria using multidimensional assessment to illustrate current gaps in treatment options for most patients. A commentary and discussion will follow with recommendations for improvements in care.

SECTION ONE

The ASAM Dimensions of Care

The ASAM Patient Placement Criteria evaluate each patient's severity along 6 biopsychosocial dimensions: (1) acute intoxication and/or withdrawal; (2) biomedical conditions; (3) emotional, behavioral, or cognitive conditions; (4) readiness to change; (5) potential for relapse; and (6) recovery environment. Each dimension is rated from 0 to 4, with 4 signifying the most severe, and 0 signifying little or no problem potential. Scores are added, and greater risk factors in each of these dimensions can warrant more intensive treatment placement.

Dimension 1: Acute Intoxication and Withdrawal Potential

Although nicotine does not usually have intoxicating effects, there are significant withdrawal symptoms that occur with abrupt cessation. Withdrawal from nicotine can cause a variety of symptoms including: frustration, irritability, anxiety, depressed mood, impaired concentration, insomnia, restlessness, and increased appetite. Nicotine withdrawal symptoms can interfere with functioning and result in a relapse back to smoking. Nicotine withdrawal can vary widely in terms of symptom heterogeneity and be impacted by both genetics and environmental cues (Piper, 2015). Affective or mood symptoms are a prominent part of this withdrawal syndrome, which may play a more important role than physical withdrawal in the maintenance of addiction (Koob and Le Moal, 2005). Similar to other SUDs, it is important to establish a proper treatment to diminish withdrawal, which can undermine attempts at abstinence.

Dimension 2: Biomedical Conditions and Complications

Biomedical conditions and complications may negatively impact SUD treatment outcomes and make it more difficult for a patient to participate in treatment. Neglect for medical conditions, ongoing pain, or pregnancy has higher risk ratings in this domain.

Tobacco affects nearly every organ system in the body, and is a direct cause of diseases such as chronic obstructive pulmonary disease, cardiovascular disease, and many cancers. Many people continue to smoke despite a tobacco-related medical diagnosis, despite the fact that quitting smoking is the most effective way for smokers to reduce the risk of premature death and disability from these conditions. One in 3 tobacco users who call state quitlines have a chronic disease; yet this group is less likely to quit smoking with this method (Bush et al., 2012). No randomized controlled trials have been conducted to determine the most effective smoking cessation

method for individuals with lung cancer (Zeng et al., 2015). Furthermore, having a severe biomedical condition or complication, regardless of whether it was caused by tobacco, can decrease the success of quit attempts and make patients less likely to quit.

Smoking during pregnancy is a critical biomedical condition that warrants special attention and care. An estimated 10% of US women smokers continue to smoke during pregnancy, and the risks of negative outcomes for mother and baby are quite high and include low birth weight, preterm birth, placental abnormalities, and birth defects (Centers for Disease Control and Prevention, 2015). Quitting during early pregnancy is associated with higher education, higher socioeconomic status, and better prenatal care, suggesting that high-risk groups should be targeted with more aggressive interventions (Moore et al., 2016).

Dimension 3: Emotional, Behavioral, or Cognitive Conditions and Complications

Smokers with emotional, behavioral, or cognitive conditions and complications are less likely to become former smokers over their lifetimes. There is also a preponderance of evidence that shows that most tobacco use in the United States today occurs among those with low socioeconomic status and/or a behavioral health condition (that includes any mental illness or other addiction). Those with current mental illness make up at least 1/3 of the remaining smokers in the United States, and purchase and consume at least 1/3 of all of the tobacco products sold (Lasser et al., 2000; Lawrence et al., 2009; Centers for Disease Control and Prevention, 2013).

Individuals with mental illness have an increased vulnerability to tobacco use, developing dependence, and experiencing difficulty quitting tobacco (Lasser et al., 2000; Breslau et al., 2004; Hagman et al., 2008), which warrants a specialized treatment approach. For example, mental illnesses, including depression, are associated with higher levels of dependence or withdrawal, and early relapse back to smoking after a quit attempt, which may result in fewer former smokers in these groups (de Leon et al., 2002; Hagman et al., 2008; Pratt and Brody, 2010), and smoking rates have not gone down in individuals with mental illness (Cook et al., 2014; Steinberg et al., 2015). Tobacco users with mental illness or other addictions could benefit from more intensive tobacco treatment that is integrated into the behavioral health treatment setting, although in practice this is infrequently an option (Williams et al., 2014).

Dimension 4: Readiness to Change

Engagement and willingness to accept SUD treatment are important determinants of outcome. Low-risk rating signifies the patient is engaged in treatment, and committed to change. Patients at the highest risk rating need counseling that includes motivational interviewing (MI) techniques.

Motivational interviewing is a collaborative, goal-oriented, person-centered counseling style, designed to elicit and strengthen motivation for change (Miller and Rollnick, 2012). MI focuses on helping patients to resolve their ambivalence about change and has a large literature supporting its use across a wide variety of problem behaviors including

engaging patients into smoking cessation treatment (Lindson-Hawley et al., 2015). Although most smokers state that they have a strong desire to quit smoking, many still encounter difficulty engaging into the treatment process. Low motivation to participate in treatment or to stop smoking should also not preclude access to treatment if other criteria are met. For example, even mandated or compulsory treatment can be effective for other SUDs (National Institute on Drug and Abuse, 2014) and tobacco-free policies enhance smoking cessation.

Dimension 5: Relapse, Continued Use, or Continued Problem Potential

This dimension addresses not only potential for relapse but also continued use and chronicity of use. The lowest risk signifies low relapse potential with good coping skills, whereas the patient with the highest risk rating has a high relapse risk, and may be unable to achieve even initial abstinence.

The return to smoking after a quit attempt is quite high, with as many as 75% of smokers returning to smoking within 6 months, even with use of evidence-based treatment. Higher relapse to smoking is associated with higher levels of nicotine dependence, exposure to smoking cues, experiencing craving or withdrawal symptoms, and not using smoking cessation counseling or pharmacotherapy (Zhou et al., 2009; Vangeli et al., 2011). Despite the high rate of relapse back to tobacco use after a quit attempt, there are almost no stepped-care models for how to intervene with a higher level of care. Smokers often receive the message to “try (the same approaches) again.”

Dimension 6: Recovery and Living Environment

The best possible living environment (and lowest-risk rating) is supportive, safe, drug-free, and meets all of the patient’s basic needs. Living with smokers can make it harder to quit tobacco as the patient is surrounded by smoking cues and more temptations to smoke, and/or the patient may lack social support. Easy cigarette availability, including friends who are willing to provide cigarettes, is a strong predictor of craving and relapse. Economically disadvantaged individuals are less likely to live in a smoke-free home and are more likely to have friends who smoke (Hiscock et al., 2012). Providing patients with a safe and substance-free recovery environment increases their chances for success. There are many alternatives to a hospital setting such as halfway houses, residential treatment programs, and sober living options, which could provide a supportive environment to enhance success. Ironically, many such environments for other SUD care are not tobacco-free.

SECTION TWO

ASAM Treatment Placement

The ASAM’s levels of care are broken down into intensity levels of 0 to 4 as well and within the broad levels of care are subdivisions to reflect the many types of service options that can be provided for different patient needs. Each level is described below with description of services available for tobacco. In addition, since reimbursement is related to

service delivery, additional information is provided regarding third-party payment at each service level.

Level 0.0: Self-help/No Treatment

This treatment level designation is used to describe a lack of professional substance use treatment, or self-help. A self-help attempt can be aided with pamphlets or online support.

Level 0.0: Self-help/No Treatment-Tobacco

Self-help is the method used most often by tobacco users, although it is also the least effective method (Ranney et al., 2006; Centers for Disease Control and Prevention, 2011). From quitting “cold turkey” to getting support or information from materials, there are a variety of self-help options. Advantages are that these interventions are often free and easily accessible. Online options attract a younger audience and have a low cost-per-quit rate. Some, but not all, link people to evidence-based treatment for tobacco cessation such as traditional counseling and smoking cessation medications.

Quitting smoking via self-help is ineffective for the majority of smokers. After an unaided quit attempt, 50% of smokers return to smoking within just 1 week; overall there is a success rate of 10% or less (Fiore et al., 2008). Because this treatment intensity is so ineffective for the majority of smokers, it is typically not the recommended treatment for individuals with any psychosocial risk factor, those with high dependence, or for smokers who have already tried to quit smoking and failed (Ranney et al., 2006). In summary, self-help is more effective than no care, but the effect is small (Hartmann-Boyce et al., 2014).

Over-the-counter (OTC) nicotine replacement products are also treatments that patients can seek for quit attempts. These products are safe and can increase the patient’s chances of success, although most use nicotine replacement products incorrectly or for too short a time period (Stead et al., 2012).

Self-help services are typically free and do not require third-party reimbursement. Nicotine medications are the exceptions and were given OTC status as a way to increase access to tobacco users; however, this has inadvertently created barriers to access among low-income smokers. The out-of-pocket cost (\$25 or more) for OTC nicotine may be prohibitive to some and has allowed insurers that traditionally do not pay for OTC medications (including Medicaid and Medicare) to opt out or provide insufficient coverage (Cook-Shimanek et al., 2013; McCallum et al., 2014).

Level 0.5: Early Intervention

Level 0.5 care is typically administered in the primary care setting and includes screening for problematic substance use. The purpose is to recognize a problem early to give brief treatment and counseling. However, if the substance use becomes more severe, or complex problems emerge, the patient would be better served at a higher level of treatment, and referral is recommended.

Level 0.5: Early Intervention-Tobacco

Primary care physicians are trained to screen patients for tobacco use. In theory, this is a great opportunity for

detection of tobacco use, because most smokers see their primary care physicians once per year, and for some patients with a low level of tobacco dependence, primary care counseling alone may be a sufficient treatment to aid their cessation attempt.

The standard method developed for primary care intervention is called the 5As. The components of the 5As are to: Ask a patient if they are smoking; Advise them to quit, perform an Assessment of tobacco use and their desire to quit; Assist them with a quit plan and Arrange follow-up visits. Brief advice to quit can increase quitting by 1% to 3%, making it more effective than self-help (Stead et al., 2013a). Although an intervention like the 5As takes less than 10 minutes, in actual practice, it is often shortened or skipped altogether (Stead et al., 2013a). Studies indicate high rates of physicians asking about tobacco (>80%), but much lower rates of all other interventions (<25%; Tong et al., 2010). Other healthcare workers have also adopted screening processes like the 5As, although studies indicate these are completed at even lower than physician rates (Tong et al., 2010). There is also evidence that tobacco screening occurs at reduced rates among racial and ethnic minority groups and the uninsured (Jamal et al., 2012). The more recent version is called 2As and an R, where the physician Asks, Advises, and then Refers the patient for tobacco dependence treatment, typically a telephone counseling service (Manfredi and Lehw, 2008).

To incentivize physicians to provide screening, brief intervention and referral, the Center for Medicare and Medicaid Services (CMS) developed Current Procedural Terminology (CPT) codes for reimbursement for tobacco use disorder. CPT code 99406 is for a service intervention between 3 and 10 minutes, and CPT code 99407 is for any time greater than 10 minutes (Centers for Medicare, 2015). Current Medicare reimbursement rates for physicians and other recognized providers are \$12.19 (for 99406) and \$23.99 (for 99407). Qualifying Medicare patients are individuals who use tobacco and have a tobacco-related disease or symptom. Services are provided at a maximum of 2 attempts per year (4 sessions per attempt), and patients may be responsible for both co-insurance and any unmet deductible. In contrast, SUDs other than tobacco, have billing codes to reimburse providers for longer periods of screening and higher rates of reimbursement (GO396, 15–30 minutes, \$29.42) and (GO397, greater than 30 minutes, \$57.69). These codes also do not require that the person be experiencing illness or symptoms from the substance use to receive care.

Level 1.0: Outpatient Treatment

Level 1.0 treatment is typically 1 or 2 hours a week, and is for patients with SUD that are low-risk in most or all ASAM dimensions. The patient is stable, willing to cooperate in treatment, and has a supportive living environment. Level 1.0 is often run by addiction treatment professionals and may be used as a transition step from one treatment level to another, such as after discharge. These treatments include group therapy, individual counseling, and outpatient programs.

Level 1.0: Outpatient Treatment-Tobacco

Level 1.0 services are typically traditional outpatient smoking cessation services. Smoking cessation counseling is an evidence-based treatment that is more effective than self-help or brief intervention (Fiore et al., 2008). These sessions can be performed with any healthcare provider knowledgeable of tobacco treatment and can be delivered in group, individual (face-to-face), or telephone counseling sessions. Because intensive interventions are associated with greater smoking cessation rates than less intensive interventions, recommendations are to use them whenever possible (Fiore et al., 2008).

Individual Counseling

Individual counseling can be done by any healthcare provider with counseling skills, but is increasingly done by tobacco treatment specialists (TTS) who receive specialty training (Hughes, 2007). Cessation success is correlated with number of counseling sessions attended (Fiore et al., 2008), although the average total duration of group or individual tobacco counseling is rarely more than 15 hours (Mottillo et al., 2009).

Reimbursement is currently limited to the same codes previously described above (CPT code 99406 for 3–10 minutes and CPT code 99407 for >10 minutes with same reimbursement rates, limitation, and need for medical necessity as above). A medical provider is also able to reimburse for tobacco counseling using other CPT codes that are based on the time length of service; however, an important distinction is tobacco can never be listed as the primary diagnosis. For example, the provider can bill for asthma with tobacco as a secondary diagnosis, but this limits counseling by having it linked only to medical diagnoses. Reimbursement for individual counseling through private insurance has improved with the Affordable Care Act by mandating tobacco services; however, in practicality, these are also limited because they are defined and coded in this same way as CMS. The Affordable Care Act requires health insurance plans to cover tobacco cessation services, without cost-sharing, using a similar treatment algorithm to Medicare (2 attempts per year, 4 sessions per attempt of 10 minutes or more). Treatments of more than 8 outpatient sessions per year are not covered. Psychotherapy visits are not reimbursable by most insurance for the problem of tobacco use disorder, although they are reimbursed for other SUDs.

Group Counseling

Group counseling for tobacco is typically a 6 to 8-week program, where members set a quit date on the second week and offer mutual support through the quitting process. Members are often encouraged, but are not required to use pharmacological treatments for tobacco.

Some groups may be provided for free or at a low cost to participants for smoking cessation through nonprofit organizations or in clinical and hospital settings, although access to these groups is often limited (Ku et al., 2016). Some studies find that group counseling is more effective than individual counseling (Dobbie et al., 2015). Group psychotherapy is not

reimbursable by most insurance for the problem of tobacco use disorder, although it is reimbursed for other SUDs.

Proactive Telephone Counseling

Telephone-based cessation services were developed in the early 1980s by the National Cancer Institute and have been shown to be an effective treatment for smoking cessation (Centers for Disease Control and Prevention, 2004; Stead et al., 2013b). Called “quitlines,” these services offer advantages in that they are widely accessible, relatively inexpensive, and easy to use. Systems have been developed to help physicians refer patients to a quitline, so that a patient does not even have to make the first phone call. Proactive telephone counseling enhances the patient’s ability to quit, and in general, more sessions are associated with greater success. Although services can range from 1 to 12 calls, most receive an average of 3 calls or fewer (Stead et al., 2013b; Mushtaq et al., 2015).

Every state has telephone counseling services and there is also a National Quitline funded by the National Cancer Institute. State quitlines are funded by a combination of state and federal funds, and most offer free or low-cost services. Quitlines are estimated to reach about 1% of smokers in the United States, or about 400,000 annually (Lichtenstein et al., 2010) at a mean cost of \$1.69 per smoker (North American Quitline and Consortium, 2015).

Pharmacological Interventions

In addition to psychosocial treatments, there are also pharmacological treatments that can be prescribed at a level 1.0 intensity of care or above. Adding medications to counseling increases the success rate in quitting compared with either treatment alone. Currently, nicotine patches, gum, and lozenges do not require a prescription. However, nicotine nasal spray, nicotine inhaler, bupropion, and varenicline are also all US Food and Drug Administration (FDA)-approved for smoking cessation and require a prescription from a healthcare professional. All 7 US FDA-approved medications are proven to be effective in helping a patient to manage withdrawal symptoms and at least double the chances the person will be successful in quitting compared with not using medication (Fiore et al., 2008; Stead et al., 2012). However, healthcare professionals can be especially helpful in assisting and educating patients to use these medications correctly, and can also prescribe combinations of medications to help patients quit. Among tobacco users, only 7.6% receive a

prescription for a tobacco-cessation medication during a healthcare visit (Jamal et al., 2012); rates are even lower for Medicare recipients. Medical management of a quit attempt by a prescriber provides additional counseling time, although medications are generally more effective if given in combination with several sessions of tobacco counseling (Fiore et al., 2008). Although tobacco medications may be available through private or public insurance, there are often restrictions on the use including coverage limits (eg, 12–24 weeks only).

Level 2.0: Intensive Outpatient Treatment

Level 2.0 treatments are considered intensive outpatient services, with more treatment time to develop skills, get support, and have greater access to services while still living in the home environment and/or continuing a work or school schedule. They often include access to a physician and are equipped to handle co-occurring psychiatric illnesses, and/or provide pharmacologic treatments when needed. The main goal of these programs is to assist patients who have ongoing problems achieving abstinence, complicated biomedical and behavioral conditions, or limited support in the community.

The available treatment types within level 2.0 care are divided into 2 different classifications: intensive outpatient treatment (level 2.1) and partial hospitalization programs (level 2.5). Intensive outpatient treatment programs typically provide 9 or more hours of structured clinical treatment weekly. Partial hospitalization programs provide 20 hours or more of treatment each week.

Level 2.0: Outpatient Treatment-Tobacco

To the best of our knowledge, these clinical services do not exist for tobacco. They are also not reimbursable by any private or public insurance for the diagnosis of tobacco use disorder, although smoking cessation interventions that are delivered in multiple formats (ie, by different members of a larger treatment team) are known to increase abstinence rates and are recommended (Fiore et al., 2008). Table 1 demonstrates an individual (Jack) who meets ASAM criteria for level 2.0, intensive outpatient treatment for TUD.

Case 1

Jack is a 37-year-old male who smokes 18 cigarettes per day. He has tried to quit 4 or 5 times in the past, but never for longer than 2 days. His last quit attempt was 3 years ago. At

TABLE 1. Clinical Assessment and Placement Summary (Jack)

Dimensions	Questions	Yes	No	Risk Rating	Intensity of Service Need
1. Intoxication/withdrawal	Past history or current serious withdrawal?		X	1, mild	Low, outpatient
2. Biomedical conditions	Any current severe physical health problems		X	0, none	None
3. Emotional behavioral conditions	Any current severe behavioral conditions?		X	1, mild	Low, outpatient
4. Readiness to change	Client ambivalent about treatment/denies it is a problem?	X		2, moderate	Moderate, intensive outpatient
5. Potential for relapse	Likely to continue use or relapse without immediate care?	X		3, significant	Moderately high, intensive outpatient
6. Recovery/living environment	Family/living/work threatens safety, well-being or sobriety	X		3, significant	Moderately high, intensive outpatient

that time, he wore a 21 mg nicotine patch, but still experienced some difficulty with tobacco withdrawal symptoms including dysphoric mood, irritability, insomnia, and trouble concentrating, which made it difficult for him to work. He works as a truck driver and is alone for long periods of time. There are no restrictions on smoking at work (in his truck or in the trucking company) and his wife also smokes. Jack used to abuse alcohol, but stopped drinking about 10 years ago after having a single bleeding ulcer. He describes being told he had “attention deficit disorder” as a child, but does not take any medications for this. He is in fair physical health, but reports having frequent respiratory infections and a chronic cough. He has 2 or 3 close friends who also smoke, and he reports that smoking is frequent at truck stops, in the warehouse, and in other places where he spends most of his time. He wishes he did not have to stop smoking and cannot imagine life without smoking, but is seeking help at the request of his daughter who is 6 months pregnant and wants him to quit.

As Table 1 illustrates, Jack is very unlikely to be able to quit on his own and will likely experience worsening health conditions that will disable him or cause him to lose his life. Although he has some reasons to quit, he is not in a work or social environment which facilitates the quitting process and would benefit from the additional support provided through intensive counseling and tobacco treatment medication. His severity on dimensions 4, 5, and 6 warrants at least a moderate level of treatment, like an intensive outpatient program.

Level 3.0: Inpatient/Residential Treatment

Level 3.0 intensity care is provided in a 24-hour a day residential or inpatient setting for patients who have moderate-to-severe risk potential in the ASAM dimensions. The patients in this level of care usually have unsupportive or unsafe home environments and can receive medical interventions and many hours of individual counseling, and group therapies in a controlled environment. This level of care is broken up into 4 subcategories (levels 3.1, 3.3, 3.5, and 3.7), ranging from lower-intensity residential to medically managed inpatient treatment facilities.

Level 3.0: Inpatient/Residential treatment-Tobacco

The Mayo Clinic has one of the only inpatient treatment programs currently available in the United States (Hays et al., 2011). The Mayo program is an 8-day residential program that provides both pharmacotherapy and intensive counseling in a supported tobacco-free setting. About 6 hours of didactic sessions and counseling are provided daily by tobacco treatment specialists and other staff. Each person receives a

detailed treatment and relapse prevention plan and telephone follow-ups are done after discharge.

This treatment service is considered to be an ASAM 3.7 level of treatment (Mee-Lee et al., 2013). Patient outcome data indicate high success in 6-month quit rates. When compared with groups of smokers who receive outpatient tobacco treatment at Mayo, the odds ratio (OR) for smoking abstinence at 6 months was about 3 for the residential groups, although they had even higher levels of dependence than the outpatients (Hays et al., 2001, 2011). Average cost for the residential program is \$5000, and many participants pay out of pocket since most insurance plans do not cover it. Despite its success, this approach has limited capacity, treating only a few hundred smokers between 2004 and 2007 (Hays et al., 2011). Table 2 demonstrates an individual (Phyllis) who meets ASAM criteria for level 3.0, residential treatment for TUD.

Case 2

Phyllis is a 40-year-old female with severe congestive heart failure who is on a waiting list for cardiac transplant. She has a history of cardiac arrest and takes 10 different cardiac medications including 2 diuretics. She is tired most of the time with shortness of breath on exertion and has limited mobility. She has tried to quit many times, but is unable to abstain for more than 1 day; she reduced her smoking recently from 20 to 15 cigarettes per day, but complains of severe withdrawal including irritability, sad mood with crying spells, inability to sleep, restlessness and anxiety, and inability to concentrate. She has 2 children, aged 10 and 12, and appears mildly depressed and older than her stated age. She is desperate to quit smoking because her doctors are considering disqualifying her for transplant surgery. She has tried calling the quitline and taking medications including varenicline to quit smoking, but has not been able to succeed in the past year.

As Table 2 illustrates, helping Phyllis stop smoking will save or at least extend her life and is an urgent need. Her potential for relapse is quite high and she experiences moderate nicotine withdrawal symptoms that sabotage her quitting efforts. Her severity on dimensions 2 and 5 warrant an intensive level of treatment, like a residential program could provide.

Level 4.0: Intensive Inpatient Treatment

Level 4.0 care is the most intense type of care that can be offered to patients. The typical patient at this level has severe risk in most, if not all, of the ASAM dimensions. This level of treatment has inpatient beds and has 24-hour schedule generally in a hospital.

TABLE 2. Clinical Assessment and Placement Summary (Phyllis)

Dimensions	Questions	Yes	No	Risk Rating	Intensity of Service Need
1. Intoxication/withdrawal	Past history or current serious withdrawal?	X		2, moderate	Moderate, intensive outpatient
2. Biomedical conditions	Any current severe physical health problems	X		4, severe	Severe, residential
3. Emotional, behavioral conditions	Any current severe behavioral conditions?	X		2, moderate	Moderate, intensive outpatient
4. Readiness to change	Client ambivalent about treatment/denies it is a problem?		X	0, none	Any
5. Potential for relapse	Likely to continue use or relapse without immediate care?	X		3, significant	Moderately high, residential
6. Recovery/living environment	Family/living/work threatens safety, well-being, or sobriety	X		1, mild	Mild, outpatient

Level 4.0: Intensive Inpatient Treatment-Tobacco

These clinical services do not exist with the possible exception of a research trial, and this may be less applicable to tobacco use disorder because it typically does not present with a behavioral crisis.

DISCUSSION

The vast majority of US treatment options for tobacco operate at an extremely low intensity of care (ASAM treatment level of 0.0–1.0), with the exception of 1 or 2 residential treatment facilities. The bulk of treatment services currently available include brief advice and telephone counseling. This means that there is a huge gap in available services with no services at all in the range between 2.0 and 3.5. This paradigm is similar to the availability of SUD services in the United States in the 1930s, before the development of modern treatment. A guiding principle of addictions treatment is matching individuals to the appropriate level of care to ensure the best possible outcome. For tobacco use disorder, patients are given few options, and many are left on their own during quit attempts. This is not only unfortunate but poor medical practice given the costs of tobacco addiction to the individual and nation and the cost-effectiveness of treatment. This is particularly relevant given recent evidence that the cessation rate has not increased in the United States over the past 20 years at the population level (Zhu et al., 2012). Possible explanations include that an insufficient number of smokers use treatment or that the effectiveness of treatment is too low. New models for intensive outpatient and residential treatment need to be developed and studied.

Treatment providers for other drugs of abuse determine the optimal intensity of treatment by examining several pertinent treatment factors via ASAM criteria and provide more intensive treatments to patients with more severe dependence and/or with more complicated biopsychosocial needs. Providing an appropriately intensive treatment to patients with more complicated or severe SUDs results in better treatment outcomes (Magura et al., 2003) and there is little reason to believe the same would not be true for tobacco use. As high-risk smokers make up a higher proportion of remaining smokers (Centers for Disease Control and Prevention, 2013; Jamal et al., 2015), a large proportion of smokers are likely to have characteristics that ASAM suggests require more intensive treatments than those they currently receive.

The lack of reimbursement for even basic services like tobacco group therapy clearly limits the development of innovative services. Tobacco use disorder meets billing criteria for medical necessity, based on the enormity of death and disease it causes. Reimbursable services should be available, without the co-existing presence of medical illness. Additionally, although smokers with behavioral health conditions are increasingly a growing group of remaining US tobacco users, the behavioral health billing codes typically exclude tobacco as a billable diagnosis, reducing the potential treatment efforts of this large workforce. Tobacco use disorder is probably the only diagnosis (and the only SUD) in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* that is exempted from behavioral health billing codes.

In contrast to tobacco, available treatments for other SUDs are much more varied. Approximately 11% of those in need receive specialty SUD treatment; 12% of these were treated in intensive outpatient programs (IOP). In contrast, telephone quitlines, which provide the bulk of cessation services in the United States, are estimated to reach only 1% of the current 51 million smokers, with few other options available. As the demographic of tobacco users shifts towards more low-income smokers and/or more complex smokers with behavioral health comorbidity, a range of treatment options will be needed. Smokers with complex psychosocial needs and fewer community supports qualify for higher intensity of care based on ASAM scoring algorithms; yet sadly these services do not exist.

Since 1999, the National Health Service (NHS) in the United Kingdom has provided free treatment for smokers. The NHS includes a network of primary care and specialty providers, and clinics that reach 5% to 10% of their smoking population. The majority (79%) of clients receive one-to-one behavioral support, although group counseling is also available. Evaluation revealed that clients who saw specialist tobacco practitioners had higher quit rates than those who saw general practitioners, supporting the role for specialist services. In the NHS, smoking cessation medications are easy to acquire and are often free (Dobbie et al., 2015).

There is evidence that higher intensity tobacco treatments and those provided by specialists are more effective for smoking cessation; yet in the United States, they are not available outside of academic centers and are the exceptions rather than the rule. The lack of reimbursement prevents the expansion of these services, and many that currently exist are grant funded or subsidized by a health system rather than fee for service. Even basic services like longer outpatient counseling sessions (more than 4 sessions) and group treatment are often not covered by private or public health insurances.

Tying reimbursement of tobacco treatment to a medical illness is also a problem. The United Kingdom recently changed policy to remove illness requirement for tobacco billing; this policy change resulted in increased physician recording of advice and referring patients for behavioral support to stop smoking (Szatkowski and Aveyard, 2016). Medical necessity is a concept used by third-party payers and managed care organizations. Treatment for other SUDs warrant medical necessity based on the severity of the 6 criteria in the multidimensional assessment, and not based on the presence of medical illness alone.

Expanding care, especially in an ASAM level 2.0 intensity of treatment, could be a promising way to help smokers quit. Intensive outpatient treatment programs could help individuals to cope with challenging environments or other complex behavioral conditions that might undermine cessation success. These treatment programs would provide individuals with continual support, and could include a combination of group sessions, individualized care, and meetings with a physician. IOPs are an important part of the continuum of care for SUDs that are shown to be as effective as inpatient treatment (McCarty et al., 2014). Priority should be given to research that examines the efficacy and feasibility of more intensive tobacco treatment approaches. Finally, the Mayo

Clinic's intensive residential treatment program has been proven to be an effective model for treating severe tobacco addiction. It would also be reasonable to increase access to residential services for, at the very least, pregnant smokers or those with severe, life-threatening conditions.

REFERENCES

- Baker SL, Gastfriend DR. Reliability of multidimensional substance abuse treatment matching: implementing the ASAM patient placement criteria. *J Addict Dis* 2003;22(suppl 1):45–60.
- Bush T, Zbikowski SM, Mahoney L, et al. State quitlines and cessation patterns among adults with selected chronic diseases in 15 states, 2005–2008. *Prev Chronic Dis* 2012;9:E163.
- Breslau N, Novak SP, Kessler RC. Psychiatric disorders and stages of smoking. *Biol Psychiatry* 2004;55:69–76.
- Centers for Disease Control and Prevention. Telephone Quitlines: A Resource for Development, Implementation, and Evaluation. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Final Edition; 2004.
- Quitting smoking among adults: United States, 2001–2010. *Morb Mortal Wkly Rep* 2011;60:1513–1519.
- Centers for Disease Control and Prevention. Vital Signs. Adult Smoking: Focusing on People with Mental Illness. Available at <http://www.cdc.gov/vitalsigns/smokingandmentalillness/index.html>. Accessed February 2013.
- Centers for Disease Control and Prevention. Health effects: smoking during pregnancy. Smoking and Tobacco Use. 2015. Available at: http://www.cdc.gov/tobacco/basic_information/health_effects/pregnancy/. Accessed June 2015.
- Centers for Medicare and Medicaid Services (CMS). Counseling to prevent tobacco use. MLN Matters: Information for Medicare Fee-For-Service Health Care Professionals. Available at: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/downloads/MM7133.pdf>. Accessed December 20, 2015.
- Cook BL, Wayne GF, Kafali EN, et al. Trends in smoking among adults with mental illness and association between mental health treatment and smoking cessation. *JAMA* 2014;311:172–182.
- Cook-Shimaneck M, Burns EK, Levinson AH. Medicinal nicotine nonuse: smokers' rationales for past behavior and intentions to try medicinal nicotine in a future quit attempt. *Nicotine Tob Res* 2013;15:1926–1933.
- de Leon J, Becona E, Gurpegui M, et al. The association between high nicotine dependence and severe mental illness may be consistent across countries. *J Clin Psychiatry* 2002;63:812–816.
- Dobbie F, Hiscock R, Leonardi-Bee J, et al. Evaluating long-term outcomes of NHS stop smoking services (ELONS): a prospective cohort study. *Health Technol Assess* 2015;19:1–156.
- Fiore MC, Jaén CR, Baker TB, et al. Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service; 2008.
- Gartner L, Mee-Lee D. The Role and Current Status of Patient Placement Criteria in the Treatment of Substance Use Disorders. Rockville, MD: The Center for Substance Abuse Treatment; 1995.
- Hagman BT, Delnevo CD, Hrywna M, et al. Tobacco use among those with serious psychological distress: findings from the National Survey of Drug Use and Health, 2002. *Addict Behav* 2008;33:582–592.
- Hartmann-Boyce J, Lancaster T, Stead LF. Print-based self-help interventions for smoking cessation. *Cochrane Database Syst Rev* 2014;6:CD001118.
- Hays JT, Wolter TD, Eberman KM, et al. Residential (inpatient) treatment compared with outpatient treatment for nicotine dependence. *Mayo Clin Proc* 2001;76:124–133.
- Hays JT, Croghan IT, Schroeder DR, et al. Residential treatment compared with outpatient treatment for tobacco use and dependence. *Mayo Clin Proc* 2011;86:203–209.
- Hiscock R, Bauld L, Amos A, et al. Socioeconomic status and smoking: a review. *Ann N Y Acad Sci* 2012;1248:107–123.
- Hughes J. Tobacco treatment specialists: a new profession. *J Smok Cessat* 2007;2(S1):2–7.
- Jamal A, Dube SR, Malarcher AM, et al., Centers for Disease Control and Prevention (CDC). Tobacco use screening and counseling during physician office visits among adults: National Ambulatory Medical Care Survey and National Health Interview Survey, United States, 2005–2009. *MMWR Morb Mortal Wkly Rep* 2012;61(suppl):38–45.
- Jamal A, Homa DM, O'Connor E, et al. Current cigarette smoking among adults - United States, 2005–2014. *MMWR Morb Mortal Wkly Rep* 2015;64:1233–1240.
- Koob GF, Le Moal M. Plasticity of reward neurocircuitry and the 'dark side' of drug addiction. *Nat Neurosci* 2005;8:1442–1444.
- Ku L, Bruen BK, Steinmetz E, et al. Medicaid tobacco cessation: big gaps remain in efforts to get smokers to quit. *Health Aff (Millwood)* 2016;35:62–70.
- Lasser K, Boyd JW, Woolhandler S, et al. Smoking and mental illness: a population-based prevalence study. *JAMA* 2000;284:2606–2610.
- Lawrence D, Mitrou F, Zubrick SR. Smoking and mental illness: results from population surveys in Australia and the United States. *BMC Public Health* 2009;9:285.
- Lichtenstein E, Zhu SH, Tedeschi GJ. Smoking cessation quitlines: an underrecognized intervention success story. *Am Psychol* 2010;65:252–261.
- Lindson-Hawley N, Thompson TP, Begh R. Motivational interviewing for smoking cessation. *Cochrane Database Syst Rev* 2015;3:CD006936.
- Magura S, Staines G, Kosanke N, et al. Predictive validity of the ASAM Patient Placement Criteria for naturalistically matched vs. mismatched alcoholism patients. *Am J Addict* 2003;12:386–397.
- Manfredi C, Lehew CW. Why implementation processes vary across the 5A's of the Smoking Cessation Guideline: administrators' perspectives. *Nicotine Tob Res* 2008;10:1597–1607.
- McCallum DM, Fosson GH, Pisu M. Making the case for Medicaid funding of smoking cessation treatment programs: an application to state-level health care savings. *J Health Care Poor Underserved* 2014;25:1922–1940.
- McCarty D, Braude L, Lyman DR, et al. Substance abuse intensive outpatient programs: assessing the evidence. *Psychiatr Serv* 2014;65:718–726.
- McLellan AT, Grissom GR, Zanis D, et al. Problem service "matching" in addiction treatment: a prospective study in 4 programs. *Arch Gen Psychiatry* 1997;54:730–735.
- Mee-Lee D, Schulman GD, Fishman MJ, et al, eds. The ASAM Criteria: Treatment Criteria for Addictive, Substance-Related, and Co-occurring Conditions. 3rd ed. Carson City, NV: The Change Companies; 2013.
- Miller WR, Rollnick S. Motivational Interviewing: Helping People Change. 3rd ed. New York: Guilford Press; 2012.
- Moore E, Blatt K, Chen A, et al. Factors associated with smoking cessation in pregnancy. *Am J Perinatol* 2016;33:560–568.
- Mottillo S, Filion KB, Bélisle P, et al. Behavioural interventions for smoking cessation: a meta-analysis of randomized controlled trials. *Eur Heart J* 2009;30:718–730.
- Mushtaq N, Boeckman LM, Beebe LA. Predictors of smokeless tobacco cessation among telephone quitline participants. *Am J Prev Med* 2015;48(1 suppl 1):S54–S60.
- National Institute on Drug Abuse. Principles of Drug Abuse Treatment for Criminal Justice Populations: A Research-Based Guide. National Mental Health Services Survey Report, November 25, 2014. National Institutes of Health; U.S. Department of Health and Human Services (Updated 2014).
- North American Quitline Consortium. FY 2013 Annual Survey. Available at: <http://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/Research/March112015summary.pdf>. Accessed December 19, 2015.
- Piper ME. Withdrawal: expanding a key addiction construct. *Nicotine Tob Res* 2015;17:1405–1415.
- Pratt LA, Brody DJ. Depression and Smoking in the U.S. Household Population Aged 20 and over, 2005–2008. NCHS data brief. Vol 34. Hyattsville, MD: National Center for Health Statistics; 2010.
- Ranney L, Melvin C, Lux L, et al. Systematic review: smoking cessation intervention strategies for adults and adults in special populations. *Ann Intern Med* 2006;145:845–856.
- Substance Abuse and Mental Health Services Administration, Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.
- Staines G, Kosanke N, Magura S, et al. Convergent validity of the ASAM patient placement criteria, using a standardized computer algorithm. *J Addict Dis* 2003;22(suppl 1):61–77.

- Stead LF, Perera R, Bullen C, et al. Nicotine replacement therapy for smoking cessation. *Cochrane Database Syst Rev* 2012;11:CD000146.
- Stead LF, Buitrago D, Preciado N, et al. Physician advice for smoking cessation. *Cochrane Database Syst Rev* 2013A;5:CD000165.
- Stead LF, Hartmann-Boyce J, Perera R, et al. Telephone counselling for smoking cessation. *Cochrane Database Syst Rev* 2013B;8:CD00285.
- Steinberg ML, Williams JM, Li Y. Poor mental health and reduced decline in smoking prevalence. *Am J Prev Med* 2015;49:362–369.
- Szatkowski L, Aveyard P. Provision of smoking cessation support in UK primary care: impact of the 2012 QOF revision. *Br J Gen Pract* 2016;66:e10–e15.
- Tong EK, Strouse R, Hall J, et al. National survey of U.S. health professionals' smoking prevalence, cessation practices, and beliefs. *Nicotine Tob Res* 2010;12:724–733.
- Vangeli E, Stapleton J, Smit S, et al. Predictors of attempts to stop smoking and their success in adult general population samples: a systematic review. *Addiction* 2011;106:2110–2121.
- Williams JM, Stroup S, Brunette MF, et al. Tobacco use and mental illness: a wake-up call for psychiatrists. *Psychiatric Services* 2014;65:1406–1408.
- Zeng L, Yu X, Yu T, et al. Interventions for smoking cessation in people diagnosed with lung cancer. *Cochrane Database Syst Rev* 2015;12:CD011751.
- Zhou X, Nonnemaker J, Sherrill B, et al. Attempts to quit smoking and relapse: factors associated with success or failure from the ATTEMPT cohort study. *Addict Behav* 2009;34:365–373.
- Zhu S, Lee M, Zhuang Y, et al. Interventions to increase smoking cessation at the population level: how much progress has been made in the last two decades? *Tob Control* 2012;21:110–118.