

Substance Use Disorder Approaches for Clinical Care, Training Service Delivery

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ABSTRACT

Relevance: Substance use disorders (SUDs) are prevalent in medical and psychiatric populations and can lead to disastrous clinical outcomes (e.g., opioid crisis) for patients and families. Providers need additional training, flexible clinical approaches based on teams, and service delivery models that integrate care.

Approach/Methods: Evidence-based care, principles, and service delivery approaches from the literature are suggested for SUD patients, who pose many challenges in presentation/engagement (e.g., incomplete history, criminality, culture), diagnosis and treatment (e.g., recidivism; adherence/follow-up). The impact on teams, services, the community and public and population health levels are discussed, including dilemmas for administration (e.g., skill and workflow development, models of care, cost).

Results: Best practices for prevention, assessment and treatment of SUDs are needed for training and lifelong learning. These may include using a biopsychosociocultural model for engagement, tools for workflow (e.g., Screening, Brief Intervention, and Referral to Treatment (SBIRT)), use of interprofessional teams and standardized evaluation/quality improvement. Interprofessional team attitudes and skills are needed more than knowledge. Providers in medical settings need help on evidence-, practice- and system-based levels, and this could include ongoing consultation with psychiatry/behavioral health.

Conclusions: Systems need curricular change, professional development, and change in service workflow to build a positive work culture. More research is needed to assess implementation outcomes, treatment approaches and models of care.

Keywords

Addiction, Behavioral, Brief, Disorder, Evidence, Implementation, Mental, Screening, Substance, Training, Triage, Treatment.

Introduction

Substance use disorders (SUDs) are prevalent in medical and

psychiatric populations and can lead to disastrous clinical outcomes, recidivism and burnout for patients, families and providers in all settings.¹⁻² A U.S. general population survey completed in 2018 demonstrated that 22.6 (9.2%) million people are current users of both alcohol and illicit substances [1,2]. In 2015, an estimated 36.5 million (15.1%) U.S. adults were active

cigarette smokers. Of these, 75.7% (27.6 million) smoked every day [3]. An estimated 20.8 million people in our country are living with a SUD – similar in number to people with diabetes – and 1.5 times the number of people who have all cancers combined [4,5]. Furthermore, the amount of deaths related to overdoses – many involving opiates – has more than quadrupled from 16,000 to over 64,000 from 1999 to 2016 [5], are increasing 4% per year and approximately 70% involve a prescription or illicit opioid,³ 7.2% had a repeat overdose within 1 year and less than 5% and 2%, respectively were in outpatient treatment or on buprenorphine before the index attempt [6,7].

Primary care patients with psychiatric disorders also have a high prevalence of having co-occurring SUD. The co-morbidity prevalence of any lifetime SUD and lifetime mental illness is roughly 50% according to the National Co-morbidity Study [8]. Furthermore, the prevalence of individuals with co-occurring disorders is dramatically elevated from a baseline of 3-4% of people living in the community to 40-60% in mental health treatment settings and 50-60% in substance use treatment settings. There are serious medical and psychiatric outcomes related to SUDs/comorbidities for patients, families, providers and systems of care (Figure 1). Many primary care, nursing and other health care providers would like more skills and confidence in assessing and treating SUDs, particularly in outpatient-based opioid treatment [9], as well as psychiatric consultation in-person or via telephone, e-mail or video [10].

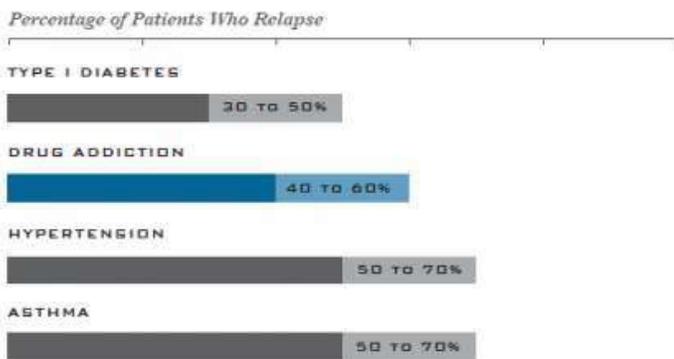


Figure 1: Relapse rates for substance disorders for patients with significant medical conditions.

Training in SUDs across medicine has improved slowly in terms of student, resident and fellowship options. Student surveys in 2000 reported 20% had “none” and 56% only “a small amount” [11] versus 2016 (140 schools teaching in pre-clerkship courses and teaching it in one or more required clerkships) [12]. Still, many do not have customized rotation experiences (e.g., residential) and/or supervision by subspecialists or other mental health providers with substance certifications according to the American Association of Medical Colleges (AAMC) [13]. A survey in 1997 – which has not been repeated – showed that only 56% of programs in emergency medicine, family medicine, internal medicine, obstetrics/gynecology and pediatrics had a required substance curriculum [14,15]. A recent survey of residency program directors during

the opioid crises reported four things: 1) 76.9% said residents frequently manage patients with an opioid use disorder (OUD); 2) only 23.5% dedicate 12+ hours of curricular time to addiction medicine; 3) 35.9% encourage/require training in OBOT; and 4) 22.6% encourage/require obtaining a Drug Enforcement Administration (DEA) waiver to prescribe buprenorphine [9]. Psychiatry currently requires a 4-week block addiction rotation, but it often takes place in general psychiatry rather than addiction settings [16], and all residencies typically use a circumscribed, intensive rotation block rather than longitudinal rotations, which are more effective for skill and attitude development [16].

There are a number of challenges with training, programs and service delivery for patients with SUDs. First, in terms of stigmatization, SUDs are far behind the level of acceptance of other mental health disorders like schizophrenia, depression and anxiety. Second, as with other chronic diseases, a reconceptualization of outcomes for SUDs is in order, since abstinence is achieved by few patients. Therefore, reduction of use and becoming more functional may be in order, and relapse may be used as a measurement of treatment effectiveness rather than seen only as a failure (Figure 1). Third, unlike the treatment of other chronic disorders, much of the treatment of severe SUDs is provided in non-medical or lay settings, which may be less evidence-based. Fourth, while the Substance Abuse and Mental Health Services Administration has developed approaches with brief interventions (e.g., Screening, Brief Intervention, and Referral to Treatment (SBIRT)) to help with reasonable workflow [1,17], it may not be commonly used, despite the flexibility it offers in being applied to a variety of settings and with clinical care by many different interprofessional teams’ members. Hence, many opportunities for early intervention in primary care, emergency departments and other community settings are missed and severe consequences occur. Finally, a shift from individual to a team-based, interprofessional model would facilitate support providers and add versatile skillsets.

This paper aims to help readers – both primary care and mental health – in three ways:

1. For providers and trainees, re-conceptualize and contextualize treatment of SUDs in medical settings (e.g., primary care, emergency department).
2. Provide evidence-, practice- and system- and practice-based approaches to assess, triage and treat patients with SUDs (e.g., biopsychosociocultural, interprofessional, public/population health, evaluation of outcomes), and
3. Re-assess the need for changes in clinical teamwork and service delivery systems related to prioritization of workflow and administration.

Suds Clinical Care: Unique Dimensions, Challenges and Steps Toward Progress

Levels of challenges for providers and systems

Patients suffering from SUDs pose unique challenges at different stages of the therapeutic relationship, including: 1) presentation/engagement (e.g., mismatch of encounter/treatment goals, overt, implicit or internalized stigma, legal issues, culture); 2) diagnosis (e.g., incomplete history, cognitive, psychological and substance;

medical versus psychiatric); 3) Treatment (e.g., complexity; adherence/follow-up; primary care, emergency department (ED) settings; 4) mental/behavioral health settings (e.g., clinician burnout); 5) services on the public and population health spectrum (e.g., recidivism; lack of prevention, team-based and stepped care); and 6) administration (e.g., financing, payment and cost; evaluation; change management; training/competencies; faculty development).

Epidemiology

Co-morbidity with medical and psychiatric disorders is the norm rather than the exception. The National Co-Morbidity Study [8] also found that the prevalence of people suffering from SUDs is equivalent to the number of people who have diabetes, which is as of 2015, 23.1 million [8]. The economic impact of SUDs is \$420 billion a year in the form of health care costs, lost economic productivity, and cost to the criminal justice system [8]. This far exceeds the cost of diabetes at an estimated \$245 billion a year according to the Centers for Disease Control National Diabetes Report (CDC, 2017) [4] and previous estimates by the American Diabetes Association [18]. Over a three-year longitudinal study, patients with SUD diagnoses and co-occurring chronic conditions were seen by providers more frequently than patients without SUD diagnoses, and they were more likely to be prescribed opioid medication, but a majority of patients with SUD diagnoses and chronic medical conditions in primary care did not get seen by co-located behavioral health providers [19].

Pathophysiology and clinical complexity

Increasing recognition of the biological, emotional, psychological and social origins of SUDs is beginning to shift views of the patients' suffering and reduce stigmatization [20]. SUDs alter brain functioning by initially affecting the reward stress response systems, which ultimately affects decision-making and behavioral choices. Despite continued education and training, people continue to think about this type of disorder as a disease of choice, a character flaw or a moral failing; prosocial, survival-related rewards/choices are supplanted by substance-using rewards/choices. An intertwined circle of biologically driven thoughts and emotions – including fear, desire and cognitive control – are processed by the amygdala, hippocampus and prefrontal cortex down to the cellular level.

Clinical goals and challenges

“Good” outcomes are to reduce use, decrease suffering and improve level of function – again, using relapse as one indicator of effectiveness of interventions. While SUD remission is the ultimate goal, partial remission and relapse prevention are reasonable interim goals. The primary symptom outcome targets in SUDs are abstinence/less use and craving, with secondary measures being attendance, adherence, decreased recidivism, and success of concurrent treatments for other problems (e.g., depression, sleep). Social symptom outcome measures include improvements in relationships, return to work (or volunteering) and for some, less involvement with the legal.

Harm reduction approaches focus on restricting or minimizing the negative effects of substance use on people, families and peers

[21,22]. This is often aimed at addressing heavy or dependent patterns of drug use, with interventions focused at individuals – though they could include family, important individuals and/or the broader community foci. For an injection drug user, it would include information, education, and testing with the hope of reducing exposure to infectious disease. These approaches also help to set reasonable expectations and destigmatize care (i.e., less judgmental). Teamwork with warm handoffs among providers, social work, substance counselors and/or mental/behavioral health teams help shift the culture, too, and build a therapeutic relationship with a team or clinic.

Clinical challenges for SUDs result from the neurocognitive status – as after years of drinking, patients can have deficits for months despite abstinence. There is also confusion about treatment priorities (e.g., treat the mood, sleep or SUD first?) and difficult family/social issues to face. The chronic, unstable course may have high recidivism, appears to make patients treatment-refractory and plagues them and potentially caregivers/providers with anxiety and depression (temporary and/or co-occurring).

Public and population health

The shifting perceptions of SUDs include a growing recognition of the importance of prevention and treatment, rather than just saying “No.” Preventive interventions can be considered on four levels: 1) primary prevention, which is focused on the protection of healthy individuals from alcohol abuse and dependence – at a universal, selective or indicated level; 2) secondary prevention, which aims at the prevention of deterioration regarding alcoholic dependence and relapse (i.e., individuals already diagnosed with the condition); 3) tertiary prevention, which is focused at minimizing deterioration of functioning in chronically sufferers from alcoholic dependence; and 4) "quaternary prevention," for the prevention of relapse [23]. Opioid use disorders (OUDs) are a good example of savings related to prevention of a chronic disease, as the National Institute of Drug Abuse (NIDA) studies have shown opioid treatment programs yield a return of 12:1 when accounting for reduced drug-related crime, criminal justice costs, theft and healthcare savings [20]. SUDs have major negative impact on public health [1,5], as they:

1. Lead to unintentional injuries.
2. Exacerbate medical conditions (diabetes, hypertension, cardiovascular, sleep).
3. Exacerbate neuropsychiatric conditions (depression, anxiety).
4. Result in infectious disease (HIV and Hepatitis C).
5. Affect the effectiveness of medications.

This costs \$420 billion a year in the form of health care costs, lost economic productivity, and cost to the criminal justice system.

Model assessment, triage and treatment strategies in medical, psychiatric and substance settings

Case. Triage of SUD patients in the medical setting

Presentation. T.S. is a 35 year-old Caucasian female who arrived to her new primary care provider with a chief complaint of increasing

anxiety over last several months, described as worse at night when she states, "I am preparing my PhD thesis defense and I can't stop worrying about it." Her anxiety is "through the roof," with more frequent panic attacks in last 6 months. She denies any past history of severe anxiety symptoms. She requested a treatment that will not have a delayed onset, as she will present her thesis in 2 weeks. She reports a previous trial of venlafaxine resulted only in a severe decrease in libido, which negatively affected her marriage. Her urine pregnancy test was negative, consistent with her using an intrauterine device (IUD). She denied any current medications. Past history notable only for an episode of low back pain treated by pain specialist "years ago" and now resolved. She denied any current tobacco, cannabis or intravenous drug use, and reported 1-2 glasses of wine on weekends with her husband.

Course and Discussion

Pt was given 10 pills of alprazolam 1mg PO Q6H prn for anxiety/panic attacks; the latter did not seem consistent with panic disorder. She returned 4 days later with complaints of dizziness, lethargy, sedation, slurred speech and poor concentration. She reported taking 1 pill of alprazolam per day in last 3 days. The patient acknowledged that she has been in stable treatment for OUD with methadone 100mg daily for the last 6 years. She does not think of herself as "an addict" any longer and chose not to discuss it, out of fear that she might have been denied care for her acute and disabling anxiety. She had also recently changed primary care providers due to stigmatization associated with this. Since alprazolam would not be a first-line treatment choice, it was discontinued in favor of a non-benzodiazepine gabapentin 300mg po Q6H prn; another benzodiazepines or anti-histaminic drug could have also been used, or with comorbid depression or panic disorder, a selective serotonin reuptake inhibitor would be indicated. She also gave written consent for the primary care provider to coordinate care with her methadone program. She was seen briefly in the primary care clinic by a therapist via a warm handoff and she decided to return for therapy there, preferring that to a mental health clinic.

An overview of principles and approaches

The principles and approaches used in primary care are similar for a variety of conditions – including SUDs – building relationships, screening, triaging/referring, obtaining consultation, and using brief interventions, incrementally, with ongoing continuity (e.g., Screening, Brief Intervention, and Referral to Treatment (SBIRT) [24]. SBIRT can be used in primary care, mental health or substance/residential settings and it is a comprehensive, integrated, public health approach to the delivery of early intervention for individuals with risky alcohol and drug use who have not yet developed SUDs, and the timely referral to more intensive treatment for those who have diagnosable SUDs (Figure 2) [24]. For training across health professions (i.e., physician nursing, psychologist, social worker), the effectiveness of SBIRT is based on two factors: 1) how it is taught, learned, and delivered in terms of the SBIRT components (e.g., BI); and 2) its intersection with profession-driven competencies (e.g., motivational interviewing (MI) [25].

Outcomes with SBIRT generally show increased S (if an evidence-based tool is used) and BI and RT (particularly for heavy users) in the Veterans Health Administration (VHA) [26,27]; The effectiveness of SBIRT is substantial related to how it is implemented, and research from focus groups across professions identified key factors: 1) clinician alcohol-related knowledge and skills; (2) interprofessional collaboration and communication around alcohol-related care; (3) adequate alcohol assessment protocols and integration with the EHR; (4) patient buy-in and motivation; (5) questionable compatibility of S, BI and RT with the treatment setting paradigm and clinician's role; and (6) attending to logistical issues (e.g., time/privacy) [28,29]. Outcomes with concurrent substance disorders and chronic medical conditions are good, though uptake of SBIRT is low in the latter [27,30].

Screening, diagnosis and treatment

Practical options for discovering, triaging and assessing alcohol (and substance) issues focus on screening, rather than initially assessing SUD diagnostic criteria, even though the evidence-base for such criteria is stronger than ever [31]. Though 1-item screens for alcohol and illicit drug [32] exist, most providers and systems want something more substantial to screen and proceed to diagnosis only when indicated. Good options include Alcohol Use Disorders Identification Test (AUDIT) [33] or AUDIT-C [34], and for adolescents the CRAFFT (Car, Relax, Alone, Forget, Friends, Trouble) [35-37]. The TWEAK (Tolerance, Worried, Eye-opener, Amnesia, K-Cut Down) [37] is used to screen pregnant patients [38]. The AUDIT and AUDIT-C have been helpful with comorbid medical (e.g., hypertension, diabetes) and psychiatric (e.g., depression) patients [30]. Findings of note were that AUDIT-C scores and poorer diabetes self-care were positively associated, and AUDIT-C was not as reliable in depressed men. BI in hypertension patients showed reduced heavy drinking and improved biomarker results at one-year follow-up, and a study with two-year follow-up noted reduced hypertension and reduced drinking.

A National Institute on Alcohol Abuse Alcoholism (NIAAA) [39] guide is also suggested for providers to help patients with heavy alcohol use (either heavy daily use or heavy bingeing) in the absence of use disorder has significant general medical and other sequelae [39]. Other options for primary care include the CAGE [40], the Drug Abuse Screening Test (DAST) [41], the Michigan Alcohol Screening Test (MAST) [42,43], and for adolescents, the RAFFT (Relax, Alone, Forget, Friends, Trouble) [44] (Table 1) [45]. The pros for these instruments are good sensitivity for detection and brief time commitment for the physician and patient; on the other hand, follow-up is required to take action. The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) from the World Health Organization [46] provides information on lifetime and past 3-month use, problems, risk of harm and other parameters.

Instruments for assessing readiness to change, monitoring treatment and ongoing problems are also available. The Readiness to Change Questionnaire (RCQ) [47], the Addiction Severity Index

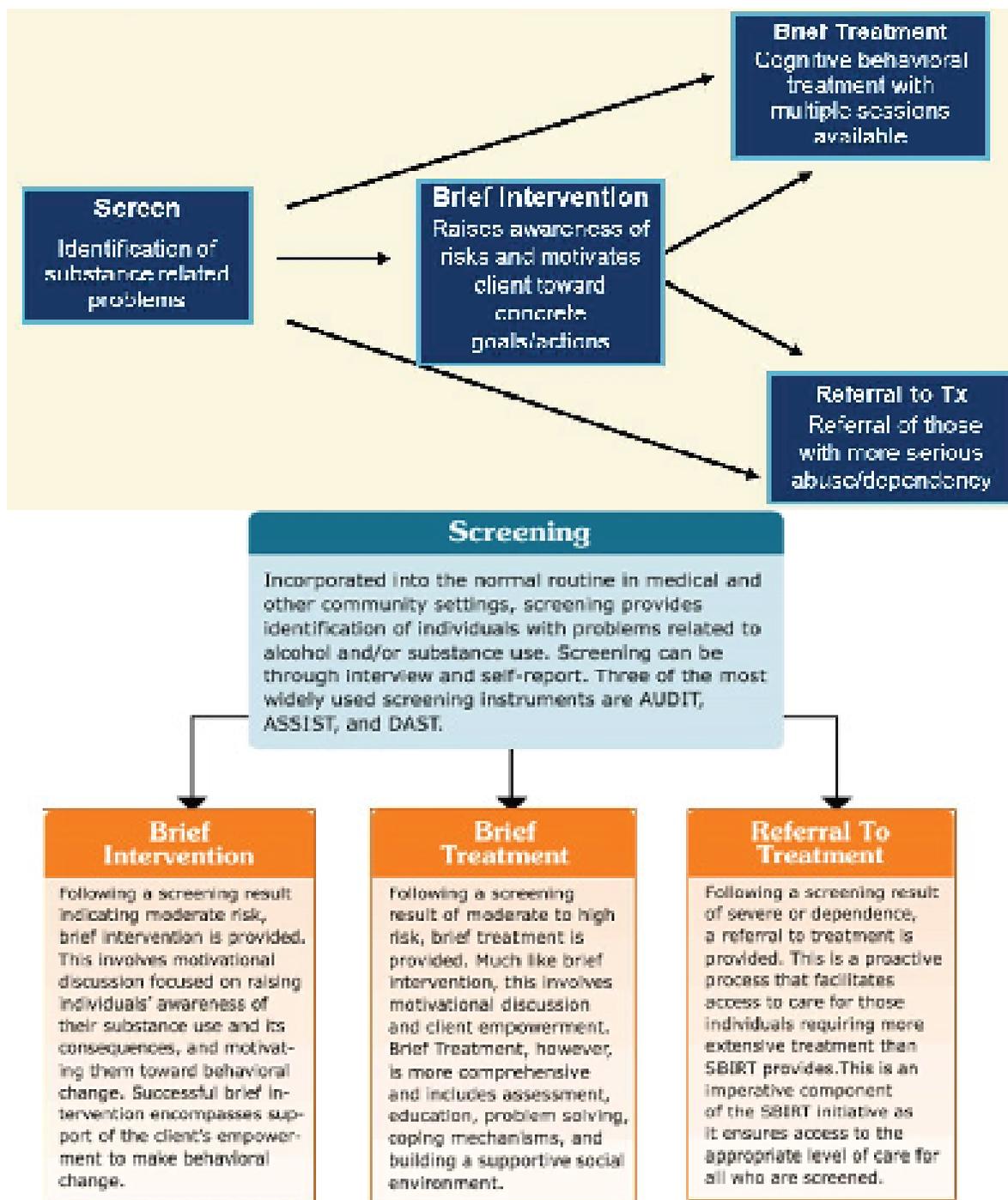


Figure 2: Flow chart and pathways for primary care screening, intervention, referral and treatment for substance disorders.

Adapted from the Substance Abuse and Mental Health Services Administration [23].

(ASI) [48] and the Addiction Severity Assessment Tool (ASAT) [49] are commonly used. The Brief Addiction Monitor (BAM) is a 17-item, multidimensional instrument for monitoring patients in treatment for a SUD [50]. The BAM includes items that assess risk factors for substance use, protective factors that support sobriety, and drug and alcohol use over the past 30 days.

Treatment models and evidence-based approaches

The VHA has established models for primary care mental health and substance workflow. The Primary Care Mental Health

Integration (PCMHI) initiative was established to facilitate a stepwise approach for triaging patients with mental health conditions in primary care and managing uncomplicated cases [51]. Mental health staff are embedded within primary care to provide brief therapies, case management and other services for depression, pain management, and suicide prevention – using an interprofessional care team with physicians, mental health, nursing, pharmacy and other health care professionals [52]. Such an experience would allow the primary care providers and trainees to experience the highly rewarding aspects of short- and

Instru-ment	# of items	Focus & population	Evaluation	Comment
ASAT	27	Adults	High reliability and validity	Multidimensional profile of current problems
ASI	50 min-1 hour	Primary care and mental health	SE/SP 0.98/1.0 (score of 4+)	Interview for non-intoxicated adults
ASSIST	8 (5-15 min)	Primary care, prison	High test and re-test reliability	Stratifies low, medium, or high risk
AUDIT	10 (2-3 mins)	6 th Grade Education or <	SE/SP 0.94/0.80	Primary care
AUDIT C	3	Primary care and mental health	SE/SP 0.86/0.72 (men, 4+ score); SE/SP 0.66/0.94 (women, 3+ score)	For hazardous drinkers or have active alcohol use
BAM-R	17 (5-10 min)	Monitoring for Veteran Affairs	High reliability and validity	A continuous response BAM
CAGE	4 (1-2 min)	16 years or older	SE/SP 0.67/0.86	Yes/no questions
CRAFFT	6	Adolescence (Studied in age 12-18)	SE/SP 0.80/0.86	Primary Care, school health clinics
DAST	10 or 20 (5 min)	6 th Grade Education or <	SE/SP 0.98/0.91 (10 item)	Yes/no questions
MAST	25 (10 min)	Adults	SE/SP 0.91/0.83	
RAFFT	5	Adolescence (13-18)	SE/SP 0.89/0.69	SE/SP from pts referred from addiction tx
RCQ	12 (2-3 min)	Adults	High	State of change
SBIRT	1 (<1 min)	Screening/All	SE/SP 0.84/0.78 (hazardous) SE/SP 0.88/0.66 (current)	Public health foundation

Table 1: Screening, Triage, Assessment and Monitoring Questionnaires and Surveys.

Abbreviations

Sensitivity (SE); Specificity (SP); ASAT: Addiction severity assessment tool; ASI: Addiction Severity Index; ASSIST: Alcohol, Smoking, and Substance Involvement Screening Test; AUDIT/AUDIT C: Alcohol Use Disorders Identification Test; BAM/BAM-R: Brief Addiction Monitor-Revised; CRAFFT: Car, Relax, Alone, Forget, Friends, Trouble; DAST: Drug Abuse Screening Test; MAST: Michigan Alcoholism Screening Test; RAFFT: Relax, Alone, Forget, Friends, Trouble; RCQ: Readiness to Change Questionnaire; SBIRT: Screening, Brief Intervention, and Referral to Treatment.

long-term care of the addicted patient accompanied by the often-dramatic transformation from addicted to sober states. In this setting, trainees can learn the art of evidence based integrative care of the addicted patient, maybe even learning the basics about motivational techniques (i.e. motivational interviewing, network therapy, modified coercion), cognitive behavioral therapy (i.e. relapse prevention), 12-step programs (i.e. Alcoholics Anonymous (AA), Narcotics Anonymous (NA), Double Trouble) and the practice of addiction psychopharmacology.

The VHA and Department of Defense (DoD) have published two important guidelines for SUD management. The VHA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders in The Primary Care Setting came out in 2001 [53] and has modules for care management (other systems broaden to coordination), addiction-focused pharmacotherapy, assessment and management in specialty care, and stabilization. The SBIRT is featured and focuses on practical matters, like an ordered sequence of steps of care, recommended observations, decisions to be considered and actions to be taken; figures are also helpful when followed in a general way. More recently, the VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders came out [54]. It is based on patient-centered care, shared decision-making and engagement strategies, with input from psychiatry, psychology, pharmacy, social work, primary care, family medicine, religious and spiritual services, bioethics, dietetics, pain, addiction psychiatry, addiction medicine, and substance use specialties.

A highlight is addiction-focused medical management which is a manualized psychosocial medical intervention designed to be delivered by a medical professional (e.g., physician, nurse, physician assistant) in a primary care setting, and was developed primarily to address SUDs where amethystic medications can be safely prescribed in the primary care setting. (These currently

include Alcohol, Opioid and Tobacco Use Disorders, although a similar approach may be useful for other SUDs where medications play less of a role in treatment.) The treatment provides strategies to increase medication adherence and monitoring of substance use and consequences, as well as supporting abstinence through education and referral to support groups. While variably defined, this typically includes: 1) monitoring self-reported use, laboratory markers, and consequences; 2) monitoring adherence, response to treatment, and adverse effects; 3) education about SUD and/or OUD consequences and treatments; 4) encouragement to abstain from non-prescribed opioids and other addictive substances; and 5) encouragement to attend community supports for recovery (e.g., mutual help groups) and to make lifestyle changes that support recovery.

System issues

Primary care providers need help on evidence-, practice- and system-based levels, since how the treatment setting and system are set up affects functional workflow, efficient time use (e.g., 40-60 minute initial, 15-20 minute follow-up) and intervention specificity. Residency programs continue to shift system practices and raise the level of expertise, as affiliated federally qualified health center (FQHC) are more likely to have faculty members who possess DEA-X buprenorphine waiver licenses, as did those which are based on the primary care medical home model [55]. Furthermore, residencies with faculty who possessed a DEA-X license were significantly more likely to have a required curriculum in addiction medicine [55]. Another challenge is that many patients have multiple SUDs, particularly male, younger, less educated, or unemployed patients [56].

Integrated care could be helpful for the management of SUDs in primary in two ways. First, despite recommendations to screen for and intervene in patients with chronic medical conditions, routine use of practices like SBIRT is very limited. The AUDIT

and AUDIT-C have adequate psychometric characteristics in patients with the chronic medical conditions [30]. Second, primary care – psychiatry/behavioral health uses stepped approaches for consultative, embedded and collaborative care – often via technology [10]. The SAMHSA [1], VHA [53,54], and others’ models of integration are useful to model [51,57]. Primary care with limited access to/integration of mental health may identify problems, but the treatment options are limited and referrals out may not work. Second, primary care – addiction medicine integration has been suggested by the IOM since 2006 [58]. Primary care with embedded mental health and/or substance providers (e.g., SBIRT model) is an ideal model, providing a broader scope and depth of care (e.g., readiness (RCQ) motivation, brief therapy, medication). If the patient does not respond or has chronic, comorbid and/or refractive problems, they can be referred to a mental health or residential option.

Increasingly, there is attention to cultural issues in substance assessment and treatment [59,60]. Systematic modification of an evidence-based treatment (EBT), a model (e.g., SBIRT) and/or an intervention protocol is often carried out to include language, culture, and context in such a way that it is compatible with the client’s cultural patterns, meanings, and values” [61]. This is consistent with Engel’s biopsychosocial (BPS) model in medicine [62]. As specialties evolved, the model remained a theoretical foundation and helpful for residents to re-visit, but only a few U.S. medical schools feature it in their curricula compared to Swiss medical schools’ 360-hour curriculum spaced over 3 years [63,64]. A bio-psycho-socio-cultural (BPSC) model has been suggested [65] to emphasize a systems approach and integrate contributions from behavioural science, cognitive science, medical sociology, health psychology and neurobiology (e.g., stress–diathesis model; hypothalamic–pituitary–adrenal (HPA) axis activation in response to environmental stress). An outline approach of the biopsychosociocultural aspects makes for a more meaningful, systematic treatment plan (Table 2), which may be helpful in addressing multifaceted lifestyle and morbidogenic environmental components that are the root causes of contemporary chronic diseases [63].

Linking clinical outcomes to competency training, supervision and program evaluation

Medicine has shifted to competencies, team-based interprofessional care and faculty/professional development to ensure quality care, based on AAMC, the National Academy of Science (i.e., previously the Institute of Medicine) [66,67] and institutional change movements [68]. Competency-based medical education (CBME) focuses on skill development more than knowledge acquisition [69]. Interprofessional collaboration and interprofessional education is now part of training and better in alignment with patient clinical outcomes, trainee/learner outcomes and faculty supervision/evaluation [70]. A goal (knowledge, skill or attitude) is defined, the instructional method is picked (e.g., bedside/clinic, case/discussion format, or lecture) and events relative to the experience (e.g., pre-experience assignments) are staged [71]. Culture shifts in business and medicine indicate that

integrating substance care into mental health and primary care are more successful than “adding” or “appending” it.

Model SUD competency sets have emerged from medical education, national organizations and government agencies. Medical schools and teaching hospitals are actively making changes, partly due to the opioid epidemic public health crisis [72]. The U. of Massachusetts, Boston U., Harvard U., and Tufts U. recognized the toll on their communities and identified 10 core competencies for prevention, identification, and treatment of SUDs. The Addiction Medicine was started in 2016 through ACGME and nearly 125 fellowships are targeted for 2025 [73]. The SAMSHA [74] and the Canadian Centre on Substance Use and Addictions are in use, though not routinely in medical education settings [74,75]. The latter may be reframed into the following domains:

- **Clinical:** adaptability/flexibility; analytical thinking/decision-making; client-centered change; client service orientation; effective communication; creativity/innovation;
- **Faculty development:** continuous learning; developing others; motivation/drive; ethics/professionalism; self care/management; teamwork
- **Administrative:** diversity and cultural responsiveness; collaboration/network building; leadership, planning/organizing

In medicine, the most common frameworks used for organizing competencies are from the ACGME [77] and the AAMC [78]. The ACGME domains are patient care, medical knowledge, practice-based learning and improvement, systems-based practice, professionalism, and interpersonal skills and communication. Similarly, medical students’ outcomes include the domains of medical knowledge, patient care skills and attitudes, interpersonal and communication skills and attitudes, ethical judgment, professionalism, lifelong learning and experience-based improvement, and community and systems-based practice [78].

Competencies for SUDs could start with the ACGME domains and perhaps have additional components related to neurocognitive factors (e.g., cognitive function is affected up to 90 days post detoxification). They may also have to better target stigmatization, including the schism between medical and recovery movements. They would greatly benefit – or could be modeled after in-person, collaborative, and integrated care examples (e.g., relational, technical, interprofessional, administrative, community psychiatry, cultural, and health system domains) [10,79].

Access to adequate substance experts, as mentioned above, may be the key limiting factor for health systems and programs. But despite the increase in addiction trained faculty members, currently, only a very limited number of programs provide a designated substance abuse supervisor [14] or one with a DEA waiver to prescribe buprenorphine [9]. In particular, mentors are role models, advisors and drivers of trainee career choices. Depth and breadth of clinical experience is key, usually from VHA and community settings. In addition to teaching, supervision and feedback, SUD-specific program evaluation is needed for departments and institutions, along with input, awareness and help from national organizations

Biological:

- 1 **A** labs (CMP, CBC, INR, prolactin, vitamin D, amylase, RPR, GGT, folate, B12)
- 2 **A** medical: insomnia (OSA), obesity, hypertension, CV, DM
- 3 **A** genetic risk (e.g., familial pattern)
- 4 **A** psychiatric: comorbidity (bipolar/depression, anxiety, schizophrenia)
- 5 **A** epigenetics prevention, stress/trauma (abuse, loss, other): HPA, psychoneuroimmunology and other; general risk, early ID, early intervention
- 6 **T** pharmacokinetic and pharmacodynamics
- 7 **T** exercise
- 8 **T** diet
- 9 **T** genetic predicting mediation response
- 10 **T** medication
- 11 **A/T** neurocognitive: interference with assessment (e.g., attention, symptom report accuracy) and treatment (e.g., motivation, adherence, response to interventions)
- 12 **T** insomnia.

Psychological

- 1 **A** explanatory models: bio-psycho-socio-cultural-spiritual; individual, loved ones/family, social
- 2 **A** culture and diversity: age, gender, lifestyle, immigration, assimilation and other
- 3 **A** developmental: milestones, temperament, cognition and learning, and education
- 4 **A** stress/illness:
 - a cause, impact, and tendencies
 - b prototypes
 - c losses: immigration, rituals, communication
 - d steps, obstacles
 - e cause, course, severity, outcomes
- 5 **A** daily functioning:
 - a work, interpersonal, social, financial
 - b avocations: joy, fun/hobbies, gratification
- 6 **T** coping, help-seeking and support
- 7 **T** health education: illness, adherence, help-seeking, coping
- 8 **T** conventional evidence-based recovery
 - a individual and group
 - b screening
 - c brief intervention
 - d referral
- 9 **T** conventional self-help recovery: AA, Smart Recovery, Rational Recovery
- 10 **T** conventional evidence-based complimentary
 - a Format: individual, couple, family, group and other
 - b Psychotherapy: supportive, dynamic, cognitive behavioral therapy (CBT) and other
- 11 **T** alternative: recovery, spiritual/religion, diary, reflection, meditation/relaxation and other
- 12 **T** case management, payee, legal and other
- 13 **T** volunteer work/service to build esteem and feel positive

Social:

- 1 **A** social network: values, others' influence, trust; peers, family, groups and others
- 2 **A** family/loved ones views, concerns and supports on illness, approaches to get better
- 3 **A** social/community views on illness, approaches to get better
- 4 **A/T** stressors
- 5 **A** geography: urban, suburban, rural; level of country development; social milestones/disasters/crimes
- 6 **T** supportive relationships with partner and friends
- 7 **T** spiritual/religion/church groups
- 8 **T** therapy groups anger, interpersonal
- 9 **T** education groups: (e.g., depression, diabetes mellitus), substance and others
- 10 **T** education stigmatization: mental and substance illnesses (e.g., Depression Bipolar Support Alliance if bipolar or National Alliance for the Mentally Ill)

Cultural:

- 1 **A** immigration on development, health, family roles, language development, and other
 - a context (e.g., stress, losses)
 - b timing (e.g., school-age)
 - c pre- and post-immigration
 - d ongoing relationships with non-immigrants
 - e roles, generations
 - f opportunities: gender, financial, other
- 2 **A** blending of cultures: home, work, relationships, and other
- 3 **A** explanatory model: individual, family, community, culture and other
- 4 **A** generational roles and expectations
- 5 **A/T** patient's and provider's gender/ethnicity/nationality/development/values/lifestyle/\$ and how that affects relationship.
 - a expectations
 - b communication
 - c disagreement
 - d language/third party involved
- 6 **T** spiritual/religion/church groups
- 7 **T** preference for 'primary' and secondary language.
- 8 **T** involvement of family (if any involvement)
- 9 **T** need for cultural consultation or interpreter (not just language)

Other/Administrative:

- 1 **A** collateral information
- 2 **A/T** privacy, confidentiality
- 3 **A/T** program evaluation
- 4 **A/T** telehealth/technology: life (e.g., car), accessory (phone), facilitator (e-health) and other
- 5 **A/T** \$, continuum of care, access to services, barriers/obstacles

Table 2: Biopsychosociocultural outline assessment/treatment for patients with substance disorders.

Abbreviations:

A = Assessment; CBC = Complete Blood Count; CBT = Cognitive behavioral therapy; CMP = Comprehensive Metabolic Panel; DBSA = Depression Bipolar Support Alliance; EAP = Employee Assistance Program; GGT = Gamma-glutamyl transferase; HPA = hypothalamic pituitary adrenal; NAMI = National Alliance on Mental Illness; OSA = obstructive sleep apnea; RPR = rapid plasma reagin. T = Treatment.

(e.g., AAMC assesses for improvement based on surveys). Subspecialist faculty can help with this, having a core curriculum and developing a workforce to augment experiential learning require expertise in care models, population-based care, and health policy, economics and reform [79].

Discussion

Overall, this paper reviews the unique challenges that SUD patients pose and attempts to reframe/simplify approaches to help primary care providers with clinical care and training. It provides strategies/approaches for the medical settings (e.g., primary care, emergency department) for some of the issues like: presentation/engagement engagement (e.g., incomplete history, criminality, culture); diagnosis (cognitive, psychological and substance; medical versus psychiatric); treatment (e.g., competencies, complexity, adherence/follow-up); faculty development (e.g., skills, clinician burnout) services/public health (e.g., recidivism; lack of prevention, team-based and stepped care); and administration issues (e.g., financing, payment and cost; evaluation; change management).

Clinician skill and attitude development are needed as much or more than knowledge for helping patients with SUDs [16,69,75,76]. Best practices for prevention, assessment and treatment of SUDs

can be better integrated into training and lifelong learning for providers in medical settings. An approach is suggested using a biopsychosociocultural model for engagement, straightforward tools (e.g., SBIRT) monitoring outcomes and interprofessional teams – these will only help if systems emphasize teamwork, adjust service delivery and re-design workflow. Clinician and program evaluation may facilitate faculty development, prioritization, change management and building a culture of interprofessional learning. Special effort is needed to connect health care systems in a community for recidivists. For impulsivity, erratic behavior and such, perhaps technology and telehealth could be better employed for consultation and decision-making [10]. Smartphones, apps and other mobile technologies could facilitate engagement, contact/monitoring and prevention (e.g., avoiding areas with businesses which sell alcohol) [10]. The VHA supplies cell phones, though there are cons in addition to pros, to organize the chaos.

Academic centers and health care systems face challenges, too, in many ways, perhaps reducing silos of mental health, substance and primary care services that are not functional, practical and (financially) feasible at this point [67,68]. This points to a focus toward systems- and practice-based practice with interactive, integrated, collaborative and shared mental models and decision-

making [10]. Ongoing consultation and liaison for providers in the medical setting by mental health providers is helpful and supportive. Re-prioritization of institutional goals and – with payment existing or not – across systems (e.g., county- VHA; university-county; private hospital ED-public EDs) is indicated. Joint Commission and other legal/regulatory requirements have been successfully met by model systems like Kaiser Permanente, the VHA and/or the Indian Health Service via integration – rather than being appended – to the strategic missions.

Limitations to this manuscript include its brevity on complex clinical issues and brief synopsis of a broad literature related to clinical care, education, and other dimensions. It cannot cover the breadth and depth of the existing database on SUDs, but it summarizes key findings. More research is needed on service delivery and care models for SUDs, particularly at the medicine-psychiatric interface to assess outcomes and treatment approaches, particularly studies that assess impact at a population level. Finally, competencies need to be implemented and evaluated in terms of skill development and clinical impact.

Conclusions

SUDs are prevalent in medical and psychiatric populations and can adversely impact clinical outcomes for all participants in care. Curricula development, workforce development and greater access to addiction/substance experts is needed for medical education training for students, residents and providers in both primary care and psychiatry. Clinical, social, legal and cultural issues challenge hospitals and the community, while imposing dilemmas for administration (e.g., recidivism, suicide, cost). Best practices for prevention, assessment and treatment of SUDs are needed for training and lifelong learning, including a biopsychosociocultural model, tools for workflow (e.g., SBIRT), use of interprofessional teams and standardized evaluation/quality improvement. Primary care providers need help on evidence-, practice- and system-based levels, and this could include ongoing consultation with psychiatry/behavioral health. Systems need to tackle integrated care, faculty development, and change management in order to build a positive patient care and work culture. More research is needed to assess outcomes, treatment approaches and models of care.

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Podcast Summary

Providers face a number of challenging patients and clinical dilemmas in health care – many of them are related to patients suffering from substance use disorders (SUD) and chronic diseases in primary care. Trainees, providers and teams need and want more training to help patients. Experiences that help to shift attitudes, work in teams and improve skills are probably more helpful

than knowledge. SUD patients pose challenges in presentation/engagement (e.g., incomplete history, missed appointments, criminal acts, life instability) and it is hard to diagnose and treat their many problems. Broad treatment approaches to help providers organize workflow (e.g., biopsychosociocultural model, screening, brief intervention) break the challenges into workable pieces and the interprofessional teamwork provides support and learning opportunities. Providers and systems have flexibility with approaches, so they can customize specific steps (e.g., screening instruments) that fit local and community needs and preferences). Some services are working fine but re-design may be needed for clinical and administrative workflow, with an emphasis on implementation and program evaluation for ongoing improvement.

Clinical Points

- Trainees, providers and teams need more training to shift attitudes, improve skills and acquire evidence-based knowledge, as well as treatment approaches to organize workflow (e.g., biopsychosociocultural model, screening, brief Intervention)
- SBIRT offers flexibility as it can be used in a variety of clinical settings, with evidence-based tools of choice (e.g., AUDIT) and interprofessional team members
- Service re-design is needed for clinical and administrative workflow, with implementation and program evaluation for ongoing improvement

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