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COMMENTARY

Pharmacy: Addressing substance use in the 21st century

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ABSTRACT

Across all care environments, pharmacists play an essential role in the care of people who use and misuse psychoactive substances, including those diagnosed with substance use disorders. To optimize, sustain, and expand these independent and collaborative roles, the Association for Multidisciplinary Education and Research in Substance Use and Addiction (AMERSA) has developed core competencies for pharmacists to address substance use in the 21st century. Key concepts, skills, and attitudes are outlined, with links to entrustable professional activities to assist with integration into a variety of ideally interdisciplinary curricular activities.

KEYWORDS

Pharmacy; competencies; curriculum; substance use; harm reduction; entrustable professional activity

Introduction

Pharmacists, the most accessible,[1] and third-most trusted[2] health professional in the United States, are essential providers within patient-centered, team-based health care practices. They practice in hospitals, primary care clinics, long-term care facilities, opioid treatment facilities, emergency departments (ED), and community pharmacies. Often with additional post-graduate training and/or board certifications, pharmacists specialize in ambulatory care (primary care), community pharmacy, pain pharmacotherapy, hospice and palliative care, critical care medicine, infectious diseases, psychiatric pharmacy, and oncology, as well as in the care of special populations like pediatrics and geriatrics. In addition to providing patient-centered care, pharmacists serve in key administrative and leadership positions in professional associations, health departments, boards of pharmacy, pharmaceutical companies, and insurers, evaluating, modifying, and setting policies from drug formularies to laws. Patients, especially those with chronic disease states, achieve optimal health and medication outcomes with pharmacists on their care team.[3–5] Among these specialties, psychiatric and ambulatory care pharmacy specialists most often care for patients who misuse substances and/or are diagnosed with substance use disorders in clinic and inpatient settings. However, generalist pharmacists working in community pharmacy settings more frequently encounter patients diagnosed with or at-risk of developing substance use disorders.

Community pharmacists primarily dispense prescription medications and counsel patients on the expected efficacy and safety of their medications, including the purpose of the medications, the importance of adherence, drug-drug interactions, adverse drug events, and common and severe side effects. The volume of psychoactive medication prescriptions is higher than it has ever been.[6–10] These medications, particularly opioids, have been implicated in an exponential rise in prescription drug misuse, substance use disorders, and subsequent increases in emergency department visits,[11–13] inpatient stays,[14] and deaths.[15,16] In this setting, pharmacists have demonstrated considerable interest and ability to systematically identify opioid misuse, and successfully intervene.[17–19] Pharmacy technicians working in community pharmacies most often interact with patients before pharmacists, and have interest in recommending harm reduction interventions, particularly naloxone, for opioid users.[20]

Pharmacists have specialized knowledge about both prescription and illicit psychoactive substances and are trained on how best to communicate their potential and expected harms and benefits to patients and other family stakeholders. Pharmacists are medication safety specialists. In addition to their formal role on the healthcare team, they can play a role in the community, by participating in substance use prevention and screening activities at community health fairs and in elementary and secondary schools.

Pharmacists are the health professionals that most often manage behavioral and pharmacological treatments for nicotine use disorder.[21–23] They encounter people with other substance use disorders and who misuse substances in community, ambulatory, and inpatient settings, as well. They screen patients for alcohol and opioid use disorders,[24–30] participate in medical cannabis dispensing and management,[31–34] and provide opioid overdose education and train patients and family members on naloxone administration techniques.[35–41] In addition, pharmacists sell sterile needles and syringes in community pharmacies,[42–51] dispense and administer medications for SUD treatment,[37,52] and connect patients to recovery services. Expanding their roles on patient care teams, pharmacists partner with other

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disciplines to prevent, screen for, manage, and treat all SUD, including administration of evidence-based pharmacotherapies.[53,54] Advocates for patients with chronic diseases, pharmacists create policies that highlight the roles of pharmacists in the care of patients with SUD.[55–58]

Traditional and more modern roles for pharmacists include using prescription drug monitoring programs, promoting safe storage and disposal of psychoactive medications, promoting non-opioid and non-pharmacological alternatives for pain and mental health conditions. In addition, they work with care teams to avoid and monitor drug interactions, prescribe and dispense naloxone to patients and caregivers as the Surgeon General has recently emphasized,[59] and refer and link patients to SUD treatment.[21,26,35,52,58,60–68]

Academic and research pharmacists have developed, enhanced, and evaluated SUD curricula, interprofessional and continuing professional education courses and programs, and developed new medications for SUD treatment and opioid overdose reversal. They study the effectiveness of innovative policy implementation, besides focusing on expanding interdisciplinary SUD education for student and practicing pharmacists.[52,62,69–91]

The American Association of Colleges of Pharmacy (AACP) has collected many examples of opioid activities at colleges and schools of pharmacy.[92] For example, at least seven colleges voluntarily reported that they have integrated some components of SBIRT into their curriculum. Two publications describe how SBIRT has been integrated into pharmacy[86] and interprofessional education.[93] Two small studies have explored the feasibility of SBIRT in community pharmacy settings, where participating practicing pharmacists received comprehensive SBIRT training. More work is needed to explore how to both integrate SBIRT into required pharmacy and/or interprofessional curricula and how to standardize and reimburse for its execution in pharmacy practice.[19,94,95]

Core values

Pharmacists' core values are to be accountable for the outcome and process of their work, to encourage and sustain collaboration within and among health professions, and to advocate for the advancement of the profession. Pharmacists operate with integrity and respect to improve the quality of their work through innovations that ultimately improve and sustain patient's overall quality of life. Pharmacists should act with compassion and strive to act for the patient's best interest without stigma or discrimination, role modeling behaviors and actions for pharmacists and other health professions-in-training. Pharmacists advocate for evidence-based policies that achieve optimal population and public health goals.

Education, licensure, and certification

The Pharm.D. is the sole degree awarded to practice pharmacy. Graduates from programs accredited by the Accreditation Council for Pharmacy Education (ACPE) can practice as generalist pharmacists following successful completion of state licensure exams, the North American Pharmacist Licensure Examination (NAPLEX) and Multistate Pharmacy Jurisprudence Examination (MPJE). Post-graduate education, completed by ~20% of all pharmacy college graduates, are available as post-graduate year 1 (PGY1) general practice residencies and second-year specialty residencies (psychiatry, ambulatory care, community pharmacy, etc.), some of which offer specialized SUD training[96] and leadership[97] experiences. A smaller number of research-based fellowships are available to pharmacy graduates, including several focused on SUD.[98] For any graduate with either specialized training or several years of practice experience, board certification by the Board of Pharmaceutical Specialties (BPS) is offered in pharmacotherapy, ambulatory care, psychiatric pharmacy, and others.[99]

Pharmacists achieve board certification through rigorous evaluation of specialized content knowledge. The psychiatric specialty exam evaluates the most comprehensive content related to SUD. These topics include motivational interviewing, SUD treatment plans, removing barriers to care, translating evidence into practice, delivering education to various stakeholders, and advocating for patients, including screening for mental and SUD, harm reduction, naloxone education, and support for needle exchanges.

As of August 2019, there are only 1194 pharmacists in the U.S. with current BCPP[100] certification,[99] and only 73 PGY-2 programs in psychiatric pharmacy in the U.S.[101] Comparatively, in 2018, there were 348,000 pharmacists employed in the U.S.,[102] nearly 15,000 pharmacy graduates,[103] and the majority of these professionals worked at over 67,000 community pharmacies in the country.[104] This is why SUD training is both urgent and critical in pharmacy education, since so few pharmacists receive the specialized skills and knowledge required in residency and board certifications after graduation.

AACP has established core entrustable professional activities (EPA) for new pharmacy graduates including patient care provider, interprofessional team member, population health promoter, information master, and self-developer domains.[105] These activities map onto many of the knowledge, skills, and attitude competencies for providing care to patients who misuse substances and those diagnosed with SUD. Table 1 provides suggested links for each of the skill competencies to EPA's, and Table 2 provides summary competency statements. Achieving these SUD-specific competencies fits within the student pharmacist, resident, and board-certification domains of patient-centered care.

In 2010, AACP published *Curricular Guidelines for Substance Abuse and Addictive Disease*, listing ten educational goals every student graduating with a PharmD should know about addiction.[106,107] Many of these goals match the competencies necessary for pharmacists to provide comprehensive care for patients with SUD. The authors suggest ways to deliver the content and how to benchmark successful skill formation and knowledge mastery.

Table 1. AMERSA competency.

	AACP Core EPA Appendix 1[153]	Pre-APPE competency[154]	PPCP[155]
Skills			
1. Recognize the signs and symptoms of substance misuse and SUDs.	**Patient care provider domain** -Collect information to identify a patient's medication-related problems and health- related needs. -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. **Population health promoter domain** -Identify patients at risk for prevalent diseases in a population.	Basic patient assessment Drug information analysis & literature research Health & wellness Ethical, professional and legal behavior	Collect Assess
2. Screen for substance misuse and SUDs in the patient or family and offer brief interventions to patients with hazardous and harmful substance use in all pharmacy practice settings using SBIRT.	**Patient care provider domain** -Collect information to identify a patient's medication-related problems and health- related needs. -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. **Interprofessional team member domain** -Collaborate as a member of an interprofessional team. **Population health promoter domain** -Identify patients at risk for prevalent diseases in a population.	Basic patient assessment Drug information analysis & literature research Health & wellness General communication Abilities Ethical, professional and legal behavior	Collect Assess Plan Implement
3. Collect information to identify a patient's SUD medication-related problems and health-related needs.	**Patient care provider domain** -Collect information to identify a patient's medication-related problems and health-related needs. -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs.	Basic patient assessment Identification, assessment, and resolution of drug-related problems Drug information analysis & literature research	Collect Assess
4. Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health-related needs in patients with SUD.	**Patient care provider domain** -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective.	Basic patient assessment Identification, assessment, and resolution of drug-related problems Drug information analysis & literature research	Assess Plan
5. Establish patient-centered goals and create an evidence-based and cost-effective plan in collaboration with the patient, caregiver(s), and other health professionals to manage SUD and related co-morbidities.	**Patient care provider domain** -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. **Interprofessional team member domain** -Collaborate as a member of an interprofessional team. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Patient education Drug information analysis & literature research General communication Abilities Insurance drug coverage Ethical, professional and legal behavior	Plan Implement

(*continued*)

Table 1. Continued.

	AACP Core EPA Appendix 1[153]	Pre-APPE competency[154]	PPCP[155]
6. Manage common medications used for treatment of SUDs (for prescribers and pharmacists).	**Patient care provider domain** -Collect information to identify a patient's medication-related problems and health- related needs. -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. -Follow-up and monitor a care plan. **Interprofessional team member domain** -Collaborate as a member of an interprofessional team. **Population health promoter domain** -Minimize adverse drug events and medication errors. -Maximize the appropriate use of medications in a population. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Patient safety identification, assessment, and resolution of drug-related problems Patient education Drug information analysis & literature research Health & wellness General communication Abilities	Collect Assess Plan Implement Follow-Up: Monitor & Evaluate
7. Counsel patients and caregivers about the appropriate use, storage, handling, and disposal of herbal/supplement, nonprescription and prescription drugs.	**Patient care provider domain** -Collect information to identify a patient's medication-related problems and health-related needs. -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. **Population health promoter domain** -Minimize adverse drug events and medication errors. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Basic patient assessment Drug information analysis & literature research Medical information Patient education General communication Abilities Ethical, professional and legal behavior Health & wellness	Collect Assess Plan Implement
8. Utilize established protocols to ensure safe care that can include the: Withdrawal from Alcohol Scale (WAS), Clinical Institute Withdrawal Assessment (CIWA) – Alcohol, Clinical Opiate Withdrawal Scale (COWS), Amphetamine Withdrawal Questionnaire, and CIWA – Benzodiazepines.	**Patient care provider domain** -Collect information to identify a patient's medication-related problems and health-related needs. -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Follow-up and monitor a care plan.	Basic patient assessment Identification, assessment, and resolution of drug-related problems Drug information analysis & literature research General communication Abilities	Collect Assess Plan Follow-Up: Monitor & Evaluate

	Interprofessional team member domain -Collaborate as a member of an interprofessional team. **Information master domain** -Use evidence-based information to advance patient care.		
9. Minimize adverse drug events, drug interactions, and medication errors related to pharmacotherapies for substance use disorders and related comorbidities.	**Interprofessional team member domain** -Collaborate as a member of an interprofessional team. **Population health promoter domain** -Minimize adverse drug events and medication errors.	Patient safety identification, assessment, and resolution of drug-related problems General communication Abilities	Collect Assess Plan Implement Follow-Up: Monitor & Evaluate
10. Educate patients regarding patient-specific therapeutic plans for SUD.	**Patient care provider domain** -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. -Follow-up and monitor a care plan. **Interprofessional team member domain** -Collaborate as a member of an interprofessional team.	Patient education General communication Ethical, professional and legal behavior	Plan Implement Follow-Up: Monitor & Evaluate
11. Administer medications for SUD and comorbid disease(s) treatment and/or prevention to patients.	**Patient care provider domain** -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. **Population health promoter domain** -Identify patients at risk for prevalent diseases in a population. -Ensure that patients have been immunized against vaccine-preventable diseases.	Patient education Patient safety General communication Abilities	Implement
12. Provide prevention and motivational enhancement to assist the patient in moving them towards a healthier lifestyle.	**Patient care provider domain** -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals.	Patient education General communication Abilities Ethical, professional and legal behavior	Plan Implement
13. Make referrals for further evaluation and/or treatment of SUDs, and provide information about recovery support services (e.g., Alcoholics Anonymous, Narcotics Anonymous) appropriate to the needs of individuals whose lives and their caregiver's lives are affected by SUD.	**Patient care provider domain** -Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health- related needs. -Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective. -Implement a care plan in collaboration with the patient, caregivers, and other health professionals. -Follow-up and monitor a care plan. **Interprofessional team member domain** -Collaborate as a member of an interprofessional team. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Basic patient assessment General communication Abilities	Assess Plan Implement Follow-Up: Monitor & Evaluate
14. Participate in all processes of monitoring patient outcomes of SUD treatment care plan.	**Patient care provider domain** -Follow-up and monitor a care plan. **Interprofessional team member domain** -Collaborate as a member of an interprofessional team.	Identification, assessment, and resolution of drug-related problems General communication Abilities	Follow-Up: Monitor & Evaluate

(*continued*)

Table 1. Continued.

	AACP Core EPA Appendix 1[153]	Pre-APPE competency[154]	PPCP[155]
15. Advocate for pharmacist involvement in community and health-system-wide substance misuse and SUD education and prevention.	**Population health promoter domain** -Identify patients at risk for prevalent diseases in a population. -Maximize the appropriate use of medications in a population. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications.	Ethical, professional and legal behavior General communication Abilities	
16. Communicate the potential risks of misuse and SUD from psychoactive prescription and over-the-counter medications, cannabis, alcohol, and nicotine and provide other substance misuse education to patients, prescribers, healthcare workers, caregivers, employers, and policymakers.	**Interprofessional team member domain** -Collaborate as a member of an interprofessional team. **Population health promoter domain** -Identify patients at risk for prevalent diseases in a population. -Minimize adverse drug events and medication errors. -Maximize the appropriate use of medications in a population. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Patient education Identification, assessment, and resolution of drug-related problems Drug information analysis & literature research General communication Health & wellness Ethical, professional and legal behavior	Assess Plan Implement
17. Develop and disseminate a current list of local resources for evidence-based SUD prevention, harm reduction, treatment, and recovery.	**Population health promoter domain** -Identify patients at risk for prevalent diseases in a population. -Maximize the appropriate use of medications in a population. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Drug information analysis & literature research Health & wellness	
18. Lead public discourse on the development, implementation, and expansion of policies related to prescription medication misuse and illegal substance use, harm reduction, expansion of access to therapies for opioid-related overdose, and pharmacotherapy of SUDs.	**Population health promoter domain** -Identify patients at risk for prevalent diseases in a population. -Maximize the appropriate use of medications in a population. -Ensure that patients have been immunized against vaccine-preventable diseases. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications.	Patient education Health & wellness General communication Abilities Ethical, professional and legal behavior	
19. Maintain professional competency in substance misuse prevention, education, and patient/professional assistance through formal and informal continuing professional education.	**Self-developer domain** -Create a written plan for continuous professional development.	Ethical, professional and legal behavior	
20. Promote, sustain, and utilize resources within the profession to obtain evidence-based, pharmacotherapy-centered assistance for pharmacists and student pharmacists with substance use disorders, including the use of statewide peer- and employer-assistance and groups and the use of professional alternative discipline programs.	**Population health promoter domain** -Identify patients at risk for prevalent diseases in a population. -Maximize the appropriate use of medications in a population. **Information master domain** -Educate patients and professional colleagues regarding the appropriate use of medications. -Use evidence-based information to advance patient care.	Drug information analysis & literature research Health & wellness General communication Abilities Ethical, professional and legal behavior	

AACP: American Association of Colleges of Pharmacy; EPA: entrustable professional activities; APPE: advanced pharmacy practice experiences; PPCA: pharmacists' patient care process.

Table 2. Summary competency statements.

1. Engage patients suspected to be affected by substance use disorders to accurately use information collection tools (CIWA, COWA, WAS, ASI, OTI, etc.), assess patient info, offer brief intervention and referral to care (SBIRT), as well as involvement in continued care, including administration and management of SUD therapies.
2. Understand and utilize all available medication-related information as pertains to substance use disorder including but not limited to pharmacology, pharmacokinetics, and toxicology of medications and drugs that are misused, indications and uses SUD therapies, well as comprehensive review of non-SUD related medications.
3. Educate patients and other healthcare works about benefits, risks, and adverse effects associated with substance use disorder and its treatments, safe storage and disposal of medications, as well as evidence-based resources and tools available for SUD treatment.
4. Display professionalism and role model compassionate, harm reduction-influenced behaviors through interdisciplinary work and advocacy for pharmacist current and expanded roles in the treatment of patients with SUD, as well as provide and complete continuing education programs for the greater good of the profession and public health.

Overall, every pharmacy graduate will participate in disease state management and patient education. For SUD, this includes screening via screening, brief intervention, and referral to treatment (SBIRT), optimizing pain control with providers via the *CDC Guidelines for Prescribing Opioids for Chronic Pain*,[108,109] reducing harm through syringe provision and naloxone, and referring patients to treatment resources.[110,111] Pharmacists, however, should systematically screen and assess all patients for substance misuse, SUD, work with community harm reduction groups to decrease harm associated with opioid misuse, and treat patients with SUD, ideally in collaboration with other SUD providers. Pharmacy students themselves are at high risk of substance use disorders,[112] bringing more urgency to insuring that all pharmacists possess the skills, knowledge and attitudes to work with state Boards of Pharmacy and pharmacist recovery networks[113] to help those who have yet to enter the profession as well as their current mentors, preceptors, coworkers, and faculty.

Critical issues, obstacles, and challenges

Although most community pharmacies sell tobacco and alcohol products, two of the most significant substances that cause SUD, one large community pharmacy chain stopped selling tobacco products and the community public health benefits were significant.[114] Pharmacists need to apply these successes to advocate for expansion of these effective harm reduction efforts among the tens of thousands of community pharmacies that continue to make these substances available to their community. The American Pharmacists Association (APhA) has passed and reaffirmed policies banning sales of alcohol, cigarettes, and e-cigarettes in all pharmacies and locations where pharmacists work.[115–118]

Reimbursement for clinical services, whether for motivation interviewing for smoking cessation, using SBIRT in community pharmacies, or creating treatment plans for buprenorphine is the largest barrier to expanding pharmacists' roles in SUD care. While the *2016 Comprehensive Addiction and Recovery Act* (CARA) expanded opioid use disorder DATA 2000 waiver training and subsequent buprenorphine prescribing to nurse practitioners and physician assistants, pharmacists were excluded.[119] HR 2482, *Mainstreaming Addiction Treatment Act of 2019*, proposes to eliminate waiver and training requirements for buprenorphine prescribing, and, if passed, may open more possibilities for pharmacist prescribing. More practitioners are still needed to prescribe medications for opioid use disorder, especially in rural areas where pharmacists may be the most accessible health care provider.[120–123]

Currently, neither state licensure, post-graduate training, specialization, advanced board certifications, nor standing orders or collaborative practice agreements permit pharmacists to independently obtain reimbursement for cognitive services related to SUD screening, medication adherence counseling, naloxone education, or referral to treatment. This opportunity lies with commercial private and state and federal public insurers, and hinges especially on obtaining federal provider status.[124]

Few pharmacy fellowships or residency opportunities focus on SUD skills and knowledge, and SUD content, if present at all, is lacking among PGY1 and PGY2 specialized residency content. Additionally, in most states, practicing pharmacists have few continuing education requirements for acquiring and sustaining knowledge of SUD prevention, harm reduction, and/or delivery of comprehensive, medication-centered recovery services. Most pharmacy graduates do not complete post-graduate education, and SUD-related competencies are a small fraction of current required pharmacy curricula.[29,38,125,126]

Vision for the future

All practicing pharmacists and new graduates should expand their recognized and trusted public health role as disease-state management specialists to universal screening for and treatment of substance misuse and SUD, increased harm reduction actions through drug checking[127] and increased syringe and naloxone access, removing sales of nicotine and alcohol products from pharmacies,[128] and taking an active role in shaping cannabis policy.[34] Pharmacists should extend their reach into community prevention efforts both in pharmacies, schools, and through public events in communities where they live and practice. Pharmacists should advocate for expanded legal authority to participate in team-based care of people with SUD through collaborative drug therapy agreements, standing orders, and/or direct prescriptive authority for SUD pharmacotherapy. The best way to ensure precise, secure, and confidential care is for pharmacists to have real-time access to all health information related to the patients' SUD and co- morbidities.[129,130] All pharmacists and pharmacy students should receive training to reduce or eliminate stigma in their practices to ensure all patients receive compassionate, patient-centered care from all members of the care team.[77,79,131–137]

Every student pharmacist should participate in an interprofessional expanded SUD curriculum integrated throughout didactic classes such as toxicology, pharmacology, pharmacotherapeutics, as well as introductory and advanced pharmacy practice experiences.[70,71,106] Naloxone and harm

reduction education, whether delivered online to practicing pharmacists[138] or across the pharmacy curriculum[83] works best when case-based pharmacist-patient communication, hands-on demonstrations,[139,140] and/or OSCE's[141,142] are emphasized. Faculty leaders at schools and colleges of pharmacy and residency programs should further optimize pharmacists' roles in interprofessional SUD practice and teaching.[143,144] Colleges and schools of pharmacy should ensure that, like medical school graduates,[145] students receive the opioid use disorder and DATA waiver training integrated into their didactic education, much like naloxone,[83,142,146]medication therapy management,[147,148] and immunization certification training.[149]

This interdisciplinary core curriculum integrated with other SUD treatment providers and educators should be adapted for student pharmacists, pharmacy residents and practicing pharmacists in the form of continuing professional education and certification. This curriculum would ideally, at minimum, cover screening, risk factors, stigma, harm reduction including naloxone, motivational interviewing, medication therapy management of SUD, person-first language, and how to deliver culturally competent care. This curriculum should be structured around achievement of and connections between the knowledge, attitude, and skill competencies.

Pharmacists with specialty SUD training and certification should work in fully integrated interdisciplinary care teams to design, implement, monitor, and modify evidence-based care plans for patients in their specialty who have SUD. These specialists will be active advocates, teachers, and scholars to advance interdisciplinary SUD treatment and policy in pharmacy and other professions and deliver the educational content to certify both advanced and generalist pharmacy practitioners.

Lastly, financial barriers to medication-centered recovery should be reduced or eliminated, including copays, prior authorizations, quantity limits, caregiver limitations for naloxone, and formulation restrictions for pharmacotherapy for SUD. Pharmacists should be reimbursed fairly, consistently, and sustainably for providing all aspects of medication-related SUD services, including screening, treatment referral, medication therapy management, drug administration, point-of-care testing and interpretation, and other clinical and medication-related monitoring.

Core competencies: pharmacy

These competencies are not a comprehensive list and should be reviewed, revised, and updated and/or revised as the evidence-base expands. They consist of three domains, knowledge, skills, and attitudes.

Knowledge

All pharmacists should be knowledgeable of the following concepts about substance use and SUDs:

1. List 11 criteria for SUD. Individuals that endorse 2–3, 4–5, or 6 or more meet criteria for mild, moderate, or severe substance use disorder, respectively.
2. Identify the substances or classes of substances for which addictive disorders are recognized include 10 classes of drugs: alcohol; caffeine; cannabis; hallucinogens; inhalants; opioids; sedatives, hypnotics, and anxiolytics; stimulants; tobacco; and other (or unknown) substances.

Spectrum of use

Alcohol

3. Alcohol consumption is associated with adverse consequences in all aspects of life, including social, legal, occupational, psychological, and medical issues.
4. Heavy episodic ("binge") drinking is the most common pattern of alcohol consumption among underage drinkers, and substantially increases the risks associated with alcohol use. The American Association of Pediatrics (AAP) recommends beginning anticipatory guidance regarding the risks of alcohol consumption during late childhood.[150]

Cannabis

5. The National Academies of Sciences, Engineering, and Medicine report[151] reviews evidence-based research on the health effects of cannabis, to insure quality information to make recommendations for future research, and promote informed decision-making.

Opioids and prescription medications

6. A cross-sectional, population-based survey of 443,041 respondents from the 2002 to 2009 National Survey on Drug Use and Health (NSDUH) analyzed for lifetime nonmedical use of prescription ADHD stimulants, lifetime nonmedical use of another prescription drug, illicit drug use, and drug use initiation patterns. Lifetime nonmedical use of prescription ADHD stimulants was reported by 3.4% of those aged 12 years and older. Of these, 95.3% also reported use of an illicit drug (i.e., cannabis, cocaine/crack, heroin, hallucinogens, inhalants) or nonmedical use of another prescription drug (i.e., tranquilizers, pain relievers, or sedatives), and such use preceded nonmedical use of prescription ADHD stimulants in 77.6% of cases.

Nicotine

7. Review the adverse effects of cigarette and non-cigarette emission exposure, including information about hookahs and electronic cigarettes.
8. The primary addictive substance in tobacco is nicotine which has a stimulatory effect on the brain. Pharmacotherapies are effective treatments for tobacco dependence and are recommended by the United States Public Health Service to be provided in conjunction with behavioral therapy.

General concepts

9. Use contemporary (i.e., DSM-5), patient- and disease-centric terminology of SUDs.[152]
10. Describe risk factors, abuse/misuse potential, and epidemiology of misuse psychoactive drug misuse (prescribed, nonprescription, and illegal drugs) and the laws that regulate their use.
11. Understand the relationship of substance use disorders to family function and stability, and the important role played by family to help treat SUD.
12. Describe the complex pathophysiology of addiction and its neurochemical and biological etiology.
13. Describe the major pharmacological and toxicological properties of alcohol and commonly misused drugs and related substances.
14. Describe the pathophysiology of substance use disorders, including the biological basis of addiction, and the social, environmental, and genetic risk factors that contribute to its expression.

Prevention

15. Identify universal and targeted prevention strategies, their effectiveness, and apply them at the individual, family, and community levels.
16. Compare and contrast risk and protective factors related to initiation of substance misuse in adolescents.

Harm reduction

17. Initiate, sustain, and integrate evidence-based harm reduction principles and programs into pharmacy practice to optimize the health of people who use drugs.

Alcohol and other drug effects

18. Know the acute and chronic health effects of mood altering substances, especially alcohol, cannabis, and opioids.
19. Describe the pharmacology and behavioral effects of common mood altering substances, especially alcohol, cannabis, and opioids.

Evaluation and management

20. Describe the use of validated screening tools for SUD in various healthcare settings, including community pharmacy practice (such as SBIRT).
21. Describe the major modalities of addiction treatment and discuss and utilize methods of providing support for the ongoing recovery of persons with substance use disorders, family members, and other persons involved, focused on medication-assisted recovery.
22. List behavioral change and motivational enhancement strategies (such as brief intervention).
23. List the pharmacologic treatments for SUDs.
24. Analyze the relationship and interaction of SUDs with other psychiatric disorders (i.e. co-occurring disorders).
25. Compare and contrast the cultural and historical context of drug use and impact of gender, culture, and ethnicity on intervention and treatment.
26. Know different implementation models for clinical practice.
27. Know the pharmacology, pharmacokinetics, pharmacodynamics, toxicology, mechanism of drug action, drug-drug interactions, and the adverse reactions between alcohol, tobacco, cannabis, and agents used in the pharmacotherapy of SUD and overdose.

Legal and ethical aspects

28. Maintain confidentiality and protect patients' rights.
29. Identify legal and ethical issues relating to medications for addiction and naloxone access, collaborative practice agreements (CPA), standing orders, protocols, Good Samaritan laws, drug testing, drug checking, sterile nonprescription syringe access, confidentiality (i.e. 42 CFR Part 2, HIPAA), PDMP use, and DEA drug classification.

Health professional impairment

30. Describe signs and symptoms of impairment in health professionals and support personnel.
31. Identify the negative public attitudes (stigma) of SUD and its treatment and reflect on personal stigma of caregivers, families, healthcare workers, and patients diagnosed with SUD related to SUD management services.
32. Describe the extent and patterns of addiction related to substance use in society and in the health professions.
33. Explain how addiction and related disorders impacts the professional roles of a pharmacist.
34. Recognize impairment, describe intervention actions, and identify assistance resources for individuals affected by addiction and related disorders.
35. Know the roles of all of the professionals caring for people with SUD to function as interprofessional teams.

Skills

1. Recognize the signs and symptoms of substance misuse and SUDs.
2. Screen for substance misuse and SUDs in the patient or family and offer brief interventions to patients with hazardous and harmful substance use in all pharmacy practice settings using SBIRT.
3. Collect information to identify a patient's SUD medication-related problems and health-related needs.

4. Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health-related needs in patients with SUD.
5. Establish patient-centered goals and create an evidence-based and cost-effective plan in collaboration with the patient, caregiver(s), and other health professionals to manage SUD and related co-morbidities.
6. Manage common medications used for treatment of SUDs (for prescribers and pharmacists).
7. Counsel patients and caregivers about the appropriate use, storage, handling, and disposal of herbal/supplement, nonprescription and prescription drugs.
8. Utilize established protocols to ensure safe care that can include the: Withdrawal from Alcohol Scale (WAS), Clinical Institute Withdrawal Assessment (CIWA) – Alcohol, Clinical Opiate Withdrawal Scale (COWS), Amphetamine Withdrawal Questionnaire, and CIWA – Benzodiazepines.
9. Minimize adverse drug events, drug interactions, and medication errors related to pharmacotherapies for substance use disorders and related comorbidities.
10. Educate patients regarding patient-specific therapeutic plans for SUD.
11. Administer medications for SUD and comorbid disease(s) treatment and/or prevention to patients.
12. Provide prevention and motivational enhancement to assist the patient in moving them towards a healthier lifestyle.
13. Make referrals for further evaluation and/or treatment of SUDs, and provide information about recovery support services (e.g., Alcoholics Anonymous, Narcotics Anonymous) appropriate to the needs of individuals whose lives and their caregiver's lives are affected by SUD.
14. Participate in all processes of monitoring patient outcomes of SUD treatment care plan.
15. Advocate for pharmacist involvement in community and health-system-wide substance misuse and SUD education and prevention.
16. Communicate the potential risks of misuse and SUD from psychoactive prescription and over-the-counter medications, cannabis, alcohol, and nicotine and provide other substance misuse education to patients, prescribers, healthcare workers, caregivers, employers, and policymakers.
17. Develop and disseminate a current list of local resources for evidence-based SUD prevention, harm reduction, treatment, and recovery.
18. Lead public discourse on the development, implementation, and expansion of policies related to prescription medication misuse and illegal substance use, harm reduction, expansion of access to therapies for opioid-related overdose, and pharmacotherapy of SUDs.
19. Maintain professional competency in substance misuse prevention, education, and patient/professional assistance through formal and informal continuing professional education.
20. Promote, sustain, and utilize resources within the profession to obtain evidence-based, pharmacotherapy-centered assistance for pharmacists and student pharmacists with substance use disorders, including the use of statewide peer- and employer-assistance and groups and the use of professional alternative discipline programs.

Attitudes

1. Recognize SUD as a preventable, treatable condition, as any other chronic, re-occurring disease.
2. Approach and treat patients with SUDs as any other chronic, re-occurring, lifelong disease in a culturally sensitive and caring manner.
3. Demonstrate non-judgmental, welcoming attitudes and use person-first language.
4. Approach and treat patients with SUDs without personal bias, stigma, discrimination, and/or judgment of the patient and role-model this attitude for coworkers, peers, other health professionals, policymakers, students, and family members.

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