

Brief Report

Core Addiction Medicine Competencies for Doctors, An International Consultation on Training

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ABSTRACT

Background: Despite the high prevalence of substance use disorders, associated comorbidities and the evidence-base upon which to base clinical practice, most health systems have not invested in standardised training of healthcare providers in addiction medicine. As a result, people with substance use disorders often receive inadequate care, at the cost of quality of life and enormous direct health care costs and indirect societal costs. Therefore, we undertook this study to assess the views of international scholars, representing different countries, on the core set of addiction medicine competencies that need to be covered in medical education.

Methods: We interviewed 13 members of the International Society of Addiction Medicine (ISAM), from 12 different countries (37% response rate), over Skype, email survey or in-person - at the annual conference. We content-analysed the interview transcripts, using constant comparison methodology.

Results: We identified recommendations related to the core set of the addiction medicine competencies at three educational levels: (i) undergraduate (ii) postgraduate and (iii) continued medical education (CME). The participants described broad ideas, such as knowledge / skills / attitudes towards addiction to be obtained at undergraduate level, or knowledge of addiction treatment to be acquired at graduate level, as well as specific recommendations, including the need to tailor curriculum to national settings and different specialties.

Conclusions: While it is unclear whether a global curriculum is needed, a consensus on a core set of principles for progression of knowledge, attitude and skills in addiction medicine to be developed at each educational level amongst medical graduates would likely have substantial value.

Keywords: substance-related disorders, medical education, expert consultation

INTRODUCTION

Substance use disorders (SUDs) continue growing worldwide, now accounting for almost 20 millions (0.8% of all-cause) of disability-adjusted life years (DALYs) globally ¹. Physical and psychiatric comorbidities are common. For example, unsafe drug injecting is an important risk factor for hepatitis C and HIV infections, and many suicides are attributable to alcohol, opioid, cocaine and amphetamine use.¹ Therefore, most physicians, either in primary- or secondary- care facilities, deal with SUDs and their consequences.

Recent developments in neuroscience research unravelled several neurobiological mechanisms contributing to SUDs and the development of novel, evidence-based treatments, both pharmacological and behavioural.² However, physicians often do not use these treatments, due to inadequate knowledge and competence.³ As a result, SUD-related care is often deficient, and not based on recent evidence or best practice.³ Incorporation of recent research findings into medical education is a way to stimulate implementation of new evidence based treatments⁴, but most health systems have not invested in common training of healthcare providers in addiction medicine.^{5,6}

Existing models of addiction medicine education vary across countries in terms of duration, intensity and delivery method; it ranges from a few hours of lecture in medical school, to a clinical rotation embedded in psychiatric training, to national curricula for post-graduates.⁴ With the prevailing variation of addiction medicine education, worldwide, there is a need of competent physicians in addiction. However, it is unknown which core competencies should be covered in every curriculum. Literature suggested several addiction topics especially for the undergraduate level, such as epidemiology, clinical assessment and intervention.^{4,7} It also has been proposed that the knowledge, attitude and skills of addiction need to be continually developed at each educational level.^{4,7,8}

The high prevalence of SUDs and associated comorbidities warrant innovative educational activities to scale up the use of novel treatments and increase the health system's capacity to deliver these. Therefore, we undertook a study to assess the views of the International Society of Addiction Medicine (ISAM) members on the core set of addiction medicine competencies that need to be covered at three educational levels: (i) undergraduate, (ii) post graduate, and (iii) continued medical education (CME).

METHODS

We interviewed international scholars, who are ISAM members representing different countries. One of the authors (GWS) compiled and provided a contact list of national experts based on their willingness to represent the country in ISAM. Initially, we invited all of the recognised international ISAM members (N=35). Of those invited, 13 (37%) representatives from 12 different countries took part in the interviews (list in acknowledgment), which were conducted over Skype (4), email survey (3) or in-person - at the annual ISAM conference (6).

The interview questions were based on the recommendations for future research from a previous review of literature⁵ and on a personal consultation with one of the authors (NEG) regarding the progression of knowledge, attitude and skills to be developed at each educational level.⁵ The questions asked the representatives what they considered to be the set of competencies, skills or topics that needs to be acquired in undergraduate education, residency and continuing education. The first and last author audio-recorded the interviews; an external company transcribed the recordings. The participant transcripts/responses were on average 748 words long (range: 456-2048), totalling 9727 words of data. We content-analysed the interview transcripts and the email survey responses, using constant comparison methodology.⁹ Two authors coded the data independently (APA, JK); a co-author reviewed themes tables and provided feedback (AS). Codes were derived straight from the transcripts, as is common in conventional content analysis.¹⁰ The a-priori, standard delineation of medical education into under-, post-, and continued- medical education directed generation of codes. First, we highlighted certain words that contained any recommendations for medical education in half of the sample. Second, we noted our themes and discussed them. Next, we met to discuss our ideas and sort similar codes into categories. We repeated this process adding one transcript at a time, until we reached an agreement on the whole sample. The manuscript format adheres to the Standard for Reporting Qualitative Research (SRQR).¹¹

We informed participants of the study purposes, voluntary and anonymous participation, before interviews. The Providence Health Care/University of British Columbia Research Ethics Board approved this study (H14-03306). Following the approval of the UBC research ethics board, as there was no significant harm expected to the experts participating in the interviews, they were informed of the voluntary nature of research via a Letter of Invitation “in lieu of

consent form.” The consultation has been conducted in compliance with the Helsinki Declaration.

RESULTS

We explored views on the core set of addiction medicine competencies that need to be covered at three educational levels: (i) undergraduate (ii) postgraduate and (iii) continued medical education (CME). Table one lists all recommendations with corresponding quotes from experts.

< TABLE 1 about here >

At undergraduate level, the participants described broad ideas, such as importance of learning basic knowledge, skills and attitudes towards addiction. Some participants considered basic knowledge of addiction, including “neurobiology, anatomy, physiology and pharmacology” essential:

“Neurobiology, anatomy, then physiology and then the part of physiology”
[Participant #3, male]

The others mentioned the necessity to develop non-judgmental attitudes towards drugs and people who use them and not too much about neurobiological:

“Basic concepts of the reflection of their own peoples attitude toward [the users substances] should be included and not too much about [neurobiological] stuff surly not because we are too much inducing this idea of [the decreasing brain disease]” [Participant #4, female]

In order to be able to develop working alliances with patients, advise and refer to specialists, when needed. Physicians need to know themselves – “their own attitudes” and lifestyle habits:

“What is your own attitude towards substance use and be able to talk about it with patients, be able to give the right advice, to be able to know what are your limits.
[Participant #4, female]

Moreover, some participants highlighted the need to teach clinical skills, such as screening, brief intervention, and referral to treatment (SBIRT):

“I guess the main headings I will be thinking about is around the screen you know some general issues around epidemiology, screening, assessment, treatment, and then you know referral to specialist agencies.” [Participant #9, male]

Participants also emphasize on the need for country-specific curricula, adapted to local needs, depending on background knowledge and skills, local epidemiology, etc.:

“Diagnosis of [the most] common substance use disorders in their country.”
[Participant #10, male]

At postgraduate level, the participants emphasised core concepts, such as, knowledge of addiction treatment, as well as specific pointers, e.g., need to tailor curriculum for specific population and medical specialty.

Most participants reported that this is the appropriate time for clinical skills teaching, especially interviewing, history taking and identifying concurrent mental health problems. Some experts reported that physicians need to know: (i) “how people use what they use,” (route of ingestion):

“How do people use what they use [drugs]” [Participant #6, female]

(ii) that addiction treatment is not only for acute conditions, but also to prevent acute conditions and [to reduce] other negative effects [harms] of addiction:

“In general, any medical specialist should understand that addiction treatment is not only acute treatment but also to prevent the acute condition and other negative effects of addiction” [Participant #13, female]

and (iii) that various sub-groups of users have their specific needs, for example women or people who inject drugs:

“The various group we have: [specifics] of women with addiction and then the general addiction, we have in terms of people maybe with injection drug users and the rest. [Participant #6, female]

Medical specialists need to learn about addiction-related medical complications relevant to their specialty:

“Depending on their specialty, e.g. internists, neurologists and surgeon should learn about diagnosis of alcohol-related physical illnesses, in post-graduate psychiatry: diagnosis and management of substance-use disorders and behavioural addiction.” [Participant #10, male]

At CME level, the participants felt that CME should be tailored to demands of the specific country or medical specialty:

“For family practice identification of people with substance use and then prevention. ... For adult psychiatry: the theories of addiction and the treatments of addiction follow.” [Participant #6, female]

Although only a few participants specified how this should be done. For example, based on special request:

“For continuing education, we answer the special request. For example: parenthood and drug use.” [Participant #12, female]

Emerging treatments are adopted in different countries at a varying pace:

“Emerging treatments, both psychosocial and pharmacological treatments.” [Participant #10, male]

New substances require medical doctors and allied professionals to adapt the clinical assessment skills and to continually develop new treatment approaches:

“For medical doctor and any related medical specialty: diagnose and treatment of new substance use.” [Participant #13, female]

Therefore develop a curriculum to account for “new or emerging substances” is needed at the CME level.

DISCUSSION

This study examined the perspectives of international scholars on the core set of addiction medicine competencies that need to be covered at three educational levels: undergraduate, postgraduate and CME. The opinions on the content of addiction medicine curricula at under-, post-graduate and CME levels appear to differ significantly (Table 1).

Aligned with recent publications, the international scholars perceived the necessity of teaching the basic science of addiction at the undergraduate level^{4,7}, as well as the SBIRT skills that were identified in several countries as essential for medical students.^{7,8,12} Of note, only one expert mentioned behavioural addictions. This may be a topic that needs considerable attention in medical curricula as well. The international scholars also emphasized that professional attitude development is an important aspect of medical education, in agreement with the review by El-Guebaly et al.⁵ Although knowledge acquisition seems to be a “*conditio sine qua non*” for attitude formation, the latter lags behind as a result of the traditional focus on imparting knowledge during medical education.¹³ That physicians often stigmatize patients with SUDs¹⁴ highlights the need for attitudinal training.^{4,8}

The CME-level may be an ideal stream for dissemination of new addiction-science discoveries among clinicians,⁵ although the scarcity of expert opinions in our consultation precludes making clear recommendations here. In line with previous literature, the limited information from the international scholars on addiction medicine training at the CME-level may indicate that this is an area of training that is underdeveloped and, in the absence of curriculum guidelines, highly diversified across countries and specialties.¹⁵ The new Universal Treatment and Prevention Curricula by the United Nations (<http://www.issup.net/>), and recent developments of recognition of addiction medicine as a (sub-) specialty in various countries, including the United States (American Board of Medical Specialties - ABMS), Norway¹⁶ and Netherlands¹⁷, might change this.

Our findings should be acknowledged with caution. We included a small non-random sample of representatives of one international organisation (ISAM) who self-selected for the

consultation by responding to the invitation, with a 37% response rate. Moreover, participants were interviewed via different methods: in-person, Skype, and email survey, which may have influenced the volume of their responses; however, unclear responses were clarified via additional probes. To answer the question of what is the set of topics to be covered in addiction medicine education, some participants relied on their experiences from their countries. Therefore the generalizability of the recommendation can be questioned. However, overall consensus among scholars suggests certain strength of the recommendations for a common addiction medicine curriculum.

In conclusion, the international scholars show clear consensus on a core set of principles for progression of knowledge, attitude and skills in addiction medicine to be developed at each level of medical education, particularly at undergraduate. These principles can be adopted as a guidance to develop new addiction medicine curricula, as well as improving existing ones. Implementation of these strategies would have profound effects on the quality of care for addicted patients worldwide. While it is unclear whether a global curriculum is needed, a common set of evidence-based principles would likely be of substantial value.

REFERENCES

1. Degenhardt L, Whiteford HA, Ferrari AJ, et al. Global burden of disease attributable to illicit drug use and dependence: findings from the Global Burden of Disease Study 2010. *Lancet*. 2013;382:1564-1574.
2. Volkow ND, Wang GJ, Fowler JS, Tomasi D. Addiction circuitry in the human brain. *Annu Rev Pharmacol Toxicol*. 2012;52:321-336.
3. Wood E, Samet JH, Volkow ND. Physician education in addiction medicine. *JAMA*. 2013;310(16).
4. Ayu AP, Schellekens AFA, Iskandar S, Pinxten L, De Jong CAJ. Effectiveness and Organization of Addiction Medicine Training Across the Globe. *European Addiction Research*. 2015;21(5):223-239.
5. El-Guebaly N, Toews J, Lockyer J, Armstrong S, Hodgins D. Medical education in substance-related disorders: components and outcome. *Addiction*. 2000;95(6):949-957.
6. Klimas J. Training in addiction medicine should be standardised and scaled up. *BMJ*. 2015;351(h4027).
7. Carroll J, Goodair C, Chaytor A, Notley C, Ghodse H, Kopelman P. Substance misuse teaching in undergraduate medical education. *BMC Medical Education*. 2014;14(34).
8. Kothari D, Gourevitch MN, Lee JD, et al. Undergraduate medical education in substance abuse: a review of the quality of the literature. *Academic medicine: journal of the Association of American Medical Colleges*. 2011;86(1):98.
9. Elliott R, Timul'ák L. *Descriptive and interpretative approaches to qualitative research*. In: J.Miles, P. Gilbert, (Eds.) *A Handbook of research methods in clinical and health psychology*. Oxford: Oxford University Press; 2005.
10. Hsieh H-F, Shannon SE. Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*. 2005;15(9):1277-1288.
11. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: A synthesis of recommendations. *Academic Medicine*. 2014;89:1245-1251.
12. Kahan M, Midmer D, Wilson L. Faculty Rating of Learning Objectives for an Undergraduate Medical Curriculum in Substance Abuse. *Substance Abuse*. 2001;22(4):257-263.

13. Cape G, Hannah A, Sellman D. A longitudinal evaluation of medical student knowledge, skills and attitudes to alcohol and drugs. *Addiction*. 2006;101(6):841-849.
14. Boekel LCV, Brouwers EPM, Weeghel JV, Garretsen HFL. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: Systematic review. *Drug and Alcohol Dependence*. 2013;131:23-25.
15. Uchtenhagen A, Stamm R, Huber J, Vuille R. A review of systems for continued education and training in the substance abuse field. *Substance Abuse*. 2008;29(3):95-102.
16. Welle-Strand G. Addiction medicine recognition as medical specialty - Norway. *Substance Abuse*. 2013;34:321-322.
17. DeJong CAJ, Luycks L, Delicat JW. The Master in Addiction Medicine Program in The Netherlands. *Substance Abuse*. 2011;32:108-114.

Table. 1. Perspectives on the core set of addiction medicine competencies

Theme	Sub-Theme
Undergraduate medical education	
General concepts	<ol style="list-style-type: none"> 1. Acquire basic knowledge of addiction and science of addiction: <ol style="list-style-type: none"> A. Describe bio-psycho-social model of addiction. B. Describe neurobiology (anatomy and physiology). 2. Acquire basic clinical skills: <ol style="list-style-type: none"> A. Facilitate acquisition of communication skills and attitudes; B. Implement screening, Brief Intervention and Referral to Treatment (SBIRT) C. Promote prevention skills
Specific pointers	Consider local training needs: specific addiction problems in the country (e.g.: indigenous populations).
Postgraduate medical education	

General concepts	<ol style="list-style-type: none"> 1. Know how route of ingestion & mechanism of action shape substance use. 2. Acquire clinical skills: clinical interview, treatment, identification of psychiatric problem, referral to other specialty. 3. Consider specific needs of target population (women, people who inject drugs). 4. Increase awareness of substance use disorders among general public. 5. Foster addiction research by health care professionals.
Specific pointers	<p>Acquire knowledge and skills of medical complications related to their specialty:</p> <ol style="list-style-type: none"> 1. Psychiatry 2. General practice, and 3. Other disciplines: Internal Medicine, Surgery, Neurology, Ear and Throat, Ophthalmology, Anaesthesia
Continued Professional Development (CPD, CME)	
General concepts	<ol style="list-style-type: none"> 1. Deliver demand-based training. 2. Incorporate knowledge on "new or emerging" substances. 3. Incorporate knowledge and skills on new emerging treatments for substance use disorders.
Specific pointers	Tailor curriculum for medical professionals accounting for medical complications related to their specialty.

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