

Continuing Medical Education Rarely Addresses Leading Public Health Problems Including Diabetes and Obesity

Nicholas A. Berry¹, Nicole E. Fumo², Bruce B. Berry^{2*}

¹Mayo Clinic School of Medicine in Scottsdale, Arizona, USA

²Department of Emergency Medicine, Medical College of Wisconsin, USA

*Correspondence should be addressed to Bruce B. Berry; Bruce.Berry@Froedtert.com

Received date: November 11, 2020, **Accepted date:** December 24, 2020

Copyright: © 2020 Berry NA, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Introduction: Continuing medical education (CME) could be beneficial to physicians in managing public health problems, yet CME courses rarely address these topics. The purpose of our study was to assess whether leading public health problems, in alignment with their burdens on society, have a proportionate amount of CME opportunities for healthcare professionals.

Methods: We reviewed all of the CME courses offered by the top 10 research and top 10 primary care medical schools from January 1, 2019 through June 30, 2019 for CME hours directed toward the leading public health problems: diabetes, obesity, smoking, substance abuse, heart disease, COPD, lung cancer, back pain, and depression.

Results: There were 9355 total hours of course time during the study period. Diabetes had 202 hours, or 2.2% of the total course hours. Obesity had 118 course hours, which was 1.3% of the total course hours, and smoking cessation had 75 (0.8%) hours of the total course time. No public health problem had more than 2.6% of the total CME hours.

Discussion: Public health problems were grossly underrepresented in the amount of dedicated course time compared to their burden on society. Diabetes affects 34 million people in the US at an annual cost of \$327 billion, obesity affects 93 million adults at an annual cost of \$147 billion, and smoking affects 43 million adults at an annual cost to society of \$300 billion. More CME courses offerings addressing management of the leading public health problems would likely reduce the burden of illnesses associated with those conditions.

Abbreviations

ACCME: Accreditation Council for Continuing Medical Education; AUD: Alcohol Use Disorder; B: Billion; CME: Continuing Medical Education; COPD: Chronic Obstructive Pulmonary Disease; DALY: Disability Adjusted Life Years; DM: Diabetes Mellitus; IHD: Ischemic Heart Disease; LBP: Low Back Pain; M: Million; MCAT: Medical College Admission Test; US: United States; YLD: Years Lived with Disability; YLL: Years Life Lost

Introduction

Medical schools sponsor continuing medical education (CME) to help fulfill their mission of improving the health of the community. CME programs can help physicians stay up-to-date with the best practices associated with disease prevention and treatment. According to the Accreditation Council for Continuing Medical Education (ACCME) there were 1.2 Million (M) hours of accredited CME courses offered in 2018 at a cost of 2.8 Billion (B) dollars, with

medical schools receiving \$367 M in CME revenue [1]. CME topic offerings are determined by the sponsoring entity and physicians choose which courses they wish to attend.

The three most important public health concerns in the United States (US) are obesity, smoking, and substance abuse, ultimately leading to disability and premature death [2]. The prevalence of obesity in the US is continuing to increase and now approaches 40% among adults [3]. There

are 186,000 excess deaths per year attributable to obesity at an annual cost of \$147 Billion (B) [3]. Smoking tobacco has been linked to 480,000 excessive deaths every year in the US at a cost of \$300 B (\$8700 per smoker), with 14% of adults regularly smoking [4]. Substance abuse, in the form of alcohol abuse, among adults is estimated to cause 88,000 deaths annually at a cost of \$249 B per year and opiate abuse is linked to an additional 47,000 deaths at a cost of \$78.5 B annually to society [5,6]. There is evidence that CME can positively impact physicians' performance and patient outcomes in smoking cessation counseling, obesity counseling, and substance abuse [7-10].

The leading causes of years lived with disability (YLD) in the US are: diabetes (DM), depression, and low back pain (LBP) [2]. The cost to society is very large for these conditions as well. Diabetes is responsible for 84,000 deaths annually at a cost of \$327 billion, low back pain is rarely associated with premature deaths, but does disable 26 million people with an annual cost to society of \$102 billion [11,12]. Depression is associated with 47,000 deaths annually, at a cost of \$210 billion [13]. There is some evidence that CME activity can improve the treatment of these conditions [14-16].

The three leading causes of years of life lost (YLL) in the US are ischemic heart disease (IHD), lung cancer, and chronic obstructive pulmonary disease (COPD) [2]. IHD is associated with 370,000 deaths and \$21 billion annually [17]. Lung cancer is the cause of death in 149,000 adults annually at a cost of \$12 billion, and COPD is the cause of death in 146,000 adults annually at a cost of \$210 billion to society [18,19]. There are some studies supporting the use of CME based tools to improve the treatment or prevention of those conditions [7,8,20].

The purpose of our study is to determine the extent to which the top-ranked medical schools, through their CME offerings, address these nine leading public health problems in the US.

Methods

For the six-month study period starting from January 1, 2019, all the CME courses offered by US News and World Report's top 10 ranked medical schools for research and the top 10 medical schools ranked for primary care [21] were examined for content pertaining to the top nine public health problems: obesity, tobacco use, alcohol and drug abuse, diabetes (DM), low back pain (LBP), depression, ischemic heart disease (IHD), lung cancer, and chronic obstructive pulmonary disease (COPD) [2]. The medical school websites were reviewed monthly, and the agendas for all their CME courses were examined. On line and live courses were included. When a course was not exclusively about one of the nine key topics, only the amount of course

time allocated to the study topic was credited to the topic (example: "Update on Primary Care" had 24 CME hours, but only 2 hours on diabetes and 1 hour on smoking cessation, so 2 hours credited to diabetes and 1 hour to smoking cessation, and 21 hours to Primary Care.

The same course only counted once toward the total hours, even if it was offered multiple times during the study period. Three schools were on both lists, so 17 unique schools were included in the study. To be included, a CME course had to be accredited by ACCME designee, accessible to persons outside of the institution, and an agenda had to be available so time allocated to the nine selected topics could be accurately extracted. Substance abuse was further differentiated to include opiate and alcohol use disorder. IHD did not include general topics such as congestive heart failure and atrial fibrillation or risk factor control such as hypertension and hypercholesterolemia unless they were specifically linked to an IHD agenda item.

This study was exempt from Institutional Review Board approval as all information was in the public domain. Statistical Package for the Social Sciences version 26 was used for statistical analysis.

Results

A total of 9,355 CME course hours were offered. The CME instruction hours available for the three leading contributors to disability adjusted life years (DALYs) in the US were: obesity 118 (1.3%), smoking 75 (0.8%), and substance abuse 157 (1.7%). In the US the adult obesity prevalence is 40%, smoking is prevalent in 14% of US adults, 11.2% of the US population age 12 and over report use of illicit drugs within the last 30 days, and alcohol use disorder (AUD) affects about 6% of adults. AUD had 7 hours (0.1%) of CME course time devoted to it. There was only one course addressing AUD out of 643 courses offered by the top 10 ranked research medical schools during the study period. That one course accounted for less than one hour (0.01%) of the 7740 total CME hours offered by these top ranked research medical schools.

CME hours for the leading contributors to YLD [2] were: diabetes 202 (2.2%), LBP 18 (0.2%), depression 54 (0.6%). There are 34 M people living with diabetes, 26 M adults living with LBP, 20 M adolescents and adults experiencing a major depressive episode annually [11,12,13].

Course hours for the leading causes of YLL [2] were: IHD 244 (2.6%), lung cancer 48 (0.5%), and COPD 42 (0.4%). IHD is the number one cause of death in US, and lung cancer is the leading cause of cancer deaths, and COPD affects approximately 12 M people in the US [17-19] (Table 1).

CME Topic ^b	Prevalence in US Adults	Number of Individuals Affected	Annual Deaths	Annual Cost to Society ^c	CME Hours (% of N=9355)
Obesity	40%	93 M	186,000	\$147 B	118 (1.3%)
Tobacco Use	14%	34 M	480,000	\$300 B	75 (<1%)
Low Back Pain	13%	26 M	N/A	\$102 B	18 (<1%)
Substance Abuse ^d	11% ^e	27 M	47,000 ^f	\$78 B	150 (1.6%)
Diabetes	10%	34 M	84,000	\$327 B	202 (2.2%)
Depression	7% ^g ; 13% ^h	17 M ^g ; 3 M ^h	47,000 ⁱ	\$210 B	54 (<1%)
Alcohol Use Disorder	6% ^g ; 2% ^h	14 M ^g ; 0.4 M ^h	88,000	\$249 B	7 (<1%)
COPD ^j	5%	12 M	146,000	\$50 B	42 (<1%)
Ischemic Heart Disease	3%	8 M	370,000	\$21 B	244 (2.6%)
Lung Cancer	<1%	0.2 M	149,000	\$12 B	48 (<1%)

^aMajor public health concerns for the United States are defined in the study as each of the three leading causes for disability-adjusted life years, years of life lost, and years lived with disability.

^bCME: Continuing Medical Education; US: United States;

^cCost estimates include costs of health care and lost productivity.

^dSubstance abuse does not include alcohol.

^eData for persons age 12 and up.

^fDeaths from opioid overdose.

^gAdults age 18 and older.

^hAdolescents age 12 to 17.

ⁱThis is the number of suicides, which are not all from depression, but are used to estimate burden of illness.

^jCOPD: Chronic Obstructive Pulmonary Disease

Table 1: Burdens to United States society for major public health problems^a and corresponding continuing medical education.

Discussion

There is a large disparity between the public health problems presented in this study and their massive impacts on US health and the relatively small percentage of CME hours addressing them. Offering more CME courses on the leading contributors to disability and premature death would certainly align with medical schools' missions to improve the health of the communities they serve.

Many of these top public health problems overlap and contribute to each other. Diabetes and its complications are worsened by obesity and smoking [22]. Smoking is a leading contributor to the development of heart disease, lung cancer and COPD [4,17-19]. Low back pain and substance abuse contribute to depression [13]. In a similar manner, improvement in one problem may contribute to improvement in another area.

Although there were some statistically significant differences in course offerings pertaining to the 9 studied public health problems, between the top ranked research and primary care schools, the actual hours and percentages (10.1% vs 8.7%) of total hours offered were minor, and in the scope of the total offerings probably not meaningful. Making this difference even more difficult to interpret is the fact that 3 schools are included on both lists.

In this study, CME time towards smoking cessation totaled 75 hours (0.8%) of the 9355 total hours of CME courses offered. Considering the negative impact tobacco has on the 34 M current smokers, the 50% chance of lifelong tobacco users dying due to tobacco use, and the \$300 B cost to society every year, it may be beneficial to have a larger share of the CME topics addressing tobacco cessation [4]. Tobacco cessation strategies involve counseling and medication use.

Primary care physicians readily admit they are grossly under trained in counseling techniques [23,24]. There are numerous studies showing the effectiveness of CME courses in educating physicians on techniques for counseling patients regarding smoking cessation [7,8]. It seems plausible that a renewed effort at training physicians through the use of CME, on how to assist with tobacco cessation would be beneficial. Furthermore, reduction of tobacco use has compounded benefits on other major public health threats due to its contribution toward diseases such as diabetes, substance abuse, IHD, lung cancer, and COPD. And counseling techniques used in smoking cessation could benefit obesity, depression, and substance abuse counseling.

It is not known why medical schools offer so little CME on these public health problems we could not find references specifically addressing this issue. We believe that physicians are not asking for CME on these public health topics, so the sponsors are not developing the CME courses to offer. Counseling on lifestyle changes plays a large role in reducing public health problems such as obesity, smoking, substance abuse, and depression. Physicians are trained to give advice, but physicians also prefer to spend time advising patients that are more likely to actually make changes [23,24]. We hypothesize that physicians perceive many of these problems as not likely to improve and as such they are hesitant to spend CME resources learning about them.-

A limitation of this study is a lack of CME course attendance numbers. This study measured the number of hours of CME offered, not the number of physicians who actually participated in each CME program. Regardless of this limitation, the number of public health CME course options is significantly out of proportion to the impact these conditions have on society.

Another limitation of our study is we reviewed only those course offerings sponsored by the top ranked medical schools in the US. The medical school rankings were performed by US News and World Report, not a medical journal [21]. They used characteristics such as: student acceptance rates, MCAT scores, peer review rankings, residency director rankings, NIH funding, and ratio of faculty to students. Perhaps commercial CME providers have topics more in line with public health needs. Those CME vendors were not included because their inclusion would have been arbitrary as there is no ranking system.

Conclusion

Medical schools are missing an opportunity for improving the health of the communities they serve, by offering very little CME course time addressing major public health concerns. Considering the widespread prevalence, societal cost, and disproportionally low percentage of CME hours

addressing the leading contributors to premature death and years of living with a disability, change is needed in physician education. Physicians rely on medical school institutions to lead the way in healthcare advances and to provide high-quality, commercial free CME on topics that align with their missions to improve patient outcomes and community health. It is time that CME courses expand opportunities for healthcare professionals to develop additional skills, so they can reduce the burden of the most daunting public health threats to our society.

References

1. Accreditation Council for Continuing Medical Education. ACCME data report: growth and advancement in accredited continuing medical education – 2018. Available at: www.accme.org/sites/default/files/2019-07/818_20190716_2018_Data_Report.pdf Accessed July 2019.
2. Mokdad AH, Ballestros K, Echko M, Glenn S, Olsen HE, Mullany E, et al. The state of US health, 1990-2016: burden of diseases, injuries, and risk factors among US states. *Jama.* 2018 Apr 10;319(14):1444-72.
3. Centers for Disease Control and Prevention. Adult obesity facts. Available at: www.cdc.gov/obesity/data/adult.html Accessed July 2019.
4. Centers for Disease Control and Prevention. Current cigarette smoking among adults in the United States. Available at: www.cdc.gov/tobacco/ Accessed July 2019.
5. National Institute on Alcohol Abuse and Alcoholism. Alcohol facts and statistics. Available at: www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-facts-and-statistics Accessed July 2019.
6. National Institute on Drug Abuse. Opioid overdose crisis. Available at: www.drugabuse.gov/drugs-abuse/opioids Accessed August 2019
7. Cervero RM, Gaines JK. The impact of CME on physician performance and patient health outcomes: an updated synthesis of systematic reviews. *Journal of Continuing Education in the Health Professions.* 2015 Apr;35(2):131-8.
8. Hudmon KS, Addleton RL, Vitale FM, Christiansen BA, Mejicano GC. Advancing public health through continuing education of health care professionals. *Journal of Continuing Education in the Health Professions.* 2011 Sep;31(S1): S60-6.
9. Hinchman J, Beno L, Dennison D, Trowbridge F. Evaluation of a training to improve management of pediatric overweight. *Journal of Continuing Education in the Health Professions.* 2005 Sep;25(4):259-67.

10. Beaudoin FL, Banerjee GN, Mello MJ. State-level and system-level opioid prescribing policies: the impact on provider practices and overdose deaths, a systematic review. *Journal of Opioid Management*. 2016 Mar 1;12(2):109-18.
11. Centers for Disease Control and Prevention. National diabetes statistics report. Available at: www.cdc.gov/diabetes/data/index.html Accessed February 2019
12. Shmagel A, Foley R, Ibrahim H. Epidemiology of chronic low back pain in US adults: data from the 2009–2010 National Health and Nutrition Examination Survey. *Arthritis Care & Research*. 2016 Nov;68(11):1688-94.
13. National Institute for Mental Health. Major depression. Available at: www.nimh.nih.gov/health/statistics/major-depression.html Accessed August 2019.
14. Bird GC, Marian K, Bagley B. Effect of a performance improvement CME activity on management of patients with diabetes. *Journal of Continuing Education in the Health Professions*. 2013 Jun;33(3):155-63.
15. Garrard J, Choudary V, Groom H, Dieperink E, Willenbring ML, Durfee JM, Ho SB. Organizational change in management of hepatitis C: evaluation of a CME program. *Journal of Continuing Education in the Health Professions*. 2006 Mar;26(2):145-60.
16. McCarberg BH, Stanos S, Williams DA. Comprehensive chronic pain management: improving physical and psychological function (CME multimedia activity). *The American Journal of Medicine*. 2012 Jun 1;125(6):S1.
17. Benjamin EJ, Virani SS, Callaway CW, Chamberlain AM, Chang AR, Cheng S, et al. Heart disease and stroke statistics—2018 update: a report from the American Heart Association. *Circulation*. 2018 Mar 20.
18. Centers for Disease Control and Prevention. Leading cancer cases and deaths, male and female, 2016. gis.cdc.gov/Cancer/USCS/DataViz.html Accessed August 2019.
19. Guarascio AJ, Ray SM, Finch CK, Self TH. The clinical and economic burden of chronic obstructive pulmonary disease in the USA. *Clinico Economics and Outcomes Research: CEOR*. 2013;5:235
20. Drexel C, Jacobson A, Hanania NA, Whitfield B, Katz J, Sullivan T. Measuring the impact of a live, case-based, multiformat, interactive continuing medical education program on improving clinician knowledge and competency in evidence-based COPD care. *International Journal of Chronic Obstructive Pulmonary Disease*. 2011;6:297.
21. U.S. News and World Report. 2019 Best Medical School Rankings. Available at: www.usnews.com/best-graduate-schools/top-medical-schools Accessed December 5, 2018.
22. Śliwińska-Mossoń M, Milnerowicz H. The impact of smoking on the development of diabetes and its complications. *Diabetes and Vascular Disease Research*. 2017 Jul;14(4):265-76.
23. Dacey M, Arnstein F, Kennedy MA, Wolfe J, Phillips EM. The impact of lifestyle medicine continuing education on provider knowledge, attitudes, and counseling behaviors. *Medical teacher*. 2013 May 1;35(5):e1149-56.
24. Alexander SC, Østbye T, Pollak KI, Gradison M, Bastian LA, Brouwer RJ. Physicians' beliefs about discussing obesity: results from focus groups. *American Journal of Health Promotion*. 2007 Jul;21(6):498-500.