Smoking cessation: a community-based approach to continuing medical education

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ABSTRACT

Continuing medical education can help close the gaps between current and desired tobacco cessation practices. This paper reports a case of an innovative community-based continuing education approach implemented by a multi-organizational initiative aimed at increasing smoking cessation rates among adults in the USA. The approach involved collaborative partnerships with healthcare professionals and other stakeholders in 14 communities where smoking cessation was an established priority. The centralized evidence-based educational curriculum was delivered locally to more than 15,600 clinicians. Evaluation provided evidence of positive impact on clinicians, healthcare systems, and communities. A collaborative, community-based approach to continuing medical education has potential to increase tobacco cessation rates by leveraging efforts of multiple stakeholders operating at the community level into more effective and sustainable tobacco cessation projects. Future research is needed to study effectiveness of and appropriate evaluation frameworks for this approach.

KEYWORDS

Tobacco cessation, Continuing medical education, Community-based approach

INTRODUCTION

Tobacco use is the leading global cause of preventable death [1] with many people in the USA [2, 3] and around the world [4] suffering from the devastating effects of tobacco. Physicians and other healthcare professionals can offer evidence-based medication and behavioral therapies to help their patients quit tobacco use and prevent relapse [3], and clinical practice guidelines are available to support optimal treatment of tobacco use and dependence [5]. However, recommended best practices and effective cessation strategies are not consistently used by clinicians in the USA [6–8].

Similarly to any given clinical area [9], continuing medical education (CME) can help close the gaps between current and desired tobacco cessation practices. At the same time, tobacco cessation education is special because it occurs at the intersection of patient

Implications

Policy: Policy development or improvement at the organizational and community levels is a desired and achievable outcome of a community-based continuing education approach.

Research: Future research is needed to answer questions about the effectiveness of and appropriate evaluation frameworks for a collaborative, community-based continuing education approach aimed at addressing a complex public health issue.

Practice: Planners of a community-based tobacco cessation education of healthcare professionals should consider working with stakeholders in communities where tobacco use is recognized as a high priority issue, tailoring a centralized curriculum to apply it locally, capitalizing on the unique capabilities of a community, and facilitating a multi-organizational partnership.

care, policy, and efforts of multiple stakeholders within and outside of healthcare systems who implement various strategies to decrease tobacco use. Operating in this complex environment creates both a need and an opportunity to do CME differently than it is done traditionally.

Traditional CME uses a number of educational formats, from live presentations at national meetings to interactive workshops and online courses. Educational activities are usually designed to facilitate change in one or several domains pertaining to physician's knowledge, skills, competence, and professional behavior [9, 10]. The focus is often on individual physicians and increasingly, in recent years, on clinical teams [11, 12] and systems barriers to practice improvement [13]. However, the boundaries for the traditional educational intervention remain within the healthcare setting.

Given that tobacco use and quit attempts mainly occur in places where people live and work rather than in healthcare settings, it is reasonable to suggest that CME should embrace the reality and needs of a community in addition to focusing on the needs of

clinicians and healthcare systems. Further, tobacco cessation initiatives taking place in communities provide opportunities to link CME to the ongoing efforts, leverage the resources, and amplify the educational impact.

Thus, a community-based approach to CME appears to be a relevant concept in the context of improving tobacco cessation practices. Community-based approaches have been successfully employed in tobacco cessation interventions [14, 15] as well as in tobacco cessation research [16] for many years. But community-based continuing education in this clinical area appears to be less common, with limited published descriptions of training for healthcare professionals being part of a community-based tobacco cessation program [17]. This paper reports a case of an innovative community-based continuing education approach developed and implemented by a multi-organizational initiative, *Cease Smoking Today* (CS2day).

CS2DAY COMMUNITY-BASED EDUCATION APPROACH

Development

In 2008, nine US-based organizations, including three universities, launched the CS2day continuing education initiative to increase smoking cessation rates among adults in the USA [18]. During the first 2 years of the initiative, an evidence-based curriculum was delivered to more than 43,000 clinicians through multiple live, online, and performance improvement CME activities [19]. In the next generation of CS2day, the partner organizations advanced the initiative by employing a community-based education approach.

The community approach was based on partnerships with healthcare professionals and other stakeholders in environments where smoking cessation was a recognized public health priority and related programs were planned or underway. The recruitment of communities involved the CS2day partners brainstorming, nominating, and prioritizing candidates and then reaching out to candidates to explore their needs

for and their interest in a smoking cessation project. Criteria for community selection were established to ensure optimal opportunity for each project's success (Table 1). Interested communities worked with a designated CS2day partner to complete an application form that outlined a plan and a budget for the project as well as how the community met the selection criteria. Applications were reviewed and approved by the CS2day partner organizations through voting.

A total of 14 communities and 87 organizations active in these communities, such as state departments of health, universities, hospitals, community health centers, nonprofit organizations, and businesses, collaborated with the CS2day partners on community-based smoking cessation educational projects (Table 2). The communities were categorized into four groups. *Place-based communities* had geographic boundaries (e.g., state, county, and city). *Practice-based communities* were organized around healthcare organizations and clinical practices. *Education-based communities* were either existing or newly created educational networks interested in delivering the smoking cessation content. The fourth category consisted of *communities focused on special populations*, such as Native Americans and pregnant women.

Curriculum

Existing CS2day competency-based educational framework [20] and materials were revised and augmented to develop curricula and resources for communities to utilize. These resources were organized in several content domains relevant to smoking cessation, such as the 5A brief intervention (Ask, Advise, Assess, Assist, and Arrange for Follow-up) [5], smoking and alcohol use disorder, and motivational interviewing [21] applied to smoking cessation. The resources included slide decks, online training modules, practice-oriented tools [22], and teams of dedicated content experts, education specialists, and faculty presenters. The CS2day partners customized the

Table 1 | Community selection criteria

Criteria
• Smoking cessation is recognized as a priority area to address within the community
• The community stakeholders are committed to sustainable change
• Appropriate commitment and investment of local resources into this community project are proposed
• The project has one or more local champions
• The community has access or reach into a base of healthcare professionals
• Healthcare professionals' educational needs related to smoking cessation are identified within the community
• Engagement of high-risk population of smokers is the part of the project
• The community stakeholder are committed to measuring clinical and process outcomes
• Community stakeholders are accountable to the project through documentation of defined roles and responsibilities
• The project can be replicated in other communities
• The project has a potential to increase visibility of smoking cessation efforts
• Cultural sensitivity is embedded in the project
• Community stakeholders demonstrate openness to innovation and creativity
• The project fits within the CS2day project framework

Table 2 | CS2day communities

Community	Primary community partners	Project summary
Place-based		
Richmond, VA	Health system, international speedway corporation	Take 2 Minutes to Quit curriculum, racetrack learning laboratory
Allegheny County, PA	University, local association, health department health clinics	Multiple-stakeholder summit, local education, outreach through Smoke Free Alliance
Waycross, GA	Rail-based freight transportation corporation (CSX), health departments, school districts	Multiple stakeholders delivering education through government and nongovernment organizations and educational institutions
Indiana	Professional association of physicians, state tobacco control agency, pharmacy schools	Statewide focus for various learners including motivational interviewing training for pharmacists and pharmacy students
Practice-based		
Integrated behavioral health	Behavioral health clinics in Pennsylvania and Delaware	Education for behavioral health professionals embedded in primary care practices
Iowa	Free and rural health clinics	Performance improvement registry-based education with healthcare coaches
Education-based		
Area Health Education Center (AHEC) Network	Regional AHEC centers	Education designed and delivered to local healthcare professionals through block grant process
Local Healthcare Networks	Other CS2day communities, regional hospital systems	Motivational interviewing train-the-trainer education expanded through hospitals in block grant process
Second Life	University, education technology company	Motivational interviewing training for primary care clinicians delivered in Second Life—a three-dimensional virtual world
Virtual	Other educators working in tobacco cessation	Internet-based forum of healthcare professional educators working in tobacco cessation and providing small grants to educators to implement their projects
Special populations		
Native Health	University-affiliated partnership, organizations providing services for American Indians	Workshop on motivational interviewing applied to smoking cessation within Native American population
Promoting Smoke Free Families	University, Medicaid programs, health department	Cessation support for pregnant women and women with children through Virginia Department of Health and Oklahoma Medicaid providers
Extending First Breath	State health foundation	Extend cessation efforts for post-partum women
Break Free Alliance	Health education council, community health centers	Focus groups with quitlines and federally qualified health centers in North Carolina to improve quit rates through process enhancement

education for each community to address the project goals and worked hand-in-hand with the organizations and stakeholder groups in each community to implement and evaluate projects.

Evaluation Methods

Evaluation was designed consistent with Moore's evaluation framework [23], which organizes outcomes into seven levels—participation, satisfaction, learning, competence, performance, patient health, and community health. Outcomes were measured at multiple levels using registration data, post-activity questions, a commitment to

practice change approach, a follow-up survey, a patient registry, interviews with community champions and learners, and other methods. To ensure consistency in measuring outcomes and enable aggregate analysis, a set of eight clinical performance measures, common clinical vignette questions, and other common tools and techniques were used when applicable across multiple projects.

RESULTS

Community projects lasted 1 to 2 years, with the planning phase taking 1 to 8 months. The CS2day project

managers, structured phone meetings, tracking progress toward project milestones, and involvement of the CS2day Executive Team to resolve issues supported project implementation. The majority of the activities were implemented as planned.

Delivered Education

Cumulatively, 138 certified continuing education activities were offered through the communities. More than 15,600 clinicians, including physicians, pharmacists, nurse practitioners, public health nurses, physician assistants, and other healthcare providers, participated in these activities.

Outcomes

Documented outcomes provided evidence of positive impact on clinicians, healthcare systems, and communities. The key findings are highlighted below. The average rating for the content relevance to clinical practice was 4.6, on a scale from 1 = strongly disagree to 5 = strongly agree (22 activities). The post-activity clinical vignette assessment showed a 22–56 % increase over the comparator group scores for the same questions (7 activities). Cumulatively, 87 % of the intended practice changes were implemented by the participants who responded to a follow-up survey administered 2 to 6 months post-activity (16 activities). Clinicians in one community improved on asking about and documenting tobacco use from 50 to 97 % and demonstrated progress on other performance measures. During the project period, one community saw nearly a 70 % increase in referrals to a quitline, and another community saw an 11 % increase in the quitline calls emanating from the community area. For the purpose of this paper, we chose to describe a workshop conducted in one community rather than present the aggregate outcomes in a greater detail, but more information on outcomes is available upon request.

Example of Motivational Interviewing Workshop in the Native Health Community

One of the effective smoking cessation interventions is motivational interviewing (MI) [24], which is a collaborative, patient-centered approach to behavior change aimed at eliciting and strengthening the patient's intrinsic motivation to change his or her behavior [21]. Clinicians in general practice lack MI skills and underutilize this approach [25]. Seven CS2day communities recognized the need to teach MI, including the Native Health Community.

The Native Health Community focused on a high-risk population of tobacco users—American Indians and, in particular, American Indian women. The CS2day partners collaborated with the University of Arizona HealthCare Partnership, Indian Health Service Tobacco Control Task Force, Indian Health Service, and the United States Health and Human Services Office on Women's Health. The CS2day project

leveraged other initiatives that these stakeholders were implementing including an Improving Patient Care program conducted by the Indian Health Service.

The nonjudgmental aspect of the communication style and the respectful manner of the interactions make MI fit well with Native American culture and beliefs honoring each individual [26]. The MI curriculum was tailored to integrate cultural issues relevant to the targeted patient population. Further, it was expected that participants of the MI workshop would not only apply improved MI skills to their practice but disseminate the MI training within their organizations. Therefore, the educational resources provided to participants included an instructor's manual for tobacco intervention skills for Native American communities.

The 2-day MI workshop included didactic presentations, patient cases, video clips, demonstrations, and role-play. It was conducted in two locations and attended by 40 participants from 33 hospitals, health centers, and other organizations providing care for American Indians. Participants included physicians, pharmacists, public health nurses, community health coordinators, and others. The majority of participants were not using MI before the workshop.

On average, participants made significant progress learning MI techniques, as confirmed by a 12 % increase in correct responses to clinical vignettes used pre/post-workshop and a statistically significant ($p < 0.05$) increase in the self-reported confidence to use newly acquired skills (Fig. 1). However, participants were in agreement that they needed more time to practice MI, and some reported needing more training.

The majority of participants planned to use MI in their practice (a mean score was 4.8 on a scale from 1 = strongly disagree to 5 = strongly agree, $n = 37$). The follow-up conducted 2 months after the workshop, with 67 % response rate, confirmed that participants did try MI or incorporated it into their routine practice. Several participants described how they planned or already started to teach others to use MI. For example, one participant wrote:

"I am a Program Director for my area (social work). I plan to implement this practice into our daily work with patients at our Federally Qualified Health Center. Staff will need training and ongoing support from me."

Interviewed community champions reported that the project allowed the participating organizations to expand their existing cessation training efforts.

DISCUSSION

The CS2day community-based continuing education approach met the expectations of the collaborating organizations in terms of how well the community selection criteria worked, the implementation process, the effective use of resources, and the achieved

Fig. 1 | Self-assessment of confidence in using motivational interviewing ($N=29$). On a scale from 1 = definitely not confident to 5 = definitely confident. *ENGAGE* = I can ENGAGE a person with empathy and actively listen to the thoughts and emotions they express. *GUIDE* = I can GUIDE the conversation toward a specific focus without being directive. *EVOKE* = I can EVOKE a person's own motivations for change. *PLAN* = When indicated, I can help to collaboratively PLAN for change using a quit plan

educational outcomes. A discussion below addresses several issues that planners of similar initiatives may find helpful to consider.

Local Delivery of Centralized Curriculum

Implementing interventions as planned, or with high fidelity, is important to achieve the desired outcomes [27–29]. However, educational interventions are rarely implemented in the real world without modifications to fit local circumstances [29] because each educational environment is unique.

In the case of the MI workshop in the Native Health Community, modifications were made to help learners make a connection between MI and the Native American culture. There was also consistency in that the principal faculty-presenter taught MI in other CS2day communities and was a contributor to the development of the core curriculum. In the Promoting Smoke Free Families Community, a tobacco use assessment topic was expanded to include screening for multiple high-risk behaviors in pregnancy, and in the Iowa Community, a curriculum emphasized the use of a patient registry in primary care practices.

Local adaptation of curriculum occurred in every community. However, close collaboration between the CS2day partners and the local education planners was conducive in determining which modifications were necessary and could be done without compromising the educational intervention integrity, which is a strategy encouraged for attaining reasonable fidelity [30]. Based on the high participant satisfaction with the quality of education and the documented outcomes, the balance between fidelity and flexibility seemed to be achieved.

Reflecting on the CS2day experience, we identified three elements that supported flexible implementation of educational interventions in communities while maintaining consistency of the evidence-based educational message. First, keeping educational resources centralized allowed the CS2day program developers to control the curriculum delivered in communities as well as use resources efficiently across the entire initiative. Second, organizing resources in several key content domains and blocks of content within each domain made it easy to customize and package the content for multiple community projects. Third, the CS2day partners' presence and in-depth involvement in each community were critical to project implementation.

Planning for Sustainability

Continuation of effective practices that were implemented within organizations, systems, or communities after initial implementation efforts is known as sustainability [31]. Making a sustainable change in clinical practice, as a result of CME, is desired and possible [32].

Although factors that affect sustainability are not fully understood [33], it is generally recommended to plan for sustainability early in a project [34]. A commitment to sustainable change was a criterion for community selection in the CS2day initiative, and strategies to increase the likelihood of sustainability were discussed by the education planners and community champions before the project start. In the Native Health Community, learners were supported by their organizations to apply MI, and managerial support is important for sustainability [35]. The intervention's congruence with the organization's underlying mission and culture, which is another

factor supporting sustainability [34], also played a role in making sustainable change in this community. Further, this community encouraged and succeeded in the dissemination of the MI training within involved organizations, which increased the long-term impact of the project. A similar strategy was used in other communities. For example, a train-the-trainer approach to MI in the Indiana Community led to changes in the pharmacy curriculum at Purdue University. After the MI workshops in the Local Healthcare Networks Community, two hospitals launched a series of MI educational activities and trained 135 clinicians.

Thus, several mechanisms to increase sustainability were built into the CS2day community-based approach. Some of them were approaches commonly used in traditional CME, such as train-the-trainer and providing resources with long-term online availability. However, several approaches were unique. The Richmond Community utilized a live learning laboratory where healthcare professionals who attended CS2day live educational activities engaged race fans at the Richmond International Raceway in conversations about their smoking status. Healthcare professionals practiced their smoking cessation skills over the 2-day period, with faculty experts providing support and feedback onsite. The CS2day project in the Area Health Education Center (AHEC) Community triggered policy changes, including the institution of a “Tobacco Free Campus” policy at one hospital.

When to Use the Community-Based Continuing Education Approach?

Multi-organizational partnerships known under various names including consortium and coalition are increasingly formed to address the complex problems through enhanced collaboration and synergy across organizations and sectors [36, 37]. The partnership’s focus on a public health priority issue, such as tobacco use, makes it an appropriate condition for the involvement of providers of continuing educational and using a community-based education approach similar to the CS2day approach. Two factors are likely to support successful implementation of a community-based education approach. First, the education provider must have recognized credibility in the targeted public health area and, second, the educational provider must embrace the role of facilitating the community-based education process. This role is different compared to the traditional education planning role. In addition to using clinical and educational expertise, it requires a greater emphasis on bringing stakeholders together and working with various groups.

Limitations

The CS2day community-based approach was designed to work with communities that recognized tobacco cessation as a priority and were ready for change. But often, communities that need change most do not recognize their need or are not ready to address it. Further,

educational outcomes were measured using Moore’s evaluation framework [23]. Although it is widely used in the CME field, this framework seems to be insufficient for community-based CME, because it lacks guidance on measuring outcomes related to organizations, systems, and sustainability of the changes within the community. Future projects can explore how other frameworks may inform evaluation of community-based CME. For example, Spencer and colleagues [38] suggested that evaluation of the public health impact of an evidence-based practice should address five aspects of the impact, including effectiveness, reach, feasibility, sustainability, and transferability. Appleton-Dyer and colleagues [36] studied evaluation influence within public sector partnerships and offered a conceptual model linking a participatory evaluation approach to the partnership’s purpose, size, complexity, level of collaboration, functioning, and evaluation behavior. Further, measuring sustainability of outcomes in future projects may be enhanced by multiple follow-up assessments, review of post-project changes against the sustainability plans, and asking former participants what other interventions and resources were used post-project to influence long-term outcomes.

This case report is limited in that it reflects evaluation findings and not results of a research study, and thus, the reported findings are not generalizable to other populations of healthcare professionals and communities. Also, measurement of fidelity with this educational intervention was not conducted in a systematic way, and we did not assess the long-term sustainability. However, our project demonstrated that the community-based CME approach is feasible and replicable, as it was used in several CS2day communities, justifying future research to examine its essential components and effectiveness.

CONCLUSION

A multi-organizational, community-based approach to continuing education of healthcare professionals has potential to increase tobacco cessation rates by leveraging efforts of multiple stakeholders operating at the community level into more effective and sustainable tobacco cessation projects.

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