

Tobacco Control in Accountable Care: Working Toward Optimal Performance

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ABSTRACT

OBJECTIVES: Tobacco use remains the single greatest public health challenge in the United States, creating an extraordinary burden of death, disease, and healthcare cost. There is a strong scientific basis for tobacco control interventions, yet these interventions have not been applied consistently or systematically. The aim of this review was to explore the changing landscape of tobacco use, the results of which can be used to help optimize performance.

STUDY DESIGN: Literature review.

METHODS: The CDC updated their Best Practices in Comprehensive Tobacco Control in 2014. A PubMed literature review for key words “tobacco control” and “smoking cessation” from 2010 to June 2016 was reviewed for content not previously discussed in the document.

RESULTS: The demographics of smoking have shifted: although the prevalence of smoking has declined overall, smoking has become increasingly concentrated among individuals with mental illness, the rural poor, and the community of lesbian, gay, bisexual, and transgender individuals. Self-medication with nicotine is increasingly apparent as new ways of delivering nicotine are increasingly available in the form of electronic cigarettes. The central paradigms of smoking cessation treatment based on the “readiness to change” model have been challenged, and many authors are recommending treatment or harm reduction for all smokers. The economic value generated by smoking cessation has been affirmed in large-scale studies.

DISCUSSION: New information on the epidemiology of smoking and cessation will lead to a change in focus for smoking cessation interventions. Tobacco use is a chronic illness and merits sustained interventions inclusive of harm-reduction strategies and a nuanced integration of the role of nicotine in behavioral health. Integrating these interventions in a coordinated manner requires leadership, structure, and a sustained effort that are only available when the cost reductions in healthcare utilization align with the business model of the system of care.

CONCLUSIONS: Accountable care organizations are well positioned to leverage a significant impact on tobacco control and can help bridge gaps in the overall treatment of mental illness and tobacco use in this population.

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In the 50 years since the first Surgeon General’s Report on Smoking and Health,¹ tremendous progress has been made in reducing tobacco use, with a 50% reduction in the prevalence of adult smoking. Yet, according to the most recent National Adult Tobacco Survey, 21.3 % of adults reported tobacco product use “every day” or “some days.”²

Current estimates of avoidable tobacco-related deaths are now thought to be over 460,000 per year, and on average, smokers live 10 years fewer than nonsmokers.³ Recent National Health Interview Survey data revealed that approximately 14 million US adults suffered from major medical conditions that were attributable to smoking.⁴ A recent evaluation of the cost of tobacco-related conditions estimated that 8.7% of the healthcare costs—as much as \$170 billion per year—could be attributed to smoking.⁵ Projections indicate that the prevalence of adult smoking could likely still be above the Healthy People 2020 objective of 12%, even by mid-century, “if there is little change to current strategies and the burden of illness will persist well into the 21st century.”³ Progress in lowering the prevalence of smoking over the last 8 years has been substantial; however, there are many missed opportunities to improve even further.⁶

Managed care organizations (MCOs) have been at the forefront of tobacco control. Group Health of Puget Sound showed that an MCO could have a profound impact by reducing the adult prevalence of smoking from 25% to 17% from 1985 to 1994.⁷ Implementation of clinical practice guidelines by health plans was studied extensively.⁸ Insights from these and other studies were used to develop the CDC’s Best Practices for Tobacco Control Programs (2014).⁹

In 2000, the National Commission for Quality Assurance added questions to the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey regarding physician-based interventions.¹⁰ The 2014 data show substantial progress in the measure “Advising Smokers and Tobacco Users to Quit,” with 77% of commercial

health maintenance organization (HMO) members reporting that their doctors had advised them to quit in the previous year. Performance on “discussing cessation medications” and “discussing cessation strategies” were reported by only 50% of the smokers. Performance for preferred provider organizations (PPOs) and Medicaid health plans was 5% lower, on average, than other plans. A close review of the data suggests that improvements in performance on these measures has reached a plateau. The landscape for tobacco control is changing: the demographics have shifted, and new treatment options are available. Accountable care organizations (ACOs) are well positioned to leverage emerging approaches to tobacco control over the populations they serve and their surrounding communities.^{11,12}

METHODS

A PubMed literature review for key words “tobacco control” and “smoking cessation” from 2010 to June 2016 was reviewed for content not previously discussed in the CDC’s Best Practices for Comprehensive Tobacco Control Programs (2014).⁹

Understanding the Evolving Demographics of Smoking

Although the overall prevalence of smoking has declined, the prevalence of smoking in many subgroups has not declined at the same rate. Tobacco use has become increasingly concentrated in marginalized populations, such as the lesbian, gay, bisexual, and transgender communities¹³; those of low socioeconomic status¹⁴; and the rural poor.¹⁵

The greatest disparity is among those with mental illness. The prevalence of smoking among this group generally has been reported as double that of the general population,¹⁶ and the proportion of these smokers has remained constant over the last 15 years, even as the prevalence of smoking has declined overall.¹⁷ Addiction to nicotine by itself is not sufficient to explain the demography of tobacco use. The addictive properties of nicotine are well known, but young individuals start smoking for the same reasons that they experiment with other adult behaviors. A significant fraction of individuals will continue smoking in order to self-medicate.¹⁸

Nicotine is also an antidepressant, so it should not be surprising that some antidepressant medications (eg, bupropion [Zyban] and nortriptyline)¹⁹ are effective in smoking cessation. Cigarette smoke also contains compounds that inhibit monoamine oxidase, an important enzyme that reduces brain dopamine. Monoamine oxidase inhibitors are a unique class of antidepressants, and some smokers may be self-medicating to attain this effect.²⁰ There is growing literature showing that subpopulations of individuals with mental illness derive more specific benefits from nicotine; for example, schizophrenics reportedly self-medicate to reduce hallucinations,²¹ and those with anxiety or substance abuse appear to be self-medicating as well.²² Nicotine also has significant effects on concentration and cognition in individuals with attention deficit disorder and schizophrenia.²³

A natural conclusion of this literature may be that those with mental illness need additional diagnosis and treatment to optimize symptom management. Providing them with a less harmful source of nicotine or alternative medications may have a profound impact on the future health of this population. Another conclusion might be that smokers should be evaluated for the presence of a mental illness for which they are self-medicating. The standard treatment model does not address the issue of self-medication.

RESULTS AND DISCUSSION

New Approaches to Treatment

The US Public Health Service first detailed the evidence-based approach to smoking cessation in 1996 and updated its clinical practice guideline, “Treating Tobacco Use and Dependence,” in 2008.²⁴ At the core of this guideline is a structured approach to a physician’s counseling of a patient. The clinical practice guideline also states that medications approved for smoking cessation are to be offered to every patient making a quit attempt. Beyond the additional 7 medications outlined by the US Preventive Services Task Force, many combinations of medications and new additional agents are being used to treat craving in smoking cessation.²⁵

The basic approach to smokers is to prompt quit attempts during clinical encounters. Physicians now routinely inquire about the smoking status of all of their patients and ask about “readiness to change.” Patients who say that they “believe that they will be able to quit smoking in the next 6 months” are described as being in a state of contemplation and are provided progressive interventions as they advance toward being able to set a quit date. Although approximately 70% of US daily cigarette smokers say they want to quit, fewer than 50% will attempt to quit in a given year. The long-term success of these quit attempts is about 6%.²⁶ Drummond has estimated at least 36 million US adults are unwilling or unable to completely abstain from combustible cigarettes.²⁷

There has been considerable criticism of the standard model of smoking cessation, which rejects smokers that are not ready to change. Steinberg has proposed that given the chronic relapsing nature of tobacco dependence, tobacco use, should be approached as a chronic disease²⁸ and extended medication with nicotine be used as a way of treating this condition. Richter and Ellerbeck have argued for an opt-in treatment approach, wherein every smoker seen by a clinician is provided with an intervention regardless of their readiness to change.²⁹ There is substantial evidence that interventions for smokers not ready to change impacts behaviors in one of 2 ways: by promoting quitting and by reducing the amount smoked. Positive outcomes for this type of proactive approach have been reported by many authors.³⁰ Fu et al randomized 5000 smokers under care by the Veterans Administration into a comparison of usual care, based on the standard model, versus proactive care.³¹ At 1 year, the proactive group had a sustained 6-month abstinence rate of 13.5% compared with 10.9% in usual care.

Vidrene et al evaluated an alternative approach to smoking cessation quit-line referrals.³² It was observed that primary care referrals to quit lines were low and that most smokers who were passively referred did not call to utilize the service. After shifting to an “Ask-Advise-Connect” protocol,³³ a 10-fold increase in smokers enrollment was observed.

Tobacco Harm Reduction: Medication

Many study authors have advocated the use of smoking cessation products for tobacco harm reduction.^{34,35} This literature has recently been summarized by the British National Health Service Institute for Care Excellence (NICE).³⁵ NICE advocates the use of nicotine-containing medications for smoking cessation for as long as needed in order to assist patients to stop smoking, cut down prior to stopping smoking (cutting down to quit), reduce the amount they smoke (smoking reduction with no intention to quit), and temporarily abstain from smoking.

Another proactive approach is the use of practice quit attempts with medications for smoking cessation. Carpenter et al showed that nicotine therapy sampling during a practice quit attempt among patients who were unmotivated to cease smoking creates additional quit attempts.³⁶ Ebert examined the impact of varenicline on smokers not ready to quit, and after 8 weeks, 26.3% of the patients had quit smoking or had reduced smoking by 75% compared with 15.1% of those on placebo.³⁷ Thus, smokers can significantly reduce their exposure to combusted smoke by prolonged use of these medications.

Tobacco Harm Reduction: Electronic Cigarettes

Recently, Public Health England published a systematic review of the available literature on the health and safety implications of electronic cigarettes (e-cigarettes) concluding that their use is about 95% safer than smoking. The authors recommend that smokers who have tried other methods of quitting without success should be encouraged to switch to e-cigarettes.³⁸ The FDA has rejected the harm-reduction approach implemented in England and has taken a more precautionary approach toward e-cigarettes.³⁹ The case for tobacco harm reduction with e-cigarettes has been made by Polosa et al,⁴⁰ who point out that besides delivery of nicotine vapor without the combustion products—which are responsible for nearly all of smoking’s damaging effect—they also replace some of the rituals associated with smoking behavior.

Notwithstanding impending regulation by the FDA, the use of e-cigarettes by smokers in the United States as a replacement for cigarettes, or in dual use with continued smoking, is increasing. The most recent large-scale study in 2013 showed that 4.2% of the adult population used e-cigarettes⁴¹ and about 1 in 5 has tried them. More recent reports suggest that the number is increasing and that 10% of adults now use e-cigarettes.⁴² The an-

ecdotal evidence, related through consumer-centered websites, relate many stories of successful quitting. Large-scale surveys demonstrate a positive impact from e-cigarettes: for example, in a survey of 27,460 e-cigarette users from 28 countries in the European Union, over 30% of current e-cigarette users polled reported complete cessation or reduction.⁴³

Several surveys of physicians suggest that more than half of smokers are asking about, and more than a third of physicians are recommending, e-cigarettes.⁴⁴⁻⁴⁶ One author has suggested that e-cigarettes have had a public health impact by reducing the number of regular smokers.⁴⁷ A recent systematic review of the literature of e-cigarettes for smoking cessation placed the available evidence in context: the studies point to positive outcomes, but the evidence on smoking cessation is graded very low to low, and the evidence on smoking reduction was assessed as very low to moderate.⁴⁸

Treatment of Behavioral Health Problems

Williams has proposed that smokers with a mental illness diagnosis be designated a tobacco use disparity group.⁴⁹ Individuals with mental illness respond to treatment to the same degree as the general population; however, these patients have less access to care.⁵⁰ Integration of primary care and behavioral health, led by ACOs, represents an opportunity to provide tobacco control services to this underserved population, especially if these individuals are able to incorporate these 2 health services.^{51,52}

A Checklist for Tobacco Control Performance

In order to optimize ACO performance in tobacco control, ACOs are advised to develop strategic plans aligned with the CDC’s Best Practices for Tobacco Control Programs (2014).⁹ Although the progress in reduction of smoking has largely been due to the implementation of these evidence-based interventions, local application of these interventions has been very inconsistent.³ Those states with the least effective implementations have the highest rates of smoking and tobacco-related disease⁵³; thus, benchmarking against the best-performing states represents the greatest opportunity for improvement.

1. Tobacco Control Should Be Included as a Strategic Goal of the Population Health Program

Given the health impact and cost attributed to tobacco use, it is surprising to observe how few resources are specially allocated. Smoking cessation is effective and cost-effective, and produces a return on investment in a short timeframe. Ken Warner, dean of the School of Public Health at the University of Michigan, has reviewed the topic extensively: “Smoking cessation has been called the ‘gold standard’ of healthcare cost-effectiveness, producing additional years of life at costs that are well below those estimated for a wide range of healthcare interventions.”⁵⁴

Several recent articles are worthy of close examination: Mullen et al reported on the impact of inpatient smoking cessation services over usual care in 14 Canadian hospitals. Follow-up at 30 days, 1 year, and 2 years showed absolute reduction in risk for all-cause re-admissions at 6.1%, 11.7%, and 11.6%, respectively ($P < .001$).⁵⁵ West and Ku reported on the return on investment of a Medicaid tobacco cessation program in Massachusetts, showing that an investment in comprehensive tobacco cessation services may result in substantial savings for Medicaid programs. The cost-effectiveness of a statewide smoking cessation initiative in Massachusetts was measured at 13 months by measurement of the reduction of hospital admissions. Every \$1.00 in investment resulted in a \$3.13 saving. As other tobacco-related expenses were not measured and additional benefits might accrue over time, the real savings should be substantially higher.⁵⁶

Dedicated staff, training of clinicians and their supervisors, and a commitment to program evaluation are required to leverage evidence-based interventions within ACOs.

2. Alignment With, and Advocacy for, Local, State, and National Tobacco Control Strategies

A close collaboration between ACOs and local public health authorities is warranted. A coordinated effort across communities provides a framework for increased taxes, increasing the legal age of purchase, smoke-free environment, and cessation and harm-reduction strategies. Those localities with the most effective programs have lower prevalence of tobacco-related disease. The goals for state tobacco control programs overlap with the federal to a significant degree and also include funding for state programs, including quit lines, funding goals for state tobacco control programs, and coverage for smoking cessation in Medicaid programs.

The strongest intervention for tobacco control is the cigarette excise tax, which discourages young people from adopting an expensive habit and rewards those who choose to quit smoking. Taxes range from \$0.17 in Missouri to \$4.35 in New York.

Another successful intervention is smoke-free environments, with 30 states implementing strong controls on smoking in public places plateaued.³ The CDC has also proposed guidelines for state spending on tobacco control programs based on revenue from tobacco excise taxes and from the Master Settlement Agreement. In fiscal year 2011, this amounted to \$24.2 billion. The states spent only \$658 million (<3%), however, which was 17.8% of the CDC's recommended amount, with state-to-state variation ranging from 0% (New Jersey) to 99.6% (Alaska).⁵⁷

The Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine published a report on "Public Health Implications of Raising the Minimum Age of Legal Access to Tobacco Products," assembling a strong evidence base for making 21 the legal age for purchase of tobacco products.⁵⁸ Over 200 com-

munities, including New York City, have adopted regulations of this type.⁵⁹ These state and local initiatives can lower the prevalence of tobacco use on a population level and represent the most cost-effective interventions that can be supported by ACOs.

3. Benefit Design

Implementation of smoking cessation benefits by health plans under the Affordable Care Act (ACA) design has been inconsistent.⁵⁹ Benefit design should meet or exceed recommendations for the ACA.⁶⁰ Reimbursement for smoking cessation counseling by primary care physicians is not covered by all health plans,⁶¹ and many clinicians, such as psychiatrists and social workers, are not reimbursed at all. In addition, health plans do not contract with the clinicians with the greatest expertise: Certified Tobacco Treatment Specialists. Coverage of smoking cessation programs for Medicaid programs also varies widely, with 2 states providing comprehensive coverage, 27 states providing almost comprehensive coverage, and the remainder providing inadequate coverage.⁶²

4. Recommendations for Systems Change in Tobacco Control Interventions Should Be Fully Integrated

ACOs have the best opportunity to integrate systems changes, such as design of electronic health records (EHRs) to support a Tobacco-User Identification System in every clinic; provide education, resources, and feedback to promote provider intervention; and measure systems performance at a granular level.

Over time, there appears to be an improvement in physician performance of smoking cessation interventions as a result of education, feedback, and incentives.^{63,64} The questions used in the CAHPS survey are well validated⁶⁵ and may best reflect actual clinical behavior. The 2014 survey data show substantial progress in "Advising Smokers and Tobacco Users to Quit," with 77% of commercial HMO members reporting that their doctors had advised them to quit in the previous year. However, performance on "Discussing Cessation Medications" and "Discussing Cessation Strategies" was reported by only 50% of the smokers, and performance for PPO and Medicaid health plans was 5% lower, on average, than other plans.¹⁰

Agreement between the patient surveys and the EHR was poor,⁶⁶ and overall increases in the use of EHRs has not led to increases in counseling.⁶⁷ A detailed review of the interaction of tobacco use counseling process and the EHR may be required. For example, Linder et al were able to improve documentation of smoking status and increased counseling, but not increased use of prescription medication.⁶⁸

5. New Paradigms for Tobacco Control Program Design Should Be Implemented and Tested

Individuals with mental illness contribute a disproportionate share of the medical morbidity and cost in a population.⁶⁹ Tobacco use is

a major driver for the higher risks in this population and warrants a more focused approach. The choice architecture for smokers should be revised to incorporate the lessons from trials of quitting, mandatory referrals, and harm reduction. Every smoker should be offered treatment regardless of their readiness to change. Although many physicians are not comfortable recommending e-cigarettes, use by consumers should be recommended. When patients are empowered, they can make choices that are healthy for them.

CONCLUSIONS

Tobacco use has become increasingly concentrated in marginalized populations, and there is a general perception in the media that the issue will soon be resolved. ACOs, with their stronger ties to the community can help bridge the gaps in the overall treatment of mental illness and tobacco control. Even more than MCOs, ACOs have an economic interest in the health of their covered populations and the larger communities they serve. ACOs that invest in improved tobacco control interventions can reasonably expect reduced medical expenses in year 1, reduced medical long-term expenses, positive public relations positioning, and enhanced engagement in their communities. However, the magnitude of the opportunity to improve health and control cost is so substantial that these organizations should commit to optimize their performance in tobacco control.

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