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# Expanding the Uptake of Hospital-based Tobacco-use Cessation Supports Across Ontario

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EVIDENCE BRIEF

# EXPANDING THE UPTAKE OF HOSPITAL-BASED TOBACCO-USE CESSATION SUPPORTS ACROSS ONTARIO

18 JANUARY 2012

EVIDENCE >> INSIGHT >> ACTION

# Evidence Brief:
# Expanding the Uptake of Hospital-based Tobacco-use Cessation Supports Across Ontario

18 January 2012

McMaster Health Forum

For concerned citizens and influential thinkers and doers, the McMaster Health Forum strives to be a leading hub for improving health outcomes through collective problem solving. Operating at the regional/provincial level and at national levels, the Forum harnesses information, convenes stakeholders, and prepares action-oriented leaders to meet pressing health issues creatively. The Forum acts as an agent of change by empowering stakeholders to set agendas, take well-considered actions, and communicate the rationale for actions effectively.

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the evidence brief. The funders played no role in the selection, assessment, synthesis or presentation of the research evidence profiled in the evidence brief.

Merit review

The evidence brief was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and health system relevance.

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# KEY MESSAGES

**What's the problem?**

- Ontario hospitals lack a common, feasible, cost-effective and sustainable approach to delivering tobacco-use cessation supports. The problem can be understood at a number of levels:
  - Tobacco-related illness affects many Ontarians and is a key driver of healthcare costs.
  - There is no agreed minimum standard of support for tobacco users across Ontario hospitals. Few hospitals have in place the necessary range of systems, policies and environmental prompts that encourage and enable consistent and effective support to tobacco users. Few studies have examined the sustainability of tobacco-use cessation programs beyond the program-implementation phase.
  - Gaps in existing health system arrangements constrain hospital-based tobacco-use cessation supports.

**What do we know (from reviews) about three elements of an approach to address the problem?**

- Element 1 – Establishing and institutionalizing a common approach to identifying tobacco users upon admission to hospital
  - A limited number of systematic reviews were identified that addressed this element. One high-quality review found benefits for providing financial incentives to healthcare providers (albeit in primary care) and medium-quality reviews found benefits for providing smoking-cessation training to healthcare providers and for using reminder systems to increase the provision of assistance and counselling. No reviews were found about engaging staff in tobacco-use cessation, developing or adapting policies, procedures and care pathways, or establishing indicators for successful tobacco-user identifications.
- Element 2 – Providing tobacco users with assistance in quitting and continuing support for nicotine withdrawal while in hospital
  - Several high-quality reviews found benefits for: several smoking-cessation interventions (including behavioural and nicotine-replacement therapies); follow-up contact after the delivery of an intervention; and interventions delivered by a range of providers. While high-quality reviews were identified as being relevant to three other components (developing or adapting policies, procedures and care pathways; providing targeted funding and/or financial incentives; and establishing accountability within hospitals), none of the reviews provided clear messages related to this element based on the findings from included studies.
- Element 3 – Ensuring follow-up counselling once tobacco users leave hospital to assist them in remaining tobacco-free
  - Several high-quality reviews found benefits for: following-up with patients after the delivery of hospital-based interventions; intensive behavioural interventions; using trained community pharmacists to provide counselling; and using financial incentives. Medium-quality reviews also found benefits for physical therapists providing smoking-cessation advice and using reminder systems for delivering preventive services. No reviews were found for: providing additional training, certification and/or oversight of community providers; establishing indicators for successful tobacco-use cessation, data collection and feedback mechanism for organizations or providers; or establishing accountability within community-based organizations and among community-based physicians.

**What implementation considerations need to be kept in mind?**

- Potential barriers to the implementation of a comprehensive approach to hospital-based tobacco-use cessation supports across Ontario can be identified at the level of patients (e.g., fear of treatment denial, resistance to a one-size-fits-all approach, and concern about affordability), providers (e.g., lack of resources, knowledge/skills and support systems, as well as concerns about professional autonomy), organizations (e.g., lack of resources and agreed indicators and concerns about organizational autonomy), and system level (e.g., budget constraints during a difficult economic period).
- Three types of implementation strategies warrant deliberation: 1) a participatory approach to developing new communication channels; 2) a process for identifying and working with champions drawn from the senior executive ranks of Ontario hospitals; and 3) the development of a business case.

# REPORT

Tobacco use remains the number one preventable cause of death and disease in Canada.(3) Tobacco-related illness can boost a tobacco user's motivation to quit using tobacco, presumably by increasing their perceived vulnerability to the health hazards of tobacco use.(4) Tobacco-related illness also brings tobacco users into healthcare settings where providers have an opportunity to encourage and enable tobacco cessation (as do illnesses caused by other factors). The traditional approach of most tobacco-cessation programs is to rely on tobacco users self-identifying the need to quit and seeking out supports to do so. A complementary approach is to identify and work with tobacco users when they visit a healthcare setting. In this evidence brief we focus on circumstances where tobacco users are admitted to hospital.

Tobacco-use cessation is the process of discontinuing the use of tobacco, and thereby reducing the harm caused by tobacco use. Hospitalization provides a unique opportunity to identify and engage tobacco users, initiate cessation supports, and facilitate appropriate follow-up. A recent Cochrane review has demonstrated that intensive smoking-cessation interventions that begin during hospitalization and continue for at least one month post-discharge can be effective, compared to brief interventions.(4)

Hospital-based tobacco-use cessation programs are implemented in the hospital setting to identify and offer a range of treatment and support services to every admitted tobacco user.(5) This evidence brief defines hospital-based tobacco-use cessation programs as inpatient tobacco-use cessation interventions that can involve: 1) identifying tobacco users on admission; 2) providing counselling to patients; 3) providing medication during hospitalization; 4) linking the patient back to community resources; and 5) providing follow-up after discharge from hospital. Such programs may have two areas of focus: 1) managing nicotine withdrawal; and 2) maximizing the opportunity posed by hospitalization to support quitting and remain tobacco free.

Hospital-based interventions can include many elements such as:

- use of clinical information systems (e.g., documentation and monitoring of tobacco use);

**Box 1: Background to the evidence brief**

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a comprehensive approach for addressing the problem and key implementation considerations. Whenever possible, the evidence brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question and using systematic and explicit methods to identify, select and appraise research studies and to synthesize data from the included studies. The evidence brief does not contain recommendations.

The preparation of the evidence brief involved five steps:

1) convening a Steering Committee comprised of representatives from the partner organization and the McMaster Health Forum;
2) developing and refining the terms of reference for the evidence brief, particularly the framing of the problem and three elements of a comprehensive approach for addressing it, in consultation with the Steering Committee and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, elements of an approach to addressing the problem, and implementation considerations;
4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
5) finalizing the evidence brief based on the input of several merit reviewers.

The evidence brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary and the video interviews with dialogue participants.

- provision of healthcare provider supports (e.g., education support tools for physicians and nurses to assist with the tobacco-use assessment of patients);
- introduction of broader healthcare system changes (e.g., creating a culture, organization and mechanism that promote the adoption of hospital-based tobacco-use cessation programs in Ontario); and
- linkages to community-based resources for patients (e.g., identification of community-based tobacco-use cessation support programs for patients referred to by providers in the hospital doing tobacco-use assessments), which ideally include linkages to patients' primary healthcare providers upon discharge to ensure continuation of treatment and follow-up.

Several studies have shown that hospital-based tobacco-use cessation programs are feasible and effective in improving patient outcomes, but continuation beyond the program-implementation phase has not been carefully examined.(4;6;7) There are few evaluations of the impact of implementing cessation interventions into routine hospital practice.(8) Understanding how programs are best embedded in the hospital setting is important to avoid losing the overall benefit these programs can have on the burden of tobacco-related illness, hospitalization and the health status of tobacco users.(9) This evidence brief defines sustainability of tobacco-use cessation programs as the continuation of tobacco-use cessation supports over a defined period of time. While there is no commonly accepted definition of this period of time, it is likely that a program that had continued over a period of five years would be considered a sustained program given it may have survived changes in government administrations and turn-over in both the organization's senior management team and the program-delivery team. A recent study on the sustainability of tobacco-use cessation programs in Ontario demonstrated that program sustainability depends on several factors, including integrating the intervention into clinical pathways, integrating outcomes for evaluation into program delivery, and partnering with community programs (e.g., the Smokers' Helpline) for patient follow-up and ongoing provision of patient materials.(9)

It is important to recognize that responses to offers of tobacco-use cessation supports may vary between patients who are hospitalized for conditions that may be tobacco-related and patients who are hospitalized for other reasons. In a recent randomized-controlled trial

**Box 2: Equity considerations**

A problem may disproportionately affect some groups in society. The benefits, harms and costs of the elements of a comprehensive approach to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use "PROGRESS," which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:

- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations, and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in "precarious work" arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

This evidence brief strives to address all people, but (where possible) it also gives particular attention to two groups:

- people with low socio-economic status; and
- people with one or more chronic conditions.

Many other groups (such as youth, those living in rural communities and pregnant women) warrant serious consideration as well, and a similar approach could be adopted for any of them. In addition to the two groups of individuals, the evidence brief also gives attention to rural hospitals and hospitals for the mentally ill.

The groups that are the focus of commentary about equity include two of the three groups with the highest prevalence of tobacco use, which are individuals in trade occupations (34%), Aboriginals (40%), and individuals with mental health and addiction problems (45%).(1) Giving attention to prevalence, however, masks variation within groups. For example, the proportion of pregnant women who smoke in Ontario ranges from 5% in Toronto to 9% in the central east region, 15% in the central west region and in the eastern region, 18% in the south west region, 29% in the north east region, and 34% in the north west region.(2)

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003;10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

conducted in northwest Ontario, one-year abstinence rates from tobacco-cessation treatment were significantly higher for patients with cardiovascular disease receiving intensive tobacco-use cessation support in hospital, compared to patients with other diseases receiving similar support.(10) An older randomized controlled trial found that patients hospitalized because of cancer, cardiovascular disease or pulmonary disease were more likely to enrol in an inpatient tobacco-use cessation program and had higher self-reported cessation rates than patients hospitalized for other reasons.(11)

The aim of the evidence brief, which will be used to inform a stakeholder dialogue that brings stakeholders' views and experience to bear on the issue of expanding the uptake of hospital-based tobacco-use cessation supports in Ontario, is to examine the missed opportunities for tobacco-use cessation efforts in Ontario's hospitals, and to support the development of a common, feasible, cost-effective and sustainable minimum standard of care for delivering tobacco-use cessation supports in all hospitals in Ontario, which could include standards targeted to specific patient groups. A standard of care approach can include support tools, clinical forms, treatment pathways, care pathways, workshops and other resources to assist healthcare providers with providing tobacco-use cessation supports to patients admitted to hospital. Examining existing hospital-based tobacco-use cessation protocols in Ontario can support the development of a common standard of care for tobacco-use cessation.

This evidence brief does not address community-based interventions for tobacco cessation per se, however, hospital-based tobacco-use cessation programs cannot be sustained if they are not linked to community-based resources for post-discharge support.

A number of commitments have been made at the national level in Canada to reduce tobacco-related illness through prevention and cessation efforts. For example, Health Canada leads the Federal Tobacco Control Strategy, the goal of which is to reduce overall smoking prevalence from 19% (in 2006) to 12% by 2011. Moreover, several health professional associations, including the Canadian Medical Association, the Canadian Nurses Association, the Canadian Pharmacists Association, the Canadian Dental Hygienists Association, the Canadian Association of Respiratory Therapists, and the Canadian Psychological Association, have issued individual or joint position statements highlighting the role of health professionals in the control of tobacco use.(12)

At the provincial level, the Ontario government has supported tobacco users to quit by sponsoring and funding a variety of tobacco-use cessation initiatives and programs:

- the Ontario government developed (and renewed for 2010-2015) the Smoke-free Ontario Strategy, which focuses on initiatives aimed at preventing young people from taking up tobacco-use, protecting individuals from exposure to second-hand smoke through the Smoke-Free Ontario Act, and helping smokers to quit;(13) and
- the Ontario government funds:
  - the Ontario Tobacco Research Unit to conduct research, monitoring and evaluation on tobacco control;
  - the Centre for Addiction and Mental Health's Smoking Treatment for Ontario Patients (STOP), a research study and program that aims to discover and deliver the most effective smoking-cessation medication and counselling support to smokers across Ontario through a variety of channels, including STOP-on-the-Road workshops (some of which take place in hospitals), activities in collaboration with Family Health Teams, and activities in Aboriginal Health Access Centres and Community Health Centres;
  - the University of Ottawa Heart Institute's Ottawa Model for Smoking Cessation (under the Smoke-free Ontario Strategy), which helps hospitalized smokers with nicotine withdrawal as well as smoking cessation and now involves 22 Champlain LHIN-affiliated hospitals and 34 additional Ontario hospitals in 10 other LHINs;
  - the Canadian Cancer Society's Smoker's Helpline and Smokers' Helpline Online to provide support, advice and community referrals for individuals who want to quit;

- community pharmacists (through the Pharmacy Smoking Cessation Program) to provide a smoking-cessation program to Ontario Drug Benefit recipients;(14)
- seven regional Tobacco Control Area Networks that range in size from one to nine public health departments and that facilitate coordination at the local and regional levels, ensure that the needs of public health departments are met, and maximize the effective use of limited resources; and
- Brock University's Leave the Pack Behind, a program that delivers prevention and cessation programs across all Ontario universities and colleges.

As well, the Ontario government has funded the development of best practice guidelines targeted at single health professions and capacity-building initiatives targeted at all health professions, including:

- a best practice guideline for tobacco-use cessation support by physicians that follows the "5 As" strategy – 1) ask patients if they use tobacco; 2) advise them to quit; 3) assess readiness to quit; 4) assist with quitting (using counselling, cessation materials and first-line pharmacotherapy); and 5) arrange follow-up) – and that was developed by the Ontario Ministry of Health and Long-Term Care and Ontario Medical Association, although this initiative no longer receives dedicated funding from the Ontario government;
- a best practice guideline for smoking cessation for registered nurses using an "ask, advise, assist, arrange" (4 As) protocol, which was developed as part of the Registered Nurses Association of Ontario's Best Practice Guidelines program;(15) and
- the Centre for Addiction and Mental Health (CAMH) Training Enhancement in Applied Cessation Counselling and Health (TEACH) program, which supports capacity building related to tobacco cessation among healthcare providers in Ontario.(16)

In addition to the above tobacco-control initiatives, there are a number of best practice models and guidelines that support or could support tobacco cessation, including:

- Public Health Ontario uses a best-practices model to spur a broad range of quality improvements in hospitals and other healthcare institutions and in healthcare practices, however, as of yet it has not used this model to support tobacco cessation in hospitals;
- Canadian Action Network for the Advancement, Dissemination and Adoption of Practice-informed Tobacco Treatment (CAN ADAPTT) develops clinical practice guidelines both for all citizens and for specific priority populations (e.g., Aboriginal people, hospital-based populations, mental health and addictions, pregnancy and breast-feeding women, and youth), and its Practice-Based Research Network facilitates research and knowledge exchange among researchers, practitioners and policymakers in the area of smoking cessation;(17) and
- U.S. Department of Health and Human Services' Treating Tobacco Use and Dependence clinical practice guideline is a widely accepted strategy for smoking cessation that has been recommended by Ontario's Guidelines Advisory Committee, promotes the "5 As" strategy, and advocates for important clinical interventions such as counselling with the use of tools such as nicotine-replacement therapy.(18)

The latter guideline informed the development of the Registered Nurses Association of Ontario best practice guidelines for smoking cessation.(15)

The following key features of the health policy and system context in Ontario that affect the provision of hospital-based tobacco-use cessation supports were also taken into account in preparing this evidence brief:

- the Ontario Ministry of Health and Long-Term Care acts as a steward of the healthcare system and in doing so it oversees legislation that governs the healthcare system (e.g., Public Hospitals Act), establishes accountability agreements with and funds the provinces 14 Local Health Integration Networks (LHINs), negotiates agreements with and funds physicians and physician groups, and administers and funds prescription drug benefits programs, among other responsibilities;
- the LHINs have responsibility for the planning, funding and integration of healthcare within their regions, and they establish accountability agreements with hospitals and other healthcare facilities in their regions;

- hospitals have the authority to make decisions about how they operate in any domain not explicitly addressed through the Public Hospitals Act or accountability agreements with LHINs, and more specifically
  - hospital-based medical care is typically delivered by physicians working in private practice and receiving first-dollar (i.e., no deductibles or cost sharing) public payment, with the private practice element of this agreement between government and physicians typically meaning that physicians have been wary of potential infringements on their professional autonomy (e.g., directives about the nature of the care they deliver or the way in which they organize and deliver that care) and with the public payment element typically taking the form of fee-for-service payment or some form of salary if the physicians are enrolled in an alternative payment plan;
  - other health professionals working in hospitals are typically paid a salary (out of the hospital's global budget) as part of a formal employment relationship;
  - hospitals participate in accreditation processes organized by Accreditation Canada;
- prescriptions receive partial public coverage in Ontario, but not with the same type of first-dollar coverage provided for hospital-based and physician-provided care (e.g., co-payment is required for prescription drugs for those 65 years of age and older) and with many Ontarians having no coverage through either public or private plans;
- there are a variety of legislation and/or policies governing public health that can have an impact on hospital-based efforts, as well as a general climate that supports the use of health promotion and disease prevention efforts that reduce the burden on hospitals and other parts of the healthcare system; and
- the Ontario provincial government recently passed legislation, called the Excellent Care for All Act, that gives significant attention to enhancing quality of care across the healthcare system (not just in the hospital system).(19)

## THE PROBLEM

Tobacco-related illness kills more than 16,000 Ontario residents each year.(20) For many tobacco users, both tobacco-related and other illnesses frequently result in hospitalizations. Ontario hospitals and the Ontario health system in general lack a common, feasible, cost-effective and sustainable approach to delivering tobacco-use cessation supports.(8) The problem can be understood at a number of levels: 1) tobacco-related illness affects many Ontarians and is a key driver of healthcare costs; 2) there is no agreed minimum standard of care for tobacco-using patients across Ontario hospitals; and 3) gaps in health system arrangements constrain hospital-based tobacco-use cessation supports. The renewal and implementation of the Smoke-free Ontario Strategy will support efforts to address this problem.

**Box 3: Mobilizing research evidence about the problem**

The available research evidence about the problem was sought from a range of published and "grey" research literature sources. Published literature that provided insights into alternative ways of framing the problem was sought using the qualitative research "hedge" in MedLine. Grey literature was sought by reviewing the websites of a number of Canadian and international organizations.

Priority was given to research evidence that was published more recently, that was locally applicable (in the sense of having been conducted in Canada), and that took equity considerations into account.

### Tobacco-related illness affects many Ontarians and is a key driver of healthcare costs

Tobacco use causes a number of health problems leading to hospitalization and premature death, including cardiovascular disease, respiratory illness, and many forms of cancer.(20) The current daily smokers and former daily smokers who had quit in the past five years averaged more than twice as many days in hospital as did never-daily smokers.(9) According to the Canadian Institute for Health Information, the greatest proportion of these hospitalizations was for adult patients being treated for chronic disease conditions such as respiratory disease, cardiovascular disease and diabetes in 2004-2005.(21)

The burden of tobacco-related illness has a significant financial impact on the entire healthcare system. Tobacco-related diseases cost the Ontario economy at least $1.7 billion in healthcare annually, results in more than $2.6 billion in productivity losses, and account for at least 500,000 hospital days each year.(20) On an individual level, cessation brings financial benefits to the ex-smoker due to decreased expenditure on cigarettes.(1;22)

According to data in 2009 from the Propel Centre for Population Health Research at the University of Waterloo, there are significant variations in smoking prevalence by province. Some findings from the data reported on the province of Ontario in 2009 include:(23)

- a smoking prevalence of 15.4%, below the national average of 17.5%; and
- the smoking prevalence among youth aged 15-19 was 9%.

A report by the Ontario Tobacco Research Unit published in 2010 documented that in Ontario(24):

- the highest prevalence of current smoking occurs among moderate or problem gamblers (45%), Aboriginals (40%), 25- to 29-year-old males (37%,) and those in trades occupations (34%);
- residents living in rural areas had a slightly higher prevalence of current smoking (21%) than residents living in urban areas (19%); and
- the percentage of current smokers is the highest in northern regions of Ontario (for example, in 2007/2008, the percentage of current smoking was 27% in North Bay Parry Sound District Health Unit, 26% in Thunder Bay and 25.5% in Sudbury).

According to a recent study of tobacco-use prevalence among emergency-department patients in acute care hospitals in northwest Ontario:

- tobacco-use prevalence is double the national and provincial averages for people under the age of 55, and almost 60% higher than the national average for 45–54 year olds; and
- tobacco-use prevalence is higher in rural communities than in urban communities, with rates being 15% higher for patients under the age of 30 years, 9% higher among patients aged 30-49, and 7% higher among patients aged 50-69 years.(25)

The higher tobacco-use rates in this region are likely reflective of the region's higher proportion of manual labourers (e.g., in the mining, logging and pulp and paper industries), citizens of lower socio-economic status and First Nations individuals.(25)

The research evidence demonstrates that health improves after people stop using tobacco. Quitting tobacco has been associated with a 36% decrease in the relative risk of mortality in coronary heart disease patients who are able to quit.(26) Hospitalization for coronary heart disease has been linked to greater intentions to quit smoking. For example, 65% of smokers hospitalized with myocardial infarction reported intentions to quit smoking in the next 30 days as compared to 20% of non-hospitalized smokers.(22;27) That said, the motivation or intention to quit tobacco and remain tobacco-free varies among individuals. Tobacco-related illness might initially motivate a person to quit smoking, however, cases of relapse are common even if the patient has received pharmacotherapy treatment such as nicotine-replacement therapy.(28)

**There is no agreed minimum standard of support for tobacco-using patients across Ontario hospitals**

Clinical practice guidelines are often considered to represent the minimum standard for regulated health professionals such as nurses and physicians. The United States Department of Health and Human Services clinical practice guideline on treating tobacco use and dependence recommends clinical interventions based on the 5As (ask, assess, advise, assist, arrange) and six system-level strategies to assist hospitalized tobacco users with quitting.(18) However, the searches for research evidence were conducted more than 4.5 years ago

(in June 2007) and there is no province-wide agreement among hospitals to endorse the system-level strategies and support their implementation.

Without an agreed minimum standard of support for tobacco-using patients across Ontario hospitals, standardized, cost-effective and sustainable tobacco-cessation interventions are unlikely to be delivered with a high degree of quality in all of the province's hospitals. Increased coverage rates of these interventions and/or programs can increase utilization of tobacco cessation services, quit attempts, and the number of smokers who quit. Research has shown that if a substantial number of healthcare providers implement minimal smoking cessation interventions, there will be a significant reduction in the number of tobacco users, a decrease in related tobacco diseases and a lowering of healthcare costs.(9;15) Admission to hospital can often provide the ideal conditions to support and treat tobacco users, which include the smoke-free environment of hospitals and perceived vulnerability to the health effects of smoking (29).

Among the 164 hospitals that completed the Ontario Tobacco Research Unit 2011 baseline survey of hospital tobacco-use cessation services in Ontario, approximately 84% reported providing some level of tobacco-use cessation support. The most commonly adopted policies and practices for smoking cessation were documenting patient smoking status upon admission (79%), making smoking-cessation pharmacotherapies available in the hospital formulary (73%), and having standard methodology for the identification of smoking status (69%).(30) However, few Ontario hospitals reported providing counselling to inpatients (40% for minimal or brief counselling and 15% for intensive counselling) or referral or follow-up one month after discharge (27%). Furthermore, few Ontario hospitals have in place processes to evaluate the degree to which healthcare providers are providing tobacco-use treatment to patients, following up with tobacco users after hospital discharge, or providing feedback to clinicians about performance.(8) As well, additional information is needed about whether hospital-based tobacco-use cessation services are being offered across the entire hospital organization, one hospital site or one department or unit.(30)

According to a report by the Ontario Tobacco Research Unit published in 2010, the implementation of effective cessation interventions (such as, nicotine-replacement therapy, physician's advice, and individual behavioural counselling) could save the Canadian healthcare system 33,307 acute care hospital days over a 20-year period (monetary value $37 million).(1). While these initiatives have helped tobacco users to quit, they lack the integration, resources and comprehensiveness that are necessary to tackle the complexity of tobacco addiction in Ontario, and ensure long-term quit rates among tobacco-users.(24) The Ontario Tobacco Research Unit 2011 survey of Ontario hospitals reported common barriers and challenges include a lack of staff time to provide cessation support, lack of funding, and lack of capacity to monitor or track the implementation of policies and programs.(30)

Hospital-based tobacco-use cessation interventions for in-patients can be divided into two categories: 1) minimal contact cessation interventions; and 2) intensive cessation interventions. Minimal contact interventions are brief interventions that involve one-on-one counselling with the patients, the healthcare provider (usually a nurse) offering take-home materials to patients such as pamphlets on how to quit and where to find help quitting, and putting a note in each patient's chart to ask the attending physician to deliver a scripted non-smoking message at the bedside during the patient's hospital stay.(31) Brief interventions usually last a few minutes. Intensive cessation programs involve a minimal contact approach in addition to 45–60 minutes of bedside education and counselling, take-home materials for the patient, (possibly) the use of pharmacotherapy treatment, and follow-up after discharge from hospital.(31)

In a systematic review on the effectiveness of tobacco-use cessation support for hospitalized patients, interventions were divided into four categories of counselling intensity for in-patients: 1) one contact in hospital, lasting 15 minutes or less and no post-discharge support; 2) one or more contacts in hospital lasting 15 minutes in total and with post-discharge support; 3) any hospital contact plus post-discharge support lasting less than one month; and 4) any hospital contact plus post-discharge support lasting one month or longer.(32) The review found that high-intensity counselling interventions, defined as those that begin during

hospital stays and include supportive contact for one month or longer after hospital discharge (i.e., those that would be included in the fourth category described above) increased the odds of smoking cessation by 65% at 6-12 months.(32)

Meta-analyses show that simple advice from a physician has a small but significant effect on tobacco-use cessation.(33;34) In one review of nurse-led tobacco-use cessation interventions, the findings suggest that minimal contact interventions can be as effective as intensive interventions in assisting patients to quit using tobacco (when compared to no tobacco-use cessation intervention).(34) In a minimal contact intervention nurses can provide patients with information about the potential benefits of tobacco cessation and with counselling to motivate patients to quit. However, abstinence after treatment has shown to vary between minimal contact and intensive interventions. In a randomized controlled trial of hospitalized patients with coronary artery disease, more patients in the intensive intervention than in the minimal intervention were abstinent at one year (absolute increase of 19%). The odds of quitting smoking were two times greater for those in the intensive intervention.(31) Clinical practice guidelines for tobacco-use cessation recommend that healthcare providers provide at least brief interventions to in-hospital patients who use tobacco.(35) Brief interventions can be effective, although cessation increases with the intensity and frequency of the interventions provided.(35)

There is insufficient evidence on the effectiveness of pharmacotherapy treatment (e.g., bupropion or nicotine-replacement therapy) in combination with behaviour interventions (e.g., counselling) for hospitalized patients specifically.(32;36) A hospital-based tobacco-use cessation study reported a significantly lower abstinence rate at 12 months for inpatients in either minimal or intensive interventions who used pharmacotherapy.(36) The lower abstinence rate for inpatients who used pharmacotherapy in combination with a behaviour intervention might be confounded by the extent of the patient's addiction.

As of September 2011 the Ontario Drug Benefit program covers two prescription medications that can support patients quitting tobacco – Champix and Zyban – but not nicotine-replacement therapy. The Ontario government is also currently providing free nicotine-replacement therapy through Family Health Teams, Aboriginal Health Access Centres and Community Health Centres. In addition, the Centre for Addiction and Mental Health provides free nicotine-replacement therapy through STOP-on-the-Road programs. To complement the availability of cessation medications, the Ontario government funds community pharmacists to provide a smoking-cessation program to Ontario Drug Benefit recipients. The Canadian Pharmacist Association's Quit Using and Inhaling Tobacco (QUIT) program offers smoking cessation services (e.g., counselling and pharmacotherapy) in pharmacies, using the 5 As.(12)

There has been recognition among leaders in tobacco-use cessation for the need of an integrated, multi-disciplinary collaborative approach that includes the policies, support tools, and interventions required to optimize hospital-based tobacco cessation as a standard of care.(29). In 2007, the Cessation Task Group, which was part of the then Ontario Ministry of Health Promotion Community Action Working Group, proposed an evidence-based approach for developing a system of cessation to improve quit rates in Ontario. In order to reduce the health and economic burden associated with tobacco use, the group developed and made recommendations for an improved, comprehensive and integrated tobacco-use cessation strategy. More recently, the Tobacco Strategy Advisory Group has issued updated recommendations, one of which is to establish a tobacco-use cessation system. This recommendation is referred to as the 'no wrong door' recommendation because it advocates for any Ontarian seeking to quit tobacco to be able to access tobacco-use cessation supports through multiple channels.(3)

Two models of hospital interventions to tobacco-use cessation in Ontario that incorporate recommendations from the U.S. Department of Health and Human Services' guidelines are the University of Ottawa Heart Institute's Ottawa Model for Smoking Cessation and the northwest Ontario program. The Ottawa Model for Smoking Cessation is a systematic approach for addressing tobacco use among hospitalized patients and which involves a common approach to identifying tobacco users upon admission to hospital, providing them

with assistance in quitting and support for nicotine withdrawal while in hospital, and ensuring follow-up counselling once they leave hospital to assist them in remaining tobacco-free. Implementation of the Ontario Model for Smoking Cessation has been found to result in an 11.1% increase (from 18.3% - 29.4%) increase in long-term smoking cessation following hospital discharge.(8) Since 2006, the OMSC has been implemented in a number of hospitals across Canada. The northwest Ontario program involves system-level changes to ensure that all admitted patients and all patients visiting emergency departments are systematically screened for tobacco use. Most clinical and system-level aspects of the program have been implemented in all 13 northwest Ontario hospitals, with 11 of the 13 hospitals having implemented all key elements of the smoking cessation guidelines.

Six of the most highly visible tobacco-use cessation initiatives that involve Ontario hospitals include:

1. Registered Nurses Association of Ontario (RNAO) best practice guideline on integrating smoking cessation into daily nursing practices;(37)
2. Smoking Treatment for Ontario Patients (STOP) (http://www.stopstudy.ca/);
3. Safer Healthcare Now, a program of the Canadian Patient Safety Institute, which features an acute myocardial-targeted intervention that includes tobacco-use cessation supports (http://www.saferhealthcarenow.ca/EN/Pages/default.aspx);
4. Stop Smoking for Safer Surgery, which focuses on tobacco-use cessation for surgery candidates (http://www.stopsmokingforsafersurgery.ca/);
5. northwest Ontario program (as described above); and
6. Ottawa Model for Smoking Cessation (http://www.ottawamodel.ca/).

Features of the six initiatives are described in Table 1, and the findings from assessments of these initiatives (much of which come from the Ontario Tobacco Research Unit 2011 survey) are described in Table 2.(30) Descriptions of the first four of the six initiatives were based on information that could be obtained from publicly available documents whereas descriptions of the fifth and sixth programs were based on personal communications with individuals that created or coordinate the initiatives.

**Table 1: Overview of tobacco-use cessation initiatives that involve Ontario hospitals**

| Features | Initiatives | | | | | |
|---|---|---|---|---|---|---|
| | Primary focus is a single profession | Primary focus is research and out-of-hospital programs | Primary focus is within-hospital programs | | | |
| | RNAO best practice guideline (source: information that could be obtained from publicly available documents) | Smoking Treatment for Ontario Patients (STOP) (source: information that could be obtained from publicly available documents) | Safer Healthcare Now (source: information that could be obtained from publicly available documents) | Stop Smoking for Safer Surgery (source: information that could be obtained from publicly available documents) | Northwest Ontario Best Practice Guidelines (source: personal communication from Patricia Smith) | Ottawa Model for Smoking Cessation (source: personal communication from Kerri-Anne Mullen) |
| System to identify tobacco users upon admission, and the healthcare provider(s) responsible for this function | Nurses identify tobacco users by asking patients about their tobacco-use, and document the patient's tobacco-use status | Patients provide their smoking history through a web-based survey or telephone call with the call centre, and based on this assessment they can receive free nicotine-replacement therapy through a range of providers working in Family Health Teams, Aboriginal Health Centres, Community Health Centres, as well as settings reached by STOP-on-the-Road | Healthcare providers identify and document the smoking status (during the year before hospitalization) of patients with acute myocardial infarction. No details identified about the healthcare provider responsible for identifying tobacco users | Healthcare providers (usually nurses) identify the smoking status of patients as part of the preoperative assessment, and patients are advised to quit for eight weeks before surgery to improve surgical outcomes. Anaesthetists are also involved in consultations with patients | Admitting clerks document tobacco use over the previous 30-day period for inpatients and emergency-room visits using a no-bypass field on Meditech admitting records. Staff nurses also document tobacco use as part of the nursing assessment using a standardized form on patients' charts. | Attending nurses or physicians document tobacco-use status on one or more of the following intake forms (paper or electronic depending on hospital): admission forms, patient history forms, nursing assessment forms or physicians' orders. A standard question is embedded on these forms ("Have you used any form of tobacco in the last 6 months"). |
| Systems, policies and procedures at the organization level and at the provider level (i.e., best practice guidelines) | Nurses implement minimal tobacco-use interventions and brief counselling (lasting one to three minutes) using the 4As protocol (ask, advice, assist, arrange) | Healthcare providers receive training on combining pharmacotherapy with behavioural interventions (with training offered through TEACH and related programs) | Healthcare providers are given an 'Improved Care for AMI' kit, which includes guidelines for healthcare providers on smoking-cessation interventions for patients with AMI | Healthcare providers explain the health risks during and after surgery; and patients who are scheduled for surgery are asked when they last smoked (and, if necessary, surgery is delayed) | Systems include the integration of a cessation intervention into standard practice on inpatient nursing assessments (i.e., pathways), a standardized tobacco intervention form (which is part of quality chart audits), centralization of patient materials, standard orders for pharmacotherapy | Systems include the transfer of information about tobacco use to the applicable practice tool (e.g. care map, clinical pathway, and/or Kardex system), a standardized cessation consult form, standard orders for pharmacotherapy (with first-line options on the formulary), and telephone follow-up post-discharge |
| Type of intervention provided to assist with quitting | Interventions depend on the hospital but patients are typically referred to the Canadian Cancer Society's Smokers' Helpline, and offered support and self-help resources in the community | Patients are given free nicotine-replacement therapy and counselling through a variety of providers and in a variety of settings as described above | Patients are given tobacco-use cessation counselling and tobacco dependence medications (e.g., nicotine-replacement therapy, bupropion, varenicline) | Patients are told about the risks of smoking before surgery and referred to smoking-cessation services (e.g., Smokers' Helpline or the Stop Smoking for Safer Surgery website) | Patients receive from staff nurses a brief 5A intervention, self-help materials (e.g., Canadian Cancer Society 's "One Step at a Time" booklet), pharmacotherapy during hospitalization, and Smoker's Helpline information and fax referral. | Patients receive brief, strategic advice, pharmacotherapy to assist with nicotine withdrawal and long-term cessation, enrolment in telephone follow-up, referrals to community programs (e.g., Smoker's Helpline), and self-help material |
| Follow-up post-discharge (duration of follow-up and provided by whom?) | Nurses schedule follow-up or refer patients to community cessation programs. No clear guidelines on the duration of follow-up | Follow-up arrangements depend on the setting | Patients referred to cardiac rehabilitation during hospitalization. No clear guidelines for follow-up | Patients are referred to the Smokers' Helpline 'Quit Connection' program and quit specialists initiate a call to the patient | Patients are offered a fax referral to the Smokers' Helpline for up to 12 sessions | Patients are registered in a telephone follow-up system, followed for six months post-discharge (either by nurse counsellors or by Smokers' Helpline quit specialists), and provided with a list of regional cessation programs |

**Table 2: Findings from assessments of tobacco-use cessation initiatives that involve Ontario hospitals**

| Nature of assessment | Initiatives | | | | | |
|---|---|---|---|---|---|---|
| | Primary focus is a single profession | Primary focus is research and out-of-hospital programs | Primary focus is within-hospital programs | | | |
| | RNAO Best Practice Guidelines (source: information that could be obtained from publicly available documents) | Smoking Treatment for Ontario Patients (STOP) (source: information that could be obtained from publicly available documents) | Safer Healthcare Now (source: information that could be obtained from publicly available documents) | Stop Smoking for Safer Surgery (source: information that could be obtained from publicly available documents) | Northwest Ontario Best Practice Guidelines (source: personal communication from Patricia Smith) | Ottawa Model for Smoking Cessation (source: personal communication from Kerri-Anne Mullen) |
| Program evaluation (e.g., degree to which healthcare providers are providing tobacco-use cessation services) | Evaluation of the RNAO clinical practice guidelines included the following indicators for monitoring and evaluation: objectives of the intervention, the organization, the provider, the client, and financial cost of the intervention | No evaluations identified | No evaluations identified | No evaluations identified | Intervention forms are completed at participating hospitals. A review of these forms for 10 rural hospitals showed that nurses have asked 96% of patients if they use tobacco, advised 75% of tobacco users to quit, assessed 80% for interest in quitting, assisted 69% to quit, offered pharmacotherapy to 45%, and arranged follow-up for 18% | Regular audits are completed at participating hospitals and feedback reports are presented to front-line staff, unit managers and hospital leaders on a quarterly to semi-annual basis. Program audit data from a sample of 15 hospitals in 2010-2011 revealed that 13,857 patients were audited, of which 12,650 (91.3%) were asked about their tobacco use, 2,089 tobacco users were identified, and 1,422 (68.1%) had a consult form completed |
| Program reach (e.g., number of hospitals that have implemented the cessation program; and the number of patients enrolled in the program) | No data identified | The initiative has been introduced in institutions such as the Centre for Addictions and Mental Health and the Ottawa Heart Institute, as well as public health units, community health centres and pharmacies in Ontario. The program has reached close to 70,000 Ontarians since the start of the program in 2006 | Process and outcome measures are reported to be used to monitor success, but no data were identified | The initiative has reached more than 38,000 smokers in its first two years | All units in 10 of 11 rural hospitals and the one urban hospital in northwestern Ontario (LHIN14) have implemented the cessation program. In 2009 and 2010, nurses asked 11,758 patients if they smoked, among whom 3,907 were smokers and 3,055 received the intervention | All or select units in 42 Ontario hospitals have implemented the cessation program. These units collectively reached 8,367 smokers in 2010-11 and more than 30,000 smokers since 2006 |
| Quit rates from the implementation of the program | No data identified | At six months post-treatment, the self-reported quit rates (7-day point prevalence) ranged from 17% (STOP-on-the-Road) to 33% (primary healthcare settings and public health units) | No data identified | No data identified | No data identified, although data are available from a Canadian randomized controlled trial that used the same approach as this program(10) | An evaluation of the first nine hospitals in Ontario to implement the OMSC revealed an 11.1% increase (from 18.3% to 29.4%) in six-month quit rates following hospital discharge. |

The implementation of tobacco-use cessation programs is also inconsistent across hospital units. Smoking-cessation interventions in cardiac units in Canada were underused, even though cardiovascular disease accounts for a large proportion of hospital admissions and is a leading cause of death.(38) The use of smoking-cessation interventions among those with cardiovascular disease have been argued to be cost-effective because of the life expectancy gains among those who quit using tobacco.(39)

The initiatives described in Table 1 also need to be considered in relation to other complementary initiatives:

- Canadian hospitals are implementing a "smoke-free" campus policy, which means that tobacco users (whether patients or staff) will not only need to be at least nine metres away from hospital premises in order to smoke (as is the law now in Ontario), they will need to leave hospital property entirely.(8) and
- the Canadian Cancer Society maintains a Smokers' Helpline, a free, confidential, interactive telephone service for all smokers, as well as a Smokers' Helpline Online, both of which support smokers who want to quit or are thinking about quitting but want support.

A review of the empirical literature demonstrated that tobacco cessation interventions provided to hospitalized smokers improve tobacco abstinence rates, along with healthcare utilization and surgical outcomes. However, few studies have examined the sustainability of these cessation programs.(9)

**Gaps in health system arrangements constrain hospital-based tobacco-use cessation supports**

A variety of gaps in the delivery, financial and governance arrangements within Ontario's health system likely contribute to a lack of a common, cost-effective and sustainable approach to hospital-based tobacco cessation programs. These gaps likely also contribute more generally to the lack of a sustained approach to supporting patients in the transition from receiving treatment and counselling in a hospital to linking them to supports in the community to remain tobacco-free.

An important gap within the category of **delivery arrangements** is the limited attention given to identifying (and achieving consensus on) an agreed upon standard of care for hospital-based tobacco cessation programs. Identifying the optimal time when patients should be assessed for their tobacco-use during hospital admission (e.g., during pre-admission or at nursing unit), the type, timing and dose of assistance, and the timing and duration of follow-up after hospital discharge, as well as the type of follow-up provided, have not been well studied. The readiness of hospitals to implement tobacco-use cessation interventions is another significant gap. Implementing tobacco-use cessation services in hospitals requires embedding tobacco-use cessation services in routine clinical practice by changing organizational roles and responsibilities, introducing new clinical practices, administrative routines, quality assurance and accreditation, and patient safety. One possibility is to begin by raising awareness of the legitimate role of hospitals in providing support to tobacco users among government funders, hospital administration and staff, and other health professionals.

A variety of other gaps in delivery arrangements are spoken about (and some alluded to in the previous sub-section) but also not well studied, including:

- lack of agreement about the ideal process;
- lack of agreement about whether those delivering tobacco-use cessation services should have additional training, certification and/or oversight of whether it's everyone's responsibility;
- lack of agreed indicators for successful tobacco-use cessation, data collection and feedback mechanisms for hospital staff;
- lack of clinical information systems to track tobacco status and tobacco-use cessation interventions used;
- lack of reminder systems for hospital staff;
- lack of documentation of and access to community-based resources; and
- lack of tobacco-use cessation interventions in all hospital departments, whereby some hospital departments will implement tobacco-use cessation programs and others don't.

In 2005, the Canadian Tobacco Use Monitoring Survey included questions to assess self-reported provision of cessation advice by healthcare providers. This report summarizes the results of that survey, which indicate that only half of persons who visited healthcare providers in the preceding 12 months received smoking-cessation advice, suggesting that healthcare providers need to take greater advantage of opportunities to provide such advice to smokers. Regarding advice, counselling and treatment given to tobacco users by type of healthcare provider, the survey found:

- 73% of current smokers reported visiting a physician in the preceding 12 months, whereas a smaller proportion reported visiting a pharmacist (38%);
- a greater portion of female smokers visited a physician (85%), dentist or dental hygienist (64%), or a pharmacist (44%) compared with male smokers (65%, 57%, and 33%, respectively); and
- among the current smokers who reported visiting a physician in the preceding 12 months, approximately half (51%) said that they were advised to reduce or quit smoking. Rates of advice to reduce or quit smoking by a physician were lowest among the youngest smokers (i.e., aged 15 to19 years) (38%) and increased by age group.

**Financial arrangements** in Ontario's healthcare system contribute to a lack of a sustained approach to hospital-based tobacco cessation programs. There is a lack of targeted funding for tobacco-use interventions in hospital global budgets and community organizations' budgets, as well as a lack of financial incentives for physicians.(12;40) Funding mechanisms that assign a low priority to preventive care, (e.g., little or no reimbursement for tobacco-use cessation interventions, follow-up or support) creates barriers for healthcare professionals in hospitals to deliver tobacco-use cessation interventions. Pharmacotherapy provides a case in point. It can assist patients in managing nicotine withdrawal in hospital and after discharge from hospital, and thereby promote long-term cessation. The U.S. Department of Health and Human Service guidelines recommend the use of medication (as well as counselling) as tobacco-dependence treatments.(18) A central component of the Ottawa Model for Smoking Cessation is the appropriate use of pharmacotherapy to assist with cessation and to manage withdrawal symptoms in hospitalized patients.(41) Yet there is a lack of funding for nicotine-replacement therapy for many patients after discharge (whereas it is typically paid for through the hospital drug formulary when needed to manage acute withdrawal). Individuals who are eligible for the Ontario Drug Benefit program can now receive prescription pharmacotherapy for free when they are living at home (and not just when they are hospitalized, which is the case for all Ontarians now). In 2011, the Ontario government introduced free nicotine-replacement therapy through Family Health Teams, Aboriginal Health Access Centres and Community Health Centres. There is a lack of consensus among key informants about how the Ontario government should allocate targeted funding for tobacco-use cessation programs or interventions in hospitals. There is an expectation among many of these key informants that since the healthcare system provides medical, surgical and rehabilitation services for a number of chronic illness that are linked to tobacco use, hospitals should already be providing these interventions out of the global budget.

**Governance arrangements** also contribute to the lack of a sustained, comprehensive approach to tobacco cessation in Ontario hospitals. Hospitals do not currently have tobacco-use cessation support as a performance measure, which means that there can be no public reporting (and hence public accountability) about hospitals' activity in this domain. There is also a lack of administrative accountability within hospitals for providing tobacco-use cessation supports to inpatients. Accreditation Canada does not currently incorporate a focus on tobacco-cessation supports in its hospital accreditation program. As well, with one exception, the province's Local Health Integration Networks do not include tobacco-cessation support within their accountability agreements with hospitals. Success on this front has been the expanded uptake of the Ottawa Model for Smoking Cessation in the 22 hospital sites within the remit of the Champlain Local Health Integration Network, and the incorporation of this activity as part of the hospitals' accountability agreement.(29) The North West Ontario Local Health Integration Network has also been successful in implementing smoking-cessation guidelines and systems changes in hospitals in northwest Ontario, and this was accomplished without its inclusion in hospitals' accountability agreements.

**The renewal and implementation of the Smoke-free Ontario Strategy can support efforts to address this problem**

The Tobacco Strategy Advisory Group was established in 2009 to advise the government in its development of a five-year plan to renew the Smoke-Free Ontario Strategy from 2011-2016.(3) The Smoke-Free Ontario Strategy combines public education, policies and legislation to help tobacco users quit, protect non-tobacco users from second-hand smoke, and encourage young people to never start using tobacco. The recommendations made by the Tobacco Strategy Advisory Group support a comprehensive approach to tobacco control in Ontario, which includes both decreasing demand for tobacco (e.g. building a comprehensive cessation system) and decreasing the supply of legal and unregulated tobacco products. The Ontario Agency for Health Protection and Promotion also convened a Scientific Advisory Committee (SAC) of leading researchers in the field of tobacco control. They provided scientific evidence that helped inform many of the recommendations in the Tobacco Strategy Advisory Group report

**Additional equity-related observations about the problem**

Access to tobacco-use cessation programs, medications and support is not available to all people living in Ontario. People living in remote and rural areas do not have full access to online supports, smoker's help lines or counselling. Moreover, it is difficult to generalize to all individuals, such as patients with short admissions and patients hospitalized for substance abuse and/or psychiatric co-morbidities whose smoking behaviour and cessation attempts may be attributed to cognitive limitations and the person's social environment (e.g., poverty, low education, and lack of social support).(42)

Furthermore, the tobacco-use cessation programs described in Table 1 are clinical interventions. For example, clinical guidelines for the treatment of nicotine dependency encourage brief counselling and the provision of pharmacotherapy to the vast majority of tobacco users. While systematic approaches to addressing tobacco use in hospital may decrease inequalities in terms of identifying tobacco users and offering treatment, such clinical interventions to tobacco-use cessation may not pay particular attention to tobacco use across population groups. Complementary population-based strategies can help to reduce the negative effects of tobacco across the entire population and reduce disparities in the burden of tobacco use borne by sub-groups within populations.(43)

## THREE ELEMENTS OF AN APPROACH FOR ADDRESSING THE PROBLEM

*Healthcare providers are in a unique position to offer smoking-cessation advice and provide information on smoking-cessation aids to their patients; however, the results of this analysis indicate that many of these opportunities are being missed (44)*

Many starting points could be selected for deliberations designed to inform efforts to expand the uptake of hospital-based tobacco-cessation supports in Ontario hospitals. To promote discussion about the pros and cons of potentially viable elements of a comprehensive approach to expanding uptake, we have selected (in consultation with the project steering committee and key informants) three elements which, taken together, constitute a comprehensive approach. These elements are situated in the context of the "5 As" strategy – ask, advise, assess, assist and arrange – and system-level interventions to support tobacco cessation in the hospital setting. The U.S. Department of Health and Human Services guidelines are rooted in the 5 As and they recommend the following specific interventions for hospitalized patients: 1) document tobacco use status; 2) list tobacco-use status on admission forms; 3) use counselling and medication to help tobacco users remain abstinent and treat tobacco withdrawal symptoms; 4) provide advice and assistance on how to quit during hospitalization; and 5) arrange for follow-up regarding smoking status for at least one month after discharge.(18)

While these elements are complementary to each other, they are presented separately to foster deliberations about their respective components, the relative importance or priority of each, and their feasibility. The three elements include: 1) establishing and institutionalizing a common approach to identifying tobacco users upon admission to hospital; 2) providing tobacco users with assistance in quitting and continuing support for nicotine withdrawal; and 3) ensuring follow-up counselling once they leave hospital to assist them in remaining tobacco-free.

**Box 4: Mobilizing research evidence about the elements of a comprehensive approach for addressing the problem**

The available research evidence about elements of a comprehensive approach for addressing the problem was sought primarily from Health Systems Evidence (www.healthsystemsevidence.org), which is a continuously updated database containing more than 1,900 systematic reviews of delivery, financial and governance arrangements within health systems and about implementation strategies within health systems. The reviews were identified by first searching the database for reviews containing the words "hospital" and one of "tobacco cessation," "smoking cessation" or "tobacco-use intervention." Additional reviews were identified by searching the database for reviews addressing features of the options that were not identified within this sub-category, as well as by searching health-evidence.ca, a continuously updated database containing reviews about the effects of public health interventions.

The authors' conclusions were extracted from the reviews whenever possible. None of the reviews contained no studies despite an exhaustive search (i.e., they were no "empty" reviews), however, others concluded that there was substantial uncertainty about the elements based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)

Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review (which was not the case with any of the reviews contained in this evidence brief), substantial uncertainty or concerns about quality and local applicability, or a lack of attention to equity considerations, primary research could be commissioned or an element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.

No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular element may want to search for a more detailed description of the element or for additional research evidence about the element.

**Element 1 – Establishing and institutionalizing a common approach to identifying tobacco users upon admission to hospital**

This element is about finding the tobacco users in Ontario's hospitals who could benefit from tobacco-use cessation supports.

Components of this element might include:

- selecting options for the process (i.e., who does what and in what order?);
- providing additional training, certification and/or oversight of those providing the function at admission to hospital;
- engaging all staff in tobacco-use cessation supports;
- developing or adapting policies, procedures and care pathways;
- establishing indicators for successful tobacco-user identifications, streamlined data collection and feedback mechanism for hospital staff;
- implementing reminder systems for hospital staff;
- providing targeted funding and/or financial incentives; and
- establishing accountability within hospitals for this function (which could include public reporting).

A limited number of systematic reviews were identified that addressed these components of element 1. Of the reviews that were identified, one high-quality review found benefits for providing financial incentives to healthcare providers (albeit primary care providers). In addition, medium-quality reviews found benefits for: 1) providing training to healthcare providers in how to deliver smoking-cessation interventions, and 2) using reminder systems as part of a multifaceted strategy or broader clinic systems for increasing the provision of assistance and counselling. While high-quality reviews were identified as being relevant to two other components of element 1 (selecting options for the process and establishing accountability within hospitals), none provided clear messages based on the included studies. No reviews were found about engaging staff in tobacco-use cessation, developing or adapting policies, procedures and care pathways, or establishing indicators for successful tobacco-user identifications.

The high- and medium-quality reviews do not provide a clear road map to identifying tobacco users upon admission to hospital, but instead provide insights relevant to the deliberations, which should ideally focus on:

1) What is the ideal process for doing this?
   a. How should tobacco users be identified and documented (e.g., when in the course of hospital visit or stay and with what type of documentation)?
   b. What policies and procedures need to be developed or adapted (e.g., clinic forms)?
2) Who should do what?
   a. Should nurses, psychologists, physicians or other healthcare providers be involved?
   b. With what additional training (and frequency of training)?
   c. With any form of certification?
   d. With any form of verification that the process is followed correctly?
   e. With any form of incorporation into staff performance reviews?
3) What resources would be needed?
   a. What, if any, changes to provider payment mechanisms are needed (e.g., fee codes and financial incentives)?
4) What are the indicators for success?
   a. What indicators should be monitored (e.g., proportion of patient visits or hospital stays with tobacco status documented)?
   b. How would these data be captured?
   c. How would these data be fed back to hospital staff (individually or by unit)?

   d. Would these data be publicly reported?
5) What reminder systems are needed to ensure this is done?
6) Who do you hold accountable in hospital to do this?
   a. What accountabilities are held by all staff, designated service delivery staff and program coordination staff?
   b. What accountability mechanism is used?

For those who want to know more about the systematic reviews contained in Table 3 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 1.

Table 3: Summary of key findings from systematic reviews relevant to Element 1 – Establishing and institutionalizing a common approach to identifying tobacco users upon admission to hospital

| Category of finding | Summary of key findings |
|---|---|
| Benefits | • **Providing additional training, certification and/or oversight of those providing the function at admission to hospital**<br>o A medium-quality, older review found that training health professionals to provide smoking cessation interventions had a measurable effect in professional performance. There was no strong evidence that it changed smoking behaviour in patients.(45)<br>• **Implementing reminder systems for hospital staff**<br>o A medium-quality, recent review found that reminders as part of a multifaceted strategy (most often combined with organizational change strategies or educational meetings and/or written resources) had a significant effect on the provision of assistance and counselling to quit, but not for assessment of smoking status, advice to quit, or the provision or discussion of nicotine-replacement therapy.(46)<br>o A medium-quality, older review assessing the effects of computerized clinical decision support systems found benefits for reminder systems for prevention (including rates of screening, counselling and identifying at-risk behaviours) in 16 of the 21 studies that were identified (although the one study assessing patient outcomes found no improvements).(47)<br>o A medium-quality, older review reported in a clinical practice guideline found clinic systems designed to increase the assessment and documentation of tobacco use status increased the rate at which clinicians intervened with their patients who smoke. However, while such systems may increase rates of intervention, this does not necessarily produce significantly higher rates of smoking cessation.(35)<br>• **Providing targeted funding and/or financial incentives**<br>o A high-quality, recent review evaluating the effect of changes in the method and level of payment on the quality of care provided by primary care physicians found three studies examining smoking cessation. The three studies found that financial incentives had a significant impact on the behaviours of primary care physicians by increasing referral rates and recording of smoking status, but not on measures of patients' smoking cessation. (48) |
| Potential harms | • None identified |
| Costs and/or cost-effectiveness in relation to the status quo | • None identified |
| Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued) | • Uncertainty because no systematic reviews were identified<br>o **Engaging all staff in tobacco-use cessation**<br>o **Developing or adapting policies, procedures and care pathways (e.g., hospital formularies to include required medication, medical directives to support all professional staff to administer nicotine-replacement therapy)**<br>o **Establishing indicators for successful tobacco-user identification streamlined data collection and feedback mechanism for hospital staff**<br>• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review<br>o Not applicable (i.e., no 'empty' reviews were found)<br>• No clear message from studies included in a systematic review<br>o **Selecting options for the process (e.g., who does what and in what order?)**<br>▪ A high-quality, recent review found that service organization interventions for ischemic heart disease patients (IHD) that included regular planned appointments, |

| | |
|---|---|
| | patient education and structured monitoring of medication and risk factors, had no significant effects on smoking cessation.(49)<br>▪ A high-quality, older review found little evidence on the effectiveness of nurse-led interventions for COPD patients on smoking cessation.(50)<br>o **Establishing accountability within hospitals for this function (which could include public reporting)**<br>▪ A high-quality, recent review including four studies found no consistent evidence that the public release of performance data changes consumer behaviour or improves care.(51)<br>▪ A low-quality and a recently published review (date of last search was not reported in the review) about the design and evaluation of public reporting initiatives on the quality of healthcare found limited evidence and were unable to draw conclusions or recommendations based on research evidence.(52) |
| Key elements of the policy option if it was tried elsewhere | • **Implementing reminder systems for hospital staff**<br>o A medium-quality, older review found that successful reminder systems were reported mainly in ambulatory care settings(47) |
| Stakeholders' views and experience | • None identified |

**Element 2 – Providing tobacco users with assistance in quitting and continuing support for nicotine withdrawal while in hospital**

This element is about the types of tobacco-use cessation supports provided to those patients who are identified as tobacco users once they are admitted to a hospital in Ontario, both to assist them with quitting and to begin to support them in remaining tobacco-free.

Components of this element include:

- selecting the types of assistance provided (e.g., balance of counselling and pharmacotherapy) and the 'dose' of assistance (e.g., intensity of counselling);
- selecting options for the process (i.e., who does what and in what order?);
- providing additional training, certification and/or oversight of those providing the function in hospital;
- developing or adapting policies, procedures and care pathways (e.g., hospital formularies to include required medication, medical directives to support all professional staff to administer nicotine-replacement therapy);
- establishing indicators for successful tobacco-use cessation, streamlined data collection and feedback mechanism for hospital staff;
- implementing reminder systems for hospital staff;
- providing targeted funding and/or financial incentives; and
- establishing accountability within hospitals for this function (which should include public reporting).

Given some of these components overlap with components of element 1, select reviews are included again below if they are also germane to providing assistance in quitting and continuing support for nicotine withdrawal while in hospital.

Several high-quality reviews found benefits for: 1) several types of behavioural smoking-cessation interventions (including behavioural and nicotine-replacement therapies) and combinations of nicotine-replacement therapies (as opposed to just one replacement therapy) delivered in different settings (e.g., in preoperative clinics or through the use of technology); 2) follow-up contact after the delivery of an intervention; and 3) interventions delivered by a range of providers, such as nurses, psychologists and physicians. While high-quality reviews were identified as being relevant to three other components (developing or adapting policies, procedures and care pathways; providing targeted funding and/or financial incentives; and establishing accountability within hospitals), none provided clear messages related to this element based on the findings from included studies.

The high-quality reviews do not provide a clear road map to supporting tobacco users in hospital, but instead provide insights relevant to the deliberations, which should ideally focus on:

1) What is the ideal process for doing this?
   a. What assistance needs to be provided to tobacco users (e.g., 'balance' of counselling and pharmacotherapies, 'dose' of counselling, and which (combination of) pharmacotherapies), in what order, and when in the course of a hospital visit or stay?
   b. What policies and procedures need to be developed or adapted (e.g., clinic forms and treatment pathways/care maps)?
2) Who should do what?
   a. Should nurses, psychologists, physicians or other healthcare providers be involved?
   b. With what additional training (and frequency of training)?
   c. With any form of certification?
   d. With any form of verification that the process is followed correctly?
   e. With any form of incorporation into staff performance reviews?
3) What resources would be needed?
   a. What self-help and service delivery materials are needed and how would their development and dissemination be funded?

   b. What, if any, patient incentives are needed (e.g., free pharmacotherapies or financial incentives)?
   c. What, if any, changes to provider payment mechanisms are needed (e.g., fee codes and financial incentives)?
   d. What, if any, changes to organizational payment mechanisms are needed (e.g., to cover counselling and pharmacotherapy)?
4) What are the indicators for success?
   a. What indicators should be monitored (proportion of tobacco users with at least two supports provided)?
   b. How would these data be captured?
   c. How would these data be fed back to hospital staff (individually or by unit)?
   d. How would these data be publicly reported?
5) What reminder systems are needed to ensure this is done?
6) Who do you hold accountable in hospital to do this?
   a. What accountabilities are held by all staff, designated service delivery staff and program coordination staff?
   b. What accountability mechanism is used?

For those who want to know more about the systematic reviews contained in Table 4 (or obtain a citation for the reviews), a fuller description of the systematic reviews is provided in Appendix 2.

Table 4: Summary of key findings from systematic reviews relevant to Element 2 - Providing tobacco users with assistance in quitting and continuing support for nicotine withdrawal while in hospital

| Category of finding | Summary of key findings |
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| Benefits | • **Selecting the types of assistance provided (e.g., balance of counselling and pharmacotherapy) and the 'dose' of assistance (e.g., intensity of counselling)**<br>o A high-quality, recent review found that bupropion increases smoking abstinence rates in smokers with schizophrenia, without jeopardizing their mental state.(53)<br>o A high-quality, recent review found that a combination of nicotine-replacement therapies (e.g., nicotine gum, nicotine patch, oral nicotine, tablet or lozenge, or nicotine spray) is better than one product alone; nicotine-replacement therapies increase the rate of quitting by 50-70%, regardless of setting (e.g., hospital); and the effectiveness of nicotine-replacement therapy appears to be largely independent of the intensity of additional support provided to the individual.(54)<br>o A high-quality, older review found that high intensity behavioural interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients.(4)<br>o A high-quality, older review found that intensive behavioural interventions result in substantial increases in smoking abstinence compared with minimal clinical interventions (e.g., brief advice from a healthcare provider).(55)<br>o A high-quality, older review found that smoking cessation interventions initiated at the preoperative clinic can increase abstinence rates by up to 60% within a three-to-six-month follow-up period.(56)<br>o A high-quality review found that the use of telehealthcare (e.g., people treated by telephones, video cameras and the internet to allow people to stay at home and communicate with a nurse or doctor when they have a period of increased breathlessness) manage to stay out of hospital longer than people treated by conventional systems of care.(57)<br>o A low-quality, recent review found that enhancing standard of care with the use of reminders, disease monitoring and management, and education through cellphone voice message service can help improve health outcome of patients, and care processes have implications for both patients and providers.(58)<br>o A medium-quality, recent review assessing smoking cessation advice provided by physical therapists found that self-help materials, follow-up, and interventions based on psychological or motivational frameworks were particularly effective components of intermediate and intensive advice interventions.(59)<br>o A medium-quality, older review found evidence that materials which are tailored for individual smokers are more effective than untailored materials.(33) |

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| | ○ A low-quality, older review found that studies incorporating counselling in addition to nicotine-replacement therapy appeared to show greater benefits for supporting smoking cessation.(60)<br>• **Selecting options for the process (who does what and in what order?)**<br>○ A high-quality, older review found that high intensity behavioural interventions including at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients.(4)<br>○ A high-quality, older review found that smoking cessation interventions provided by psychologists, physicians, and nurses were more effective with the use of nicotine-replacement therapy compared to no nicotine-replacement therapy provided.(61)<br>○ A high quality, older review found that nurse-led smoking cessation interventions significantly increased the likelihood of quitting. There was limited indirect evidence that interventions were more effective for hospital inpatients with cardiovascular disease than for inpatients with other conditions.(34)<br>○ A medium-quality, recent review found that smoking cessation advice provided by physical therapists could result in positive smoking cessation outcomes. Self-help materials, follow-up, and interventions based on psychological or motivational frameworks were particularly effective components of intermediate and intensive advice interventions provided by physical therapists.(59)<br>○ A low-quality, recent review examined counselling delivered by a trained therapist providing one or more face-to-face sessions, separate from medical care. Individual counselling was more effective than minimal behaviour interventions.(62)<br>○ A medium-quality, older review reported in a clinical practice guideline suggests that physicians and other clinicians are similarly effective in delivering tobacco cessation counselling. The review also found that treatments delivered by two or more types of clinicians increased abstinence rates as compared to those not delivered through a clinician. The review also notes that the number of contacts may be equally or more important than the number of clinicians providing treatment.(35)<br>• **Providing additional training, certification and/or oversight of those providing the function in hospital**<br>○ A medium-quality, older review found that training health professionals to provide smoking cessation interventions had a measurable effect in professional performance. There was no strong evidence that it changed smoking behaviour in patients.(45)<br>• **Implementing reminder systems for hospital staff**<br>○ A medium-quality, recent review found that reminders as part of a multifaceted strategy (most often combined with organizational change strategies or educational meetings and/or written resources) had a significant effect on the provision of assistance and counselling to quit, but not for assessment of smoking status, advice to quit, or the provision or discussion of nicotine-replacement therapy.(46)<br>○ A medium-quality, older review assessing the effects of computerized clinical decision support systems found benefits for reminder systems for prevention (including rates of screening, counselling and identifying at-risk behaviours) in 16 of the 21 studies that were identified (although the one study assessing patient outcomes found no improvements).(47)<br>○ A medium-quality, older review reported in a clinical practice guideline found clinic systems designed to increase the assessment and documentation of tobacco use status increased the rate at which clinicians intervened with their patients who smoke. However, while such systems may increase rates of intervention, this does not necessarily produce significantly higher rates of smoking cessation.(35)<br>• **Establishing accountability within hospitals for this function (which should include public reporting)**<br>○ A medium-quality, recent review found evidence to suggest that publicly releasing performance data stimulates quality improvement activity at the hospital level and also found a modest association between public reporting and selection of health plans.(63) |
| Potential harms | • No reviews were found |
| Costs and/or cost-effectiveness in relation to the status quo | • **Selecting the types of assistance provided (e.g., balance of counselling and pharmacotherapy) and the 'dose' of assistance (e.g., intensity of counselling)**<br>○ A low-quality, older review on costs and effects of smoking cessation interventions (e.g., brief advice, counselling, nicotine-replacement therapy and bupropion) found that telephone counselling appeared to be the most cost-effective intervention, bupropion appeared to be more cost effective than nicotine replacement therapy, and combined bupropion and nictone-replacement therapy did not appear to be cost effective.(64)<br>○ A high-quality review found that there is some data showing that although the use of |

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| | telehealthcare systems are initially expensive, they may be cheaper in the long-term given the potential cost savings attained if they are successful at keeping people out of hospital.(57) |
| Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued) | • Uncertainty because no systematic reviews were identified<br>o **Establishing indicators for successful tobacco-use cessation, streamlines data collection and feedback mechanism for hospital staff**<br>• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review<br>o Not applicable (i.e., no 'empty' review were found)<br>• No clear message from studies included in a systematic review<br>o **Selecting the types of assistance provided (e.g., balance of counselling and pharmacotherapy) and the 'dose' of assistance (e.g., intensity of counselling)**<br>▪ A high-quality, recent review found limited evidence of sufficient quality about the effectiveness of biomedical risk assessment as an aid for smoking cessation (i.e., the process of giving smokers feedback on the physical effects of smoking by physiological measurements). Current evidence of lower quality does not however support the hypothesis that biomedical risk assessment increases smoking cessation in comparison with standard treatment.(65)<br>▪ A high-quality, recent review found that service organization interventions for ischemic heart disease patients (IHD) that included regular planned appointments, patient education and structured monitoring of medication and risk factors, had no significant effects on smoking cessation.(49)<br>▪ A high-quality, recent review found limited and inconsistent evidence for the effects of internet-based interventions for smoking cessation.(66)<br>▪ A high quality, older review found limited evidence for the effects of smoking-cessation interventions provided in preoperative clinics on long-term abstinence rates.(56)<br>▪ A high-quality, older review found limited evidence (due to methodological limitations) that peer support telephone calls change behavioural health outcomes. (67)<br>▪ A medium-quality, older review found no evidence that self-help interventions add an additional benefit when used alongside other interventions such as advice from a healthcare professional, or nicotine-replacement treatment.(33)<br>▪ A medium-quality, older review found a possible impact of community pharmacy advice in smoking cessation in the prevention of heart disease. However, only a few studies were found and the evidence is unclear.(68)<br>▪ Two studies included in a low-quality, older review that assessed smoking status at six months among surgical patients found no significant difference in abstinence rates between patients who received a smoking cessation intervention prior to surgery and those who had not.(60)<br>o **Selecting options for the process (i.e., who does what and in what order?)**<br>▪ A high-quality, recent review found that service organization interventions for ischemic heart disease patients that included regular planned appointments, patient education and structured monitoring of medication and risk factors, had no significant effects on smoking cessation.(49)<br>▪ A high-quality, older review found little evidence on the effectiveness of nurse-led interventions for COPD patients on smoking cessation.(50)<br>▪ A low-quality, recent review found no evidence of greater effect of intensive counselling compared to brief counselling.(62)<br>▪ **Developing or adapting policies, procedures and care pathways (e.g., hospital formularies to include required medication, medical directives to support all professional staff to administer nicotine-replacement therapy)**<br>▪ A high-quality, recent review found insufficient evidence to support the use of any specific behavioural intervention for helping smokers who have successfully quit for a short time, but have relapsed.(69)<br>o **Providing targeted funding and/or financial incentives**<br>▪ A high-quality, recent review evaluating the effect of changes in the method and level of payment on the quality of care provided by primary care physicians found three studies examining smoking cessation. While the three studies found that financial incentives had a significant impact on the behaviours of primary health care providers by increasing referral rates and recording of smoking status, they did not find an impact on measures of patients' smoking cessation.(48)<br>o **Establishing accountability within hospitals for this function (which could include public reporting)**<br>▪ A high-quality, recent review including four studies found no consistent evidence that |

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| | the public release of performance data changes consumer behaviour or improves care.(51)<br>▪ A low-quality and a recently published review (date of last search was not reported in the review) about the design and evaluation of public reporting initiatives on the quality of healthcare found limited evidence and were unable to draw conclusions or recommendations based on research evidence.(52) |
| Key elements of the policy option if it was tried elsewhere | • **Selecting the types of assistance provided (e.g., balance of counselling and pharmacotherapy) and the 'dose' of assistance (e.g., intensity of counselling)**<br>o A high-quality, recent review found ambiguous results on the use of motivational interviewing to assist smokers to quit.(70)<br>• **Selecting options for the process (who does what and in what order?)**<br>o A high quality, older review of nursing-delivered smoking cessation interventions identified five studies that assessed smoking cessation during a screening health check or as part of general practice and found nursing interventions to have less effect in these settings.(35)<br>• **Implementing reminder systems for hospital staff**<br>o A medium-quality, older review found that successful reminder systems were reported mainly in ambulatory care settings.(47) |
| Stakeholders' views and experience | • None identified |

**Element 3 – Ensuring follow-up counselling once tobacco users leave hospital to assist them in remaining tobacco-free**

This element is about supporting patients after they have been identified as tobacco users and provided with tobacco-use cessation supports while in an Ontario hospital, with the focus being primarily in supporting them in remaining tobacco-free if they have already quit or in continuing to assist them with quitting.

Components of this element include:

- providing documentation of and enhancing production and dissemination of community-based resources;
- selecting options for the process (i.e., who does what aspect of the referral process and in what order?);
- providing additional training, certification and/or oversight of those providing the function in the community;
- establishing indicators for successful tobacco-use cessation, data collection and feedback mechanisms for community-based organizations and physicians;
- implementing reminder systems for community-based organizations and physicians;
- establishing targeted funding (e.g., nicotine-replacement therapy, counselling fees) and/or financial incentives; and
- establishing accountability within community-based organizations and among community-based physicians for this function.

Several high-quality reviews found benefits for: 1) following-up with patients after the delivery of smoking cessation interventions in hospital settings; 2) intensive behavioural interventions as compared to minimal clinical interventions such as the provision of brief advice from a healthcare provider; 3) using trained community pharmacists to provide counselling and a record-keeping support program; 4) using financial incentives to influence the behaviours of providers (e.g., increasing the use of smoking -cessation interventions) and smokers (e.g., increasing rates of continuous abstinence). Medium-quality reviews also found benefits for physical therapists providing smoking-cessation advice and using reminder systems for delivering preventive services. While high-quality reviews were identified as being relevant to two other components (providing documentation of and enhancing production and dissemination of community-based resources; and selecting options for the process) none provided clear messages based on the findings from included studies. No reviews were found for: 1) providing additional training, certification and/or oversight of those providing the function in the community; 2) establishing indicators for successful tobacco-use cessation, data collection and feedback mechanism for community-based organizations and physicians; or 3) establishing accountability within community-based organizations and among community-based physicians for this function.

The deliberations about this element of an integrated approach would ideally focus on:

1) What is the ideal process for doing this?
   a. What follow-up is needed, by whom should the follow-up be provided, and when and for how long?
   b. What policies and procedures need to be developed or adapted (clinic forms and treatment pathways/care maps)?
2) Who should do what?
   a. Should nurses, psychologists, physicians or other healthcare providers be involved in referrals?
   b. With what additional training (and frequency of training)?
   c. With any form of verification that the process is followed correctly?
   d. With any form of incorporation into staff performance reviews?
3) What resources would be needed?
   a. What referral materials are needed and how would their development and dissemination be funded?
   b. What, if any, patient incentives are needed (e.g., free pharmacotherapies or financial incentives)?

c. What, if any, changes to provider payment mechanisms are needed (e.g., fee codes and financial incentives)?
d. What, if any, changes to organizational payment mechanisms are needed (e.g., to cover counselling, pharmacotherapy and follow-up)?

4) What are the indicators for success?
   a. What indicators should be monitored (proportion of tobacco users with at least one referral initiated)?
   b. How would these data be captured?
   c. How would these data be fed back to hospital staff (individually or by unit)?
   d. How would these data be publicly reported?
5) What reminder systems are needed to ensure this is done?
6) Who do you hold accountable in hospital to do this?
   a. What accountabilities are held by all staff, designated service delivery staff and program coordination staff?
   b. What accountability mechanism is used?

For those who want to know more about the systematic reviews contained in Table 5 (or obtain a citation for the reviews), a fuller description of the systematic reviews is provided in Appendix 3.

Table 5: Summary of key findings from systematic reviews relevant to Element 3 – Ensuring follow up counselling once tobacco users leave hospital to assist them in remaining smoke-free

| Category of finding | Summary of key findings |
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| Benefits | • **Providing documentation of and enhancing production and dissemination of community-based resources**<br>o A high-quality, older review found that smoking cessation interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients. Also, there is insufficient direct evidence to conclude that adding nicotine-replacement therapy or bupropion to intensive counselling increases cessation rates over what is achieved by counselling alone.(4)<br>o A high-quality, older review found that intensive behavioural interventions result in substantial increases in smoking abstinence compared with minimal clinical interventions (e.g., brief advice from a healthcare provider).(55)<br>o A low-quality, recent review found that enhancing standard of care with the use of reminders, disease monitoring and management, and education through cellphone voice message service can help improve health outcome of patients, and care processes have implications for both patients and providers.(58)<br>• **Selecting options for the process (i.e., who does what and in what order?)**<br>o A medium-quality, recent review found that smoking cessation advice provided by physical therapists could result in positive smoking cessation outcomes. Self-help materials, follow-up, and interventions based on psychological or motivational frameworks were particularly effective components of intermediate and intensive advice interventions provided by physical therapists.(59)<br>o A high-quality, older review found that trained community pharmacists providing counselling and a record keeping support program had a positive effect on smoking cessation.(71)<br>o A medium-quality, recent review found that proactive telephone counselling had a statistically significantly greater effect on point prevalence abstinence (non-smoking at follow-up or abstinent for at least 24 hours, seven days before follow-up) at six-to-nine months, but not at 12–15 months after recruitment.(72)<br>o A low-quality, older review found that community interventions for reducing smoking among adults had slightly better results on light to moderate smokers than heavy smokers, but overall rates remained similar between intervention and control communities.(73)<br>• **Implementing reminder systems for community-based organizations and physicians**<br>o One medium-quality, older review assessing the effects of computerized clinical decision support systems found benefits for reminder systems for prevention (including rates of screening, counselling and identifying at-risk behaviours) in 16 of the 21 studies that were identified (although the one study assessing patient outcomes found no improvements).(47) |

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| | • **Establishing targeted funding (e.g., nicotine-replacement therapy, counselling fees) and/or financial incentives**<br>o A high-quality, recent review evaluating the effect of changes in the method and level of payment on the quality of care provided by primary care physicians found three studies examining smoking cessation. The three studies found that financial incentives had a significant impact on the behaviours of primary health care providers by increasing referral rates and recording of smoking status, but not on measures of patients' smoking cessation.(48)<br>o A high-quality, recent review of financial interventions directed at smokers found a statistically favourable effect of financial interventions on continuous abstinence compared with no interventions, and a significant effect of financial interventions when compared with no interventions on the number of participants making a quit attempt. There was a significant effect of financial interventions directed at healthcare providers in increasing the utilization of behavioural interventions for smoking cessation.(74) |
| Potential harms | • None identified |
| Costs and/or cost-effectiveness in relation to the status quo | • A high-quality, recent review of financial interventions directed at smokers included a cost comparison of full, partial and no financial support and found costs per additional quitter ranging from $260 to $1453.(74) |
| Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued) | • Uncertainty because no systematic reviews were identified<br>o **Providing additional training, certification and/or oversight of those providing the function in the community**<br>o **Establishing indicators for successful tobacco-use cessation, data collection and feedback mechanism for community-based organizations and physicians**<br>o **Establishing accountability within community-based organizations and among community-based physicians for this function**<br>• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review<br>o Not applicable (i.e., no 'empty' reviews were found)<br>• No clear message from studies included in a systematic review<br>o **Providing documentation of and enhancing production and dissemination of community-based resources**<br>▪ A high-quality, older review found insufficient direct evidence to conclude that adding nicotine-replacement therapy or bupropion to intensive counselling increases cessation rates over what is achieved by counselling alone.(4)<br>o **Selecting options for the process (i.e., who does what and in what order?)**<br>▪ A high-quality, older review found limited evidence due to methodological limitations that peer support telephone calls change behavioural health outcomes.(67) |
| Key elements of the policy option if it was tried elsewhere | • Not applicable (i.e., key elements were not addressed in the available systematic reviews) |
| Stakeholders' views and experience | • None identified |

**Additional equity-related observations about the three elements**

As this research evidence suggests, very little is known about the three elements in relation to the use of tobacco-use cessation supports in rural hospitals and in hospitals for the mentally ill, as well as among people with low socio-economic status and people with one or more chronic conditions. Rural hospitals with small operating budgets and limited staff may face particular challenges with implementing tobacco-use cessation supports. Hospitals for the mentally ill, on the other hand, may be particularly reluctant to be perceived as taking away a coping strategy (tobacco use) at a stressful time in their patients' lives. We found one systematic review that included studies of individuals living with a mental illness either in the community or in an in-patient unit, and it showed that the use of pharmacotherapy (i.e., Bupropion) increases smoking-abstinence rates.(53) People with low socio-economic status or with one or more chronic conditions may face a unique set of challenges with quitting. We found one systematic review that examined the effectiveness of different types of tailored self-help materials for smoking cessation (e.g., such as computer-generated feedback, telephone hotlines and pharmacotherapy) versus non-tailored self-help materials.(33) The review found that approaches tailored to the individual are more effective than non-tailored materials. However, we found no systematic reviews that directly addressed the question as to whether the benefits, harms and costs of any of the elements of a comprehensive approach to tobacco-cessation supports varied according to whether the hospitals were based in rural areas or treated mentally ill patients, or whether the patients were of low socio-economic status or living with one or more chronic conditions.

## IMPLEMENTATION CONSIDERATIONS

As suggested by the overview of tobacco-use cessation initiatives that involve Ontario hospitals that was presented in Table 1, there is a significant amount of activity already underway in providing hospital-based tobacco-cessation supports in Ontario hospitals. One key overarching implementation challenge will involve identifying how any minimum standard of care aligns with existing initiatives. In Table 6, we use the same six questions posed in the preceding section and the responses provided by the creator of one initiative, as a way to highlight the types of specificities required in a standard of care.

Table 6: A description of how one initiative addresses questions about the standard of care

| Questions | Responses provided by the creator of the initiative in northwestern Ontario (source: personal communication from Patricia Smith; reproduced verbatim with only copy-edits made) |
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| **What is the ideal process for doing this?**<br>• How should tobacco users be identified and documented (e.g., when in the course of hospital visit or stay and with what type of documentation)?<br>• What assistance needs to be provided to tobacco users (e.g., 'balance' of counselling and pharmacotherapies, 'dose' of counselling, and which (combination of) pharmacotherapies), in what order, and when in the course of a hospital visit or stay?<br>• What follow-up is needed, by whom should the follow-up be provided, and when and for how long?<br>• What policies and procedures need to be developed or adapted (e.g., clinic forms and treatment pathways/care maps)? | Centralize the identification and documentation of tobacco use by adding a standardized question (30 day point prevalence) to the electronic admitting records to be asked by admitting staff when patients first register at the hospital. Documentation should have forced choice answer options and be a no-bypass field on the admission record.(1) Additionally, a tobacco-use item should be added to healthcare provider assessments (e.g., history and physical) which in turn triggers provision of an intervention and intervention tracking form for smokers.(1)<br>• Assistance: guidelines recommend both counselling and pharmacotherapy (5)<br>• Dose of counselling: guidelines recommend a minimum of 1-3 minutes of intervention following the 5A protocol, but preferably 10+ minutes with 8+ sessions and a total of 90-300 minutes (5)<br>• Pharmacotherapy: guidelines recommend first-line therapies and combination nicotine-replacement therapy in combination with bupropion (5)<br>• When in the course of hospitalization: as soon as patients are stabilized (5)<br>• Follow-up: meta-analyses recommend a minimum of 1 month post-discharge follow-up; since acute care cannot always do that, referral to a community resource, such as the Smokers' Helpline or an outpatient clinic (5)<br>• Policies/procedures: standardized tobacco use question and integration into electronic admitting forms; intervention tracking form; standard order forms; clinician training and feedback; integration of intervention into pathways; pharmacotherapy available on formulary; and policy/procedure document (4) |
| **Who should do what?**<br>• Should nurses, psychologists, physicians or other healthcare providers be involved?<br>• With what additional training (and frequency of training)?<br>• With any form of certification?<br>• With any form of verification that the process is followed correctly?<br>• With any form of incorporation into staff performance reviews? | The system for tobacco-use identification and documentation on admission is centralized by designating admitting staff to identify/document tobacco use rather than having a decentralized approach in which all clinicians are responsible for asking and documenting, because there could be thousands of clinicians in a given hospital — the more that are responsible for documenting tobacco use, the more diffuse the responsibility (3)<br>• For providing tobacco-cessation interventions, hospitals are in the best position to designate what clinicians will provide interventions, and who will centralize patient materials and assess delivery in staff performance evaluations, because this becomes a scope of practice, professional practice, and workload issue and oftentimes unions and collective agreements are involved (3)<br>• Training: In-services on the intervention activities provided and management has integrated expectations for interventions into new staff orientation (2)<br>• Additional training: Information on more intensive training is made available (2)<br>• Certification is not mandatory. Nurses are regulated professionals and cessation counselling is an RNAO best practice and is included in their scope of practice. There are >30 RNAO best practices - nurses do not have to be certified for the other best practices. Moreover, mandating certification was not an option from a resource perspective (time/money), and was not feasible due to issues such as who pays for the training, nurses want to do it on company time, and hospitals want nurses to do it on personal time.(2)<br>• Process verification: "Report cards" at the organizational level provide data for hospitals to include in accreditation reports (4) |

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| | • Performance reviews: intervention forms are part of quality chart audits, but incorporating into performance reviews is optional and for most, not feasible as there are too many issues involved (e.g., hospitals do not include everything nurses do in their job as line items on a performance evaluation; performance evaluation also has collective agreement issues) (4) |
| **What resources would be needed?**<br>• What self-help, service delivery and referral materials are needed and how would their development and dissemination be funded?<br>• What, if any, patient incentives are needed (e.g., free pharmacotherapies or financial incentives)?<br>• What, if any, changes to provider payment mechanisms are needed (e.g., fee codes and financial incentives)?<br>• What, if any, changes to organizational payment mechanisms are needed (e.g., to cover counselling, pharmacotherapy, follow-up)? | Agreements with Smokers' Helpline for patient materials and post discharge follow-up. No funding is needed because Smokers' Helpline has a mandate to work with acute care; however, time is required to set up the agreements (2)<br>• Patient incentives: Include counselling and pharmacotherapy as paid or covered services during hospitalization; continued no-cost counselling and pharmacotherapy post-discharge would be an incentive (5)<br>• No changes are obvious as provider payment: physicians have OHIP billing codes; nurses are salaried; however, to provide intensive interventions in hospital with post discharge follow-up, salaries for counsellors would be needed (4)<br>• Organizational payment mechanisms would benefit from salary support for full-time counsellors, increased budgets for pharmacotherapy, and mechanisms to provide pharmacotherapy to patients when they are discharged (4) |
| **What are the indicators for success?**<br>• What indicators should be monitored (e.g., proportion of patient visits or hospital stays with tobacco status documented and proportion of tobacco users with at least two supports provided and one referral initiated)?<br>• How would these data be captured?<br>• How would these data be fed back to hospital staff (e.g., individually or by unit)?<br>• Would these data be publicly reported? | • Indicators: proportion of: a) all hospitalized patients screened for tobacco use; b) proportion of tobacco users; c) proportion of tobacco users provided with interventions; d) what intervention components are provided (e.g., each step of the 5A protocol) (1, 5)<br>• Screening and tobacco prevalence are captured at the organizational level through admitting records,(1) while tobacco interventions provided are captured with a standardized form on patients' charts (5)<br>• Data are provided to hospital staff during in-services and to the organization through reports<br>• Data are available to the public through publications and presentations |
| **What reminder systems** are needed to ensure this is done? | • Tobacco intervention forms need to be part of patients' charts to trigger clinicians to provide interventions (2)<br>• Regular feedback about tobacco prevalence data and adherence to the 5A guidelines through analysis of intervention forms are integrated into in-service booster sessions |
| **Who do you hold accountable in hospital to do this?**<br>• What accountabilities are held by all staff, designated service delivery staff and program coordination staff?<br>• What accountability mechanism is used? | • CEO and senior management team are ultimately accountable because they make the decisions and make changes to clinicians' jobs (4)<br>• Staff accountabilities: All admitting staff are expected to ask all patients about tobacco use. Feedback is provided (4)<br>• All staff nurses are expected to provide a brief 5A intervention to smokers (4)<br>• A designated staff person is responsible to ensure that new hires know about tobacco intervention expectations, provide feedback to nursing staff on intervention adherence, and arrange ongoing replenishment of patient materials (3)<br>• Accountability is currently through completion of forms and through coordination responsibilities assigned by senior management (3) |

Potential barriers to the implementation of a comprehensive approach to hospital-based tobacco-use cessation supports across Ontario can be identified at the level of patients (e.g., fear of treatment denial, resistance to a one-size-fits-all approach, and concern about affordability), providers (e.g., lack of resources, knowledge/skills and support systems, as well as concerns about professional autonomy), organizations (e.g., lack of resources and agreed indicators and concerns about organizational autonomy), and system level (e.g., budget constraints during a difficult economic period). (The barriers were identified through a combination of two recently published articles,(75;76) key-informant interviews and input from Steering Committee members but not from a systematic review of the research literature.) Additional details about potential barriers to implementing the elements of a comprehensive approach are provided in Table 7.

Table 7: Potential barriers to implementing a comprehensive approach to tobacco-use cessation supports

| **Levels** | **Element 1 – Establishing and institutionalizing a common approach to identifying tobacco users upon admission to hospital** | **Element 2 – Providing tobacco users with assistance in quitting and continuing support for nicotine withdrawal while in hospital** | **Element 3 – Ensuring follow-up counselling once tobacco users leave hospital to assist them in remaining tobacco-free** |
|---|---|---|---|
| **Patient** | Tobacco users may perceive that they may have a coping strategy (tobacco use) taken away at a stressful time, that they may be blamed for their condition or that treatment might be denied based on their response | Tobacco users may resist or not respond to a one-size-fits-all-approach that does not recognize their unique needs, which may vary by reason for admission, socio-demographic status and other factors<br><br>Tobacco users with limited financial resources or supplementary insurance coverage may not be able to afford some cessation supports | Former tobacco users may resist or not respond to a one-size-fits-all-approach<br><br>Tobacco users with limited financial resources or supplementary insurance coverage may not be able to afford some cessation supports |
| **Healthcare provider** | Hospital-based healthcare providers may resist the institutionalization of a common approach because of a sense that supporting tobacco-use cessation is not their responsibility, or because of the resource requirements and added responsibilities<br><br>Hospital-based healthcare providers may not have the knowledge and skills needed to support links to community-based cessation supports<br><br>Hospital-based healthcare providers may resist certification or incentives as a form of infringement on their professional autonomy | Hospital-based healthcare providers may resist certification or incentives as a form of infringement on their professional autonomy | Primary care physicians and physician groups may not have electronic health records or patient reminder systems to assist with follow-up care for patients |
| **Hospitals and other healthcare organizations** | Hospitals may resist a common approach, accreditation and incentives as a form of infringement on their organizational autonomy and without dedicated funds and an agreement about how adherence and success will be measured<br><br>Rural hospitals may resist an approach that requires a certain organizational scale to be efficient | Hospitals may resist a common approach, accreditation and incentives as a form of infringement on their organizational autonomy and without dedicated funds and an agreement about how adherence and success will be measured<br><br>Rural hospitals may resist an approach that requires a certain organizational scale to be efficient | Community-based healthcare organizations may not have the resources to accommodate all eligible patients |
| **System** | Provincial government may lack the financial flexibility to finance/support the necessary coordinating structures and processes, as well as the monitoring and evaluation, of hospital-based tobacco-use cessation programs during a difficult economic time | Provincial government may lack the financial flexibility to finance/support the necessary hospital-based tobacco-use cessation supports during a difficult economic time | Provincial government may lack the financial flexibility to finance/support the necessary community-based tobacco-use cessation supports during a difficult economic time |

Studying successes and failures in pursuing a similar approach in other provinces and countries may prove useful in identifying strategies to overcome some of these identified barriers. In the meantime, the following types of implementation strategies warrant deliberation:

1) a participatory approach to developing new communication channels for patients and healthcare providers so that they can draw on tobacco-use cessation supports (e.g., use of hospital television as a mechanism);
2) a process for identifying and working with champions drawn from the senior executive ranks of Ontario hospitals;
3) the development of a business case for a minimum standard of support for tobacco-using patients across Ontario hospitals, and perhaps as well as for the optimal standard (which might permit a staged approach to implementation that initially focuses on low-cost early wins across all Ontario hospitals, and later moves on to more costly elements of a comprehensive approach).

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# APPENDICES

The following tables provide detailed information about the systematic reviews identified for each option. Each row in a table corresponds to a particular systematic review and the reviews are organized by each of the elements of a comprehensive approach for addressing the problem (first column). The focus of the review is described in the second column. Key findings from the review that relate to the element are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Source: Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

The last three columns convey information about the utility of the review in terms of local applicability, applicability concerning prioritized groups, and issue applicability. The third-from-last column notes the proportion of studies that were conducted in Canada, while the second-from-last column comments on the proportion of studies included in the review that deal explicitly with one of the prioritized groups. The last column indicates the review's issue applicability in terms of the proportion of studies focused on hospital-based tobacco-use cessation supports.

All of the information provided in the appendix tables was taken into account by the issues brief's authors in compiling Tables 2-4 in the main text of the brief.

**Appendix 1: Systematic reviews relevant to Element 1 – Establishing and institutionalizing a common approach to identifying tobacco users upon admission to hospital**

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| Selecting options for the process (e.g., who does what and in what order) | Effectiveness of service organization interventions, identifying which types and elements of service change are associated with most improvement in clinician and patient adherence to secondary prevention recommendations relating to risk factor levels and monitoring (blood pressure, cholesterol and lifestyle factors such as diet, exercise, smoking and obesity), and appropriate prophylactic medication (49) | Service organization interventions for ischemic heart disease patients (IHD) that included regular planned appointments, patient education and structured monitoring of medication and risk factors, had no significant effects on smoking cessation | 2008 | 11/11 (AMSTAR rating from Program in Policy Decision-making) | 0/12 | 1) 0/12<br>2) Not reported | 3/12 |
| | Effectiveness of innovations in management of chronic disease involving nurses for patients with chronic obstructive pulmonary disease (COPD)* (50)<br><br>* Note that this review is not specifically focused on tobacco-use cessation supports, however, lessons can be drawn from nurse-led interventions with COPD patients | There is little evidence to date on the effectiveness of nurse-led interventions for COPD patients on smoking cessation | 2005 | 8/10 (AMSTAR rating from Program in Policy Decision-making) | 1/9 | 1) Not reported<br>2) 9/9 | 0/9 |
| Providing additional training, certification and/or oversight of those providing the function at admission to hospital | Effectiveness of training healthcare professionals to deliver smoking cessation interventions to their patients, and to assess the additional effects of prompts and reminders to the health professional to intervene (45) | Training health professionals to provide smoking cessation interventions had a measurable effect on professional performance. There was no strong evidence that it changed smoking behaviour | Not reported | 7/11 (AMSTAR rating from www.rxforchange.ca) | 1/10 | 1) 0/10<br>2) (0/10) | 10/10 |
| Engaging all staff in tobacco-use cessation supports | No reviews were found | | | | | | |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| Developing or adapting policies, procedures and care pathways (e.g., hospital formularies to include required medication, medical directives to support all professional staff to administer nicotine-replacement therapy) | No reviews were found | | | | | | |
| Establishing indicators for successful tobacco-user identifications, streamlined data collection and feedback mechanism for hospital staff | No reviews were found | | | | | | |
| Implementing reminder system for hospital staff | Effectiveness of interventions in increasing smoking cessation care provision in hospitals (46) | Of the 25 identified studies, 18 were in inpatient settings. Of the 10 controlled trials, four addressed cardiac patients, five measured one smoking cessation care practice, and nine implemented multistrategic interventions (e.g., combining educational meetings with reminders and written resources). Meta-analysis of controlled trials demonstrated a significant intervention effect for provision of assistance and counselling to quit, but not for assessment of smoking status, advice to quit, or the provision or discussion of nicotine-replacement therapy | 2006 | 5/11 (AMSTAR rating from www.rxforchange.ca) | Not reported in detail - Description states: USA (18) | 1) 0/27<br>2) 8/27 | 27/27 |
| | Effects of computerized clinical decision support systems on practitioner performance and patient outcomes (47) | The computerized clinical decision support systems improved practitioner performance in diagnostic systems, reminder | 2004 | 5/11 (AMSTAR rating from www.rxforcha | 5/100 | 1) Not reported<br>2) 4/100 | 0/100 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | systems, disease management systems, and drug-dosing or prescribing systems | | nge.ca) | | | |
| | Effectiveness of clinic systems for assessment and documentation of tobacco-use status(35) | A review reported in a clinical practice guideline found clinic systems designed to increase the assessment and documentation of tobacco-use status increased the rate at which clinicians intervened with their patients who smoke. However, while such systems may increase rates of intervention, this does not necessarily produce significantly higher rates of smoking cessation | 1999 | 5/9 (AMSTAR rating from Program in Policy Decision-making) | Not reported | 1) Not reported<br>2) 0/16 | 4/16 |
| Providing targeted funding and/or financial incentives | Effect of changes in the method and level of payment on the quality of care provided by primary care physicians (PCPs) and to identify: the different types of financial incentives that have improved quality; the characteristics of patient populations for whom quality of care has been improved by financial incentives; and the characteristics of PCPs who have responded to financial incentives (48) | Three cluster-RCTs included in the review investigated how financial incentives influenced physicians' propensity to deliver advice to their patients on smoking cessation, to refer patients to smoking cessation help lines, or patients' adherence to evidence-based smoking cessation practice guidelines<br><br>In the three studies examining smoking cessation, there were statistically significant effects of financial incentives on PCP behaviours (referral rates and recording of smoking status), but not on measures of patients' smoking cessation | 2009 | 10/11 (AMSTAR rating from Program in Policy Decision-making) | 0/7 | 1) 0/7<br>2) 0/7 | 3/7 |
| Establishing accountability within hospitals for this function (which could include public reporting) | Effects of computerized clinical decision support systems on practitioner performance and patient outcomes (47) | The computerized clinical decision support systems improved practitioner performance in diagnostic systems, reminder | 2004 | 5/11 (AMSTAR rating from www.rxforcha | 5/100 | 1) Not reported<br>2) 4/100 | 0/100 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | systems, disease management systems, and drug-dosing or prescribing systems | | nge.ca) | | | |
| | Effectiveness of public reporting on healthcare quality (52) | Reporting to the public is effective if the public has the information, understands the information, and uses the information in a manner that accomplished the objectives of the reporting program.<br><br>There are a number of factors to take into consideration to develop an effective public reporting program: objective(s), audience, content, products, distribution and impacts (intended and unintended) | 2007 | No rating tool available for this type of synthesis | Not reported | Not reported | Not reported |

**Appendix 2: Systematic reviews relevant to Element 2 – Providing tobacco users with assistance in quitting and continuing support for nicotine withdrawal while in hospital**

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| Selecting the types of assistance provided (e.g., balance of counselling and pharmacotherapy) and the 'dose' of assistance (e.g., intensity of counselling) | Evaluate the benefits and harms of different treatments for nicotine dependence in schizophrenia (53) | Bupropion increases smoking abstinence rates in smokers with schizophrenia, without jeopardizing their mental state. Bupropion may also reduce the amount these patients smoke | 2010 | 11/11 (AMSTAR rating from Program in Policy Decision-making) | 0/21 | 1) 0/21 (however, all patients had schizophrenia and some of them could have been in a hospital for the mentally ill)<br>2) 0/21 | 11/21 (11 trials of smoking cessation; four trials of smoking reduction; one trial for relapse prevention; five trials reported smoking outcomes for interventions aimed at other purposes) |
| | Effect of nicotine-replacement therapy by the dosage, form and timing of use; the intensity of additional advice and support offered to the smoker; or the clinical setting in which the smoker is recruited and treated (54) | Nicotine-replacement therapy appears to be largely independent of the intensity of additional support provided to the individual. Provision of more intense levels of support, although beneficial in facilitating the likelihood of quitting, is not essential to the success of nicotine-replacement therapy | 2007 | 7/11 | 2/111 | 1) Not reported<br>2) 0/111 | 8/111 |
| | Effectiveness of interventions for smoking cessation in hospitalized patients (4) | Results indicated that high intensity behavioural interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients | 2007 | 9/11 (AMSTAR rating from Program in Policy Decision-making) | 0/15 | 1) Not reported<br>2) 7/15 | 15/15 |
| | Effects of four behavioural interventions, including minimal clinical intervention (brief advice from a healthcare worker), and | Intensive behavioural interventions result in substantial increases in smoking abstinence compared with control. There was insufficient | 2007 | 8/11 (AMSTAR rating from Program in | 2/50 | 1) 0/50<br>2) (0/50, (However, 28 RCTs in the | |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | intensive interventions, including individual, group, and telephone counselling (55) | evidence regarding the efficacy of minimal clinical interventions | | Policy Decision-making) | | review examined 'at-risk' populations, including pregnant women or diabetic patients, and miscellaneous populations corresponding to various age, sex, socioeconomic status, or ethnic groups) | |
| | Effect of interventions in the preoperative clinic for long-term smoking cessation (56) | Results suggest that smoking-cessation interventions initiated at the preoperative clinic can increase the odds of abstinence by up to 60% within a three-to-six month follow-up period.<br><br>Further trials needed to evaluate possibility of longer abstinence. | 2007 | 9/11 (AMSTAR rating from Program in Policy Decision-making) | Not reported in detail: the included trials originated from Canada and the United States, but unclear how many were conducted in Canada | 1) 0/4<br>2) 4/4 | 4/4 |
| | Effectiveness of cellphones and text messaging interventions in improving health outcomes for individuals suffering from chronic obstructive pulmonary disease (57) | Findings indicate that the users of telehealthcare (e.g., people treated by telephones, video cameras and the internet to allow people to stay at home and communicate with a nurse or doctor when they have a period of increased breathlessness) manage to stay out of hospital longer than people treated by conventional systems of care. There are also some data showing that although these systems are expensive to start off with, if they are successful at keeping people out of hospital, then the cost | Not applica ble | 10/10 (AMSTAR rating from Program in Policy Decision-making) | Not reported in detail - Description states: Canada (1); Spain (1); Belgium (1); USA (4); Hong Kong (1) | 1) Not reported<br>2) 1/10 | 1/10 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | saving from this means that they are cheaper in the long run. | | | | | |
| | Effectiveness of smoking cessation interventions prior to surgery and examining smoking-cessation rates at six months follow-up (60) | All the studies reviewed revealed that the smoking-cessation interventions offered prior to surgery were effective with a mean success rate of 55%. The findings revealed that short-term quit rates (or a reduction by more than half of normal daily rate) ranged from 18% to 93% in patients receiving a smoking intervention (mean 55%), compared with a range of 2%-65% of controls (mean 27.7%). Two studies examined smoking status at six months, but these revealed no significant difference in abstinence rates between patients who had received an intervention and those who had not. Studies that incorporated counselling in addition to nicotine-replacement therapy appeared to show greater benefits | 2006 | 5/10 (AMSTAR rating from Program in Policy Decision-making) | 0/7 | 1) 0/7<br>2) 0/7 | 7/7 |
| | Cost-effectiveness of smoking-cessation interventions (64) | Cost-effectiveness of smoking-cessation interventions (e.g., brief advice, counselling, nicotine-replacement therapy, and bupropion) found that telephone counselling appeared to be the most cost-effective intervention, bupropion appeared to be more cost effective than nicotine-replacement therapy, and combined bupropion and nicotine-replacement therapy did not appear to be cost effective | 2006 | 2/11 | Not reported | 1) Not reported<br>2) 0/31 | Not reported |
| | Efficacy of biomedical risk assessment provided in addition to | In one study, smokers who had their lung function tested and the results | 2009 | 9/10 (AMSTAR | 0/8 | Not reported | 5/8 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | various levels of counselling, as a contributing aid to smoking cessation. Biomedical risk assessment is the process of giving smokers feedback on the physical effects of smoking by physiological measurements (e.g., exhaled carbon monoxide measurement or lung function tests) (65) | explained in terms of their lung age compared to a non-smoker of the same age were more likely to quit than people given the same test but without the explanation. Due to the scarcity of evidence of sufficient quality, we can make no definitive statements about the effectiveness of biomedical risk assessment as an aid for smoking cessation. Current evidence of lower quality does not however support the hypothesis that biomedical risk assessment increases smoking cessation in comparison with standard treatment | | rating from Program in Policy Decision-making) | | | |
| | Effectiveness of service organization interventions, identifying which types and elements of service change are associated with most improvement in clinician and patient adherence to secondary prevention recommendations relating to risk factor levels and monitoring (blood pressure, cholesterol and lifestyle factors such as diet, exercise, smoking and obesity), and appropriate prophylactic medication (49) | There is weak evidence that regular planned recall of patients for appointments, structured monitoring of risk factors and prescribing, and education for patients can be effective in increasing the proportions of patients within target levels for cholesterol control and blood pressure | 2008 | 11/11 (AMSTAR rating from Program in Policy Decision-making) | 0/12 | 1) 0/12<br>2) Not reported | 3/12 |
| | Effectiveness of internet-based interventions for smoking cessation (66) | Some internet-based interventions can assist smoking cessation, especially if the information is appropriately tailored to the users, and frequent automated contacts with the users are ensured, however trials did not show consistent effects. | 2010 | 10/10 (AMSTAR rating from Program in Policy Decision-making) | Not reported in detail (Multiple countries (3)) | 1) 0/20<br>2) 1/20 | 20/20 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | Effectiveness of pharmacy-based interventions to improve the risk of coronary health disease (68) | Four randomized controlled trials (RCTs) were identified, two in smoking cessation and two in lipid management. The two RCT studies on smoking cessation found that community pharmacy advice in smoking cessation was effective in the prevention of heart disease. Although the role of the community pharmacy in disease detection has been widely discussed, only a small number of studies was found and warrants further research. | 2001 | 5/9 (AMSTAR rating from Program in Policy Decision-making | Not reported in detail - Description states: Canada (1); Spain (1); Belgium (1); USA (4); Hong Kong (1) | 1) 0/4<br>2) Not reported | 0/4 |
| | Effectiveness of advice by physical therapists and its components to optimize smoking cessation instituted in the context of physical therapy practice (59) | Self-help materials, follow-up, and interventions based on psychological or motivational frameworks were particularly effective components of intermediate and intensive advice interventions. Incorporating smoking cessation as a physical therapy goal is consistent with the contemporary definition of the profession and the mandates of physical therapy professional associations to promote health and wellness, including smoking cessation for both primary health benefit and to minimize secondary effects (e.g., delayed healing and recovery, and medical and surgical complications) | Not reported | 6/11 (AMSTAR rating from McMaster Health Forum) | 2/30 | 1) 1/30<br>2) 0/30 | 30/30 |
| | Effectiveness of cellphones and text messaging interventions in improving health outcomes and processes of care (58) | Findings indicate that enhancing standard care with reminders, disease monitoring and management, and education through cellphone voice and short message service can help improve health outcomes, and care processes have implications for both | 2008 | 2/9 (AMSTAR rating from Program in Policy Decision-making) | 0/25 | 1) Not reported<br>2) Not reported | Not reported in detail: 4 studies focus on smoking cessation, but setting is unclear |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | patients and providers | | | | | |
| | Effects of peer support telephone calls in terms of physical, psychological, and behavioural health outcomes and other outcomes (67) | This review provides some evidence that peer support telephone calls can be effective for certain health-related concerns. However, the generalizability of findings is limited due to methodological limitations. | 2007 | 10/10 (AMSTAR rating from Program in Policy Decision-making) | 2/7 | 1) 0/7<br>2) Not reported | 1/7 |
| Selecting the options for the process (i.e., who does what and in what order?) | Effectiveness of service organization interventions, identifying which types and elements of service change are associated with most improvement in clinician and patient adherence to secondary prevention recommendations relating to risk factor levels and monitoring (blood pressure, cholesterol and lifestyle factors such as diet, exercise, smoking and obesity), and appropriate prophylactic medication (49) | Service organization interventions for ischemic heart disease patients (IHD) that included regular planned appointments, patient education and structured monitoring of medication and risk factors, had no significant effects on smoking cessation | 2008 | 11/11 (AMSTAR rating from Program in Policy Decision-making) | 0/12 | 1) 0/12<br>2) Not reported | 3/12 |
| | Effectiveness of delivery of tobacco cessation counselling by type of provider (35) | Physicians and other clinicians are similarly effective in delivering tobacco cessation counselling. The review also found that treatments delivered by two or more types of clinicians increased abstinence rates as compared to those not delivered through a clinician. The review also notes that the number of contacts may be equally or more important than that the number of clinicians providing treatment | 1999 | 5/9 (AMSTAR rating from Program in Policy Decision-making) | Not reported | 1) Not reported<br>2) 0/16 | 4/16 |
| | Effectiveness of interventions for smoking cessation in hospitalized patients (4) | High intensity behavioural interventions that include at least one month of follow-up contact are | 2007 | 9/11 (AMSTAR rating from | 0/15 | 1) Not reported<br>2) 7/15 | 15/15 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | effective in promoting smoking cessation in hospitalized patients | | Program in Policy Decision-making) | | | |
| | Effectiveness of advice by physical therapists and its components to optimize smoking cessation instituted in the context of physical therapy practice (59) | Self-help materials, follow-up, and interventions based on psychological or motivational frameworks were particularly effective components of intermediate and intensive advice interventions. Incorporating smoking cessation as a physical therapy goal is consistent with the contemporary definition of the profession and the mandates of physical therapy professional associations to promote health and wellness, including smoking cessation for both primary health benefit and to minimize secondary effects (e.g., delayed healing and recovery, and medical and surgical complications) | Not reported | 7/11 | 2/30 | 1) 1/30<br>2) 0/30 | 30/30 |
| | Effectiveness of nursing-delivered smoking cessation interventions (34) | Nurse-led smoking cessation interventions significantly increased the likelihood of quitting. There was limited indirect evidence that interventions were more effective for hospital inpatients with cardiovascular disease than for inpatients with other conditions. Five studies of nurse counselling on smoking cessation during a screening health check, or as part of secondary prevention in general practice, found nursing intervention to have less effect under these conditions | 2007 | 8/11 (AMSTAR rating from Program in Policy Decision-making) | 3/42 | 1) Not reported<br>2) Not reported | Not reported in detail: 7 studies looked at hospitalized smokers with cardiovascular disease |
| | Effects of individual counselling (62) | The review looked at trials of counselling by a trained therapist | 2008 | 5/11 (AMSTAR | 0/30 | 1) 2/30<br>2) 0/30 | 30/30 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | providing one or more face-to-face sessions, separate from medical care. All the trials involved sessions of more than 10 minutes, with most also including further telephone contact for support. Individual counselling is more effective than minimal behaviour interventions. There was no evidence of greater effect of intensive counselling compared to brief counselling | | rating from Program in Policy Decision-making) | | | |
| | Effects of motivational interviewing in promoting smoking cessation (70) | Results suggest that motivational interviewing may assist smokers to quit. However, the results should be interpreted with caution due to variations in study quality, treatment fidelity and the possibility of publication or selective reporting bias. | 2009 | 11/11 (AMSTAR rating from Program in Policy Decision-making) | 0/14 | 1) Not reported<br>2) 1/14 | 5/14 |
| | Effectiveness of smoking-cessation interventions by type of provider (61) | These findings suggest that psychologists, physicians, and nurses will be more likely to successfully assist patients in smoking cessation than other healthcare providers or self-help materials. | 2000 | 9/11 (AMSTAR rating from Program in Policy Decision-making) | 2/34 | 1) Not reported<br>2) Not reported | 5/34 |
| | Effectiveness of innovations in management of chronic disease involving nurses for patients with chronic obstructive pulmonary disease (COPD)* (50)<br><br>* Note that this review is not specifically focused on tobacco-use cessation supports, however, lessons can be drawn from nurse-led interventions with COPD patients | There is little evidence to date to support the widespread implementation of nurse-led management interventions for COPD, but the data are too sparse to exclude any clinically relevant benefit or harm arising from such interventions | 2005 | 8/10 (AMSTAR rating from Program in Policy Decision-making) | 1/9 | 1) Not reported<br>2) 9/9 | 0/9 |
| Providing additional training, certification and/or | Effectiveness of training healthcare professionals to deliver smoking- | Training health professionals to provide smoking-cessation | Not report | 7/11 (AMSTAR | 1/10 | 1) 0/10<br>2) 0/10 | 10/10 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| oversight of those providing the function in hospital | cessation interventions to their patients, and to assess the additional effects of prompts and reminders to the health professional to intervene (45) | interventions had a measurable effect on professional performance. There was no strong evidence that it changed smoking behaviour. | ed | rating from www.rxforchange.ca) | | | |
| Developing or adapting policies, procedures and care pathways (e.g., hospital formularies to include required medication, medical directives to support all professional staff to administer nicotine-replacement therapy) | Effectiveness of specific interventions for relapse prevention reduce the proportion of recent quitters who return to smoking (69) | There is insufficient evidence to support the use of any specific behavioural intervention for helping smokers who have successfully quit for a short time to avoid relapse. The verdict is strongest for interventions focusing on identifying and resolving tempting situations, as most studies were concerned with these. | 2008 | 8/11 (AMSTAR rating from Program in Policy Decision-making) | 1/54 | 1) 0/54<br>2) 0/54 | 54/54 |
| Establishing indicators for successful tobacco-use-cessation, streamlined data collection and feedback mechanism for hospital staff | No reviews were found | | | | | | |
| Implementing reminder systems for hospital staff | Effects of computerized clinical decision support systems on practitioner performance and patient outcomes (47) | The computerized clinical decision support systems improved practitioner performance in diagnostic systems, reminder systems, disease management systems, and drug-dosing or prescribing systems | 2004 | 5/11 (AMSTAR rating from www.rxforchange.ca) | 5/100 | 1) not reported<br>2) 4/100 | 0/100 |
| | Effectiveness of clinic systems for the assessment and documentation of tobacco-use status (35) | Clinic systems designed to increase the assessment and documentation of tobacco-use status increased the rate at which clinicians intervened with their patients who smoke. However, while such systems may increase rates of intervention, this does not necessarily produce significantly higher rates of smoking cessation | 1999 | 5/9 (AMSTAR rating from Program in Policy Decision-making) | Not reported | 1) Not reported<br>2) 0/16 | 4/16 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | Effectiveness of interventions in increasing smoking cessation care provision in hospitals (46) | Of the 25 identified studies, 18 were in inpatient settings. Of the 10 controlled trials, four addressed cardiac patients, five measured one smoking cessation care practice, and nine implemented multistrategic interventions (e.g., combining educational meetings with reminders and written resources). Meta-analysis of controlled trials demonstrated a significant intervention effect for provision of assistance and counselling to quit, but not for assessment of smoking status, advice to quit, or the provision or discussion of nicotine-replacement therapy | 2006 | 5/11 (AMSTAR rating from www.rxforchange.ca) | Not reported in detail - Description states: USA (18) | 1) 0/27<br>2) 8/27 | 27/27 |
| Providing targeted funding and/or financial incentives | Effect of changes in the method and level of payment on the quality of care provided by primary care physicians (PCPs) and to identify: the different types of financial incentives that have improved quality; the characteristics of patient populations for whom quality of care has been improved by financial incentives; and the characteristics of PCPs who have responded to financial incentives (48) | Three cluster-RCTs included in the review investigated how financial incentives influenced physicians' propensity to deliver advice to their patients on smoking cessation, to refer patients to smoking cessation help lines, or patients' adherence to evidence-based smoking cessation practice guidelines<br><br>In the three studies examining smoking cessation, there were statistically significant effects of financial incentives on PCP behaviours (referral rates and recording of smoking status) but not on measures of patients' smoking cessation | 2009 | 10/11 (AMSTAR rating from Program in Policy Decision-making) | 0/7 | 1) 0/7<br>2) 0/7 | 3/7 |
| Establishing accountability within hospitals for this | Effects of publicly reported performance data on quality of | Evidence suggests that publicly releasing performance data stimulates | 2006 | 5/11 (AMSTAR | 0/45 | 1) 0/45<br>2) 0/45 | 0/45 |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| function (which could include public reporting) | care (63) | quality improvement activity at the hospital level. A synthesis of data from eight health plan-level studies suggests modest association between public reporting and plan selection. Synthesis of 11 studies, all hospital-level, suggests stimulation of quality improvement activity | | rating from McMaster Health Forum) | | | |
| | Effectiveness of the public release of performance data in changing the behaviour of healthcare consumers, professionals and organizations (51) | One study found a small positive effect of the publishing of data on patient volumes for coronary bypass surgery and low-complication outliers for lumbar discectomy, but these effects did not persist longer than two months after each public release. One cluster-randomized controlled trial, conducted in Canada, studied improvement changes in care after the public release of performance data for patients with acute myocardial infarction and congestive heart failure. No effects for the composite process-of-care indicators for either condition were found, but there were some improvements in the individual process-of-care indicators | 2011 | 8/10 (AMSTAR rating from McMaster Health Forum) | 1/4 | 1) 0/4<br>2) 0/4 | 0/4 |
| | Effectiveness of public reporting on healthcare quality (52) | Reporting to the public is effective if the public has the information, understands the information, and uses the information in a manner that accomplished the objectives of the reporting program.<br><br>There are a number of factors to take into consideration to develop an effective public reporting program: | 2007 | No rating tool available for this type of synthesis | Not reported | Not reported | Not reported |

| Option element | Focus of systematic review | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | objective(s), audience, content, products, distribution and impacts (intended and unintended) | | | | | |
| | Effects of computerized clinical decision support systems on practitioner performance and patient outcomes (47) | The computerized clinical decision support systems improved practitioner performance in diagnostic systems, reminder systems, disease management systems, and drug-dosing or prescribing systems | 2004 | 5/11 (AMSTAR rating from www.rxforchange.ca) | 5/100 | 1) Not reported 2) 4/100 | 0/100 |

**Appendix 3: Systematic reviews relevant to Element 3 – Ensuring follow-up counselling once tobacco users leave hospital to assist them in remaining tobacco-free**

| Option element | Focus of systematic review/cost-effectiveness study | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| Providing documentation of and enhancing production and dissemination of community-based resources | Effectiveness of cellphones and text messaging interventions in improving health outcomes and processes of care (58) | Findings indicate that enhancing standard care with reminders, disease monitoring and management, and education through cellphone voice and short message service can help improve health outcomes, and care processes have implications for both patients and providers | 2008 | 2/9 (AMSTAR rating from Program in Policy Decision-making) | 0/25 | 1) Not reported<br>2) Not reported | Not reported in detail: 4 studies focus on smoking cessation, but setting is unclear |
| | Effectiveness of interventions for smoking cessation in hospitalized patients (4) | High intensity behavioral interventions that begin during a hospital stay and include at least one month of supportive contact after discharge promote smoking cessation among hospitalized patients. These interventions are effective regardless of the patient's admitting diagnosis. Interventions of lower intensity or shorter duration have not been shown to be effective in this setting. There is insufficient direct evidence to conclude that adding nicotine-replacement therapy or bupropion to intensive counselling increases cessation rates over what is achieved by counselling alone | 2007 | 9/11 (AMSTAR rating from Program in Policy Decision-making) | 0/15 | 1) Not reported<br>2) 7/15 | 15/15 |
| | Effects of four behavioural interventions, including minimal clinical intervention (brief advice from a healthcare worker), and intensive interventions, including individual, group, and telephone counselling (55) | Intensive behavioural interventions result in substantial increases in smoking abstinence compared with control. | 2007 | 8/11 (AMSTAR rating from Program in Policy Decision-making) | 2/50 | 1) 0/50<br>2) 0/50<br>(However, 28 RCTs in the review examined 'at-risk' populations, | 50/50 |

| Option element | Focus of systematic review/cost-effectiveness study | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | | | | | | such as pregnant women or diabetic patients, and miscellaneous populations corresponding to various age, sex, socio-economic status or ethnic groups) | |
| Selecting options for the process (i.e., who does what and in what order?) | Effectiveness of advice by a health professional and its components to optimize smoking cessation instituted in the context of physical therapy practice (59) | Evidence-based strategy to effect smoking cessation that can be exploited in physical therapy practice. Further research to refine how best to assess smokers and, in turn, individualize brief smoking cessation advice could augment positive smoking cessation outcomes. | Not reported | 7/11 (AMSTAR rating from Program in Policy Decision-making) | 2/30 | 1) 1/30<br>2) 0/30 | 30/30 |
| | Effects of proactive telephone counselling for smoking cessation (72) | Proactive telephone counselling had a statistically significantly greater effect on point prevalence abstinence (non-smoking at follow-up or abstinent for at least 24 hours, seven days before follow-up) at six-to-nine months, but not at 12-to-15 months after recruitment | 2008 | 6/11 | 1/24 | 1) 0/24<br>2) 0/24 (these groups were explicitly excluded from the review) | 1/24 |
| | Effects of peer support telephone calls in terms of physical, psychological, and behavioural health outcomes and other outcomes (67) | This review provides some evidence that peer support telephone calls can be effective for certain health-related concerns. However, the generalizability of findings is limited due to methodological limitations. | 2007 | 10/10 (AMSTAR rating from Program in Policy Decision-making) | 2/7 | 1) 0/7<br>2) 1/7 | 1/7 |
| | Effectiveness of interventions by | Trained community pharmacists, | 2003 | 8/10 | 0/2 | 1) 0/2 | 2/2 |

| Option element | Focus of systematic review/cost-effectiveness study | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
|---|---|---|---|---|---|---|---|
| | community pharmacy personnel to assist clients to stop smoking (71) | providing a counselling and record keeping support program for their customers, may have a positive effect on smoking cessation rates. | | (AMSTAR rating from Program in Policy Decision-making) | | 2) 1/2 | |
| | Effectiveness of community interventions for reducing the prevalence of smoking (73) | In the best designed trials, light to moderate smokers did slightly better than heavy smokers (the US COMMIT study), and men did a little better than women (the Australian CART study), but overall smoking rates remained similar between intervention and control communities. | 2006 | 5/10 (AMSTAR rating from Program in Policy Decision-making) | 2/37 | 1) 0/37<br>2) 6/37 | 37/37 |
| Providing additional training, certification and/or oversight of those providing the function in community | No reviews were found | | | | | | |
| Establishing indicators for successful tobacco-use-cessation, data collection and feedback mechanisms for community-based organizations and physicians | No reviews were found | | | | | | |
| Implementing reminder systems for community-based organizations and physicians | Effects of computerized clinical decision support systems on practitioner performance and patient outcomes (47) | The computerized clinical decision support systems improved practitioner performance in diagnostic systems, reminder systems, disease management systems, and drug-dosing or prescribing systems | 2004 | 5/11 (AMSTAR rating from www.rxforchange.ca) | 5/100 | 1) not reported<br>2) 4/100 | 0/100 |
| Providing targeted funding (e.g., nicotine-replacement therapy, counselling fees) and/or financial incentives | Effect of changes in the method and level of payment on the quality of care provided by primary care physicians (PCPs) and to identify: the different types of financial | The use of financial incentives to reward PCPs for improving the quality of primary healthcare services is growing. However, there is insufficient evidence to support | 2009 | 10/11 (AMSTAR rating from Program in Policy | 0/7 | 1) 0/7<br>2) 0/7 | 3/7 |

| Option element | Focus of systematic review/cost-effectiveness study | Key findings | Year of last search | AMSTAR (quality) rating | Proportion of studies that were conducted in Canada | Proportion of studies that deal explicitly with one of the prioritized groups of: 1) hospitals; and 2) patients. | Proportion of studies that focused on hospital-based tobacco-use cessation supports |
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| | incentives that have improved quality; the characteristics of patient populations for whom quality of care has been improved by financial incentives; and the characteristics of PCPs who have responded to financial incentives (48) | or not support the use of financial incentives to improve the quality of primary health care. Implementation should proceed with caution and incentive schemes should be more carefully designed before implementation. | | Decision-making) | | | |
| | Effect of financial interventions on patients and healthcare providers (74) | Financial interventions directed at smokers found a statistically favourable effect of financial interventions on continuous abstinence compared with no interventions, and a significant effect of financial interventions when compared with no interventions on the number of participants making a quit attempt. Financial interventions included a cost comparison of full, partial and no financial support and found costs per additional quitter ranging from $260 to $1453. There was a significant effect of financial interventions directed at healthcare providers in increasing the utilization of behavioural interventions for smoking cessation | 2008 | 10/11 (AMSTAR rating from Program in Policy decision-making) | 0/9 | 1) Not reported<br>2) Not reported | Not reported |
| Establishing accountability within community-based organizations and among community-based physicians for this function | No reviews were found | | | | | | |