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The Tobacco Control Vaccine: a population-based framework for preventing tobacco-related disease and death

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Vaccines serve a critical role in the prevention and control of communicable diseases.¹ Vaccines have prevented countless cases and saved millions of lives globally from diseases such as polio, smallpox, measles, diphtheria, influenza and multiple others.¹ Given the critical importance and past impact of population-based prevention interventions in combating the tobacco epidemic,²³ we describe a population-based model for reducing tobacco use and secondhand smoke exposure using the public health principles of vaccination.

The *Tobacco Control Vaccine* is comprised of proven population-based preventive measures to reduce tobacco use and tobacco-related morbidity and mortality (figure 1). It is founded on existing evidence-based frameworks,³⁴ such as MPOWER,⁴ and is intended to serve as a public health messaging complement to these frameworks to enhance understanding and implementation of proven interventions. In addition to the components of the vaccine (content), its ultimate impact on public health is contingent on robust population-level protection (coverage) and the extent to which these components are supported and advanced by key stakeholders (community).

CONTENT

The four evidence-based components of the *Tobacco Control Vaccine* include: (1) tobacco price increases; (2) smoke-free policies; (3) hard hitting media campaigns and (4) cessation access.

Tobacco price increases

Sizeably increasing the price of tobacco products is the single most effective intervention in reducing consumption, particularly among price-sensitive populations such as youth.²³⁵

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Increases in the price of tobacco products, including from excise tax increases, have been shown to prevent initiation of tobacco use, promote cessation and reduce the prevalence and intensity of tobacco use among youth and adults.²³⁵

Smoke-free policies

Exposure to secondhand smoke causes disease and premature death among non-smokers.³⁶ There is no risk-free level of secondhand smoke, and even brief exposure can cause immediate harm.⁶ Studies have shown that smoke-free policies that prohibit smoking in public places, including worksites, restaurants and bars, reduce secondhand smoke exposure among workers and the general public, promote smoking cessation and do not have an adverse economic impact on the hospitality industry.³⁶⁷ Smoke-free private environments, including multiunit housing, can further protect people from secondhand smoke exposure and promote smoke-free norms in the places they live and gather.³

Hard hitting media campaigns

Mass-reach health communication interventions are scientifically proven tools for preventing the initiation of tobacco use among young people, increasing cessation and use of available cessation services such as quitlines and shaping social norms related to tobacco use and secondhand smoke exposure.³⁸ Media campaigns and evaluations have shown that hard hitting advertising that elicits negative emotions through graphic and personal portrayals of the health consequences of tobacco use is especially effective in motivating smokers to quit.³⁸ For example, since 2012, the US Centers for Disease Control and Prevention's *Tips From Former Smokers* campaign has motivated millions of US adults to attempt to quit smoking cigarettes, and at least a half a million cigarette smokers to quit for good.⁹

Cessation access

Encouraging and helping tobacco users quit is critical to reducing tobacco-related disease, death and healthcare costs.³¹⁰¹¹ Population-level cessation efforts that increase access to proven resources, specifically policy, systems or environmental changes, are most efficient and effective.³¹⁰¹¹ Ensuring insurance coverage for evidence-based nicotine dependence treatment, including counselling and medication, is an important starting point for tobacco cessation access.³¹¹ In addition, integrating tobacco screening and treatment into routine clinical care can provide necessary and helpful support to providers.³¹¹ One tool that can be used by health plans and providers is tobacco cessation quitlines, which have been shown to be highly cost-effective.³¹¹

COVERAGE

For the *Tobacco Control Vaccine* to be most successful, it is important to assure the presence of each of the four evidence-based components. Research shows that greater investments in comprehensive tobacco control efforts— including the full vaccine—result in greater declines in tobacco use.³¹² Moreover, the longer the investment in tobacco control efforts, the greater and quicker the impact.³¹² Much like many communicable disease vaccines that require more than one dose, full implementation of the proven interventions in the *Tobacco Control Vaccine* is critical to successfully achieve its full potential.

In addition to full engagement of all components, it is also essential that these interventions reach all population groups, particularly those with the greatest burden of tobacco use and secondhand smoke exposure.³¹³ Accordingly, reducing tobacco-related disparities, and ensuring that no one is left behind by these interventions, is a critical consideration in the adoption and sustainment of each of the *Tobacco Control Vaccine* components.

COMMUNITY

Partnering with key stakeholders is essential to ensure that a vaccine is accessible, reliable and used appropriately.¹⁴ When stakeholders are actively involved in planning, providing and evaluating interventions, they often develop stronger trust in these strategies, which in turn can yield increased vaccination coverage and greater equity for underserved populations.¹⁴ Importantly, satisfaction and enthusiasm among health practitioners and other partners also improves.¹⁴ Similarly, in the context of the *Tobacco Control Vaccine*, implementing interventions that can impact societal organisations, systems and networks necessitates the involvement of relevant partners.³¹²¹⁵ Engagement and mobilisation of these partners is critical to ensure the efficacy and sustainability of each of the vaccine components.

CONCLUSION

We know what works to prevent and reduce tobacco use. The comprehensive administration of all four components of the *Tobacco Control Vaccine*, coupled with the regulation of tobacco products and sustained efforts to ensure equitable population coverage and partner engagement, could result in further meaningful reductions in tobacco use and tobacco-related disease and death. However, uptake of these components remains limited, disparities remain and threats to current and future progress, including pro-tobacco influences, continue to persist.³⁴¹³ Just as it would be imprudent to provide a partial dose of any vaccine, full delivery of the *Tobacco Control Vaccine* best protects the public from the preventable health risks associated with tobacco use and secondhand smoke exposure.

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THE TOBACCO CONTROL VACCINE

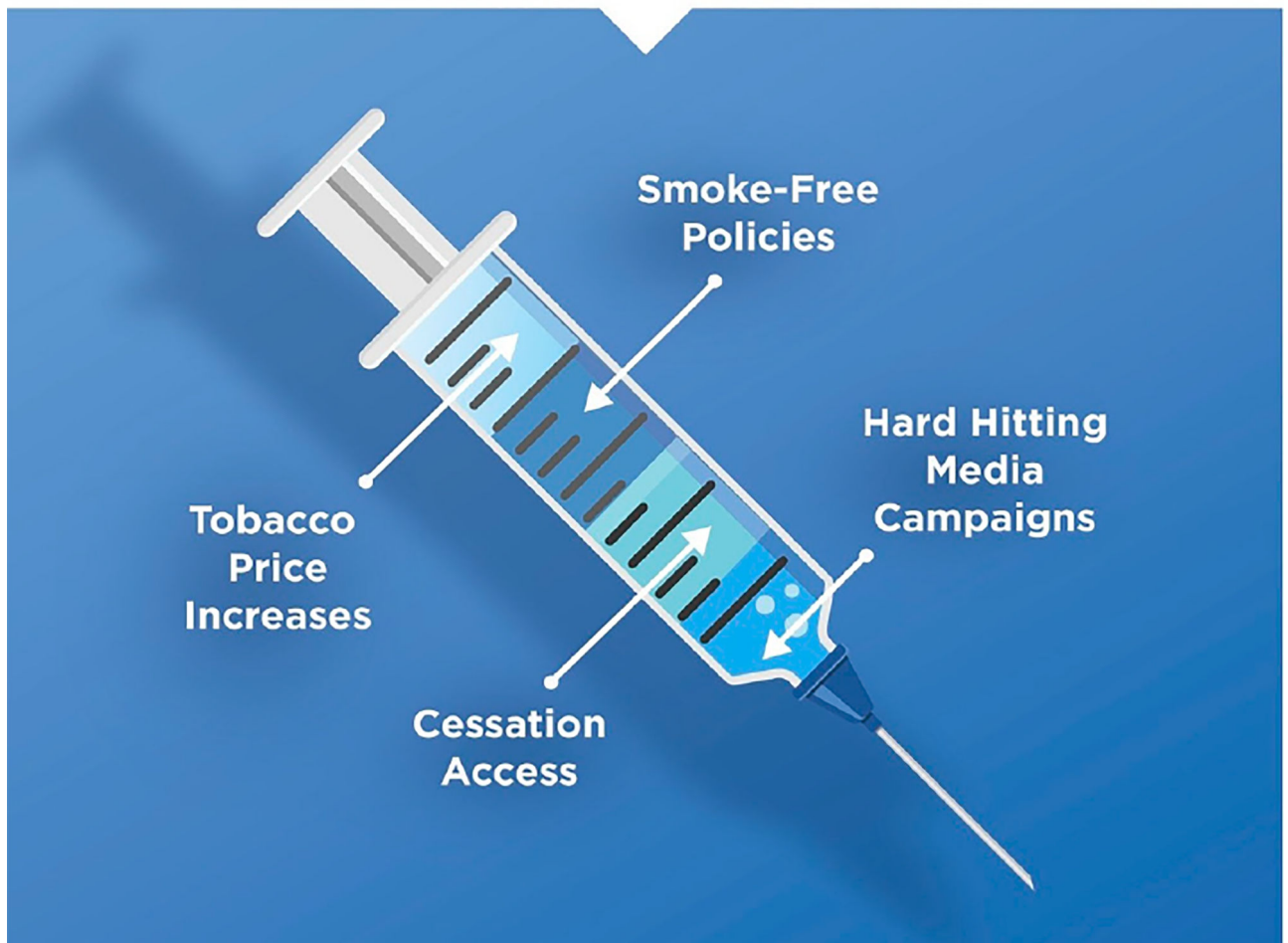


Figure 1.
The Tobacco Control Vaccine.