

Global Road Map for Health Care Decarbonization

A navigational tool
for achieving zero emissions
with climate resilience
and health equity

Health Care Without Harm
Climate-Smart Health Care Series

Annex D

Disease prevention as climate prevention
Curbing tobacco use

Green Paper
Number Two



Produced in collaboration with ARUP



Annex D: Disease prevention as climate prevention - Curbing tobacco use

Curbing tobacco use is good not only for people's health, it is also beneficial for the planet's health, as doing so will reduce greenhouse gas (GHG) emissions from the entire life cycle of tobacco as well as GHGs coming from the utilization of health care due to tobacco-related diseases.

Why is it important for global health?

Tobacco use is one of the major risk factors for disease and death worldwide. Tobacco users, as well as those exposed to second-hand smoke, are subject to increased risk from the four major noncommunicable diseases (NCDs) – cardiovascular diseases, cancer, chronic respiratory disease, and diabetes. According to the latest Global Burden of Disease Study¹, tobacco of all forms – smoked, second-hand, and chewed – resulted in 8.71 million deaths in 2019 (Figure 1), accounting for 15.4% of all deaths.

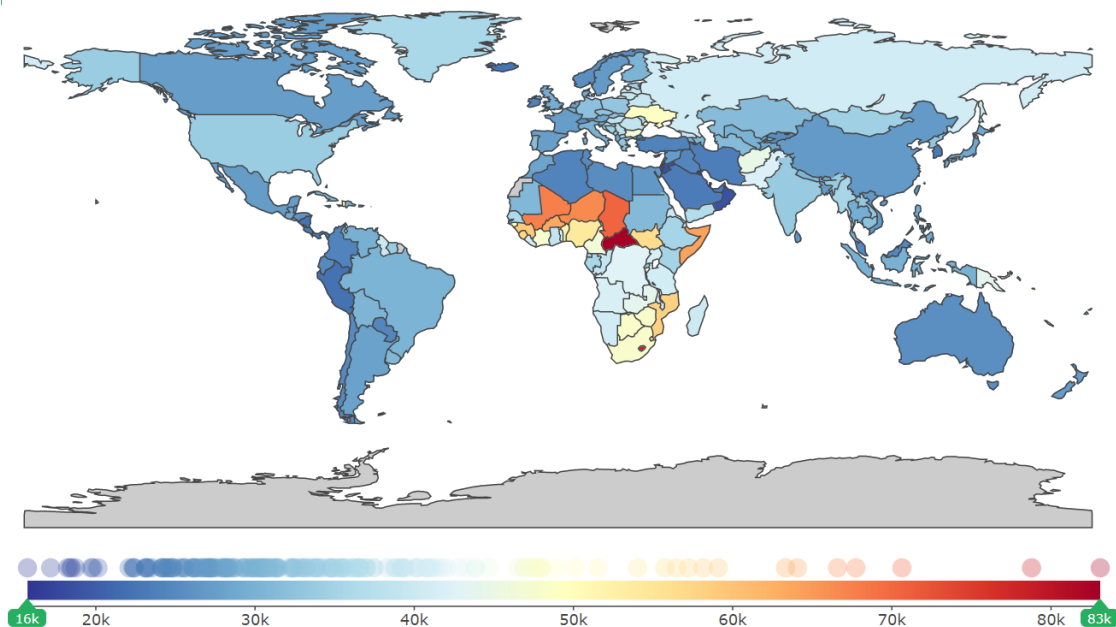


Figure 1. Global distribution of tobacco-related deaths 2019²

For the past two decades, tobacco use has steadily decreased, from around one third (33.3%) of the global population over 15 years of age in 2000 to about one-fourth (24.9%) in 2015³. WHO projects that if current tobacco control efforts are continued, tobacco-use prevalence will decline further to around one-fifth (20.9%) of the global population by 2025 – slightly short of the 19.1% prevalence target articulated in the WHO Global Monitoring Framework for NCDs⁴.

Tobacco smoking also exerts an enormous economic burden to societies worldwide. One study estimated the total economic cost of smoking at \$1.9 trillion USD in 2012, equivalent to 1.8% of the world's gross domestic product (GDP) for that year⁵. When it comes to health care expenditure due to smoking-attributable diseases alone, the total cost was pegged at \$467 billion USD, or 5.7% of global health expenditure in 2012.

Why is it important for tackling the climate crisis?

The entire life cycle of tobacco – from growing and manufacturing, to consumption and disposal – also leaves an enormous environmental footprint, including GHG emissions⁶. For example, it was estimated that the production of 6 trillion cigarettes in 2014 alone contributed almost 84 Mt CO₂ equivalent emissions to climate change, approximately 0.2% of the global total⁷. This is in addition to the water, land, and energy used in tobacco production, as well as the toxic chemicals and other forms of waste released to the environment during this production.

If the global health community can make these links between tobacco control and climate change mitigation more explicit in tobacco control advocacy, both public health and the climate could benefit.

How will this help decarbonize health care?

Figure 2 illustrates the pathways that link reduction of tobacco use to both direct GHG emission reductions from the tobacco industry and indirect emission reductions through the decarbonization of health care. When tobacco use is reduced globally, fewer people will develop tobacco-related NCDs. This would mean a smaller number of patients coming to hospitals and other health facilities for chronic management of tobacco-related cancer, cardiovascular disease, and other diseases, as well as for acute treatment of complications. The potential for reduced health care utilization offers many opportunities for GHG emission reduction in health care coming from the use of resources like electricity, water, and food, as well as the entire manufacturing and supply chain of products needed for clinical care, like pharmaceuticals and syringes.

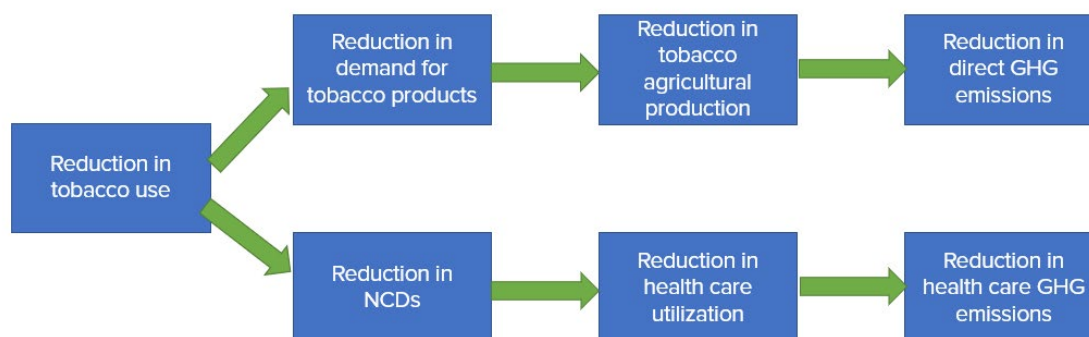


Figure 2. GHG emission reductions from reducing tobacco use through direct and indirect pathways

Using available estimates of tobacco-related health care spending⁸ and extending WHO’s target for reducing tobacco-use prevalence by 30% by 2025 to 60% reduction in tobacco-use prevalence by 2050⁹, it is estimated that there would be an annual reduction in total health care spending of 3.8%, which translates to a cumulative reduction in health care’s climate emissions by 770 million metric tons from 2014 to 2050 (Figure 3). This amount is equivalent to one year of GHG emissions from 198 coal fired power plants or from burning more than 1.78 billion barrels of oil¹⁰. Thus, implementing tobacco control measures to meet WHO’s targets and reduce tobacco-related health care utilization would also generate significant climate co-benefits.

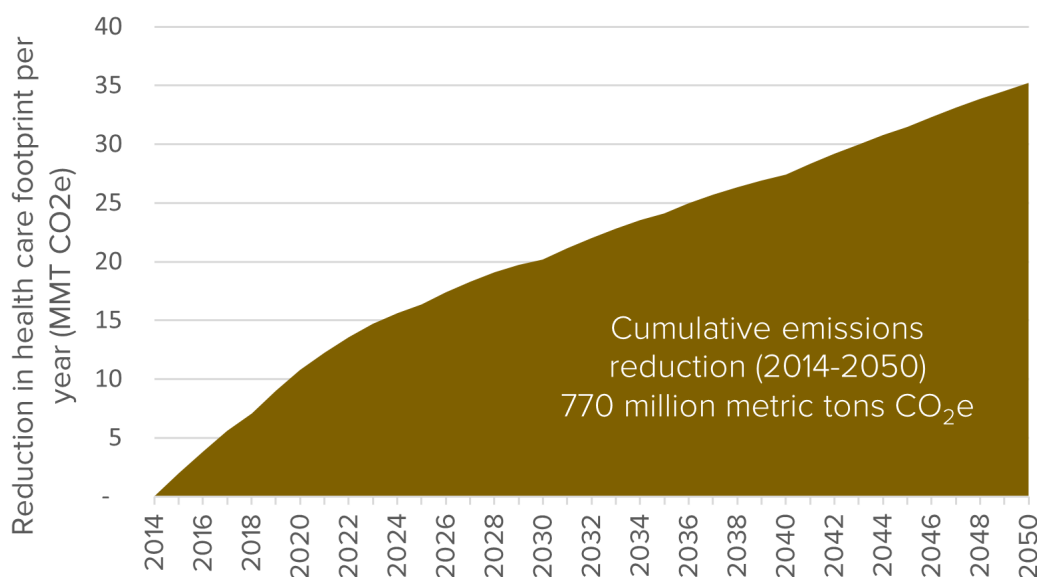


Figure 3. Annual health care emissions reduction from reduced tobacco use from 2014 to 2050

We recognize that one major limitation of this approach is that spending, and in turn emissions averted by these interventions may simply be reallocated to a later point in a person’s life or to another part of a health system budget. This is otherwise known as a rebound effect, which is difficult to model specifically and therefore often not considered in climate modeling exercises.

Despite this limitation, the results we have generated illustrate the potential climate benefits of top priority health interventions, like curbing tobacco. These findings underscore the need for further research and greater understanding of the role that individual and population health can play in contributing to reduced climate impact.

What must the global health community do?

Global tobacco control policy is guided by the WHO Framework Convention on Tobacco Control (FCTC)¹¹, which is backed by scientific evidence, premised on the importance of international cooperation, and anchored on the fundamental right of all people to the highest standard of health.

In the FCTC, there are two major types of measures. The first set pertains to demand reduction measures, which include the imposition of tobacco taxes (also known as ‘sin tax’) as well as non-price measures that reduce demand for tobacco, like those that regulate tobacco advertising and sponsorship, packaging and labeling (including plain packaging), public consumption, and second-hand exposure. The second group refers to supply-side measures, like banning illicit trade in tobacco products and sales to and by minors.

The global health community must continue pushing for an accelerated enforcement of the provisions of WHO FCTC. This will ensure the achievement of the Sustainable Development Goals (SDG), particularly SDG 3.4 – reducing premature mortality from NCDs by one-third. Curbing tobacco use worldwide will help save lives and, through reduced direct and indirect GHG emissions, save the planet as well.

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www.healthcareclimateaction.org/RoadMap

References

- ¹ GBD 2019 Risk Factors Collaborators. (2020). Global burden of 87 risk factors in 204 countries and territories, 1990-2019: A systematic analysis for the Global Burden of Disease Study 2019. *Lancet*, 396(10258), 1223–1249. [https://doi.org/10.1016/S0140-6736\(20\)30752-2](https://doi.org/10.1016/S0140-6736(20)30752-2)
- ² Institute for Health Metrics and Evaluation. (2019). GBD compare, viz hub. <https://vizhub.healthdata.org/gbd-compare/>
- ³ World Health Organization. (2019). *WHO global report on trends in prevalence of tobacco use 2000-2025* (third edition). Geneva: World Health Organization. <https://www.who.int/publications/i/item/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition>
- ⁴ World Health Organization. (n.d.). *About 9 voluntary global targets*. <https://www.who.int/nmh/ncd-tools/definition-targets/en/>. In the WHO Global Monitoring Framework for NCDs, the actual target is a 30% reduction in tobacco prevalence by 2025 from 2010 levels, which is equivalent to 19.1% prevalence (2010 prevalence is 27.3%).
- ⁵ Goodchild, M., Nargis, N., & Tursan d'Espaignet, E. (2018). Global economic cost of smoking-attributable diseases. *Tobacco control*, 27(1), 58–64. <https://doi.org/10.1136/tobaccocontrol-2016-053305>
- ⁶ Novotny, T. E., Bialous, S. A., Burt, L., Curtis, C., da Costa, V. L., Iqtidar, S. U., Liu, Y., Pujari, S., & Tursan d'Espaignet, E. (2015). The environmental and health impacts of tobacco agriculture, cigarette manufacture and consumption. *Bulletin of the World Health Organization*, 93(12), 877–880. <https://doi.org/10.2471/BLT.15.152744>
- ⁷ Zafeiridou, M., Hopkinson, N. S., & Voulvoulis, N. (2018). Cigarette smoking: An assessment of tobacco's global environmental footprint across its entire supply chain. *Environmental science & technology*, 52(15), 8087–8094. <https://doi.org/10.1021/acs.est.8b01533>
- ⁸ Goodchild, M., Nargis, N., & Tursan d'Espaignet, E. (2018). Global economic cost of smoking-attributable diseases. *Tobacco control*, 27(1), 58–64. <https://doi.org/10.1136/tobaccocontrol-2016-053305>
- ⁹ More information about the methodology can be found in Annex A.
- ¹⁰ Environment Protection Agency. (2021). *Greenhouse gas equivalencies calculator*. <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- ¹¹ World Health Organization. (2003). *WHO Framework Convention on Tobacco Control*. Geneva: World Health Organization. <https://www.who.int/fctc/en/>