

# 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

Overview of disease prevention as  
climate prevention

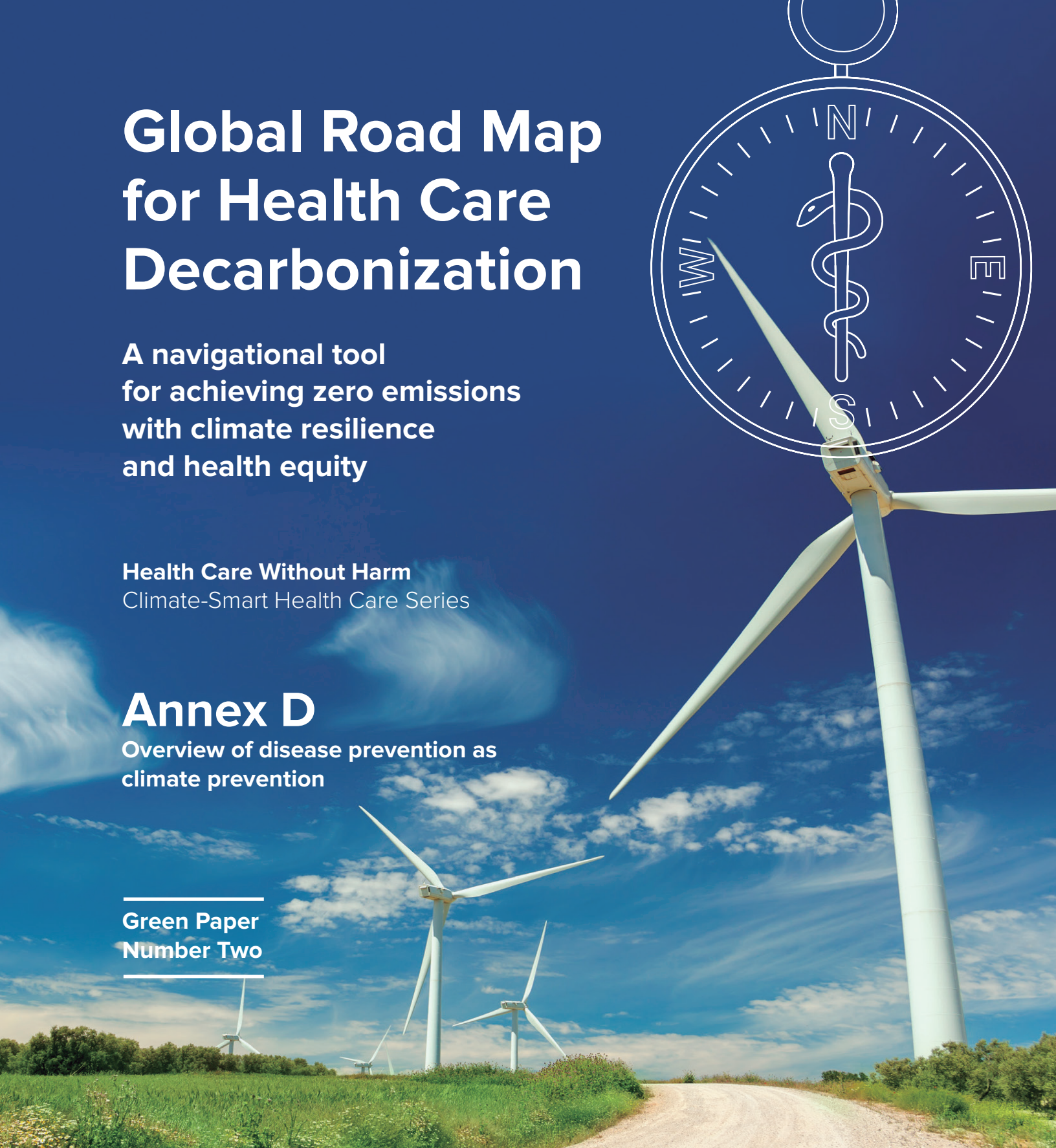
---

Green Paper  
Number Two

---



Produced in collaboration with ARUP



## Annex D: Overview of disease prevention as climate prevention

---

In theory, reducing the burden of disease can also reduce health care’s climate emissions by reducing the need to treat those diseases. A recent article in the BMJ argued that “Primordial and primary prevention—including poverty and inequality reduction, strong social networks, tobacco and substance abuse control, healthy diets, and physical activity—are intrinsic to the transformation because they reduce the need for health care and therefore for energy and resource intensive treatments.”<sup>1</sup>

As part of our exploration of uncharted territory in this Road Map, and as a way to test this theory, we explored the potential health care emissions reductions from four major health interventions aimed at addressing global health priorities: curbing tobacco use, lowering meat consumption, reducing obesity, and tackling ambient air pollution. Each priority intervention is discussed in the evidence briefs in Annex D.

While there is considerable data on the emissions reduction that the world can achieve by reducing air pollution or meat consumption, we asked the following question: If the world were to meet internationally established health goals in these four areas, could we measure the additional health care climate emissions reduction that might accompany such a health accomplishment?

We based our modeling on goals like WHO’s target of 30% relative reduction in prevalence of tobacco use by 2025 from 2010 levels, and then we extended the target and applied a reduction in smoking prevalence of 60% by 2050. For a reduction in meat consumption, we used the target set by the EAT-Lancet Commission of reducing global per capita meat consumption to 43 g/day by 2050 from current levels, recognizing that wealthier high-meat consuming countries must significantly reduce their meat intake while other less-developed and low-meat consuming countries may need increase such. For obesity, we assumed that the body mass index of obese citizens would be reduced in class to overweight. For air pollution, we assumed meeting WHO’s stated goal of a two-thirds reduction in air pollution by 2030 and then extended that to an additional two-thirds reduction between 2030 and 2050. We then estimated the health care cost savings from each of these reductions and plugged them into our Road Map input-output model for estimating climate footprint and reduction (for details on methodology see Annex A).

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 are illustrative of both the climate impact of unhealthy lifestyles that lead to major health problems and expenses and the potential climate

benefits of top priority health interventions. 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.

Recognizing these limitations, the modeling for these interventions allows us to estimate that together these interventions could result in cumulative reductions from 2014 to 2050 of about 1.5 gigatons of carbon emissions. This could contribute to reducing health care's emissions gap by about 8%.

When taken together (and understanding the caveat that these health costs may be replaced by others) the potential savings over the 36-year projections in the Road Map is analogous to not burning close to 4 billion barrels of oil, or shutting down 404 coal fired power plants for one year (see Table 6).

Area of intervention	Cumulative health care emissions reduction (MMT CO <sub>2</sub> e)	Number of coal plants annual emissions equivalence	Number of barrels of oil emissions equivalence
Tobacco	770	198	1,780,000,000
Air pollution	238	61	550,000,000
Obesity	215	55	515,000,000
Meat	350	90	812,000,000
<b>Total</b>	<b>1573</b>	<b>404</b>	<b>3,657,000,000</b>

Table 6. Potential climate benefits in terms of health care emissions reductions of four major health interventions

## References

---

- <sup>1</sup> Salas, R. N., Maibach, E., Pencheon, D., Watts, N., & Frumkin, H. (2020). A pathway to net-zero emissions for health care. *BMJ*, m3785. <https://doi.org/10.1136/bmj.m3785>