

## Prevention of the causes of premature illness and death: making it happen



“Ensure healthy lives and promote well-being for all at all ages” is the third objective of the UN Sustainable Development Goals. To achieve this goal and its 13 targets, countries must increasingly adopt evidence-based policies, programmes, and interventions for prevention and health promotion.

Two of the major challenges moving forward are to conduct cutting-edge research on prevention and to consider health more holistically, while preserving the undeniable contribution of biomedical research and health-care systems to health. Indeed, universal and equal access to the best possible health care is of utmost importance, but is far from sufficient to sustainably improve health of the populations globally. We must also invest in interventions able to reduce the preventable causes of death and chronic illnesses and, by doing so, relieve some of the burden on the health-care system and thus further support its sustainability.

Where do we start? Of interest is to compare the performance of two simple national level indicators: life expectancy and premature mortality. Life expectancy tends to reflect the organisation of and access to health care, whereas premature death, or deaths that occur before a person reaches an expected age (ie, 65 years), tends to reflect exposure to risk factors that might be preventable. Take France for example; France fares well compared to other Organisation for Economic Co-operation and Development countries when it comes to life expectancy overall and at age 65 years, but only averagely when it comes to premature mortality.<sup>1,2</sup> In France, as in many countries, a large share of premature deaths are attributable to smoking, excessive drinking, poor diet, or environmental and occupational hazards.<sup>3</sup> Moreover, premature mortality increases as we move down the social ladder as individuals on the bottom rungs amass a greater share of these deleterious exposures.<sup>4</sup>

We, as a society, have drawn these conclusions thanks to remarkable data collection efforts since the 1950s. Registries, cohorts, and large health surveys have been (and continue to be) crucial observational tools to gather and produce robust evidence about existing and emerging public health issues and a greater understanding of both their determinants and causes. For example,

epidemiological research was instrumental in establishing the link between smoking and pulmonary cancer<sup>5,6</sup> or vascular diseases,<sup>7</sup> but this evidence alone did not directly translate to a reduction in the prevalence of smoking.

Now is the time to capitalise far more actively on the investments made in observational tools and use the best scientific knowledge and experience to design research on preventive interventions. A 2016 report<sup>8</sup> on the introduction of tobacco control policies and the subsequent reductions in the prevalence of smoking and smoking-related deaths is just one example of how this approach can work. The next action is therefore to promote the highest quality population health intervention research<sup>9,10</sup> and move towards more evidence-based programmes, practices, and policies.

This next step is very ambitious for many reasons. First, we must identify innovative preventive interventions, including technologies, able to address the most common risk factors for premature death. Second, we must conceive of novel methodologies to assess these (commonly) complex interventions and identify which components are working, if any. Third, we must characterise health systems and organisations that facilitate the implementation and sustainability of these interventions. Fourth, we must ensure that effective interventions also promote equity, so that prevention reduces health inequalities rather than increases them. Fifth, we must constructively overcome the attempts from vested interests to discredit researchers and their findings when they pose a threat to the status quo. Sixth, we must mobilise adequate funding for this type of research, which, because of the complexity of these interventions, is costly.

National strategies for health research need to identify prevention as a priority and raise adequate funds to catalyse high-quality prevention science. The efforts of the EU Commission, as exemplified by the Horizon 2020 programme, and other international funding agencies should be complemented by these national efforts to meet the needs of population health. We can no longer delay investing in the necessary research assessing complex interventions to improve health without harming those populations most at risk.

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I declare no competing interests.

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