



# DEMOGRAPHIC AND DISEASE SHIFTS

How will connected challenges manifest?

Populations and societies are aging. By 2030, there will be more people over the age of 60 than under the age of 10. It will happen much earlier in some countries.<sup>459</sup> Myriad advances over the last 50 years have extended human lifespans through efforts to preserve, improve and regenerate bodies and minds for better and longer lives.

Ageing societies present a host of questions regarding the sustainability of our healthcare systems. How can the system support individuals to plan for healthcare expenses as they live longer, empower communities to care for older relatives, and enable governments to support people who are retired from work and require additional healthcare?

Changing lifestyles are also impacting the way people live their lives and their healthcare needs. Accelerated urbanization and growing middle classes are linked to lifestyle changes such as more sedentary behavior, reduction in exercise, increase in unhealthy diets, tobacco, and alcohol consumption. Estimates suggest 65% of the population will be middle class by 2030, which could have profound impacts on the health challenges facing the world.<sup>460</sup>

The interplay between these two demographic shifts manifests in unexpected ways. Interestingly, for the first time in decades, in some high-income countries young people are not expected to live as long as their parents, due to unhealthy lifestyles.<sup>461</sup> NCDs are also disproportionately high in developing countries – where health systems have evolved to cope with infectious diseases, which was the primary disease burden.<sup>462</sup>

THANKS TO UNPARALLELED SUCCESS IN IMPROVING CHILD SURVIVAL OVER THE LAST FEW DECADES, WE ARE DEALING MORE AND MORE WITH A SET OF ILLNESSES THAT ARE A FUNCTION OF INCREASED SURVIVAL SUCH AS NCDs AND MENTAL ILLNESS.

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## AGE-RELATED DISEASE

Currently, age-related diseases are responsible for 100,000 deaths per day and billions are spent around the world in attempts to slow ageing.<sup>463</sup> The most common neurodegenerative disorder is Alzheimer's dementia, which makes up 13% of the global burden of disease. The prevalence of dementia is forecast to increase in every region of the world, affecting 131.5 million people in 2050.<sup>464</sup> But despite costing the global economy USD 818 billion in 2015, research has made little progress and treatments target the symptoms rather than the disease.<sup>465</sup> A study in 2014 reported Alzheimer's drug candidates to have one of the highest failure rates of any disease area – 99.6%, compared with 81% for cancer.<sup>466</sup>

What, then, does the future hold? Despite the challenges, some scientists anticipate a huge impact through delaying onset and progression of the disease to reduce the number of people reaching a severe stage.<sup>467</sup> Driven by recent drug trial successes, some researchers are even optimistic that treatment and prevention methods will be available in the next decade.<sup>468</sup> For example, recent studies have linked certain gene proteins with greater risk of developing cognitive impairments later in life.<sup>469</sup>

Looking even further ahead, will people be able to delay, or even escape, the process of ageing?<sup>470</sup> Philosophers may have once pursued eternal youth, but researchers now believe there are areas worth investigating, making regenerative therapies a priority for some research centers.

## THE RISE OF NCDs

Today, NCDs kill more than 40 million people each year and it is estimated that they will cost the global economy more than USD 47 trillion in lost productivity by 2030.<sup>471</sup> In every country, health systems are struggling to respond to the growing needs of patients with NCDs. As the world ages, this is only going to get worse, disproportionately so in poor and impoverished populations.

NCDs do not only afflict maturing or aging populations. They are appearing in younger and younger populations, driven by lifestyle factors and modifiable risk behaviors: tobacco use, the harmful use of alcohol, physical inactivity, and unhealthy diets. In 2017, The Lancet reported a 10-fold increase in obesity levels among adolescents over the past four decades.<sup>472</sup>

How might we mitigate disease severity or delay onset? Many point to the need to invest in prevention, particularly focusing on young people. With more than 70% of the most common NCDs linked to behaviors that start in adolescence, it is an opportunity to shift the trajectory of disease. More than 80% of adults in the US first started smoking in their teens and there is strong evidence that shows if you are obese in your teens, you are more likely to be obese as an adult.

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