

News release

Earlier diagnosis of disease and better public health policies can drive further gains in future life expectancy, Swiss Re *sigma* says

- In recent years, gains in life expectancy slowed in a number of advanced countries
- Not yet clear whether recent slowdown in the rate of mortality improvement temporary or permanent
- Changing trends in circulatory disease underlie the slowdown; likely linked to rising obesity rates associated with poor diet and physical inactivity
- Future advances in longevity shaped by how effective public health policy and population screening can be in moving mortality experience of the general population closer to that of target healthy sub-groups
- Changes in mortality trends have important implications for insurers and pension schemes

Zurich, 5 December 2018 – Life expectancy has steadily improved internationally for well over a century. In recent years, however, there are signs that the rate of mortality improvement has slowed in a number of advanced countries. Statistically, it is difficult to determine if the recent slowdown is simply a short-term blip or more permanent. The latest *sigma* report from the Swiss Re Institute, "Mortality improvement: understanding the past and framing the future", suggests that future gains in health and longevity will depend on the success of public health policy. For governments and private financial institutions that are exposed to longevity risks, shifts in the underlying mortality trend are crucial as this risk cannot easily be diversified or perfectly hedged.

Since 1990, mortality rates – the number of deaths in a standardised population over a particular period – have been declining relatively rapidly in developed countries at around 1-2% per year. This reflects improved living conditions, advances in medicine and innovations in health technology.

However, since around 2011, age-standardised mortality rates in the US, UK and Germany, for example, while still declining, are doing so at a slower pace than in earlier decades. The recent US mortality experience has been impacted by additional deaths caused by opioid drug overdoses. Statistically, it is difficult to conclude whether the slowdown represents a structural change or simply reflects typical annual volatility in death rates.

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The longer it persists, the more likely it is that the underlying trend has changed. For now, it is too early to tell.

Drivers of slowing mortality improvements

Cause-of-death statistics indicate that some of the recent slowdown in mortality improvement might reflect the lack of additional progress in treating major illnesses such as cardiovascular diseases. Worsening trends in circulatory-related disease have been a key influence on the slowdown. To the extent that these can be linked to behavioural factors, lifestyle choices regarding diet and physical exercise rather than smoking/alcohol consumption are the most obvious explanations.

Table 1: Overview of the main contributory drivers of the recent slowdown in mortality improvement

Causes of death	Risk factors		
Major contributor *	Biomedical	Behavioural	Socio-economic
Cerebrovascular diseases	High BMI **	Diet ***	Financial troubles
Diabetes mellitus	Impaired kidney function **	Physical inactivity	Higher social inequality
Ischaemic HD	High blood pressure ***		Lower healthcare budgets
Chronic lower respiratory diseases	High cholesterol ***		

Notes: * Based on selected countries underlying Figure 8. Share of total deaths increased (**) or fell more slowly (***).
Source: Swiss Re Institute

Importance of targets in driving mortality

"Differences in mortality between healthy sub-groups and the general population provide a lens through which to quantify potential, but as yet untapped, mortality gains", says Dan Ryan, Head of Insurance Risk Research at Swiss Re Institute.

By defining such a sub-group (ie, target population), perhaps in terms of diet or blood pressure, policies can be directed towards closing the gap in mortality experience between the general population and that of the target group.

Research on an anonymised patient database from the UK indicates that if current mortality among a target healthy group with no diagnosis of 30 major diseases were to be targeted across the wider population (and this was realised over twenty years), the rate of mortality improvement would broadly return to that observed over the past four decades.

Some healthy characteristics may be easier to replicate than others; certain behavioural traits and medical conditions may simply be hard to address. If we close the mortality gap for the majority of these conditions, we could still see mortality improvement pick up from recent rates, but differences to the target group would need to narrow faster.

How technology can help improve longevity

The *sigma* study also emphasises that the future of healthcare has to be focused on identifying early signs and symptoms of disease, and attempting to prevent disease progression and overall poor health. Digital health tools like telemedicine and wearables can play an important role in driving future mortality improvement. These technologies not only improve access to care, but also encourage healthcare markets to compete for lower, more affordable options. A key challenge is how to encourage consumers to sustainably adopt new technology and change their unhealthy behaviour.

Implications for insurers and pension plans

For governments and private financial institutions that assume longevity risk on behalf of individuals, shifts in the underlying mortality trend are crucial as this risk cannot easily be diversified away.

"We may be entering a new period where we see no improvements to life expectancy. Decision makers in insurance will need to be alert to how the uncertainty plays out in the coming years in regards to pricing, reserving decisions and policy", says Paul Murray, Chief Pricing Officer, Life & Health Products Centre at Swiss Re.

Insurers and pension schemes need to form a view on the likely success and availability of public and private health interventions to influence behaviour and prevent disease and death. This is especially the case given that the reported slowdown in mortality improvement for the general population has yet to be echoed among people in higher socioeconomic classes, who typically make up the bulk of insureds.

Overly conservative pricing to cover the range of future mortality outcomes will make products such as annuities and life insurance unnecessarily expensive. At the same time, prematurely adjusting assumptions about underlying mortality trends will almost inevitably stretch insurers' balance sheets once the liabilities are ultimately re-rated to reflect revised life expectancy realities.

Notes to editors

This year marks the 50th anniversary of *sigma*, Swiss Re's flagship and the insurance industry's leading research publication. Please visit the *sigma* 50-years section on the Swiss Re Institute website to find out more about the evolution of *sigma*, and the breadth and depth of the overall research offering from the Swiss Re Institute:

institute.swissre.com/sigma50years

Swiss Re

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How to order this *sigma* study:

The English, German, French, and Spanish versions of the *sigma* No 6/2018, "Mortality improvement: understanding the past and framing the future" are available electronically on the Swiss Re Institute's website: institute.swissre.com

Printed editions of *sigma* No 6/2018 in English, German, French and Spanish are available. The printed versions in Chinese and Japanese will be available in the near future. Please send your orders, complete with your full postal address, institute@swissre.com

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