CLUB VITA and Nationwide

THE RISK OF **LIVING LONGER**

Thank you for joining us – the webinar will start shortly

Erik and Uli ask the ultimate question of human longevity for financial institutions:

How long can we go?

Season 5

Session 1 March 4th, 2026	The GLP-1 effect: *The potential impact of anti-obesity medication on longevity*	• Ashley Campbell (Crystallise) • Mia Marcellus (Club Vita) • Daniel Meier (Swiss Re) • Richard Russell (RGA) • Tristan Walsh (Munich Re)	Today!

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THE RISK OF **LIVING LONGER**

The GLP-1 effect:

The potential impact of anti-obesity medication on longevity

Today's panel:

Daniel Meier

Head of Life & Health Risk Modelling, Swiss Re

Richard Russell

VP of Biometric Research, RGA

Tristan Walsh

Staff Data Scientist, Munich Re

Ashley Campbell

Director of Actuarial, Crystallise

Mia Marcellus

Longevity Modeller, Club Vita

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Poll question

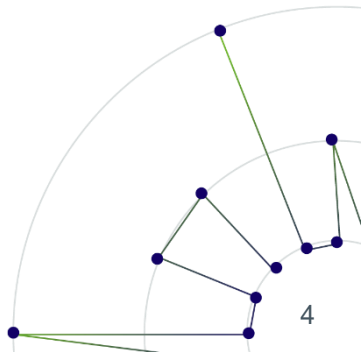
"Over the next 20 years, what contribution will anti-obesity medication make to annual mortality improvements?"

- *None or negative*
- *Less than 0.5% p.a.*
- *0.5% – 1.0% p.a.*
- *1.01% – 1.5% p.a.*
- *1.51% – 2.0% p.a.*
- *More than 2% p.a.*

Note: typical long term improvement rates used in common projection models are between 0.8% - 1.75% p.a.

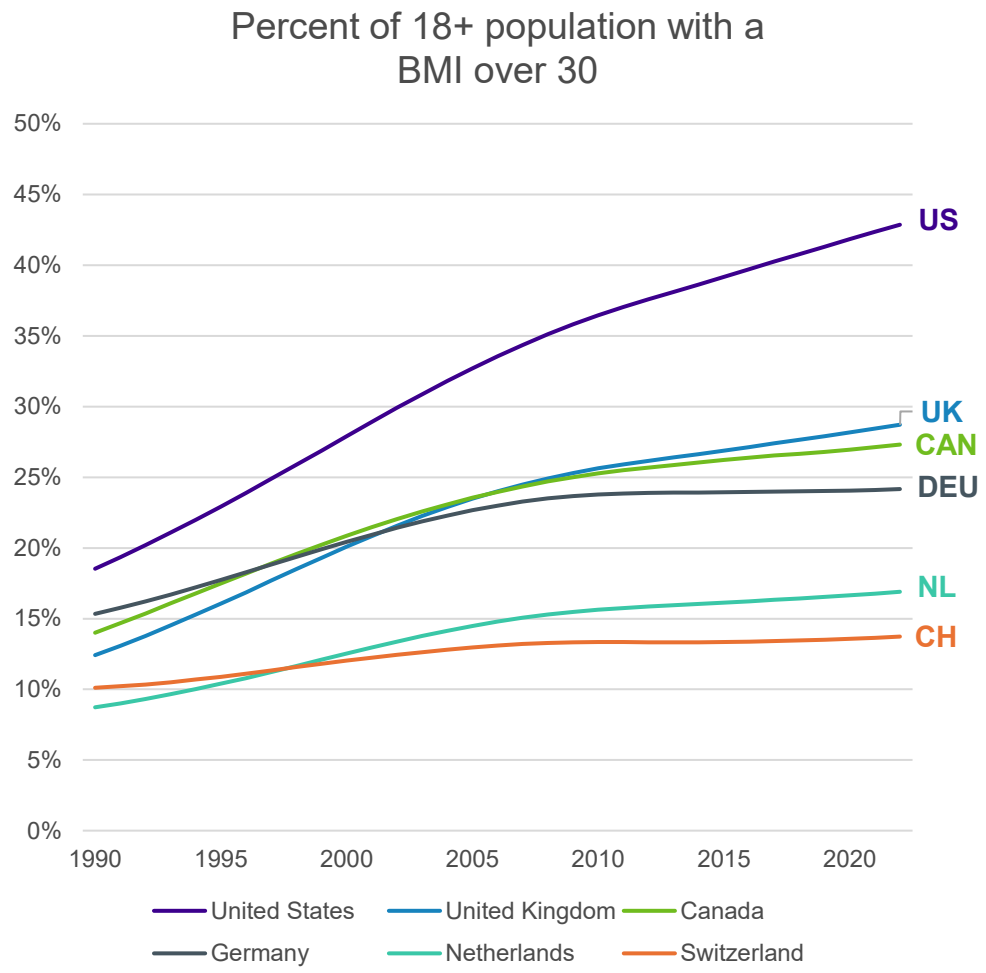
Agenda

1. Why are we here?
2. Introduction to scenario modelling
3. Comparison of scenario modelling results
4. Discussion



1 Why are we here?

The obesity problem



- In 2021, higher BMI was estimated to cause around 3.7 million deaths globally from noncommunicable diseases (cardiovascular, diabetes, cancers, neurological disorders, chronic respiratory diseases, digestive disorders)[1]
- A study published last month (Feb 2026) in the Lancet found that people with obesity are 70% more likely to die from or be hospitalized with infection[2]

Sources:
Chart: Our World in Data (original source WHO)
[1] Systematic analysis for the Global Burden of Disease Study 2021. The Lancet, 2024
[2] Adult obesity and risk of severe infections, The Lancet, 2026

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Anti-obesity medication

2005
GLP-1s approved by FDA to treat type 2 diabetes

2014
First GLP-1 approved to treat obesity

2021
Semaglutide (Wegovy) blockbuster trial results and approval

2022
Mounting evidence that weight loss achieved through GLP-1/GIP drugs rivals what is seen after bariatric surgery

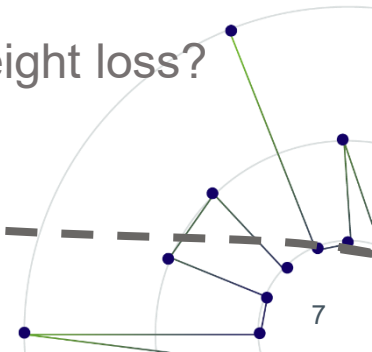
2023
Dual GLP-1/GIP tirzepatide (Zepbound) approved

2024
Obesity rate declining in the US

2025
Wegovy daily pill available

2026
The next wave of GLP-1 drugs are coming

Beyond weight loss?



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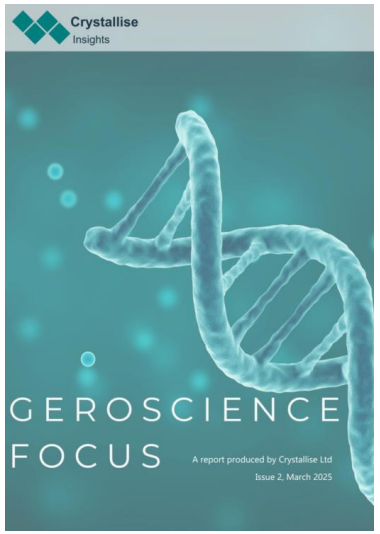
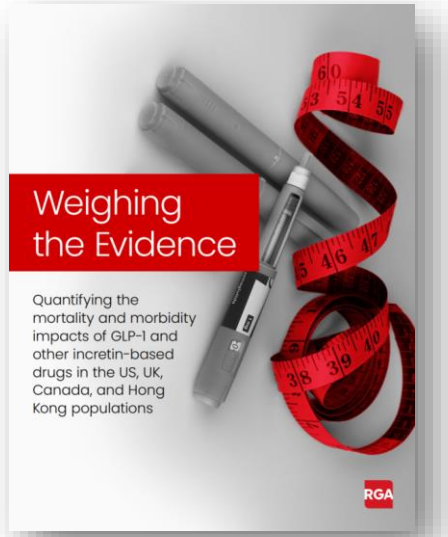
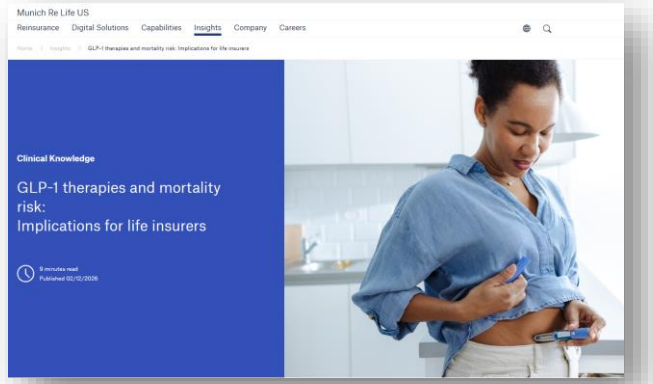






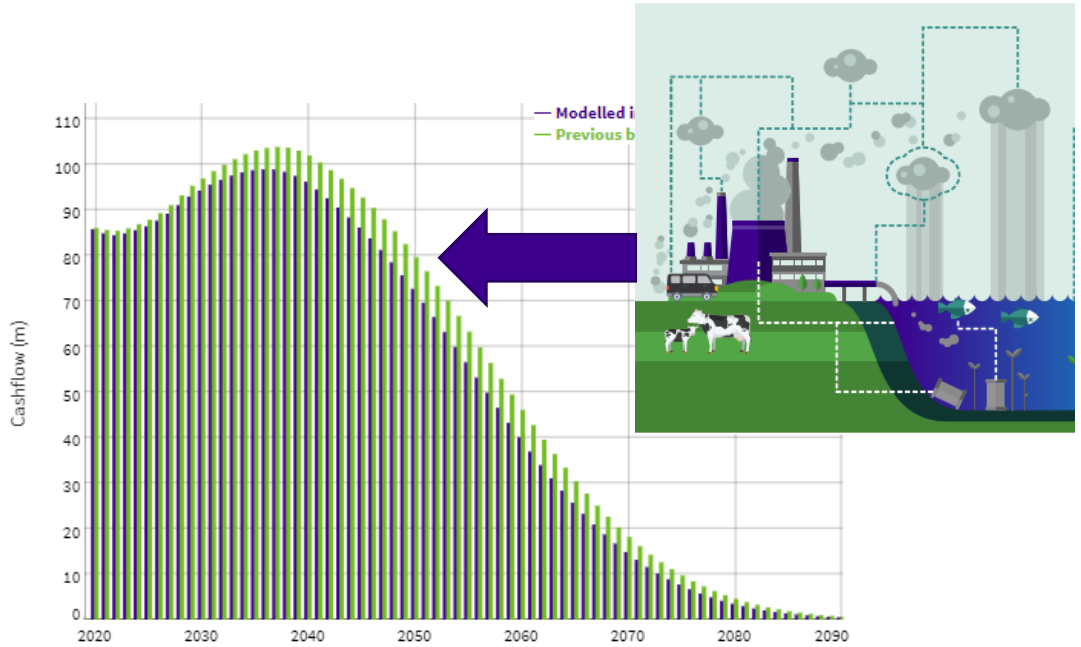
	Publication	Links to research papers
Crystallise	Geroscience Focus, Issue 2 – March 2025	Research available for subscribers – contact Crystallise for more information
Swiss Re	The future of metabolic health and weight loss drugs – September 2025	https://www.swissre.com/press-release/GLP-1-drugs-may-reduce-mortality-by-up-to-6-4-in-the-US-by-2045/3f8ec083-2b76-4eea-88cb-e5af644e045d
Club Vita	Longevity trend scenarios: *stressing the future* – October 2025	US insights session available for subscribers – contact Club Vita for more information
RGA	Weighing the Evidence – November 2025	https://www.rgare.com/knowledge-center/article/rga-glp-1-study--weighing-the-evidence
Munich Re	GLP-1 therapies and mortality risk: *Implications for life insurers* – February 2026	https://www.munichre.com/us-life/en/insights/clinical-knowledge/glp-1-therapies-and-mortality-risk-implications-for-life-insurers.html

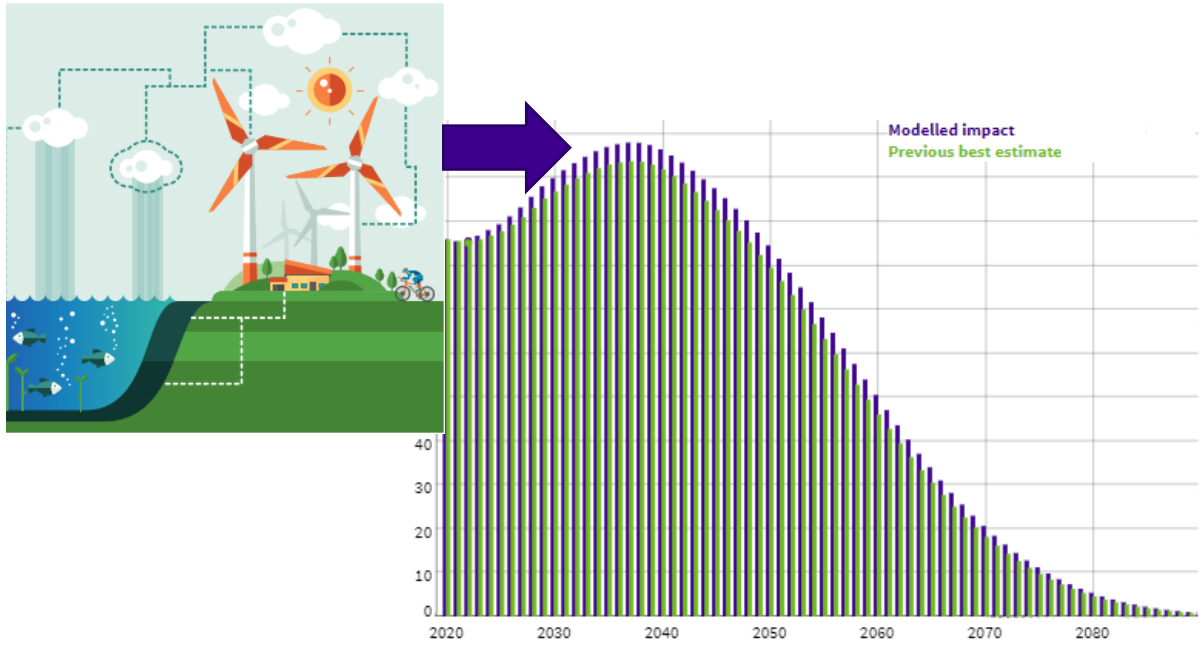
2 Introduction to scenario modeling

Introduction to scenario modelling

Scenario modelling

The assessment of the effects and impact of a specific, defined set of events.

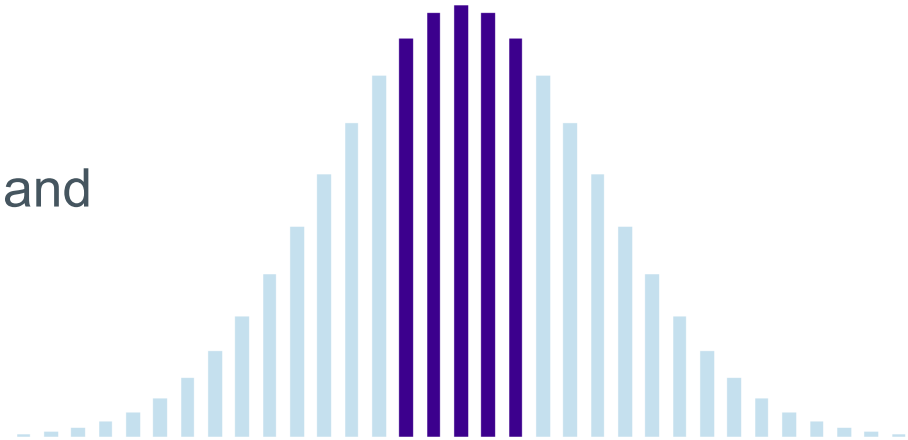




Defining usage: *What type of events to focus on?*

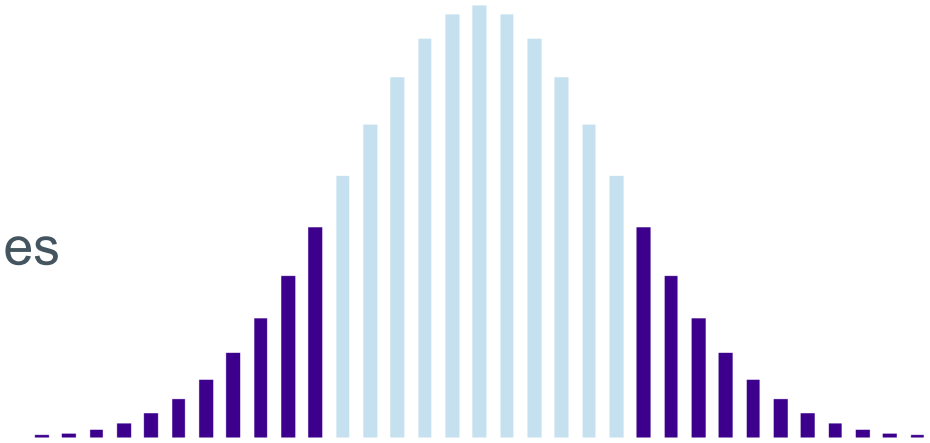
Middle ground

- Understand range of reasonable central estimates
- Insight into impact of demographic risk on funding and investment strategies

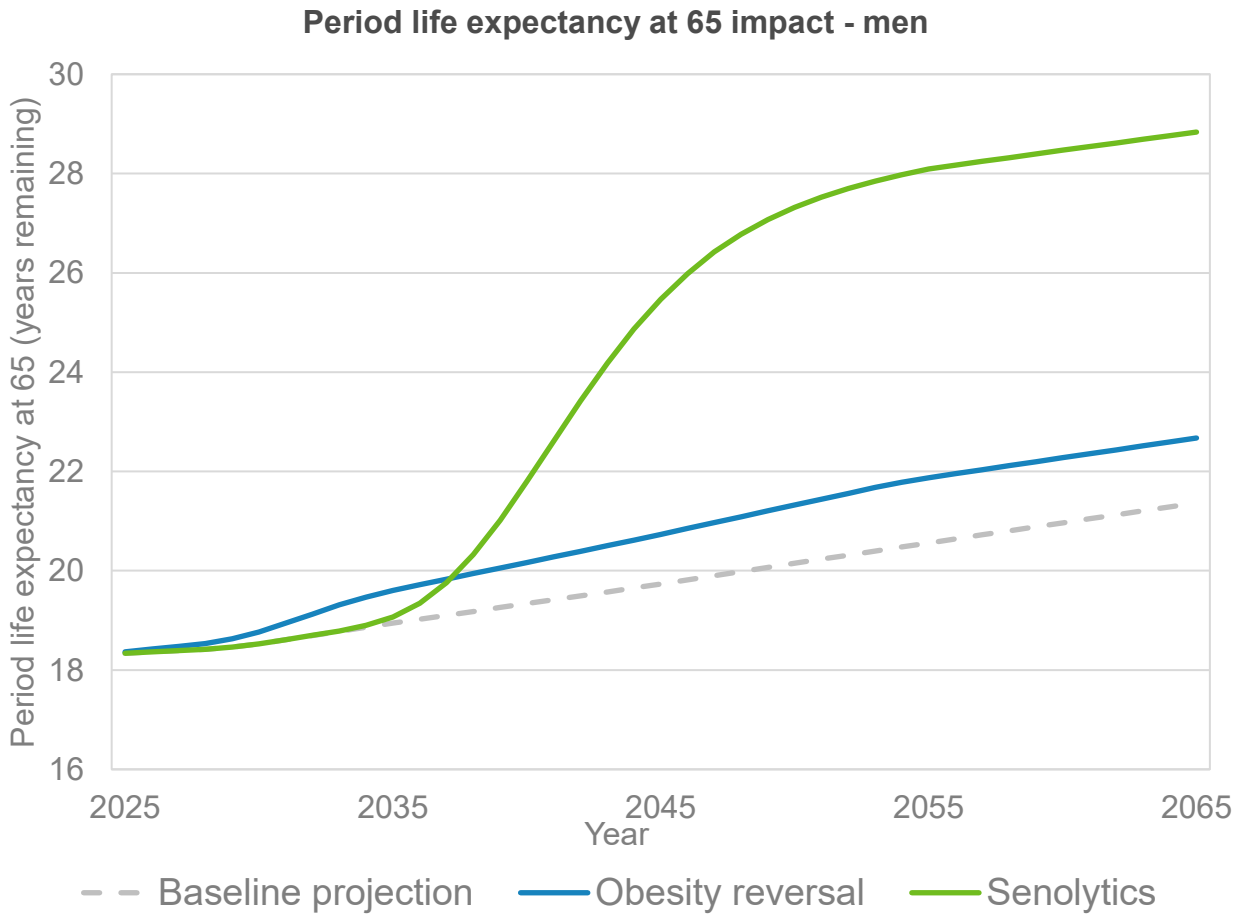


More extreme

- Understand effects of lower probability events
- Identify unmanaged risk and possible mitigation strategies
- Test resilience of funding and investment strategies
- Measure upside and downside scenarios?



Defining usage: *What time horizon?*



Scenario name	Description
Senolytics for all	Novel advances in therapies specifically designed to slow the aging process lead to reduced mortality and increased health-span
Obesity reversal	Reversal of multi-decade increase in obesity prevalence, influenced by obesity therapeutics.

Scenarios may have different impact over different time horizons

What “dimensions” to capture?

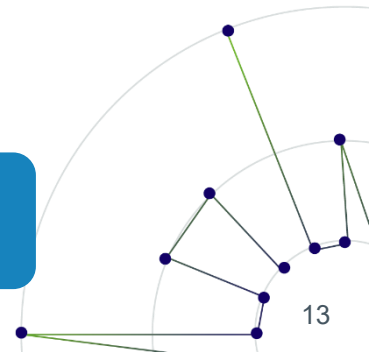
Population level

- Period Effects – starting point, shape and duration of impact
- Age Effects – consider impact on different age groups
- Cohort Effects – consider impact on different generations
- Coherent modelling of men and women – e.g. we wouldn’t expect age difference to grow indefinitely or cross over

Other potential dimensionality

- Should scenarios vary by socio-economic group?
  - E.g. “cascade effect”
- Should scenarios vary by geography?
  - E.g. climate change impacts in different countries / climate zones

Different scenarios will have different relative impacts for different populations depending on how these effects play out.

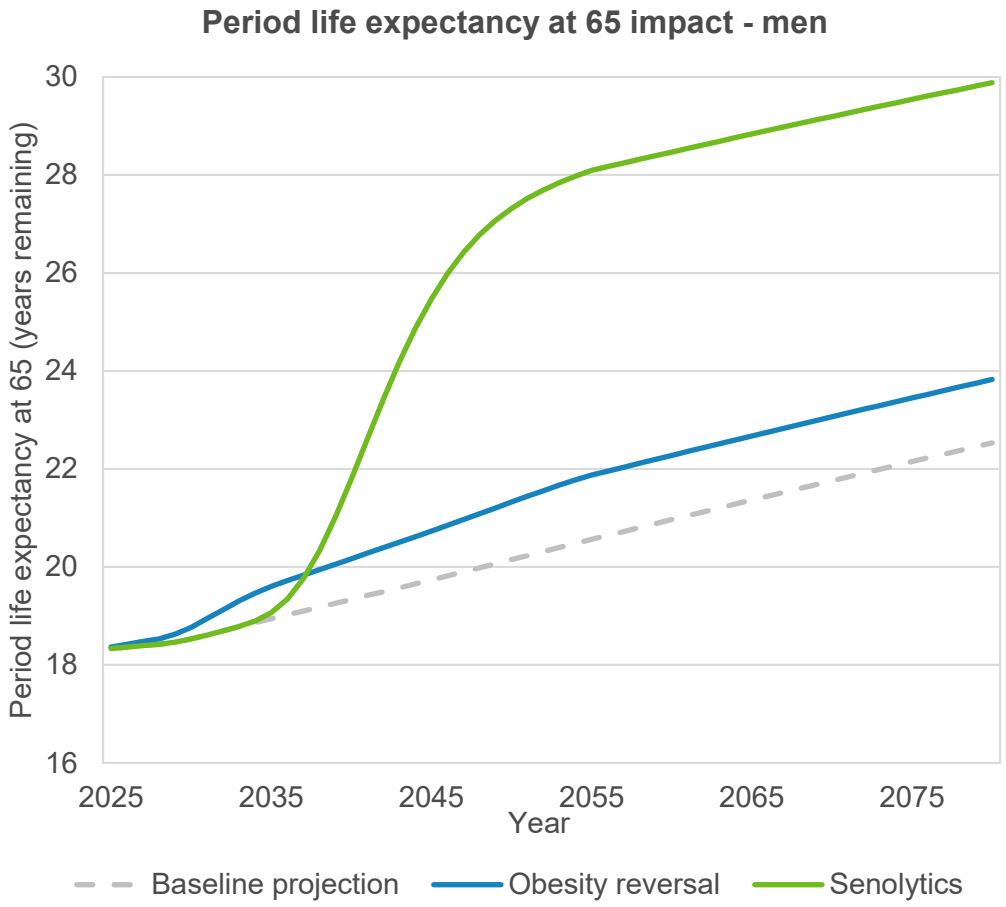


Key consideration: *catalyst for change*

Scenario

Scenario outputs:

changes in period life expectancy / mortality rates

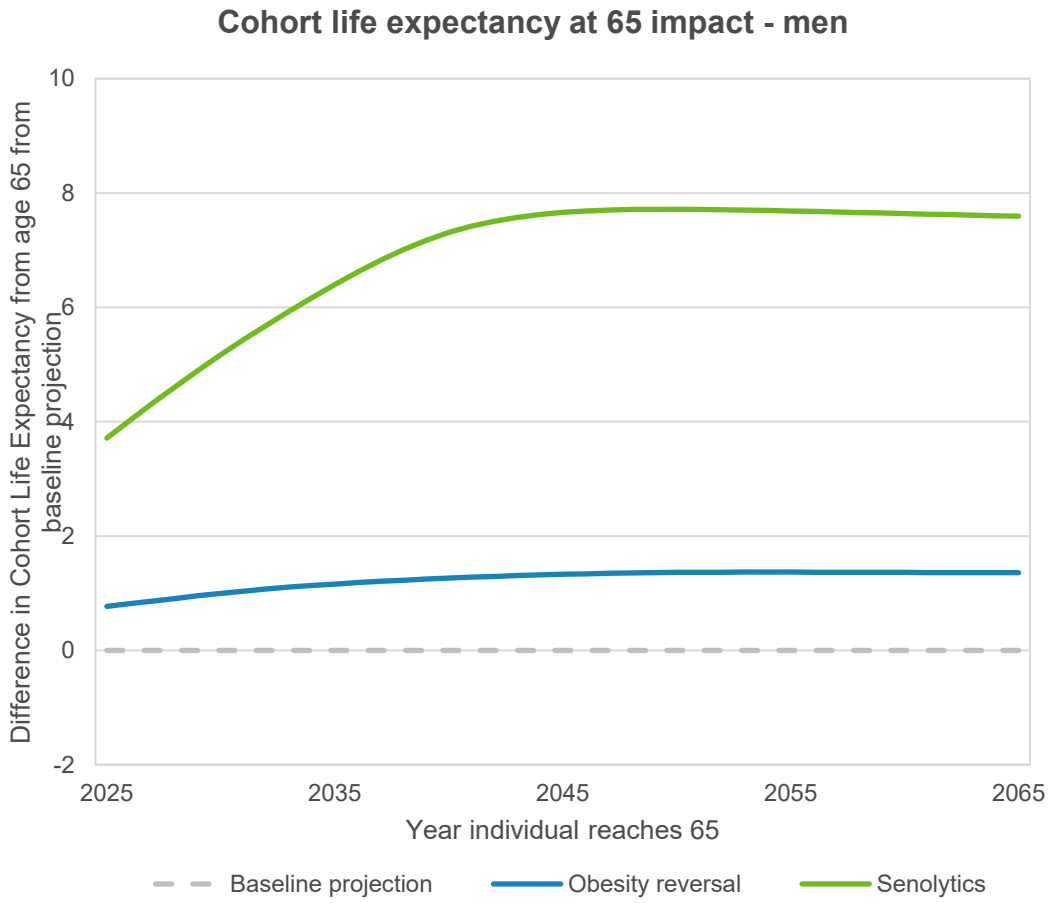


Period life expectancy / mortality rates

- (1-year) period life expectancy is the calculation of life expectancy based on a given year's mortality rates. It assumes no future changes to the current mortality in the specified year.
- The charts show the progression of period life expectancy at age 65 under the senolytics, obesity reversal scenarios and our reference "baseline projection".
- This chart shows how mortality rates will develop over future years under each scenario. They do not indicate the actual expected survival for individuals alive in each year.
- We can also back out equivalent annual mortality improvements at each year that would achieve the same period life expectancy / current mortality rates

Note: whether to model impact of a scenario in addition to other improvements or in isolation will depend on the usage of the scenario

Scenario outputs:
changes in cohort life expectancy



Cohort life expectancy

- Cohort life expectancy is the measure of life expectancy for a person alive in a given year, allowing for an estimate of current mortality rates **and** how they will change in the future.
- The charts show the difference in cohort life expectancy at age 65 between the senolytics, obesity reversal scenarios and a baseline projection over time.
- Note: the “2025” point on the chart shows cohort life expectancy for someone retiring at age 65 in 2025, the “2045” point on the charts shows cohort life expectancy for someone retiring in 20 years time (at age 65).
- Cohort life expectancy gives a better measure for understanding impact on life-time payment liabilities.

Note: whether to model impact of a scenario in addition to other improvements or in isolation will depend on the usage of the scenario

3 Scenario comparison

The aims

RGA	Swiss Re	Munich RE	CLUB VITA	Crystallise
Modelling the likely mortality (and morbidity) impact of GLP-1 and other anti-obesity drugs	Modelling the likely mortality impact of GLP-1 and other anti-obesity drugs	Modelling the likely contribution of future mortality improvement driven by GLP-1	Modelling the potential mortality impact if multiple interventions push obesity into sustained decline	Modelling the possible impact on life expectancy of GLP-1 drugs in a future where they are used to target ageing itself
20-year horizon	20-year horizon	10- to 20-year horizon	10- to 50-year horizon	25+ year horizon
US, UK, Canada, Hong Kong	US and UK	US	US	General (based on England and Wales data)

The methods

RGA	Swiss Re	Munich RE	CLUB VITA	Crystallise
Applies **BMI-driven** mortality reductions **and non-weight benefits** observed in GLP-1 clinical trials across age/sex population mortality rates to generate 20-year cumulative mortality improvements.	Maps 100k life-**simulated metabolic-risk changes** (adjusts individual BMI/BP/HbA1c profiles) into mortality outcomes using Swiss Re Life Guide **relative-risk curves** to generate 20-year cumulative reductions.	Derives **observed mortality-reduction signals** from a 41m-life dataset and applies them in a **BMI-segmented, cause-of-death adjusted framework** over 10-20 years, producing projected mortality improvements.	Uses **cause-of-death modelling** treating GLP-1s as one component of a wider **obesity reversal** ecosystem. Modifies baseline improvement rates by obesity attributable risk, producing projected mortality improvements over 10-50 years.	Uses a **gero-modulation framework** that maps GLP-1s onto **five ageing hallmarks**, then **derives ageing-rate reductions** from rodent studies, and applies these to future mortality curves to estimate cohort LE for 65-year-olds in 25 years.

The impacts in 20 years…

RGA	Swiss Re	Munich RE	CLUB VITA	Crystallise
3.5% contribution to cumulative mortality reduction (range of 1.0-8.8%)	**4.0%** contribution to cumulative mortality reduction (range of 2.3-6.4%)	**4.0-9.5%*** contribution to cumulative mortality reduction	**5.0%** contribution cumulative mortality reduction (expressed relative to MP-2021)	**15.0%** contribution to cumulative mortality reduction (range of 11.0-20.1%)
0.2% p.a.* mortality improvement (range of 0.05-0.5%)	**0.2% p.a.*** mortality improvement (range of 0.1-0.3%)	**0.2-0.5% p.a.** mortality improvement	**0.3% p.a.** mortality improvement	**0.7% p.a.*** mortality improvement

*Club Vita inferred calculation

Note: Impact shown here is for US population to enable comparisons, Crystallise figures are for a general population, but are derived from England & Wales data

4 Discussion

Thank you