



Institute  
and Faculty  
of Actuaries



# Does Teething really kill? A study of mortality trends over the past 100 years.

Paul Blyth  
Gillian Laing



# Does Teething really kill? A study of mortality trends over the past 100 years

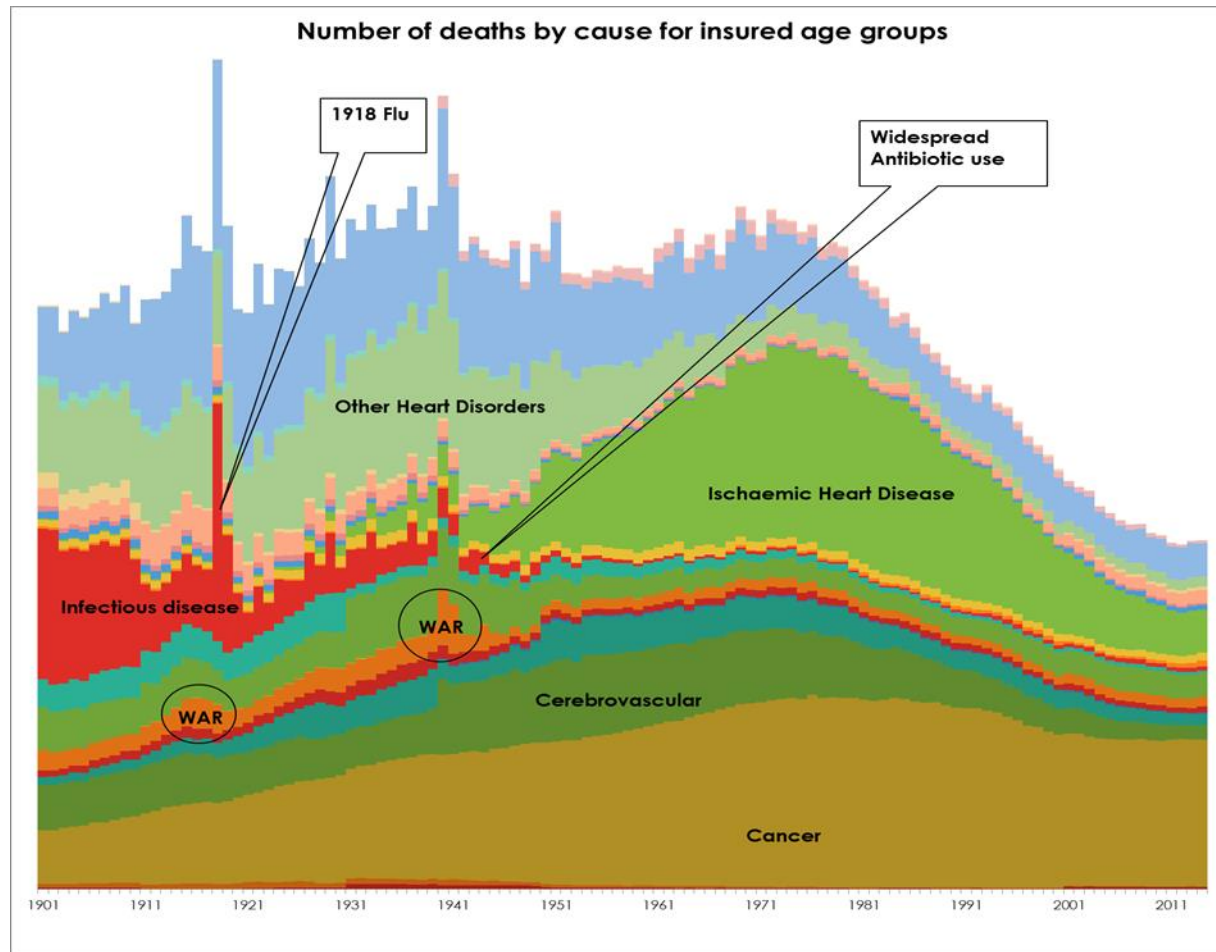
- Mortality – a brief history from 1900
- Recent Mortality trends
- Threats to future improvements
- Benefits to future improvements
- Conclusion



Institute  
and Faculty  
of Actuaries

# Mortality – a brief history from 1900

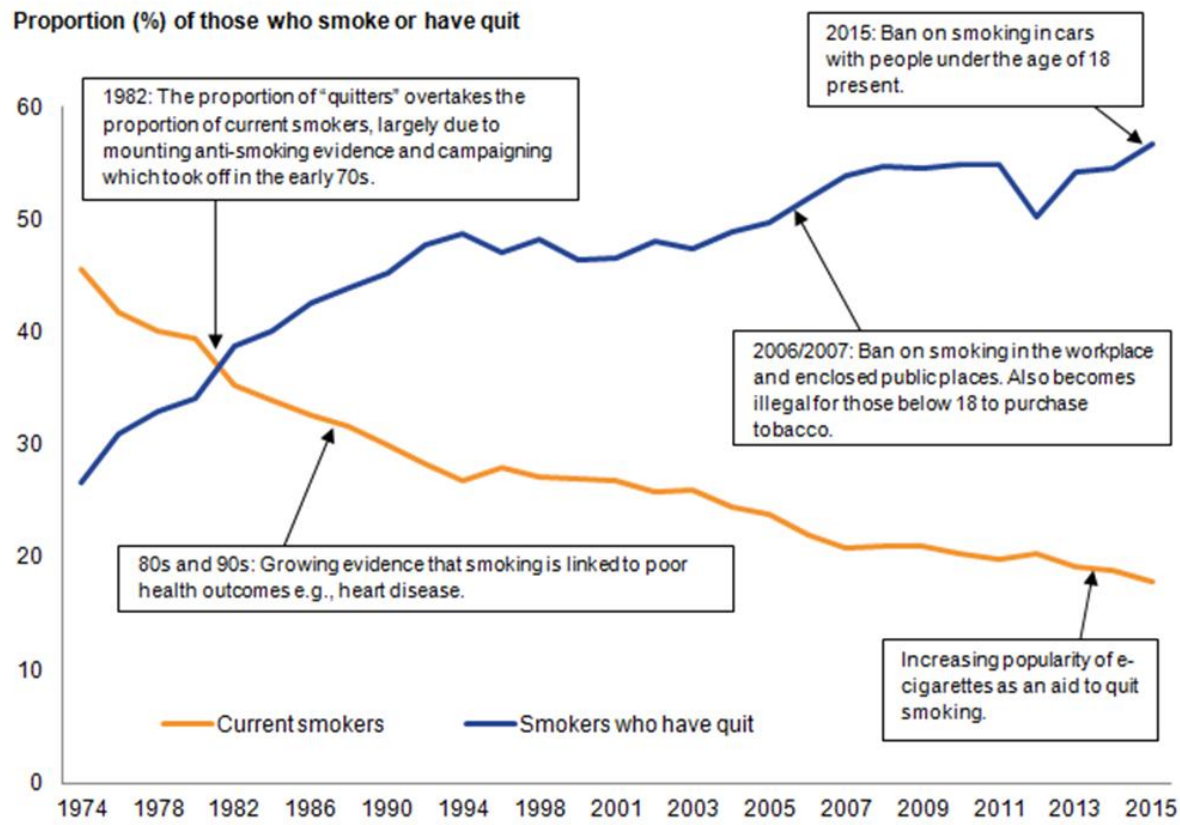
- In 2016 we undertook to set new mortality improvements for our mortality pricing basis. We were primarily interest in term assurance ages 30-65.



Institute  
and Faculty  
of Actuaries

# History from 1900: Lifestyle changes - Cigarette smoking

- Smoking is the leading cause of preventable death in the UK. In 2014 almost 80,000 deaths attributable to smoking in England. <sup>1</sup>
- Number of smokers quitting has mostly been rising since 1974.



Institute  
and Faculty  
of Actuaries

*According to repeated nationwide surveys,*

# More Doctors Smoke **CAMELS** than any other cigarette!

Doctors in every branch of medicine were asked, "What cigarette do you smoke?" The brand named most was Camel!

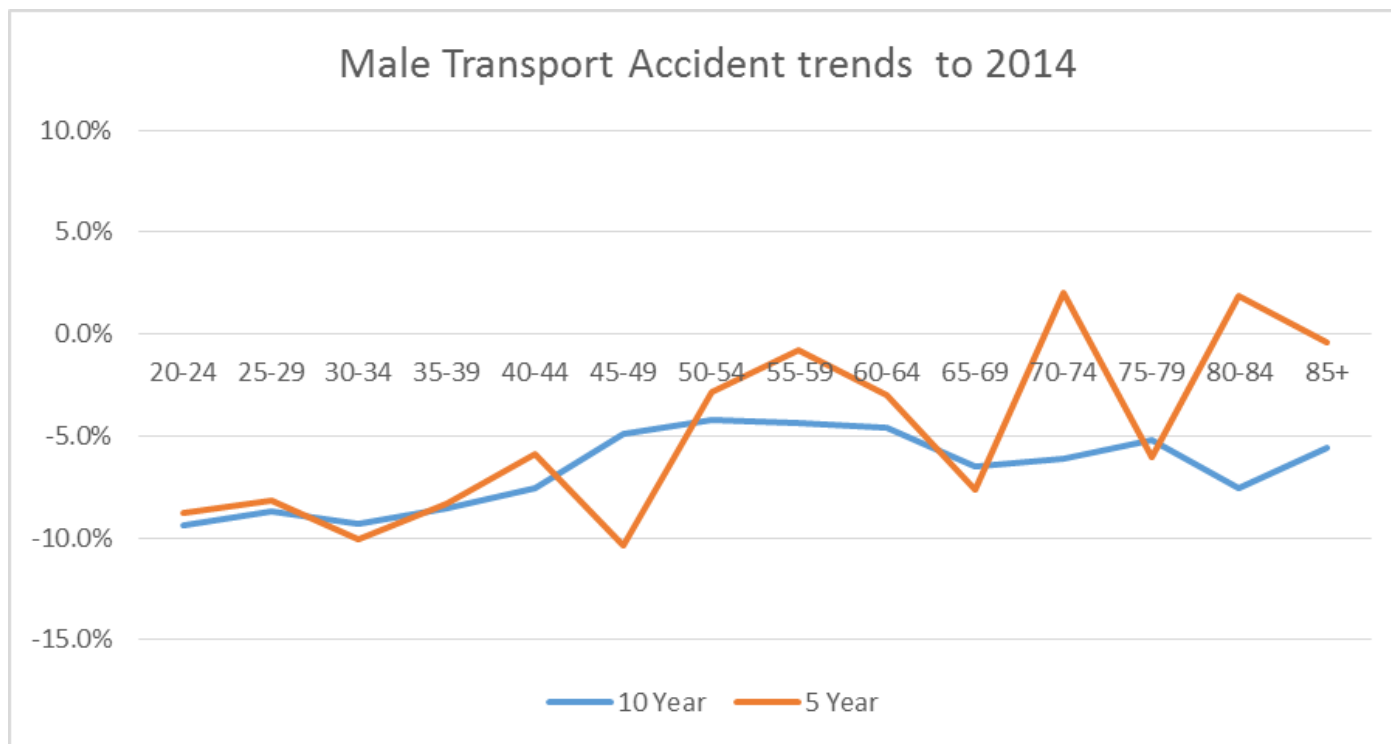
**THE DOCTORS' CHOICE IS AMERICA'S CHOICE!**

You'll enjoy Camels for the same reason as many physicians prefer them. Camels have mild, sweet, satisfying taste after smoke, and a flavor unmatched by any other cigarette. Make this wonderful taste another reason Camels for 40 years and one that will Camels please your taste from birth to old age. Just sharing is great healthy pleasure. You'll see how satisfying a cigarette can be!



## History from 1900: Lifestyle changes – Car Travel

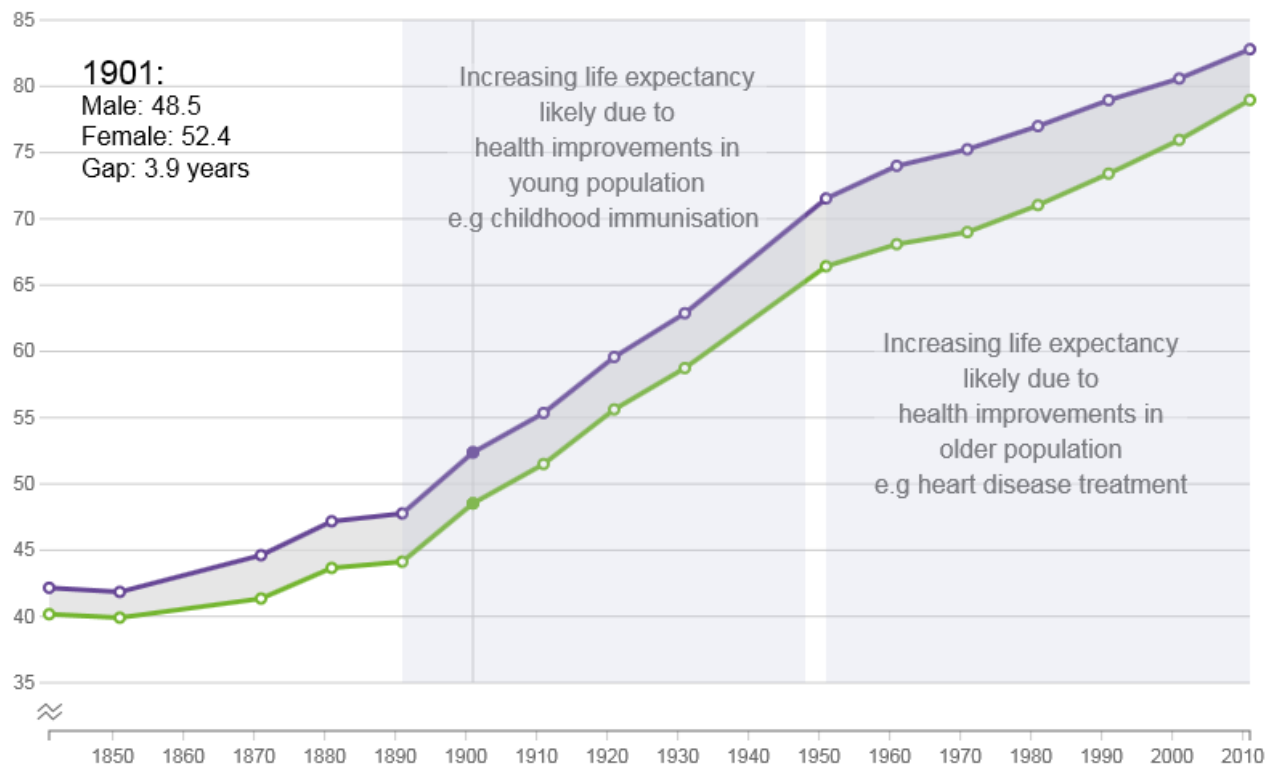
- In the last 30 years Great Britain's population has grown by 15 percent.
- However road fatalities in the same period have fallen by 68%.<sup>1</sup>



Institute  
and Faculty  
of Actuaries

# History from 1900: Life Expectancy 1900-2015

- Life expectancy has increased considerably since 1901 from 48.5 for males, 52.4 for females to 79.1 for males and 82.8 for females in 2015.



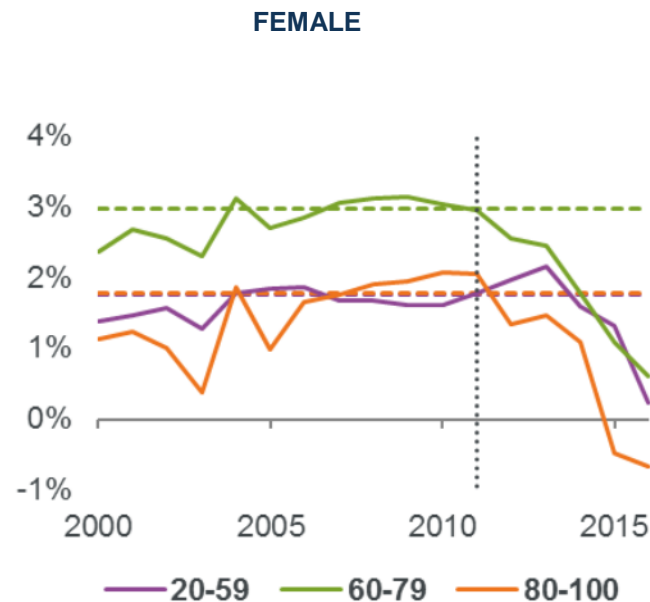
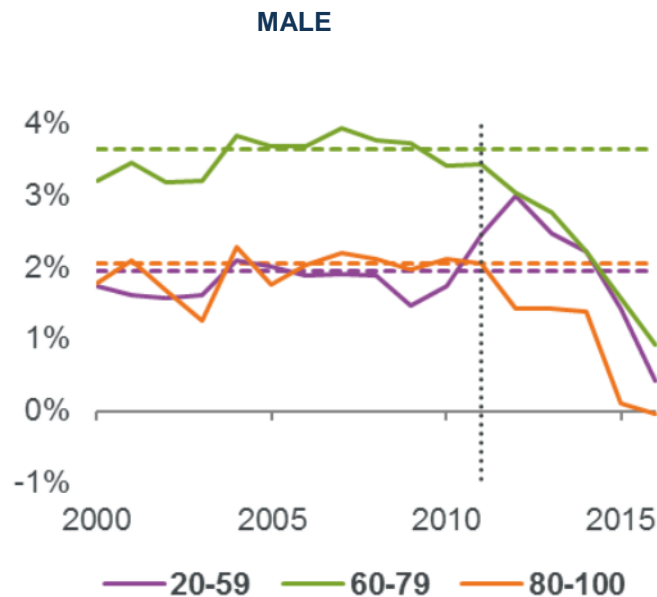
Institute  
and Faculty  
of Actuaries



## Recent Mortality Trends

- Some concerns in recent years over the slow down of improvements in life expectancy.
- This appears to relate more to old age deaths.
- As well as a peak in 5 year trends in recent years.

### Five-year average mortality improvements for different age bands



Institute  
and Faculty  
of Actuaries



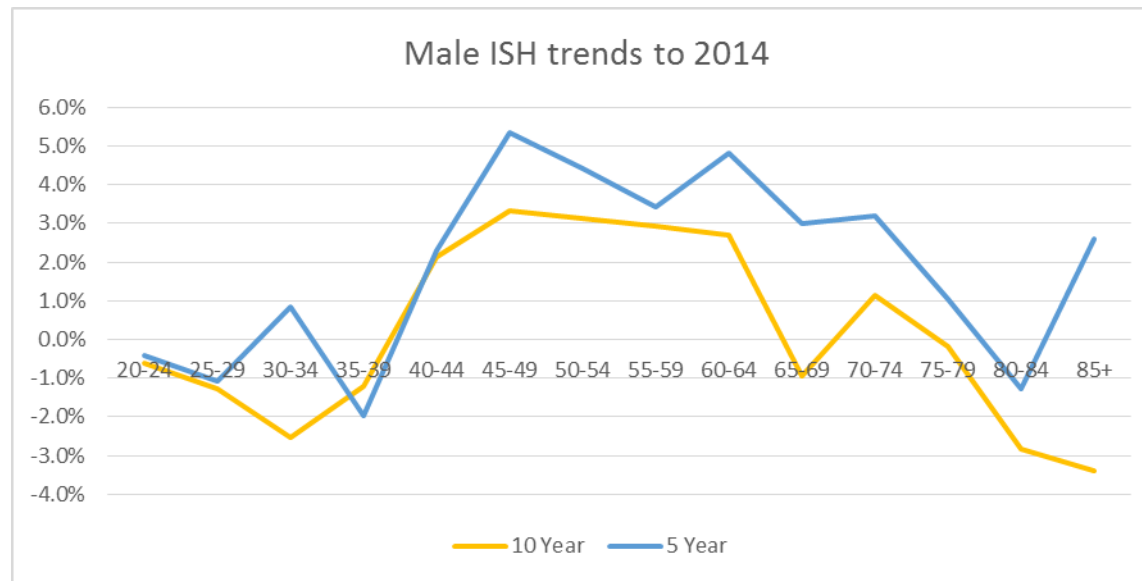
## So what might influence future mortality?



Institute  
and Faculty  
of Actuaries

# Threats to future improvements: Mental Health

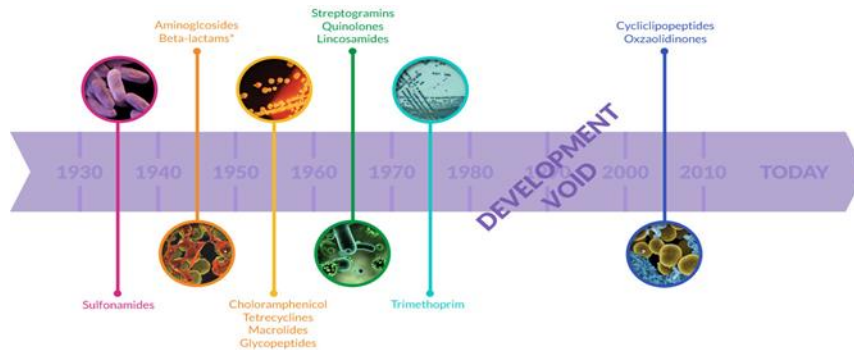
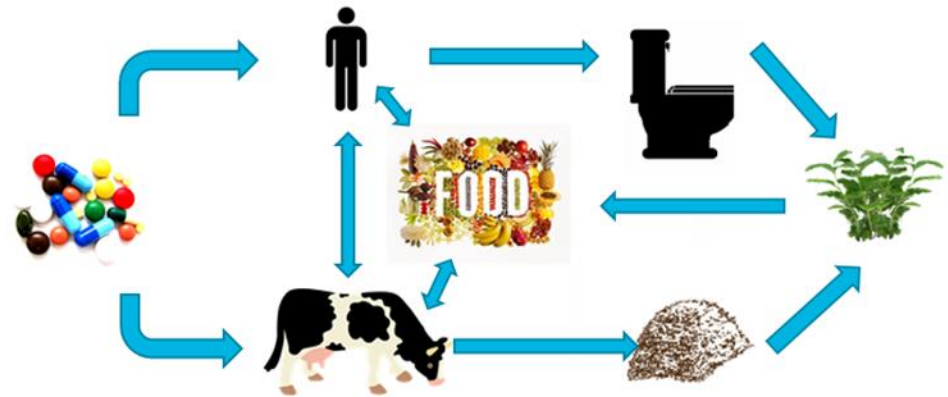
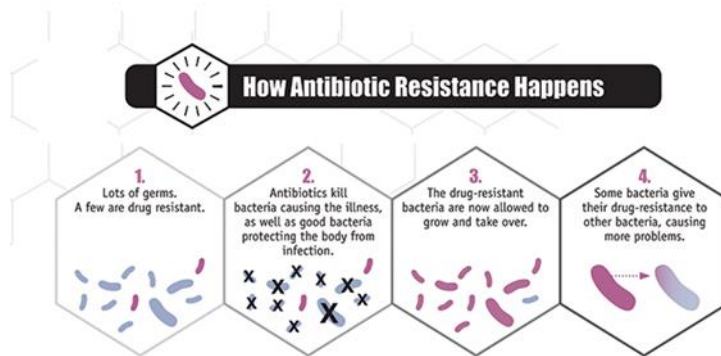
- In our analysis intentional self harm was the only cause of death with an almost consistently increasing trend, which is particularly relevant for the term assurance ages.
- Over 75% of suicides are male.<sup>1</sup>
- It's the biggest killer of men under 45 in the UK.
- Research into suicide is still minimal and not enough is understood about why suicide is increasing.
- Recent studies showed significant correlation with Lower socio-economic groups and suicide.<sup>2</sup>



Institute  
and Faculty  
of Actuaries

# Threats to future improvements: Antibiotic Resistance

- In 2014 the WHO released a special report on Antimicrobial resistance.



Institute  
and Faculty  
of Actuaries

# Threats to future improvements: Lifestyle

- **Drinking – alcohol was 61% more affordable in 2013 than 1980.**
- **Recreational drugs – drug deaths accounted for 1 in 6 deaths in people in 20s and 30s in 2015.**
- **Obesity – rates are three times what they were in 1980. Leads to many health complications including Cancer, Type 2 Diabetes, Heart disease.**

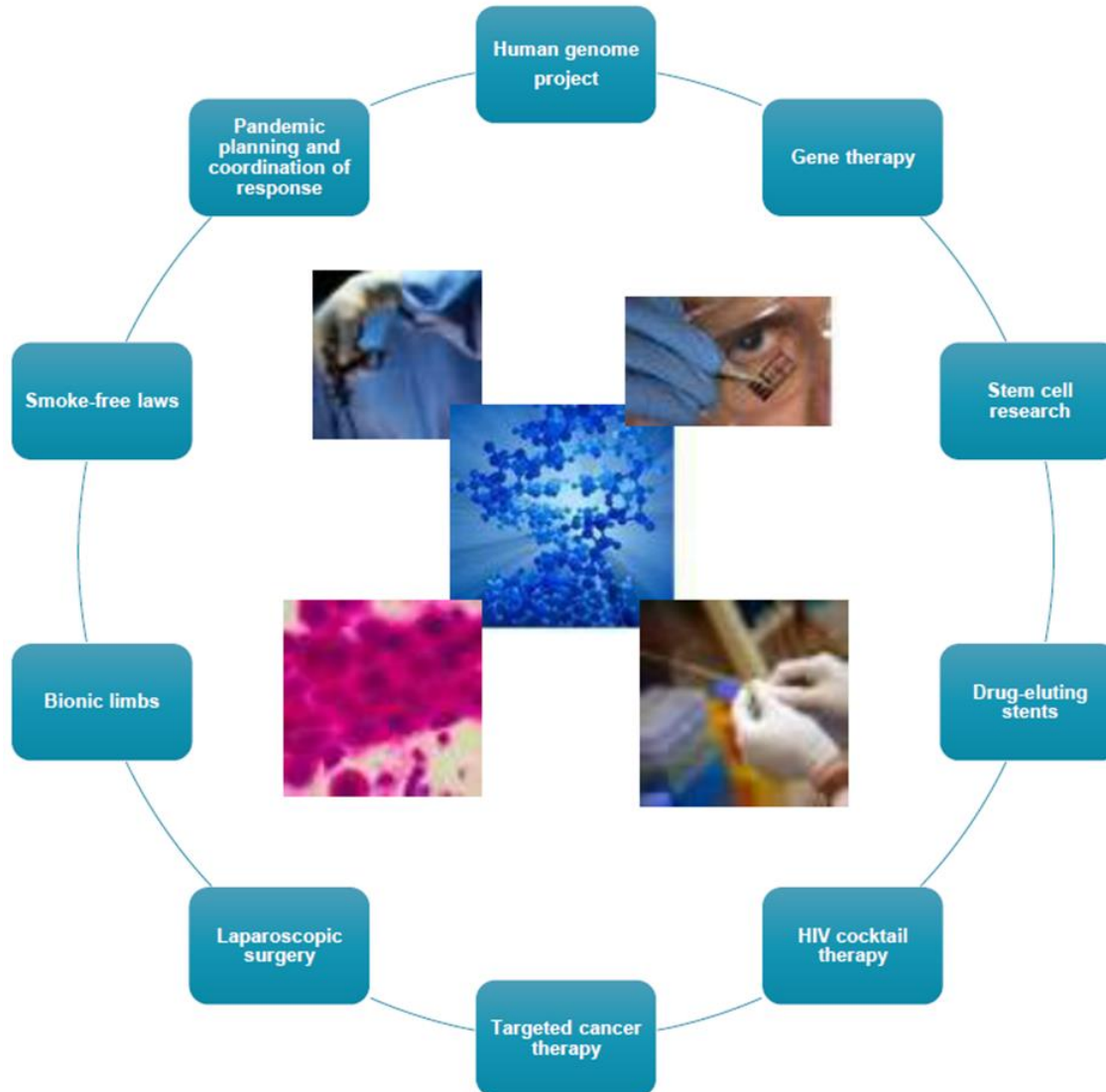
Europe's obesity league:

- UK: 24.9%
- Ireland: 24.5%
- Spain: 24.1%
- Portugal: 21.6%
- Germany: 21.3%
- Belgium: 19.1%
- Austria: 18.3%
- Italy: 17.2%
- Sweden: 16.6%
- France: 15.6%



Institute  
and Faculty  
of Actuaries

# Top 10 most recent breakthrough medical advances



Institute  
and Faculty  
of Actuaries

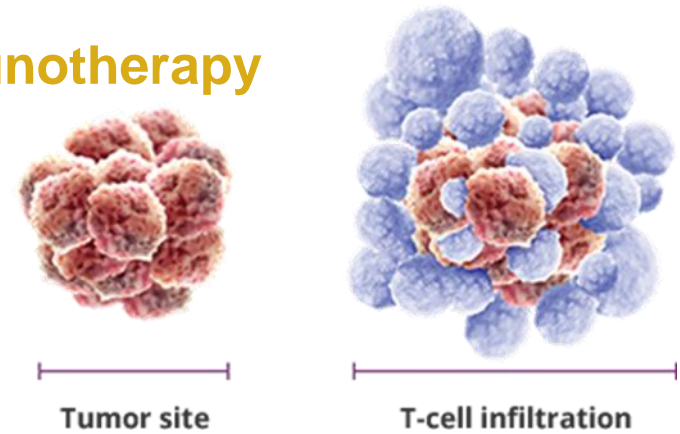
## Benefits to future improvements: Immunotherapy

- **Unmasking a killer:** How immunotherapy helps your body find cancer and destroy it.



Institute  
and Faculty  
of Actuaries

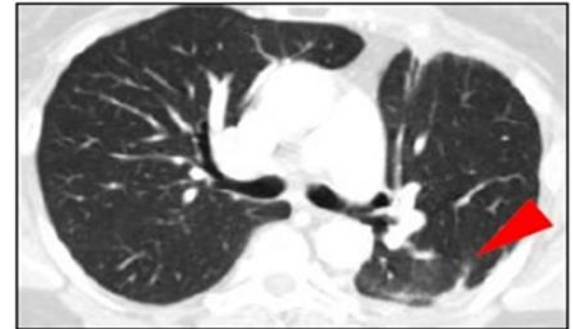
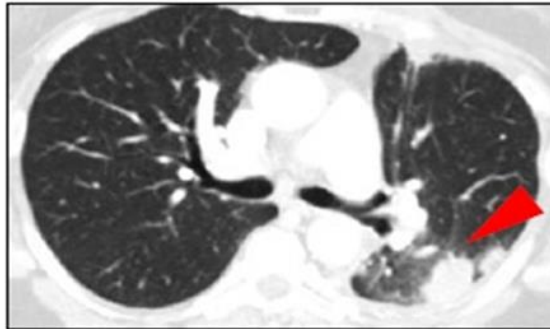
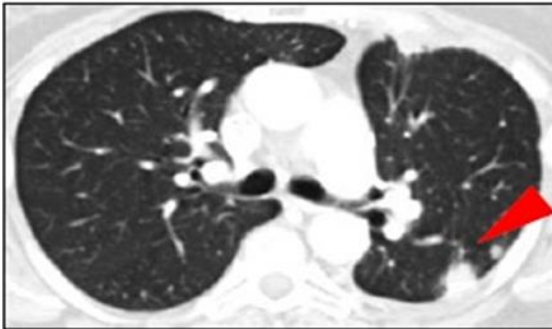
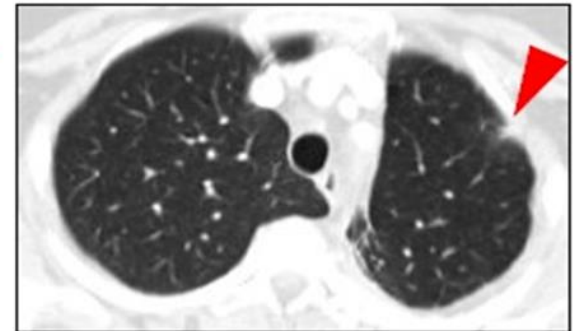
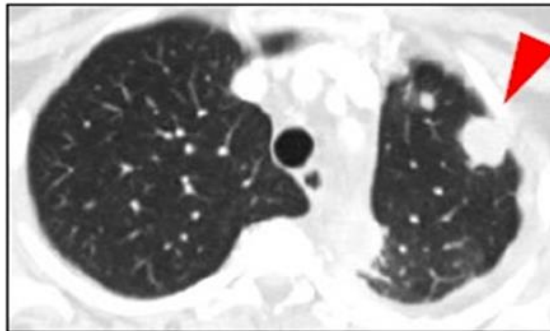
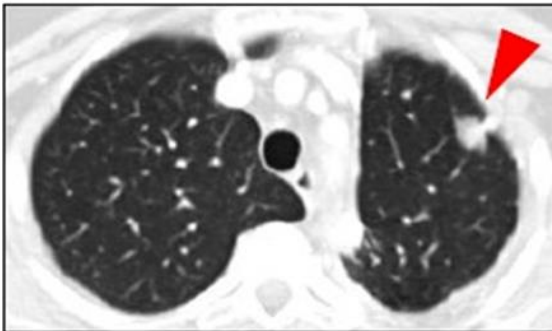
## Benefits to future improvements: Immunotherapy



**Pretreatment**

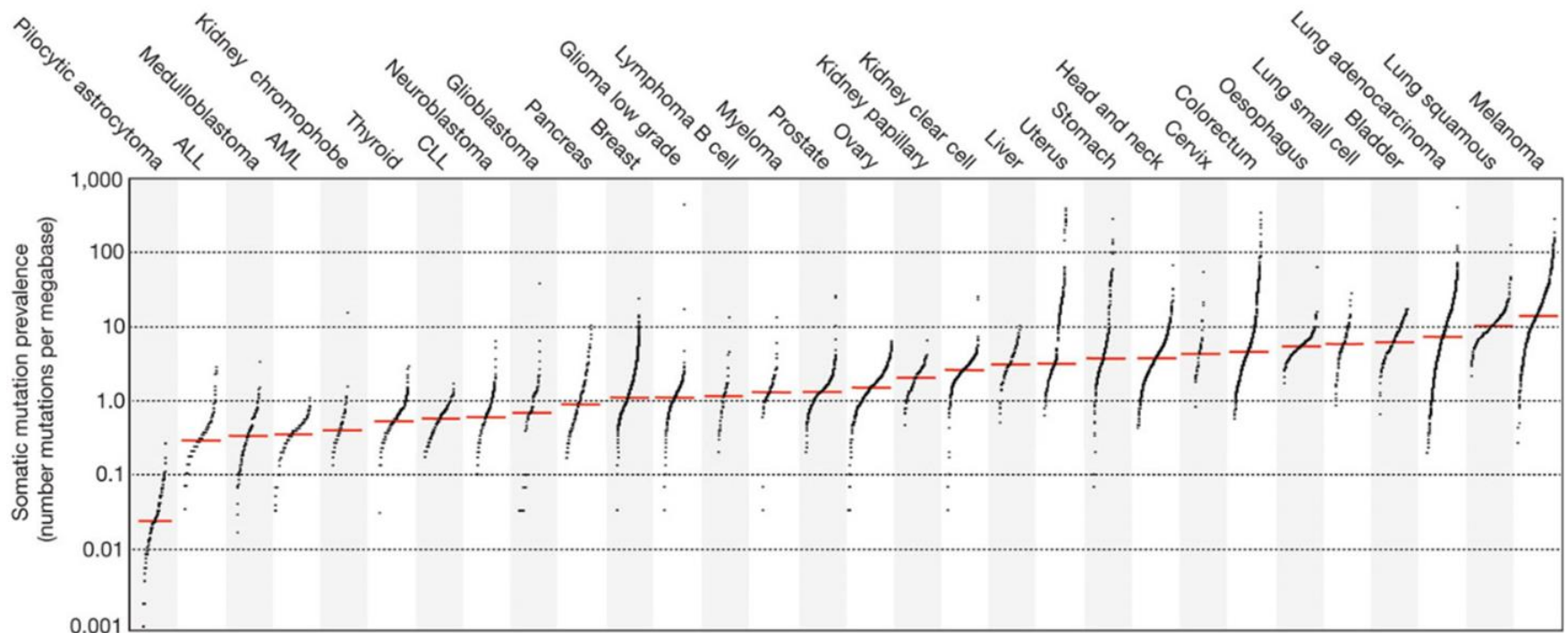
**2 months**

**4 months**





# Benefits to future improvements: Immunotherapy

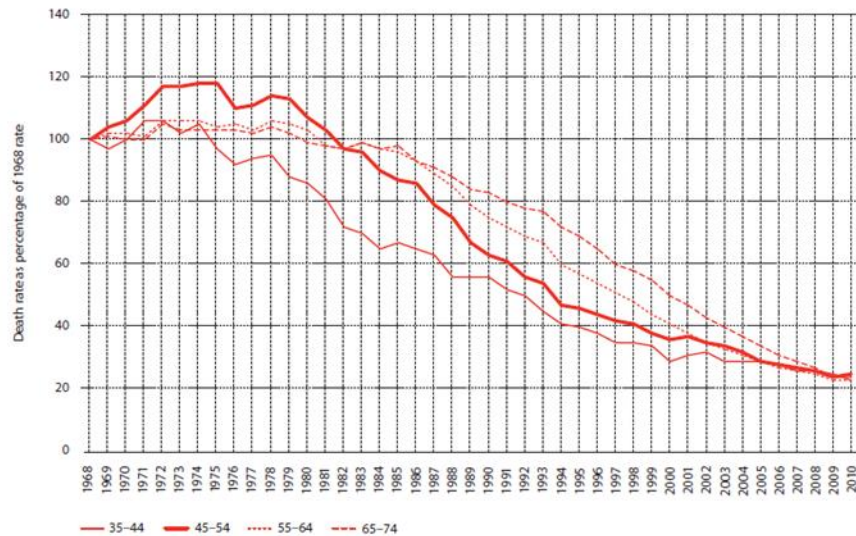


Institute  
and Faculty  
of Actuaries

# Threats to future improvements: Heart disease and statins

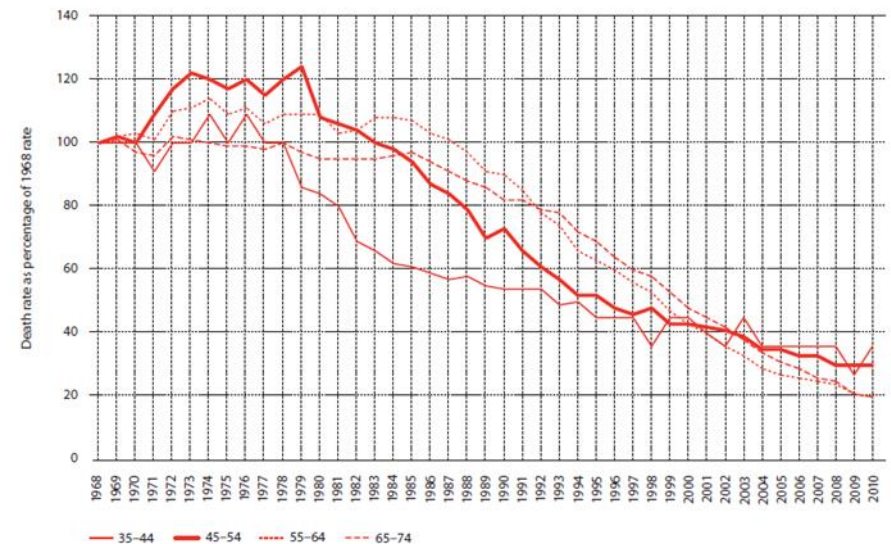
## Age-specific death rates from CHD in 1968 – 2010 in the UK (plotted as a percentage of the rate in 1968)

Age-specific death rates from coronary heart disease (CHD) as a percentage of the rate in 1968, in men, United Kingdom 1968 to 2010



Men

Age-specific death rates from coronary heart disease (CHD) as a percentage of the rate in 1968 in women, United Kingdom 1968 to 2010



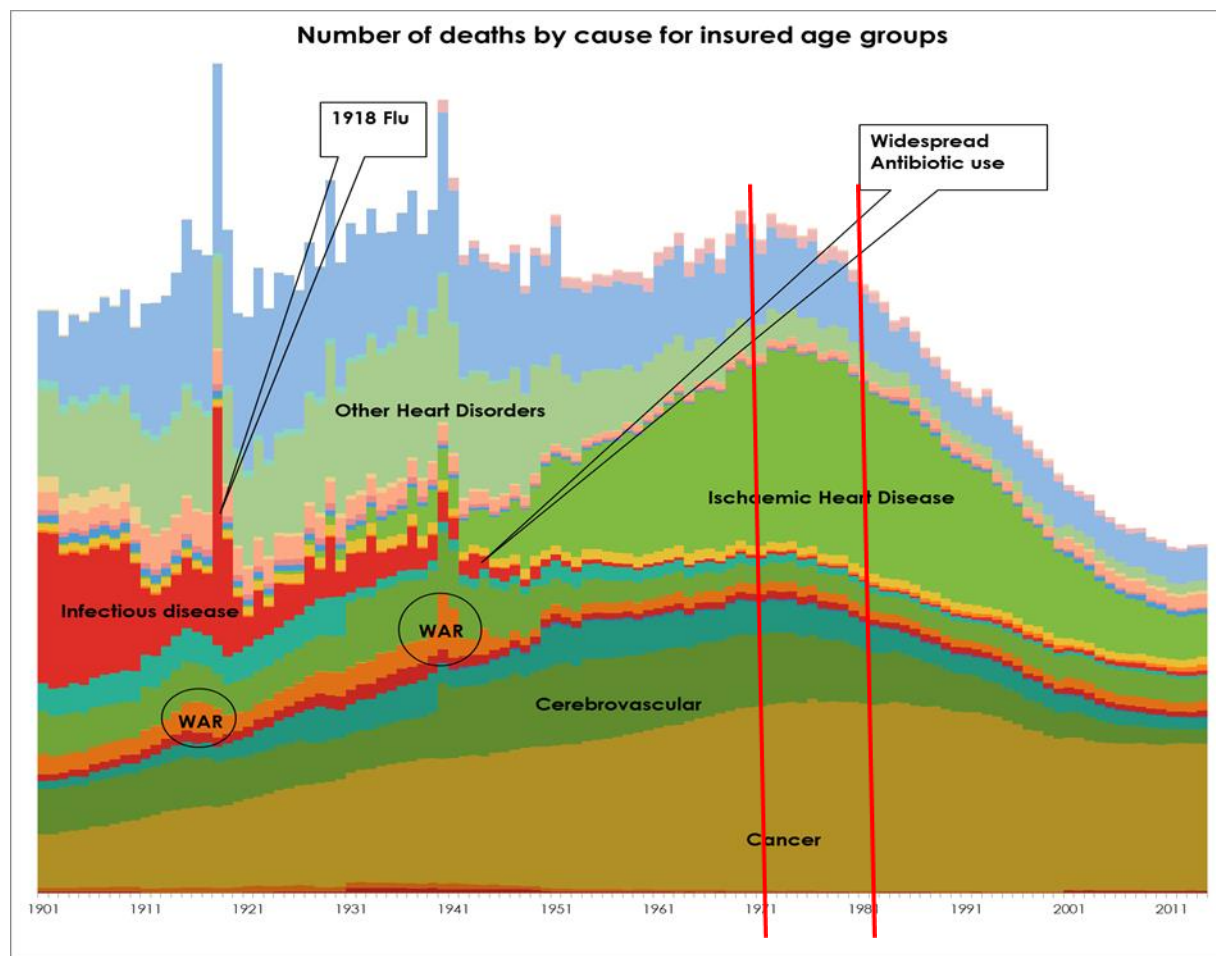
Women



Institute  
and Faculty  
of Actuaries

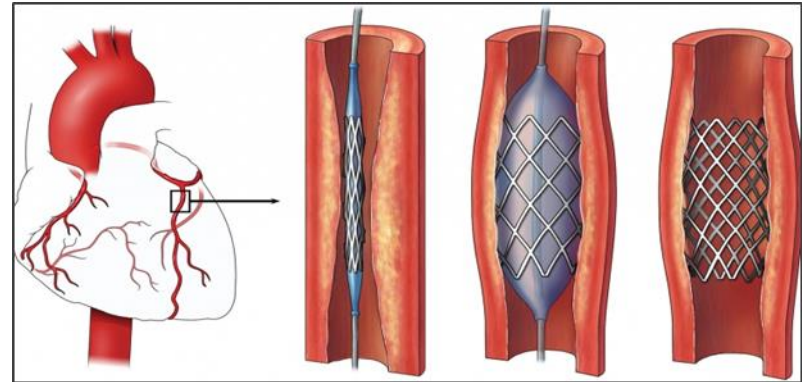
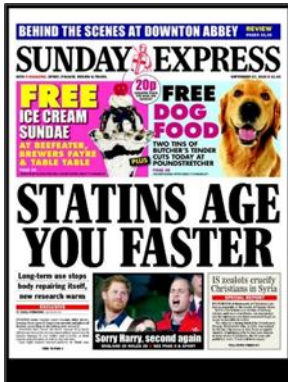
# Mortality – a brief history from 1900

- In 2016 we undertook to set new mortality improvements for our mortality pricing basis. We were primarily interest in term assurance ages 30-65.




Institute  
and Faculty  
of Actuaries

## What will influence the future of cardiovascular disease?



MailOnline



Home | News | U.S. | Sport | TV&Showbiz | Femail | **Health** | Science | Money | RightMind

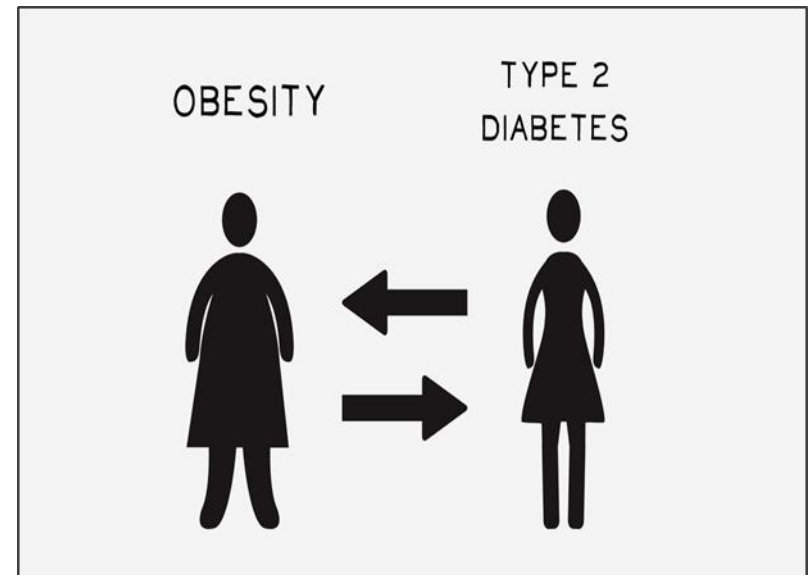
[Health Home](#) | [Health Directory](#) | [Health Boards](#) | [Diets](#) | [MyDish Recipe Finder](#)

# Statins can weaken muscles and joints: Cholesterol drug raises risk of problems by up to 20 per cent

- Statins are the most widely prescribed drugs in Britain
- However, many complain of muscle pain and joint weakness

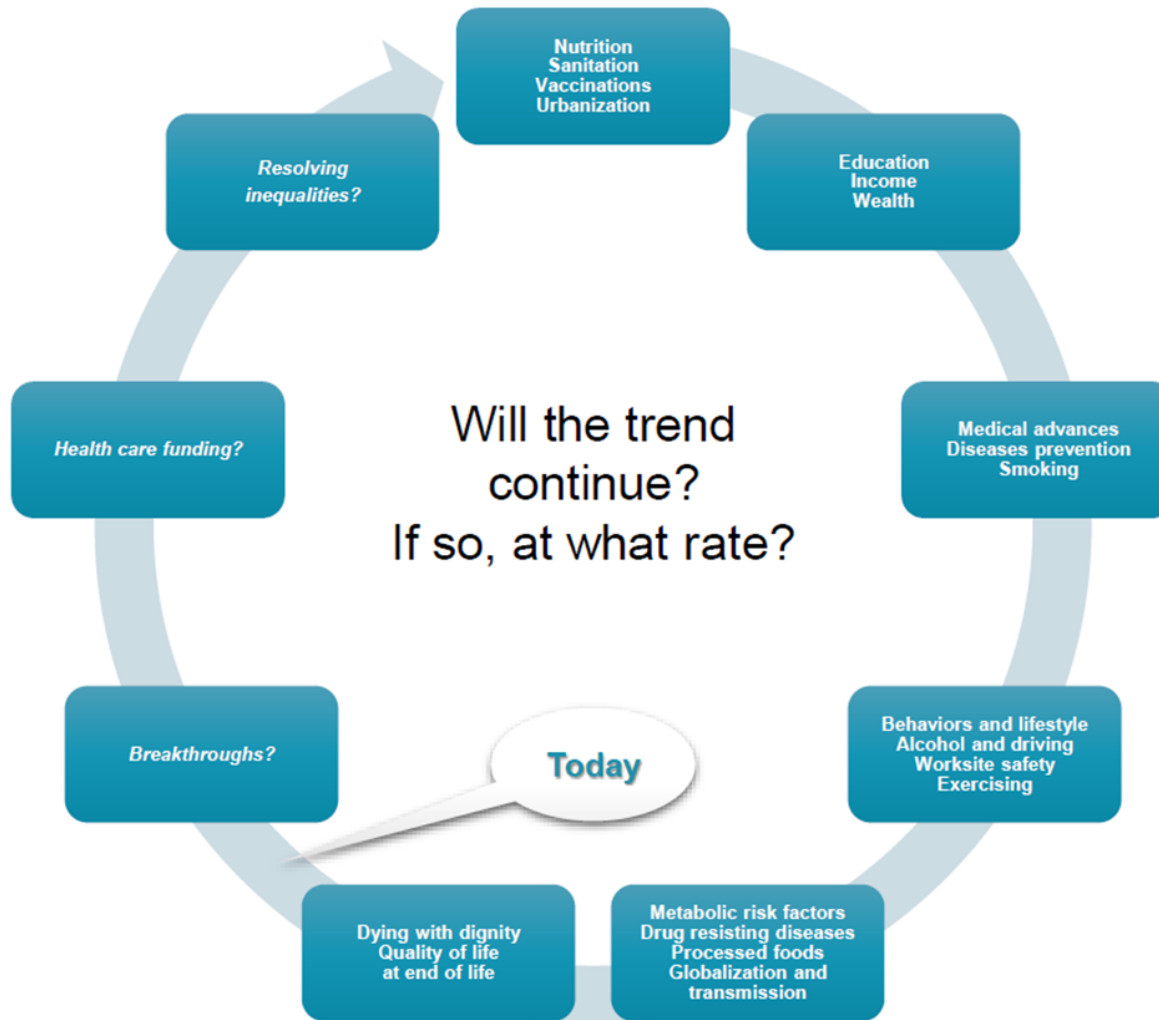
By JENNY HOPE

PUBLISHED: 22:42, 3 June 2013 | UPDATED: 00:00, 4 June 2013





# Why are we not dead yet? Life expectancy has doubled in past 150 years.



Institute  
and Faculty  
of Actuaries

# Questions

# Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.



Institute  
and Faculty  
of Actuaries