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# Critical illness: emerging trends

Aisling Kennedy & Nisha Patel  
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# Agenda

- Product evolution
- Claim causes
- Emerging trends
  - Cancer
  - Heart attack
  - Stroke
- Estimating future trends
- Future risks and uncertainties



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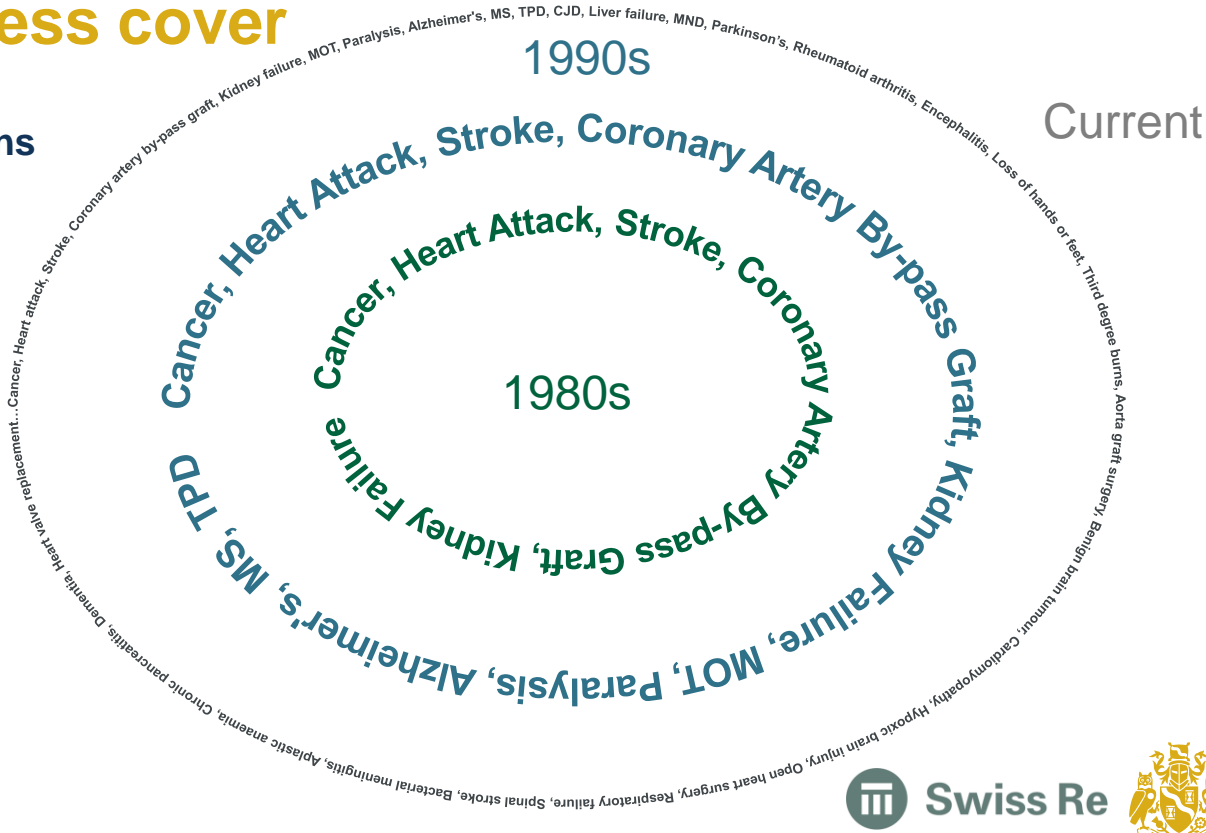
# Product evolution



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# Critical illness cover

## CI policy conditions



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# Critical illness cover

## CI product evolution

- A move from cover on a reviewable basis to **fully guaranteed** plans
- **Partial cover** for conditions which are not as severe
- **Enhanced cover** options to upgrade cover above the standard list of conditions
- **Severity-based** payments based on the severity of the condition
- Cover for **only certain conditions**
- Other “bells and whistles” – **child cover, donor cover, worldwide treatment**



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# Claim causes



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# Claim causes

## Male

Paralysis/paraplegia/quadruplegia  
MultipleSclerosis  
BenignBrainTumour  
BacterialMeningitis  
RenalFailure MajorOrganTransplant  
HeartAttack  
Cancer  
CJD Cancer-in-situ  
Coma Alzheimer's/Dementia  
Parkinsons Other  
Stroke OtherCVD  
Blindness MotorNeuroneDisease

## Female

RenalFailure  
MultipleSclerosis  
BenignBrainTumour  
Stroke Coma Cancer-in-situ  
BacterialMeningitis  
MotorNeuroneDisease  
Cancer  
Alzheimer's/Dementia  
OtherCVD Parkinsons  
MajorOrganTransplant  
Blindness  
HeartAttack Other  
Paralysis/paraplegia/quadruplegia

Source: Swiss Re Life & Health UK



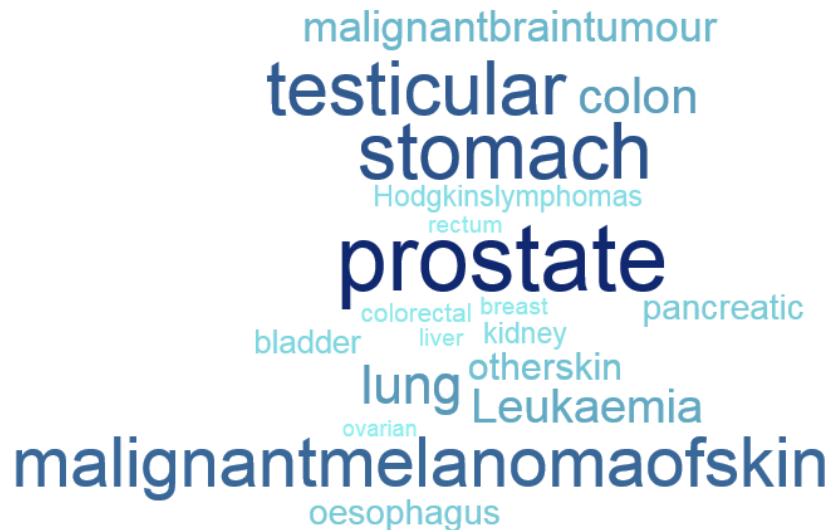
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# Cancer claim causes

## Male



## Female



Source: Swiss Re Life & Health UK



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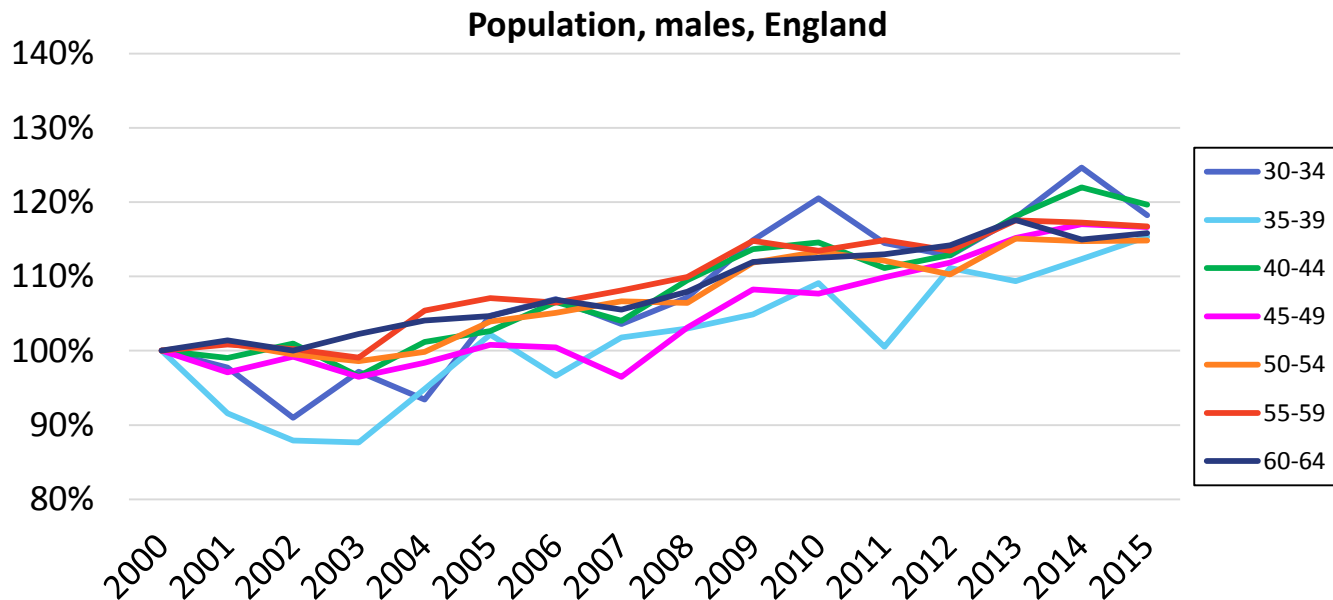


# Current trends - cancer



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# Current trends – cancer



- Significant upward trend for both males and females in an insured portfolio
- Population trend not as steep as for insured lives

Source: ONS Cancer Registration Statistics

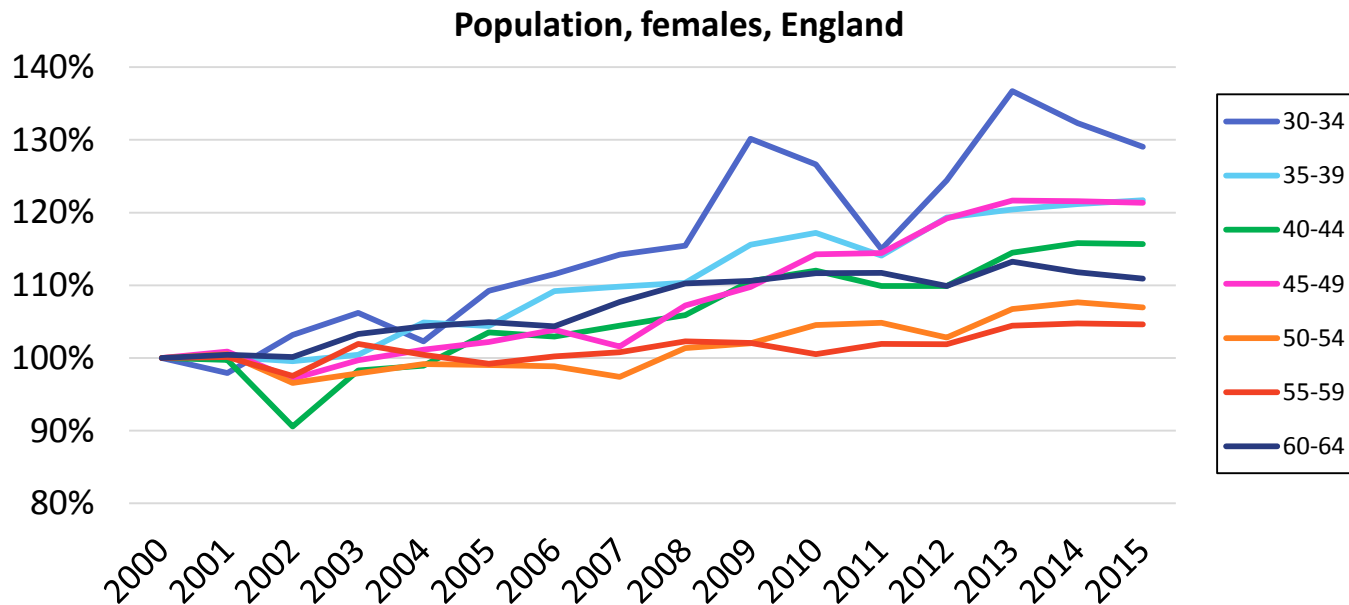


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# Current trends – cancer



- Population trend not as steep as for insured lives
- Incidence rates for women aged 30-39 in the insured portfolio have doubled since 2011
- Peak in 2009 for ages 30-34 relates to cervical cancer incidence (Jade Goody effect)

Source: ONS Cancer Registration Statistics



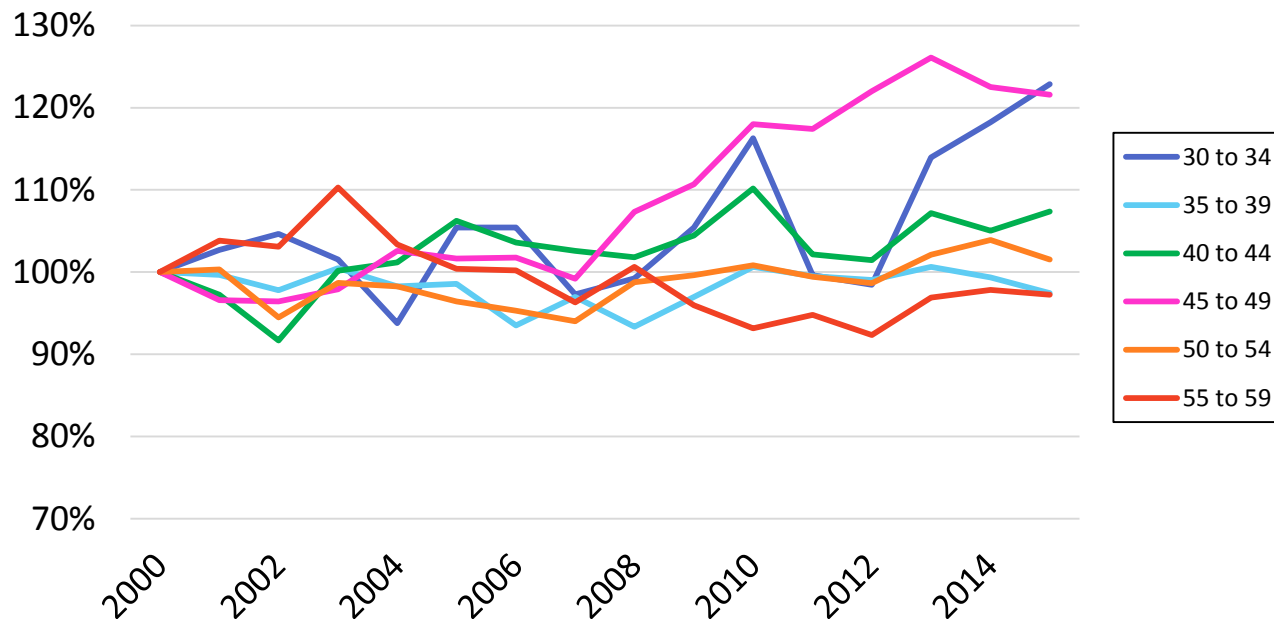
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# Current trends – invasive breast cancer

Population, females, England



- Extension of NHS screening program initiated in 2007
- Previously ages 50 – 70
- Now ages 47 – 73 for approx. 50% of women in England
- Trial will run to mid 2020s

Source: Swiss Re



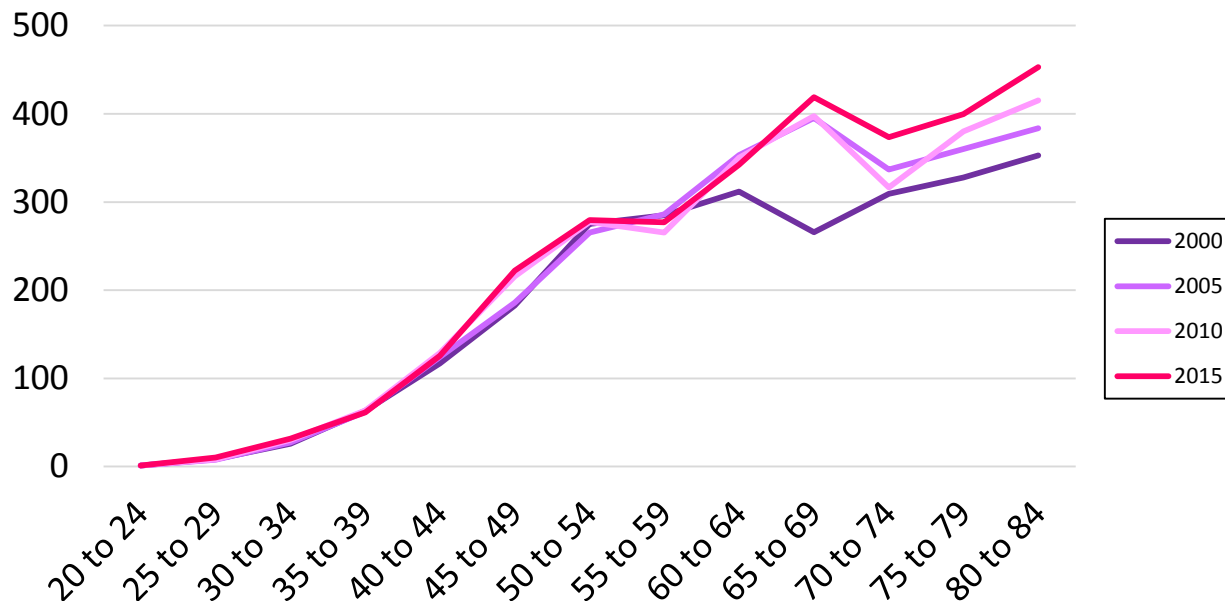
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# Current trends – invasive breast cancer

Diagnoses by age, females, England



- Screening extended to ages 65-69 in 2000
- Incidence for age 65-69 has remained high since

Source: ONS Cancer Registration Statistics

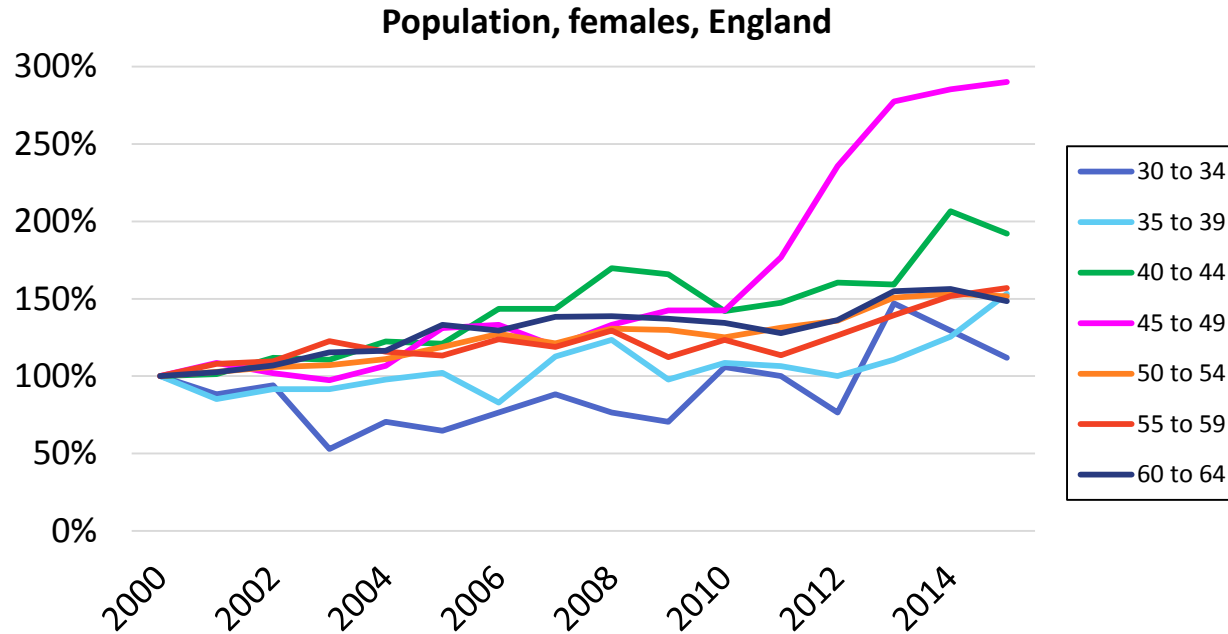


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# Current trends – carcinoma in situ (CIS) - breast



Impact of extending screening ages even more pronounced for carcinomas in situ than for invasive breast cancer

Source: ONS Cancer Registration Statistics



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# Breast cancer

- Greater public awareness of breast cancer risk and referral of higher risk lives for targeted screening
- More publically available information about breast cancer risks and publicity in the media with celebrities such as Angelina Jolie and Kylie Minogue raising awareness of their own conditions and experiences
- Asymmetry of information between the population and insurance providers



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Source: [breastcancernow.org](http://breastcancernow.org)



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# Breast cancer

## Policy application

- “Have any of **your natural parents, brothers or sisters**, before the age of 60, been diagnosed or died from any of the following illnesses:
  - Heart attack, angina or stroke?
  - Cancer of the breast, ovary or colon?
  - Diabetes?
  - Any other disorder which runs in your family for which you are receiving regular follow-up?”

## NHS guidelines on breast cancer risk type

- Take account of first degree relatives **and** second and third degree relatives
- Mothers, sisters, aunts, cousins, grandparents
- Cancer of family members before ages 40, 50 and 60 should be considered

Source: <http://www.cancerresearchuk.org/about-cancer/breast-cancer/risks-causes/risk-factors>



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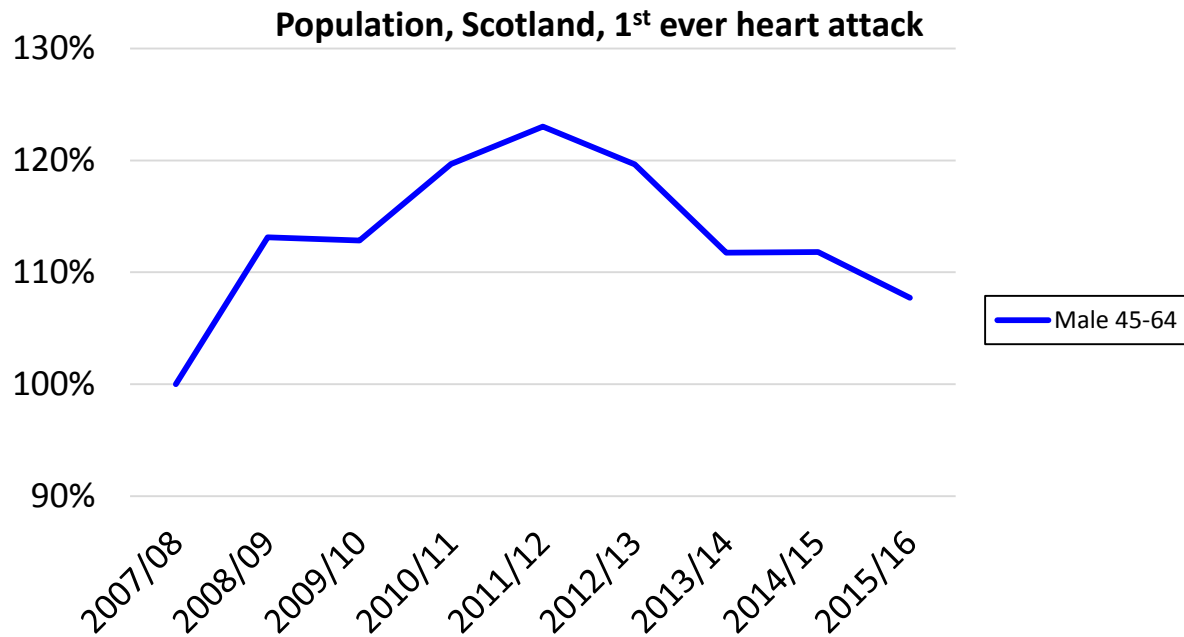


# Current trends – heart attack



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# Current trends – heart attack



- Only Scotland publishes data for “first ever” heart attack - more comparable to CI data
- Trend not as strong as for insured population
- Female incidence of heart attack is relatively small compared to males
- Peak for males in 2012
- Changes in diagnostic tests in 2011

Source: Information Services Division Scotland



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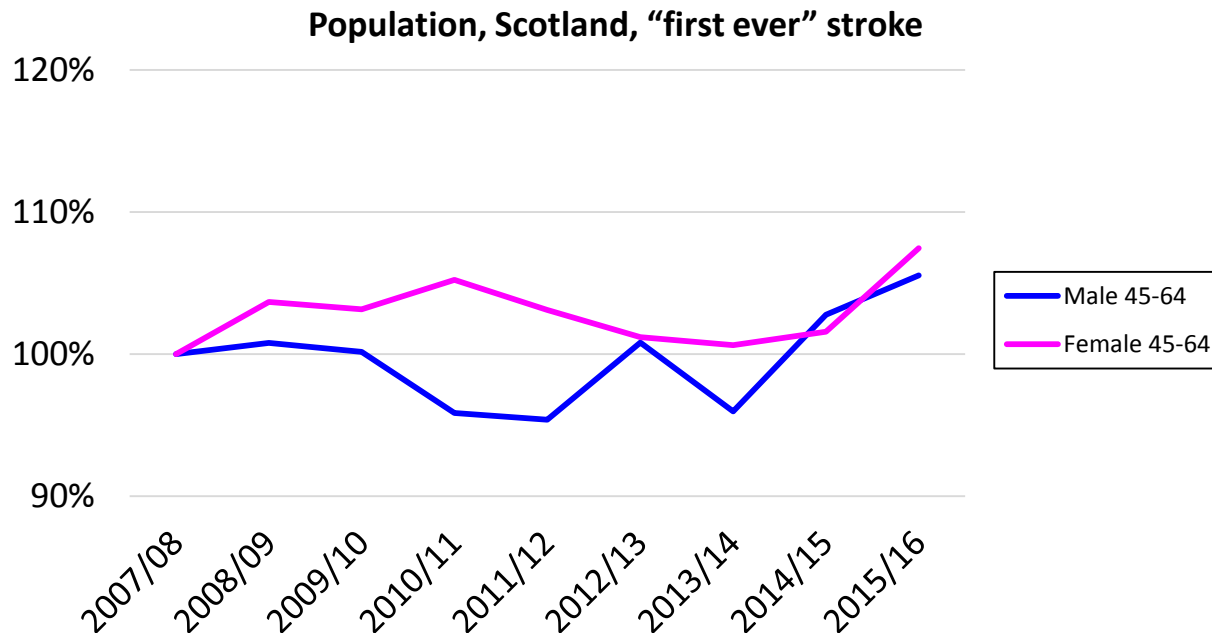
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# Current trends – stroke



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# Current trends – stroke



- Increase in incidence for both males and females
- Better imaging using MRI scans
- Greater public awareness of stroke signs and symptoms

Source: Information Services Division Scotland



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# Estimating future trends



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# Estimating future trends

## Key drivers

### Decrease

- Vaccinations
- Improved treatment at early stages

### Decrease/Increase

- Lifestyle
- Changes in medical or policy definitions
- Medical advances
- Cancer screening programmes

### Increase

- Increased awareness of conditions and risk factors



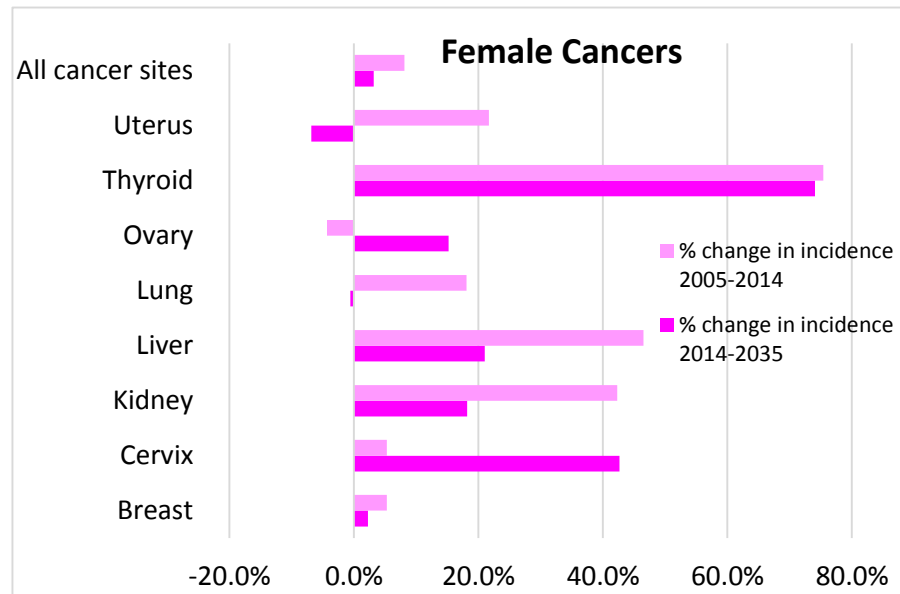
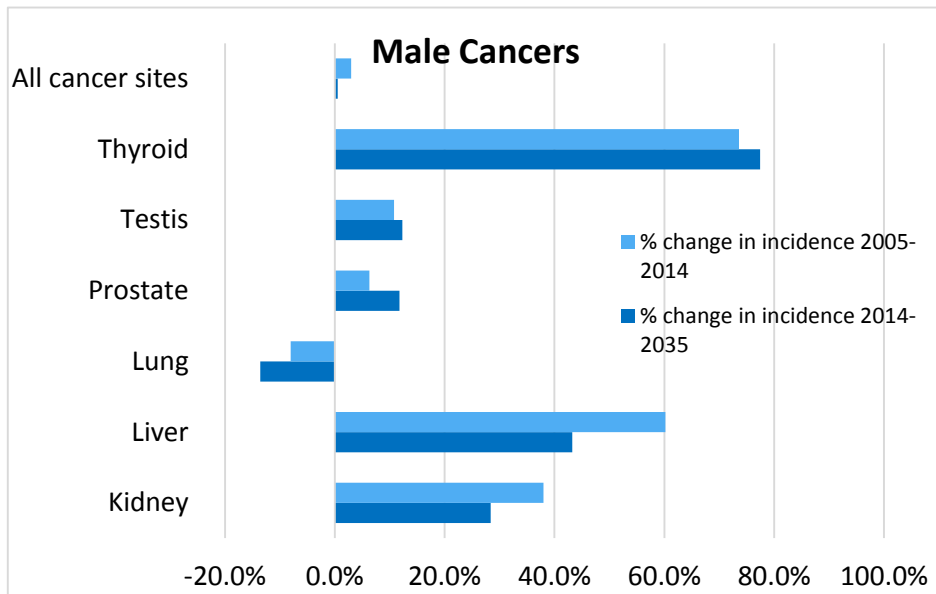
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# Estimating future trends

## Expert help



Source: Cancer Research UK



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# Estimating future trends

## Global internal and external medical professionals

What will happen to cancer diagnosis rates in the next 20 years?

Diagnosis rates in 2035 as % of diagnosis rates now								
	Lung	Breast	Colorectal	Prostate	Brain	Leukaemia	Skin	Pancreatic
Expert 1	↓	↓↑	↓↑	↓↑	Questionnaire not answered			
Expert 2	↔	↔	↓	↓↑	↔	↓	↔	↔
Expert 3	M ↓ F ↑	Invasive ↓ In-situ ↑	↓	Questionnaire not answered	↔	↔	↑	Questionnaire not answered
Expert 4	↓	↑	↑	↑	↑	↓	↑	↑
Expert 5	↑	↑	↑	Questionnaire not answered				

Increase ↑  
Decrease ↓  
No change ↔

Source: Swiss Re Life & Health UK



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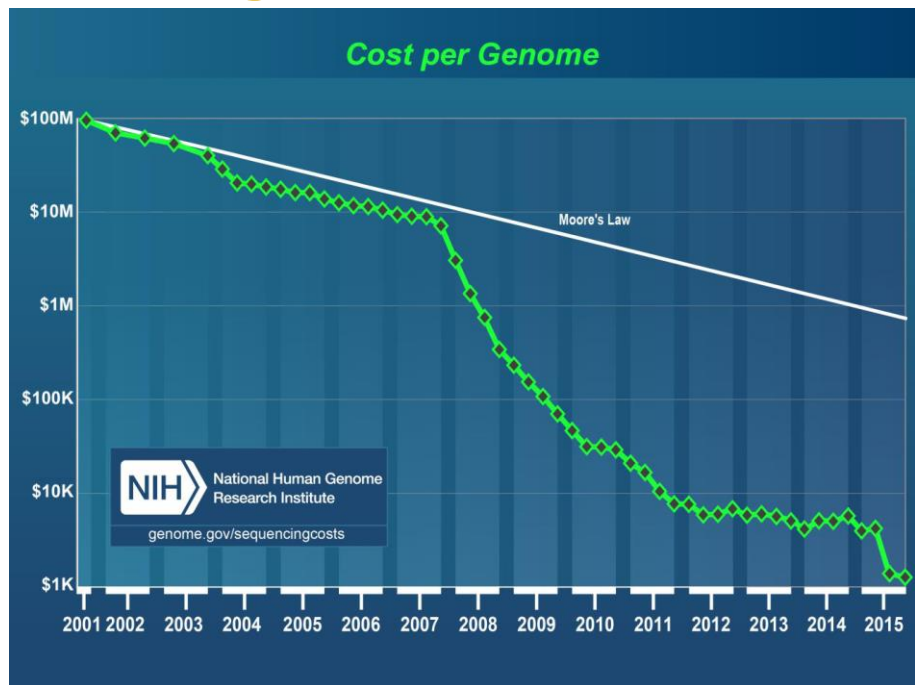


# Future risks and uncertainties



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# Genetic testing



Source: National Human Genome Research Institute

[https://www.genome.gov/images/content/costpergenome2015\\_4.jpg](https://www.genome.gov/images/content/costpergenome2015_4.jpg)



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# Cancer

- Screening
- Diagnostics e.g.
  - Liquid biopsies
  - Breath biopsies
  - Bra with sensors that can detect breast cancer
  - Temperature test for skin cancer (2017 Dyson award winner)
- Immunotherapy
- Epigenetics



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# Medical advances

- Diagnostic e.g.:
  - Imaging
  - Chromosome conformation signatures (CCS)
  - Heart attack diagnosis: more sensitive testing - cardiac myosin-binding protein C (cMyC)
- Treatment e.g.:
  - Stem cell treatment
  - Gene editing
  - LIFNano
  - Artificial organs



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# Too much medicine?



*"Clinical practice requires the establishment of agreed cut off points to identify disease and to separate people for whom treatment should be beneficial from other patients for whom the risks of diagnosis or treatment might outweigh the benefits."*

*Over time, the tendency has been to expand diagnostic and treatment boundaries, and to include in the "disease" category people with milder manifestations of pathology and lower levels of risk."*

David Melzer, Ron Zimmern

BMJ: "Too much medicine" issue- 2002

<http://www.bmj.com/content/350/bmj.h869>



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# Conclusions

- Diagnosis / incidence rates have increased materially
- Stronger trend in insured population
- Significant uncertainties in estimating future trends
- Many new diagnostic advances on the way
- Good news for both health and life expectancy (although potential for “over diagnosis”)
- Caution required with critical illness product design and pricing



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# Questions

# Comments

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