

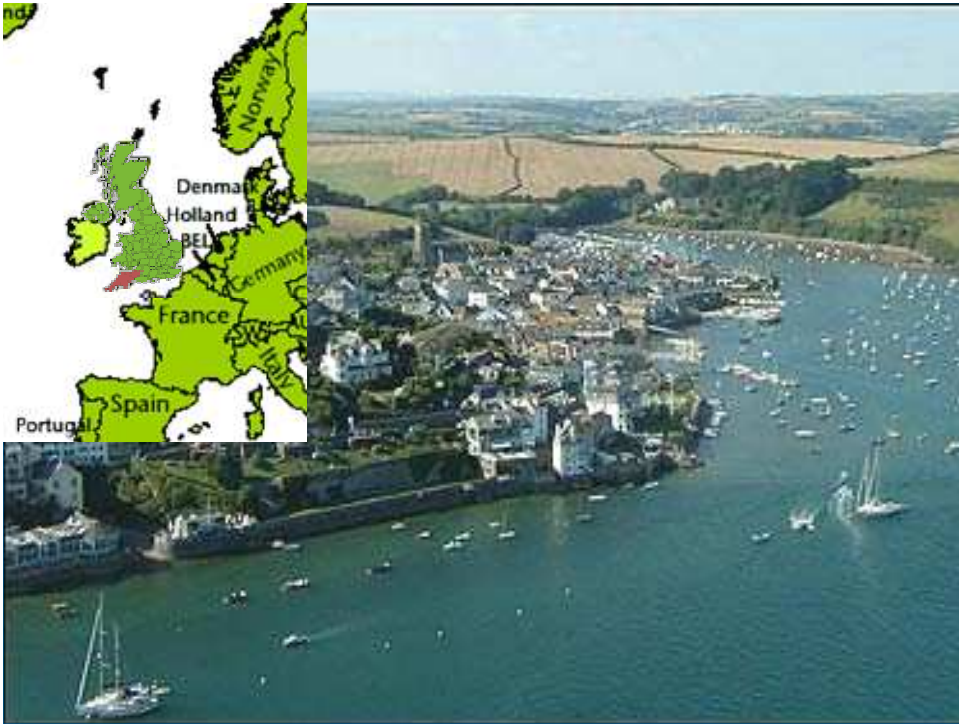
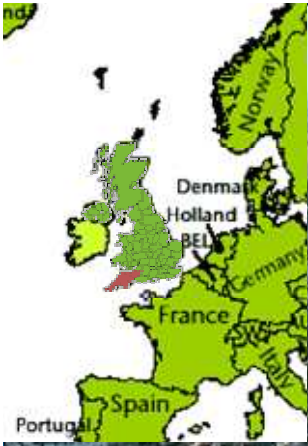
# English baby boomers nearing retirement: the healthiest generation?

Neil Rice

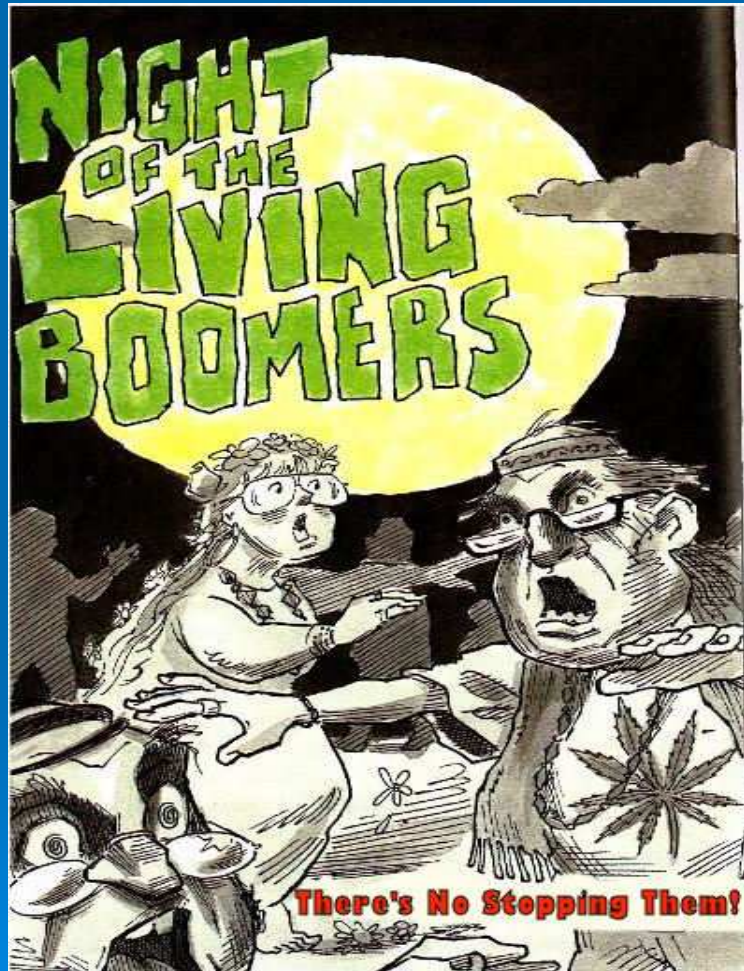
Epidemiology & Public Health Group, Peninsula Medical School,  
Universities of Exeter and Plymouth, UK



**PENINSULA**  
— MEDICAL SCHOOL —  
UNIVERSITIES OF EXETER & PLYMOUTH



# Talk Outline

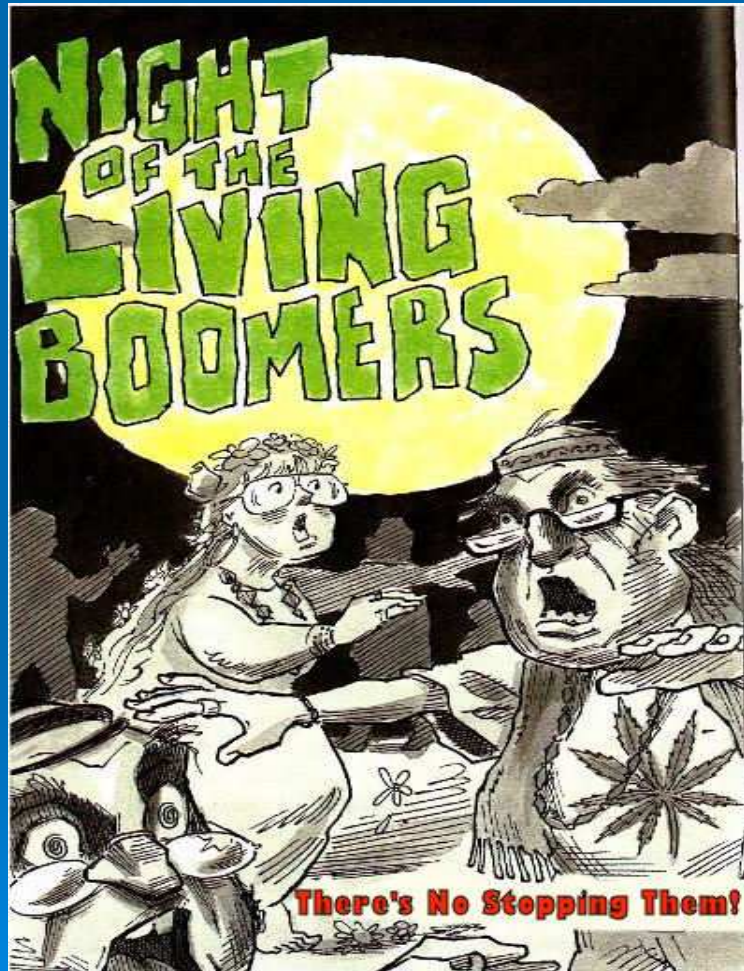


Who are the English “baby boomers”?

What’s the big deal?

Are the baby boomers different?

# Talk Outline

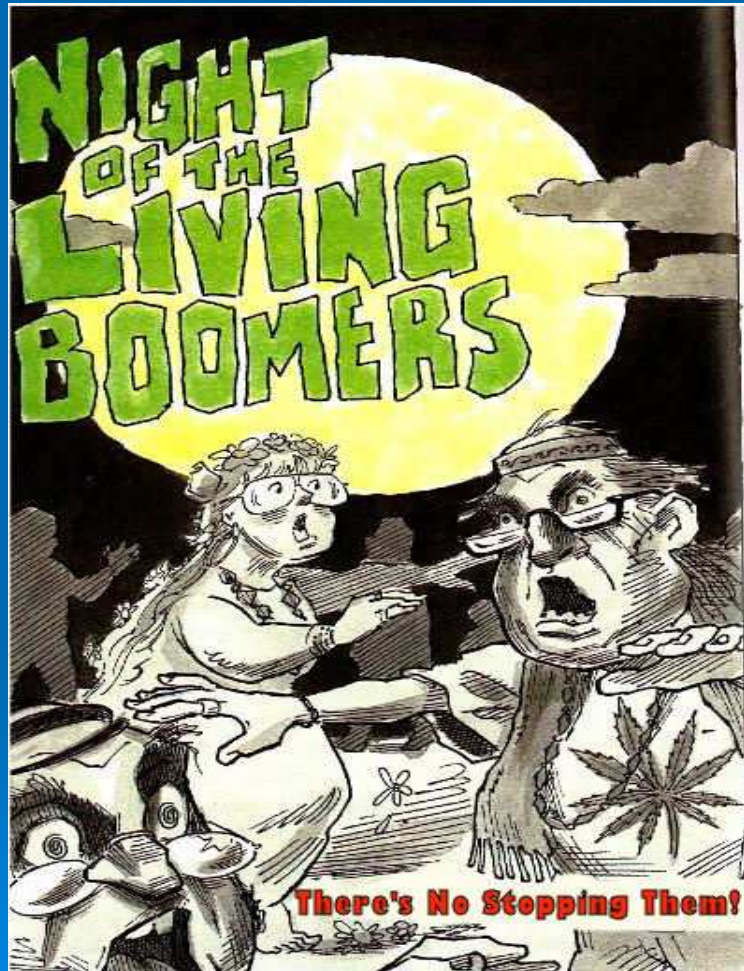


Who are the English “baby boomers”?

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# Talk Outline



Who are the English “baby boomers”?

**Definition:** A sharp increase in the birth rate of a population, esp the one that occurred after World War II. *Collins English Dictionary*

**i.e. people born between 1945-54**

# Baby boomer's perceived advantages

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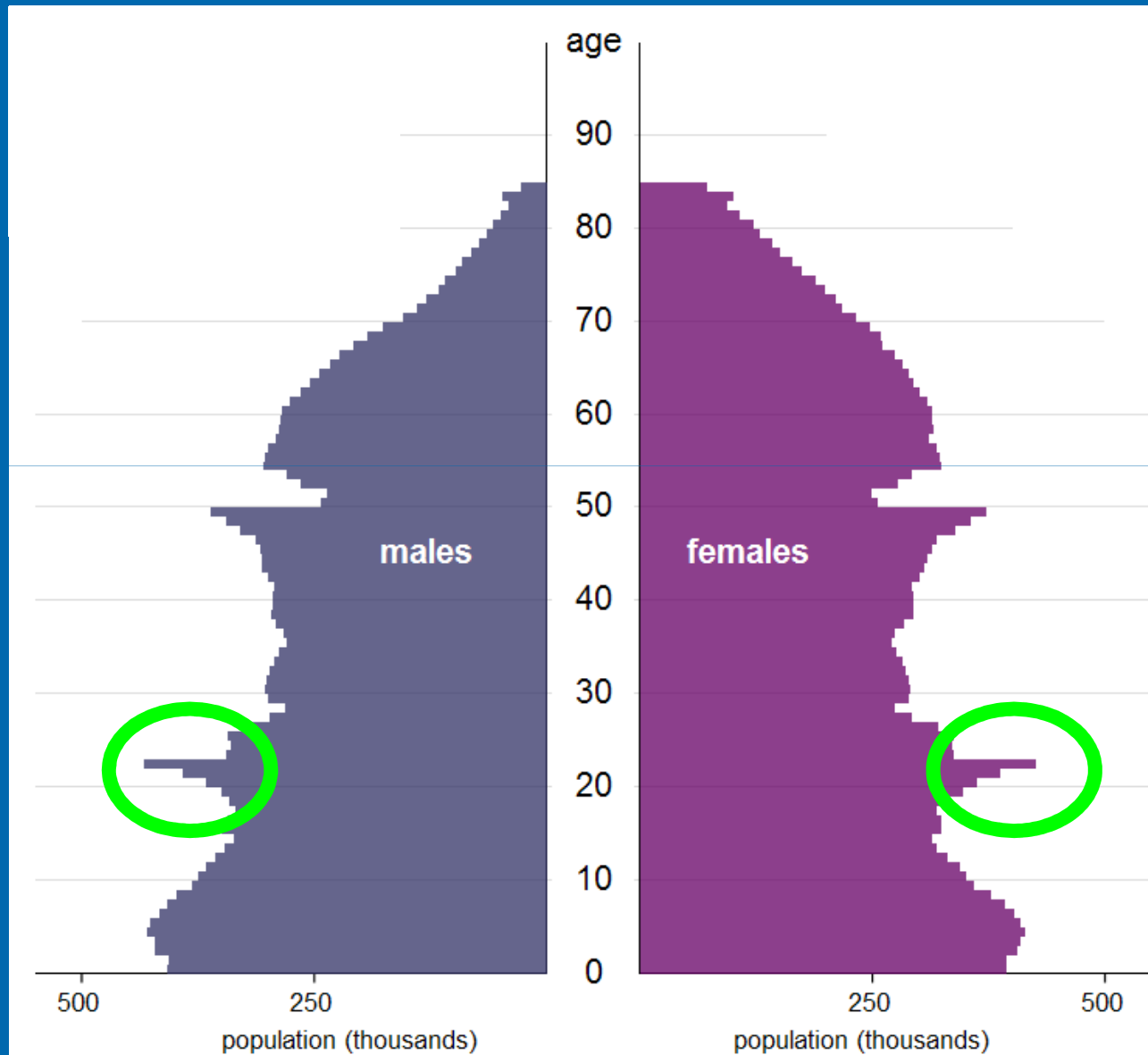


**“Let us be frank about it: most of our people have never had it so good.”**

*Harold MacMillan, Prime Minister 1957-1963*

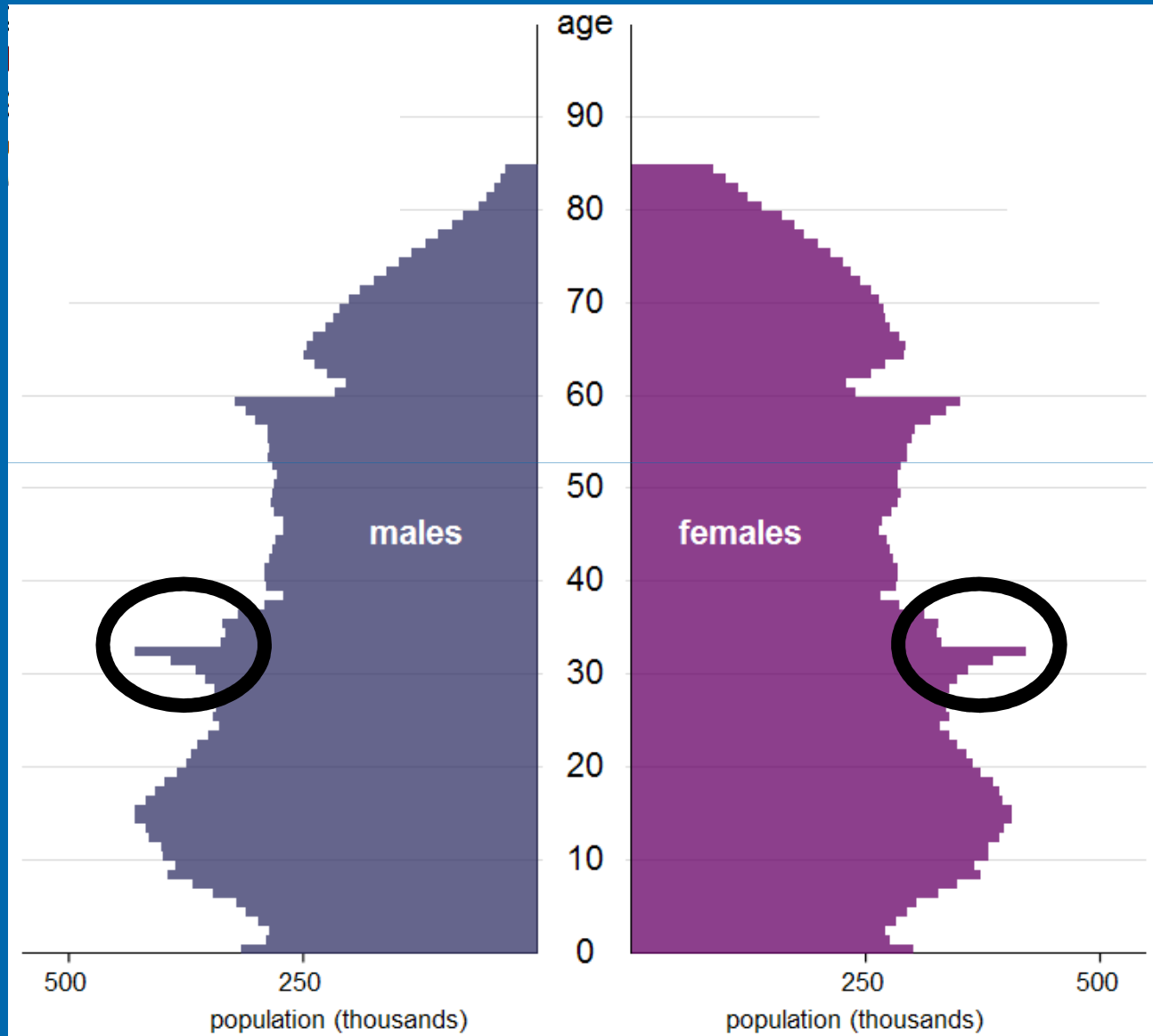
- **Better healthcare under the National Health Service**
  - **Improved education**
  - **Better post-war nutrition**
  - **More financial and social freedom**
  - **Relative economic stability and prosperity**
  - **etc**
-

# UK Population Pyramid 1970



Source - ONS

# UK Population Pyramid 1980





# UK Population Pyramid 1990



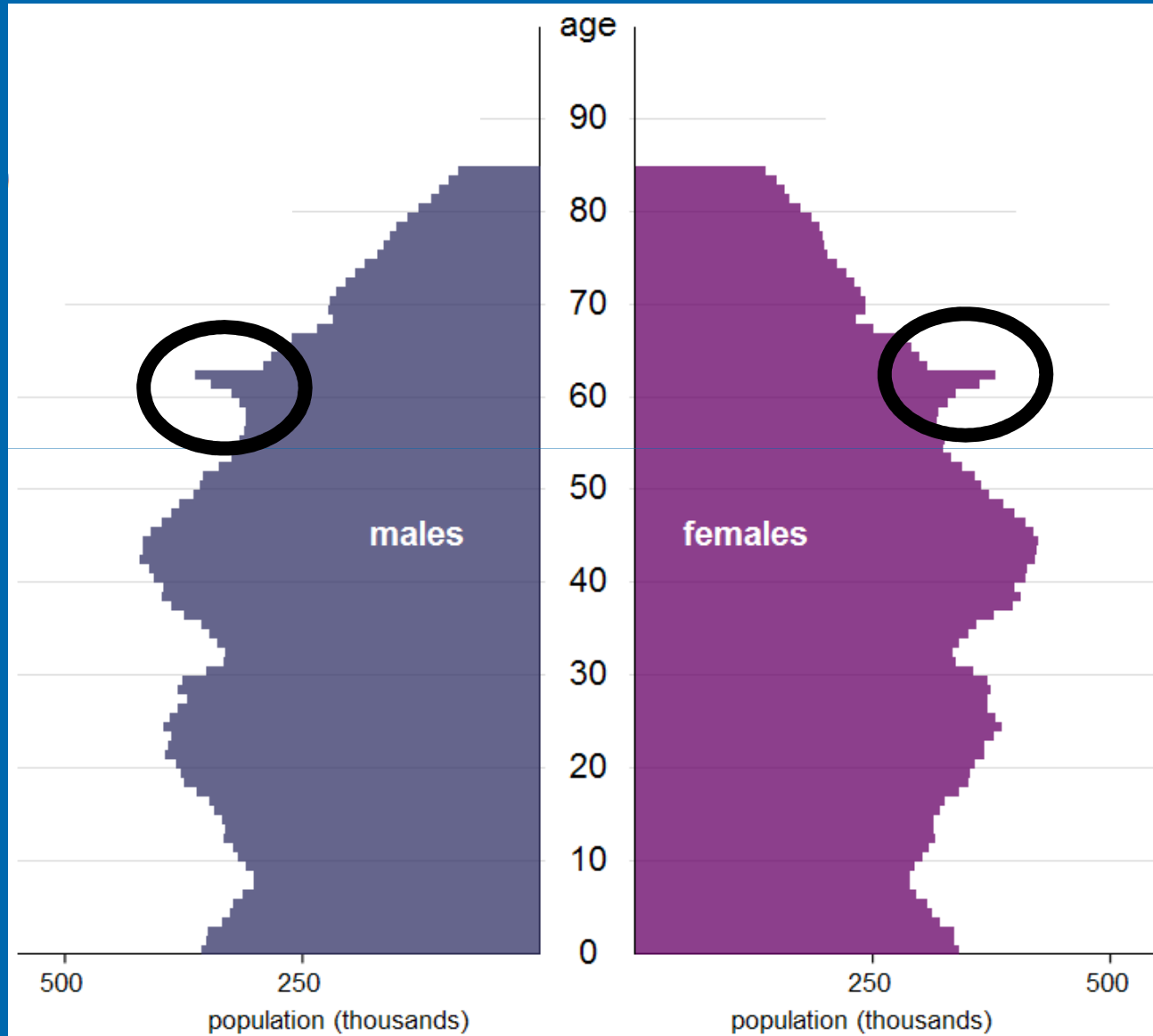
Source - ONS

# UK Population Pyramid 2000



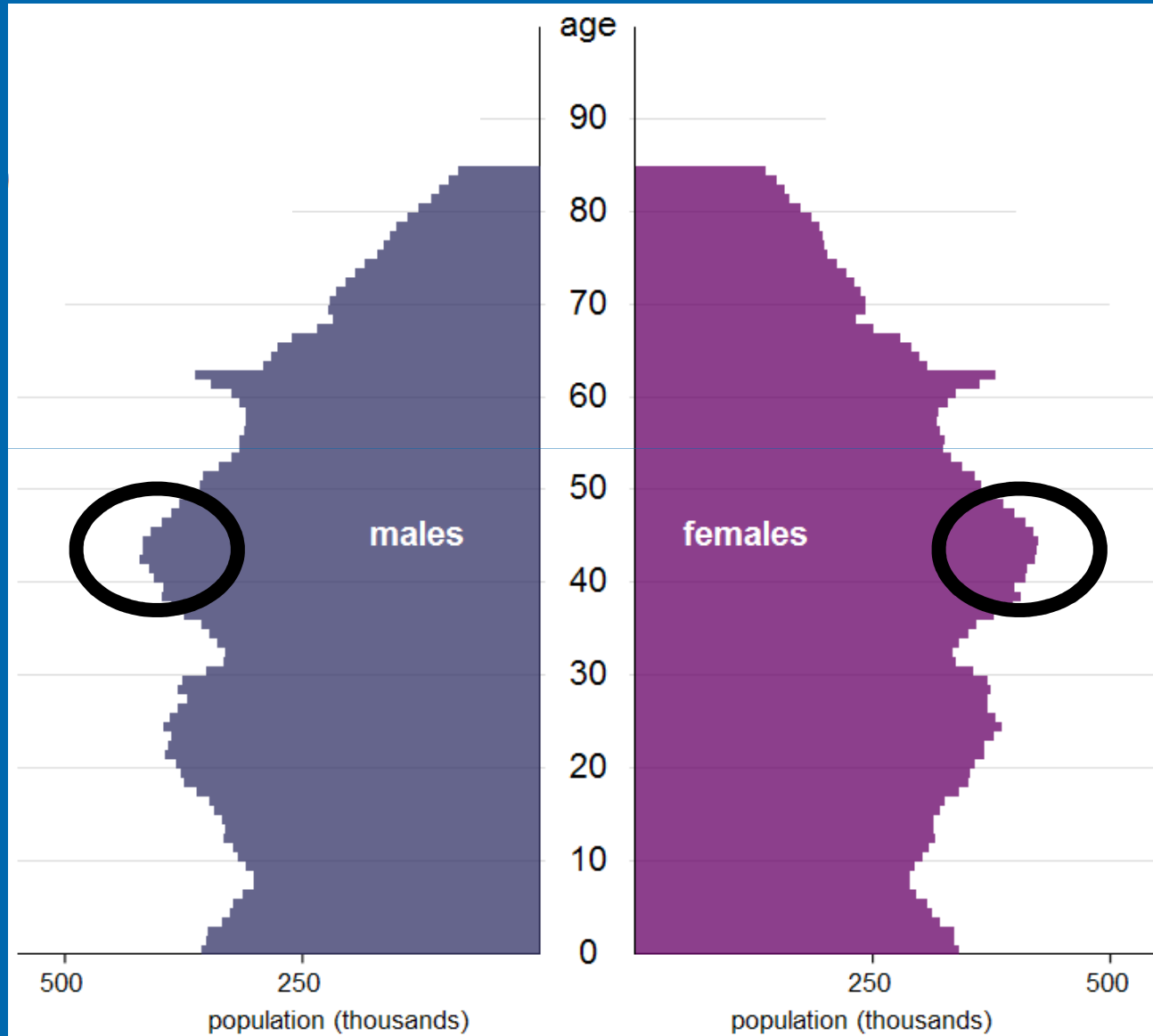
Source - ONS

# UK Population Pyramid 2010



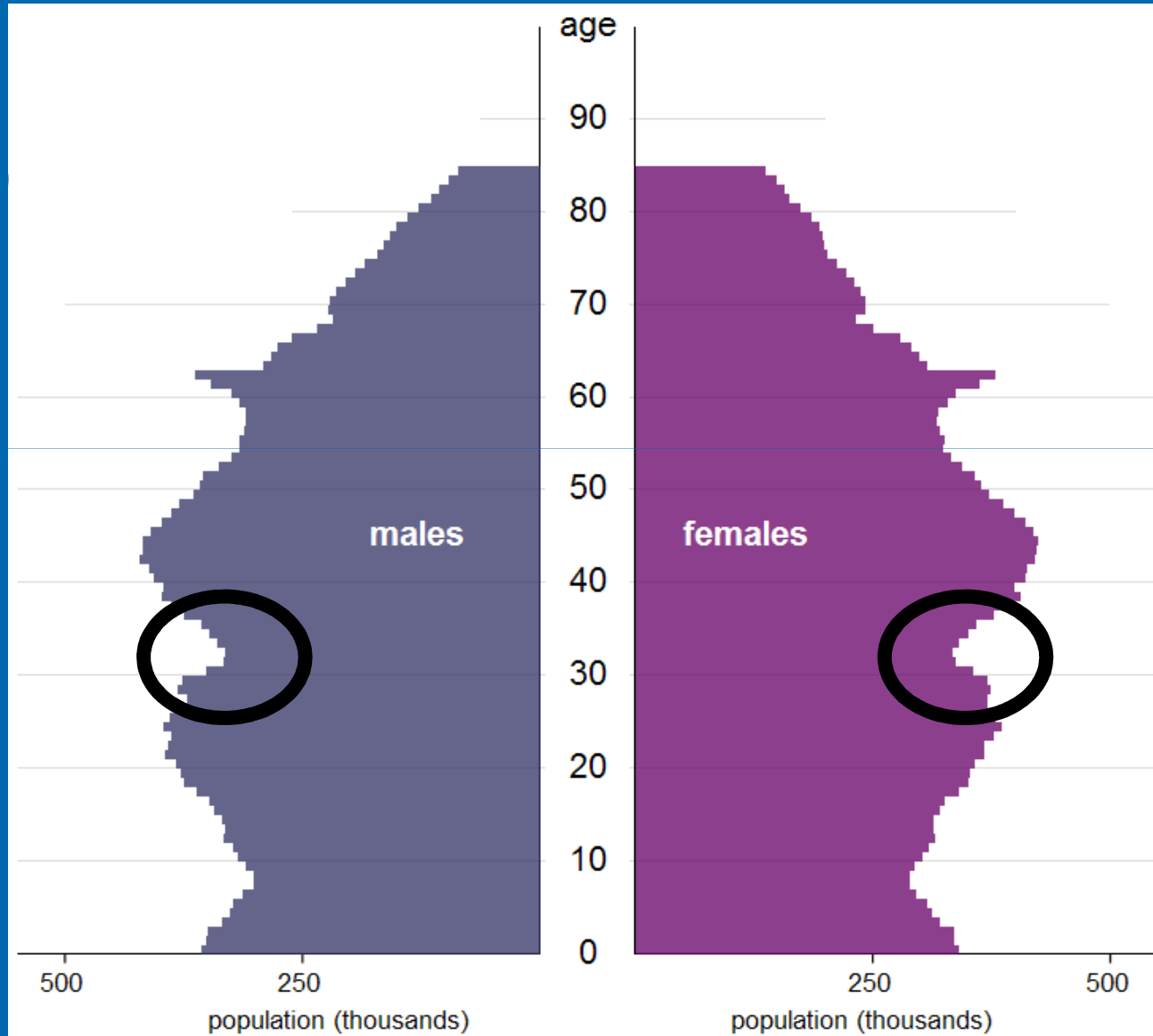
Source - ONS

# UK Population Pyramid 2010



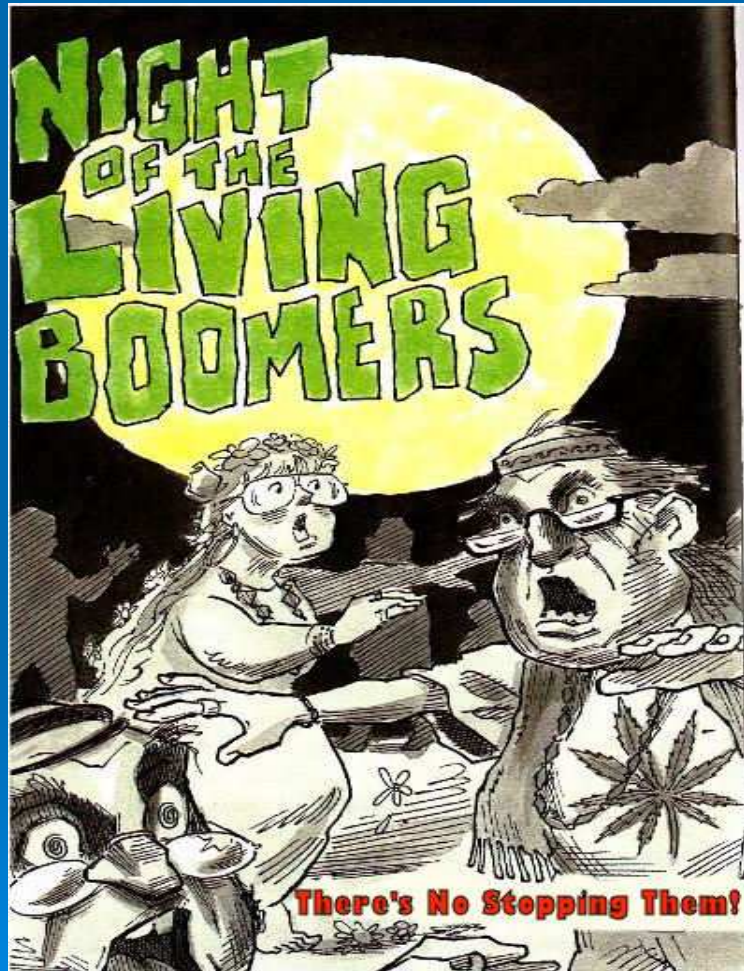
Source - ONS

# UK Population Pyramid 2010



Source - ONS

# Talk Outline



Who are the “baby boomers”?

What’s the big deal?

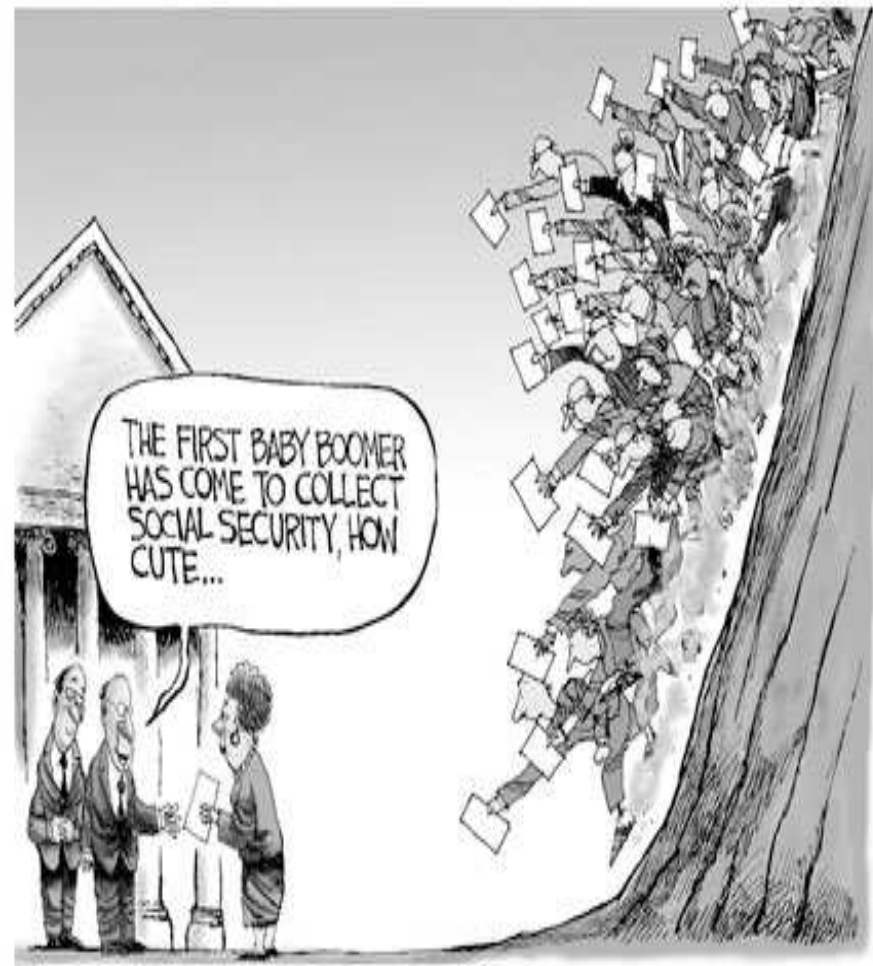
Are the baby boomers different?

# What's the big deal?



**Increasing fiscal burden in western societies**

# What's the big deal?

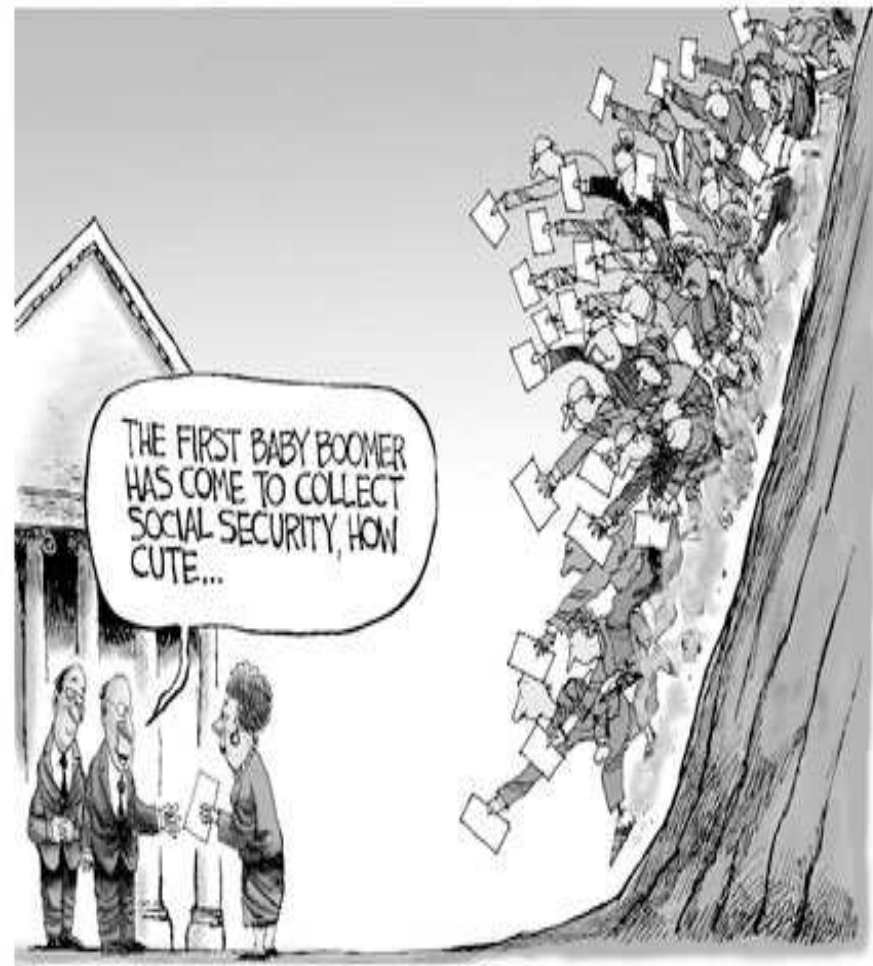


Increasing fiscal burden in western societies

**Governments encouraging older workers to remain in employment for longer**



# What's the big deal?

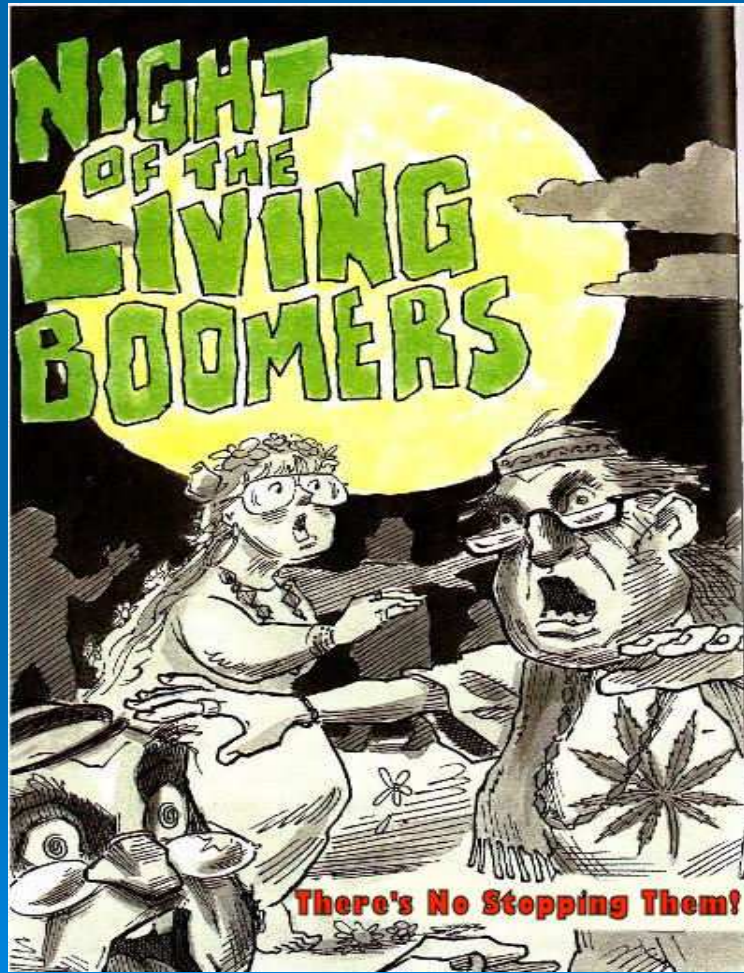


Increasing fiscal burden in western societies

Governments encouraging older workers to remain in employment for longer

**Little known about health status and risks for current “baby boom” generation.**

# Talk Outline



Who are the “baby boomers”?

What’s the big deal?

Are the baby boomers different?

# Previous Research

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## US:

- **obesity** ↑
  - **disability / difficulty with everyday tasks** ↑
  - **days spent in poor physical / mental health** ↑
  - **pain** ↑
  - **number of chronic conditions** ↑
  - **psychiatric problems** ↑
  - **hospital admittance for strokes and CHD** ↑
  - *Refs: Linda Martin, Vicki Freedman, Beth Soldo, David Weir etc.*
-

# Previous Research

---

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- *Refs: Linda Martin, Vicki Freedman, Beth Soldo, David Weir etc.*

## Canada:

- **Chronic disease burden** ↑
  - **Number of doctor visits** ↑
  - *ref: Wister et al. University of Toronto, 2005*
-

# Previous Research

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## Europe:

- **Austria: Cholesterol and blood pressure ↓  
Glucose ↑**

*Ref: (Ulmer et al, J Intern Med 2007)*

- **Netherlands: Risk of fatal CVD ↓**

*Ref: (Bonneux et al, Eur J Public Health 2003)*

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# Methods

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**Data from the Health Survey for England (HSE) 1994 - 2007:  
Annual cross-sectional survey of community dwelling  
individuals in England.**

**N= ~18000 per annum.**

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# Methods - Data

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Data from the Health Survey for England (HSE) 1994 - 2007:  
Annual cross-sectional survey of community dwelling  
individuals in England.

N= ~18000 per annum.

## **Interview:**

**self-reported health conditions & socio-economics  
measured height and weight**

## **Nurse visit:**

**bloods taken and blood pressure recorded.**

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# Methods – Analytical Approach

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**All comparable variables at each HSE survey.**

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# Methods – Analytical Approach

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All comparable variables at each HSE survey.

## **Stage 1:**

**Linear and logistic regression models:**

- **baby boomers at age 50-61 years (born 1946-1955)**
  - **wartime predecessors at age 50-61 years (born 1936-1945).**
-

# Methods – Analytical Approach

---

All comparable variables at each HSE survey.

## Stage 1:

Linear and logistic regression models:

- baby boomers at age 50-61 years (born 1946-1955)
- wartime predecessors at age 50-61 years (born 1936-1945).

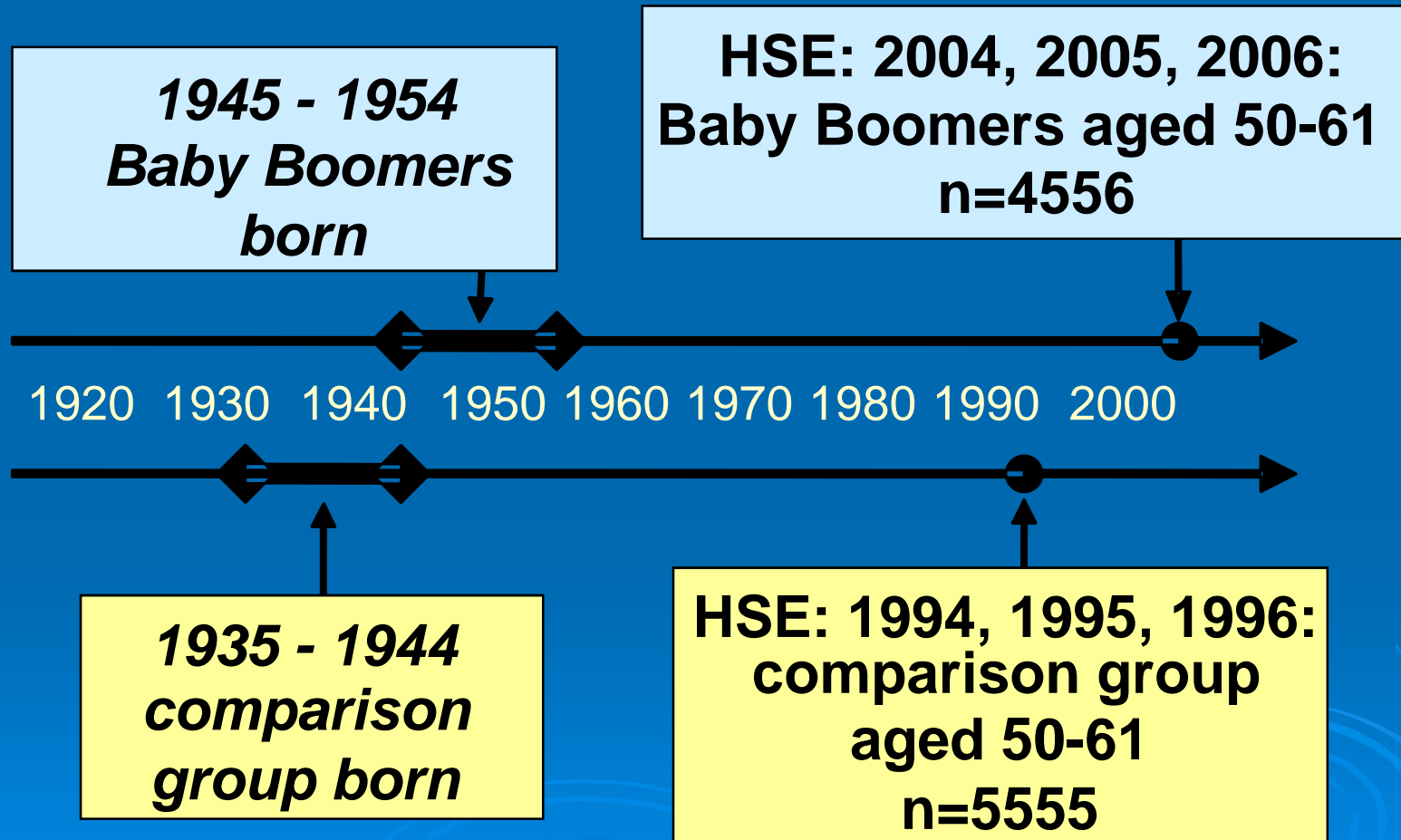
## Stage 2:

Age, period, cohort (APC) models to attribute differences to period or cohort effects.

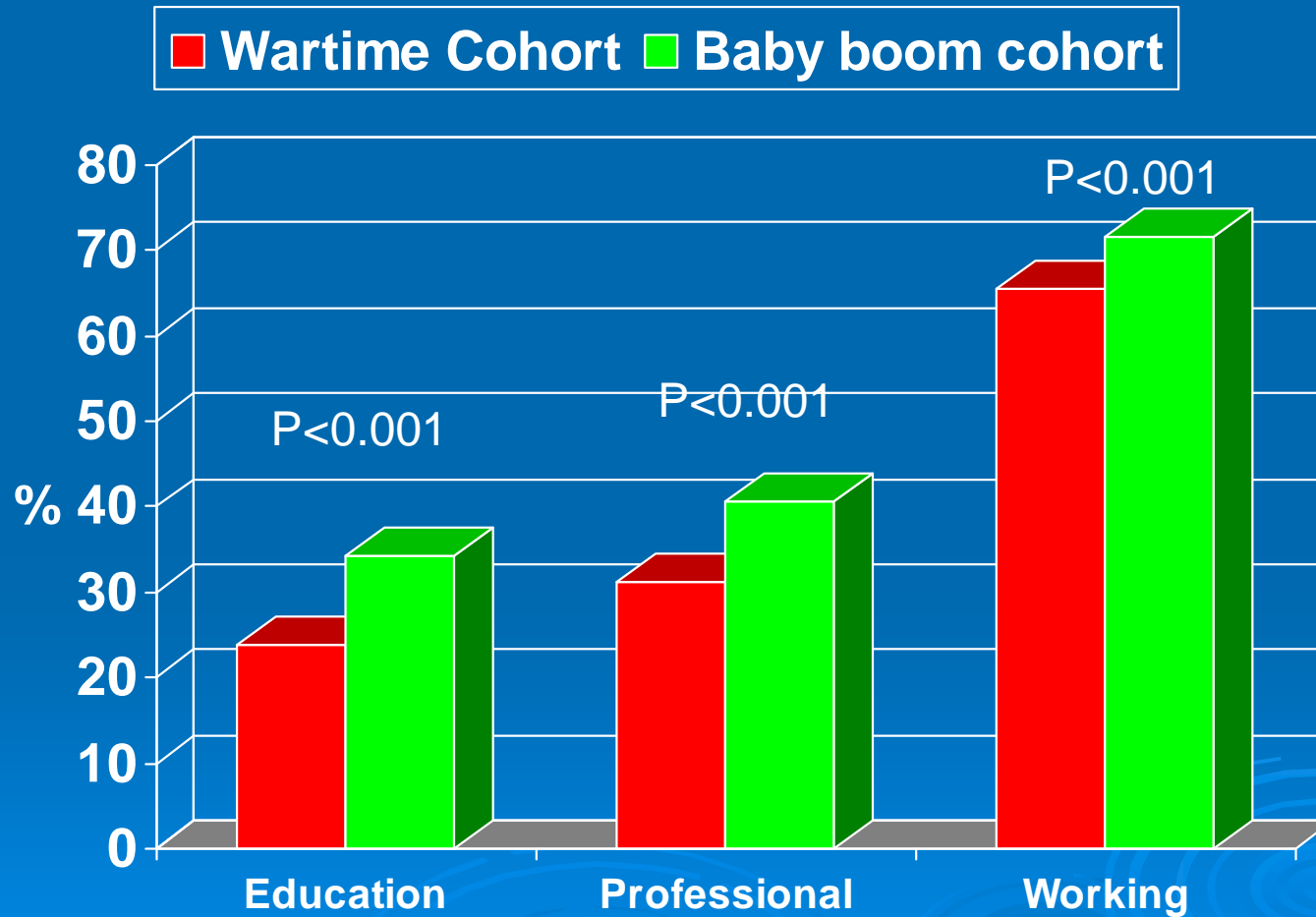
(ref Yang & Land. Sociolog Methods Res. 2008)

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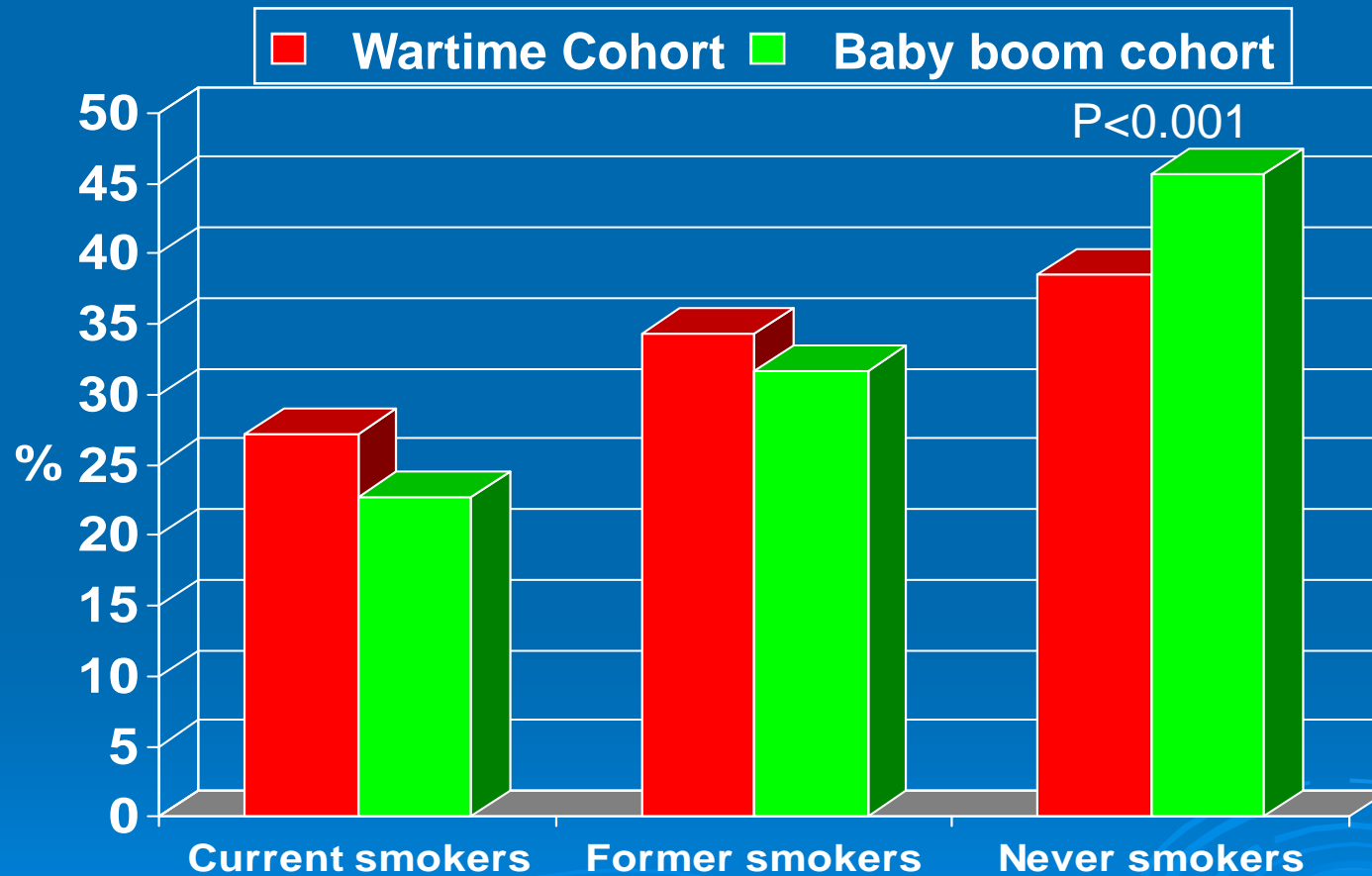
# Stage 1: Methods



# How do the two groups compare? Socio-economic differences



# How do the two groups compare? Smoking Status



# How do the two groups compare?

## Measured differences

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		Wartime Cohort	Baby Boomers
<b>Weight (kg)</b>	<b>Men</b>	<b>83.1</b>	<b>87.4 **</b>
	<b>Women</b>	<b>70.5</b>	<b>72.4 **</b>
<b>Height (cm)</b>	<b>Men</b>	<b>174.1</b>	<b>174.8 **</b>
	<b>Women</b>	<b>160.4</b>	<b>161.3 **</b>
<b>Obesity, Men</b>			
	<b>BMI 30-34.9</b>	<b>15.9%</b>	<b>22.0% **</b>
	<b>BMI 35+</b>	<b>3.1%</b>	<b>7.6% **</b>
<b>Obesity, Women</b>			
	<b>BMI 30-34.9</b>	<b>16.3%</b>	<b>18.1% **</b>
	<b>BMI 35+</b>	<b>8.3%</b>	<b>10.9% **</b>

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# How do the two groups compare?

## Measured differences

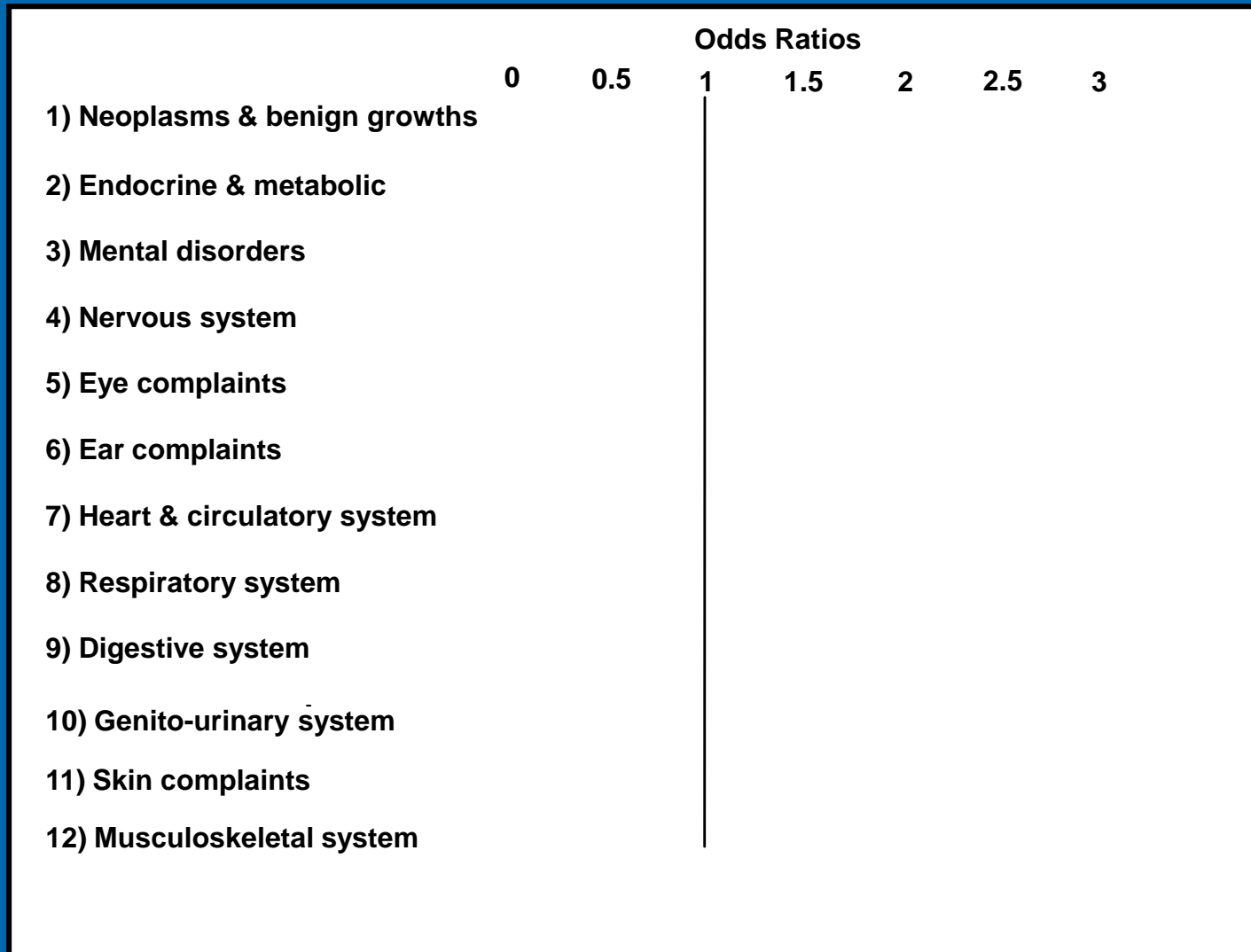
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		Wartime Cohort	Baby Boomers
<b>Long-standing illnesses</b>	<b>Men</b>	<b>50.9%</b>	<b>51.9%</b>
	<b>Women</b>	<b>50.9%</b>	<b>55.3% **</b>
<b>Self-rated health 'bad'/'very bad'</b>	<b>Men</b>	<b>8.4%</b>	<b>9.4%</b>
	<b>Women</b>	<b>7.5%</b>	<b>8.3%</b>
<b>Diagnosed hypertension/ high blood pressure</b>		<b>11.2%</b>	<b>16.4% **</b>
<b>Blood Pressure</b>	<b>Systolic (mm Hg)</b>	<b>139.6</b>	<b>132.8 **</b>
	<b>Diastolic (mm Hg)</b>	<b>79.1</b>	<b>74.6 **</b>

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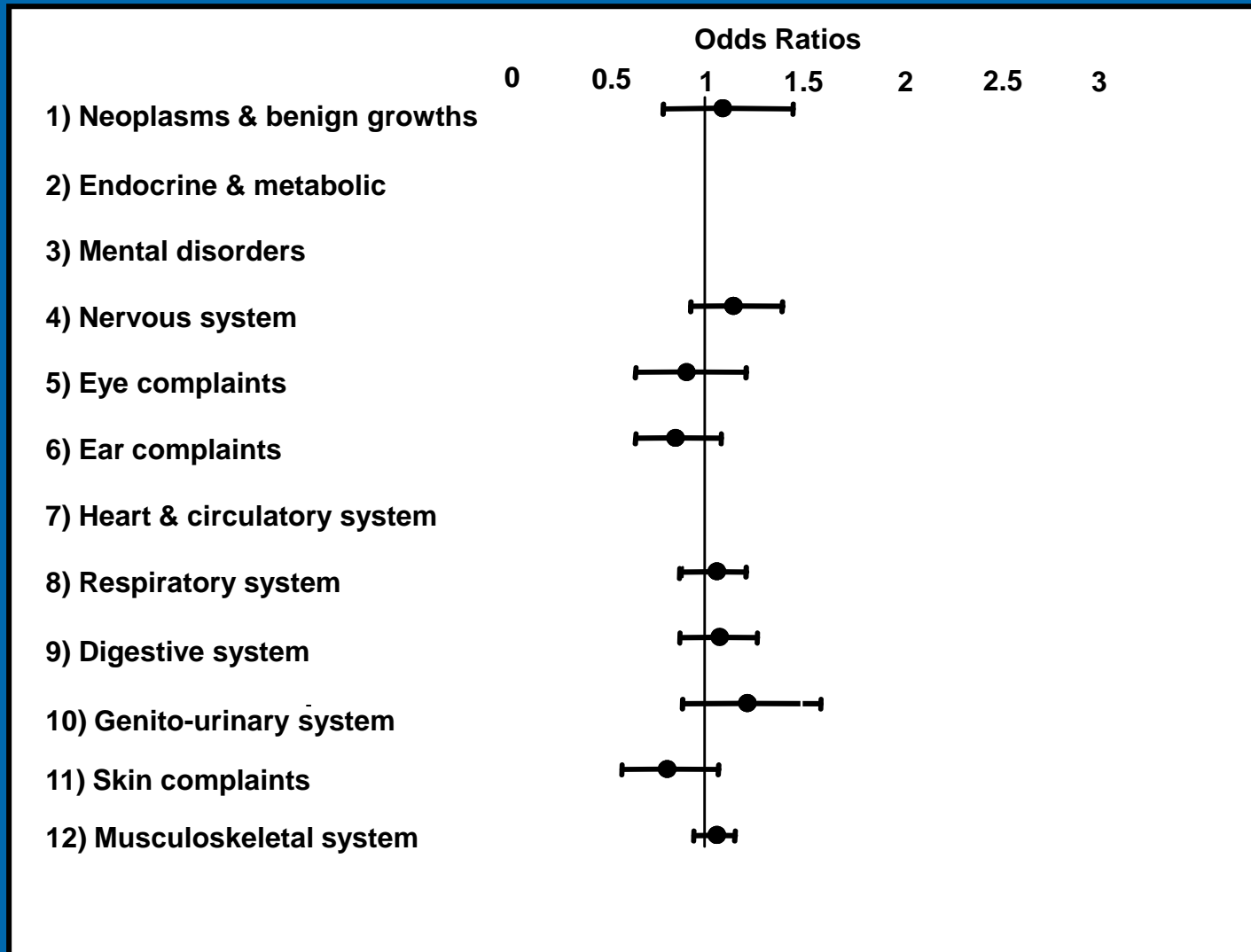
# How do the two groups compare?

## Reported Conditions by ICD-10 Chapter



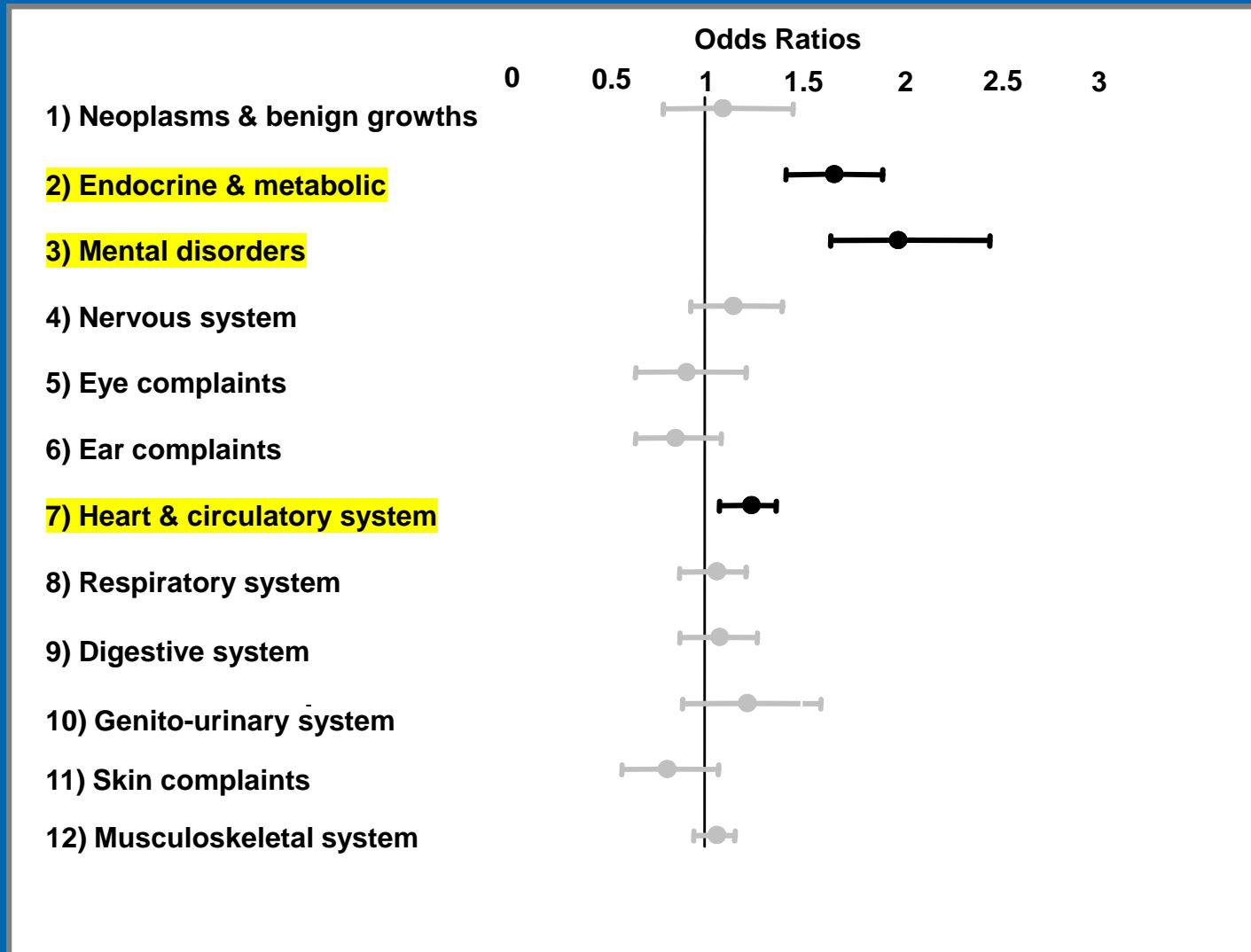


# How do the two groups compare? Reported Conditions by ICD-10 Chapter



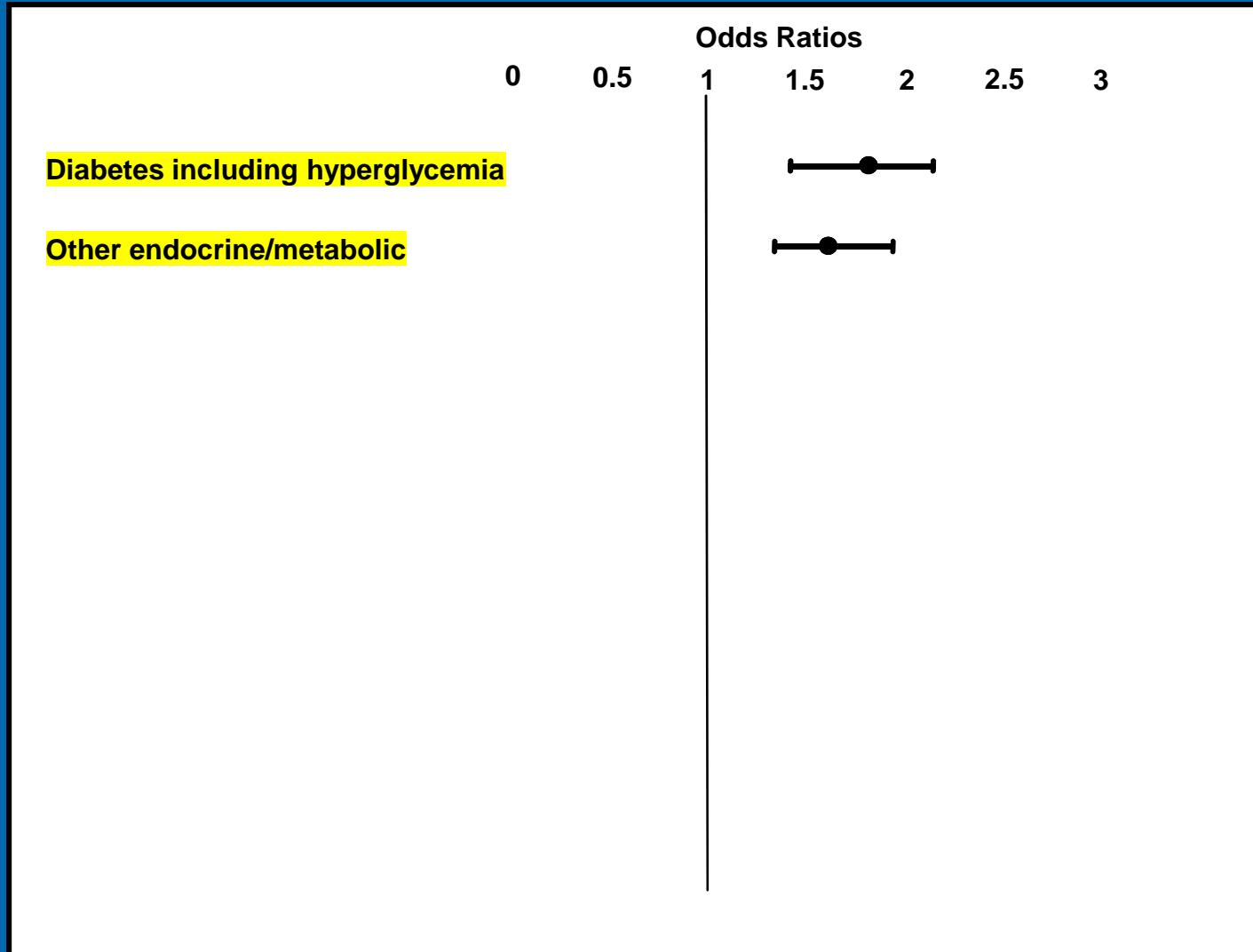
# How do the two groups compare?

## Reported Conditions by ICD-10 Chapter

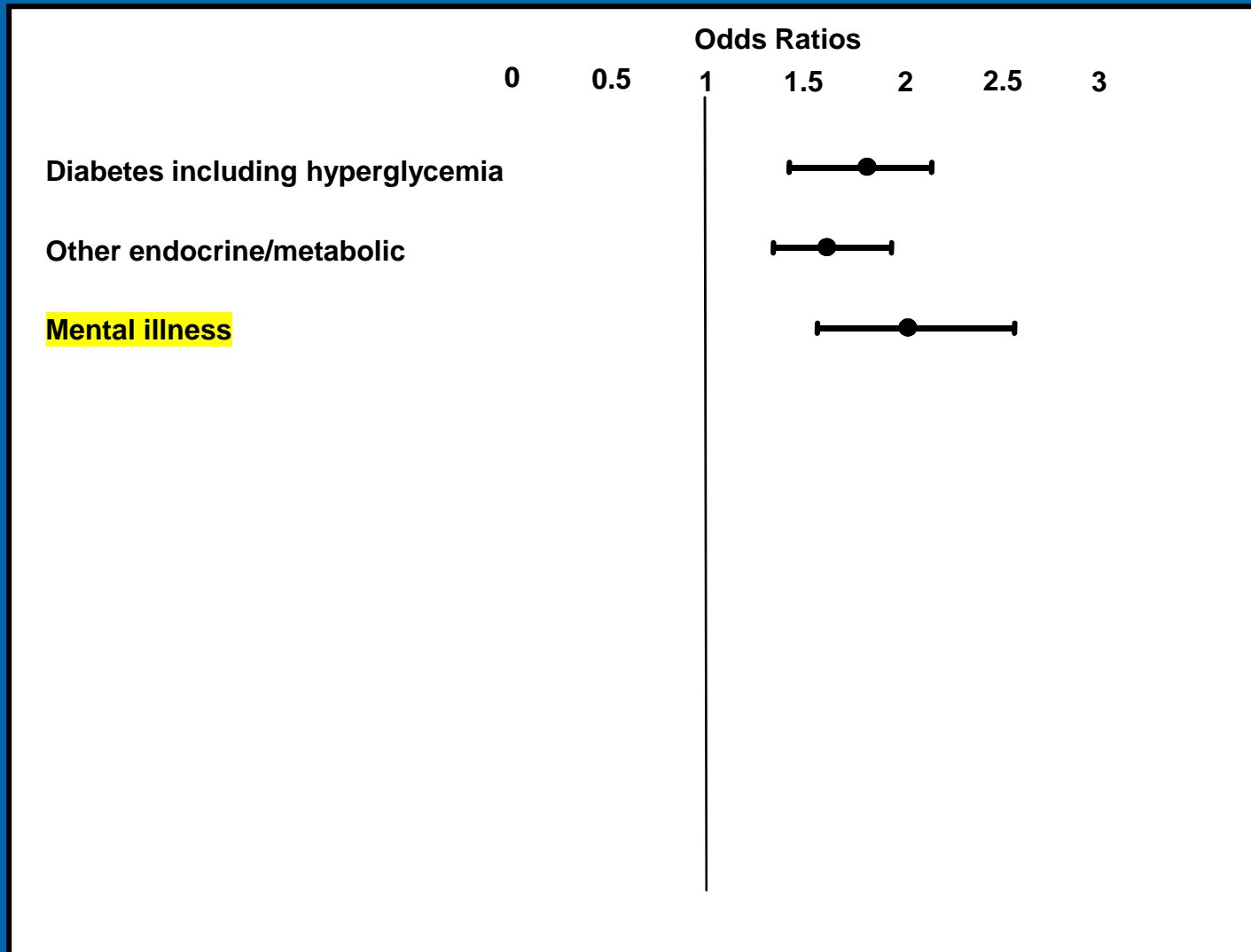


How do the two groups compare?  
Self-reported Individual Diseases

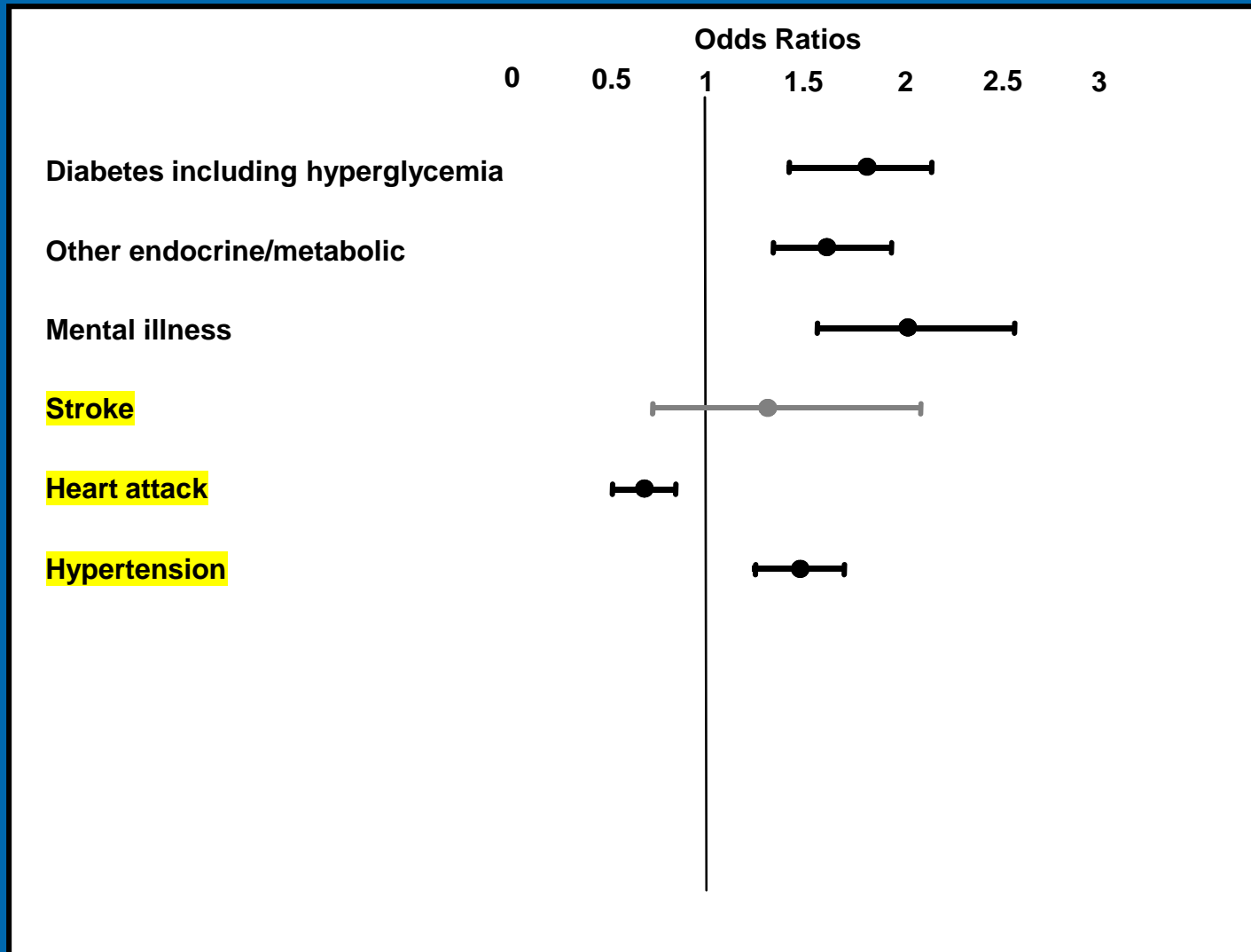
# How do the two groups compare? Self-reported Individual Diseases



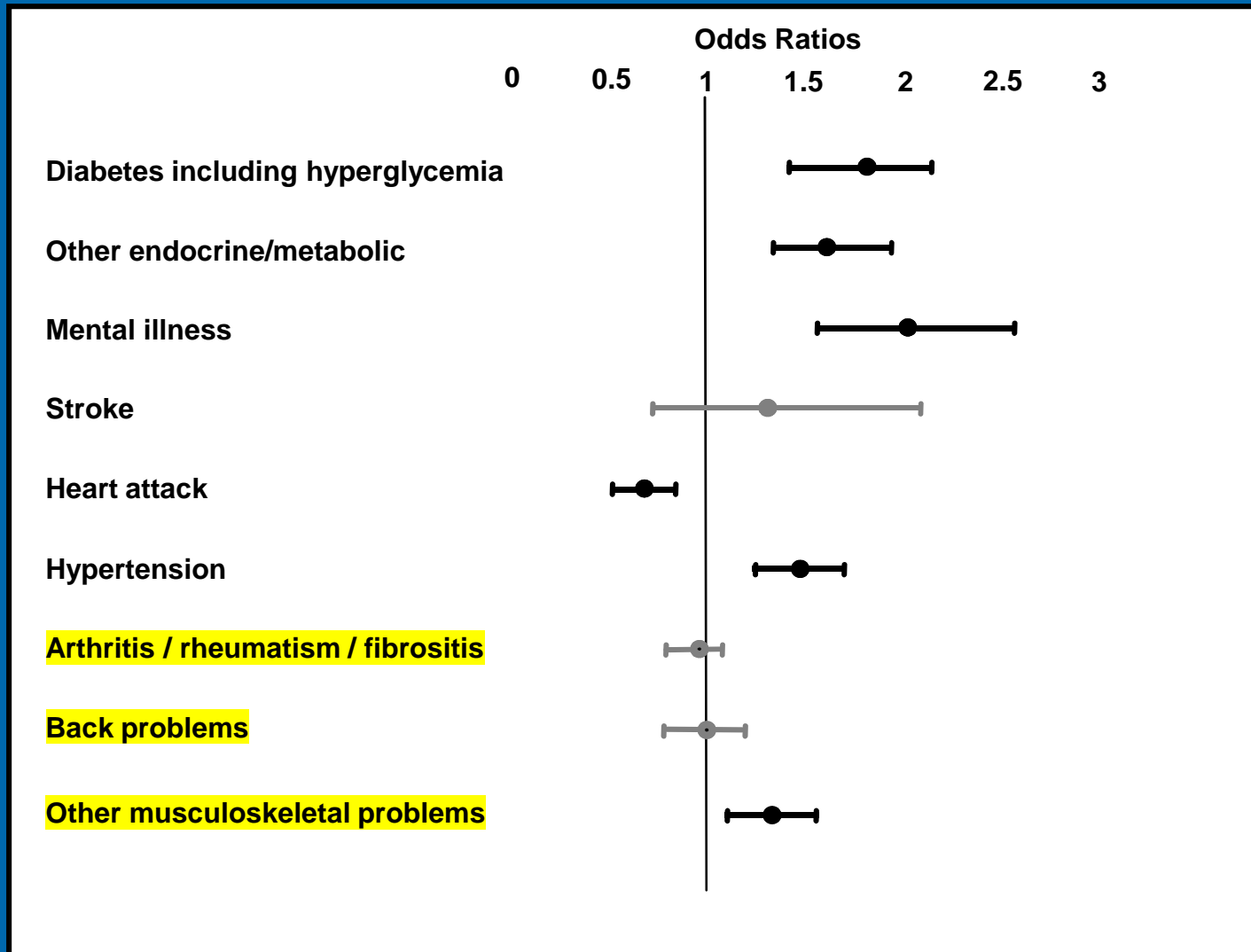
# How do the two groups compare? Self-reported Individual Diseases



# How do the two groups compare? Self-reported Individual Diseases



# How do the two groups compare? Self-reported Individual Diseases



# *Are the Baby Boomers really less healthy?*

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**Improved case finding?**

**Shifting diagnostic criteria?**

**Reporting differences?**

***Period effect* (i.e. the whole population is changing)?**

**Vs**

***Cohort effect* (i.e. differences specific to the baby boomers)?**

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# *APC Modelling*

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**Very hard to separate age, period and cohort effects in analysis (the identification problem)**

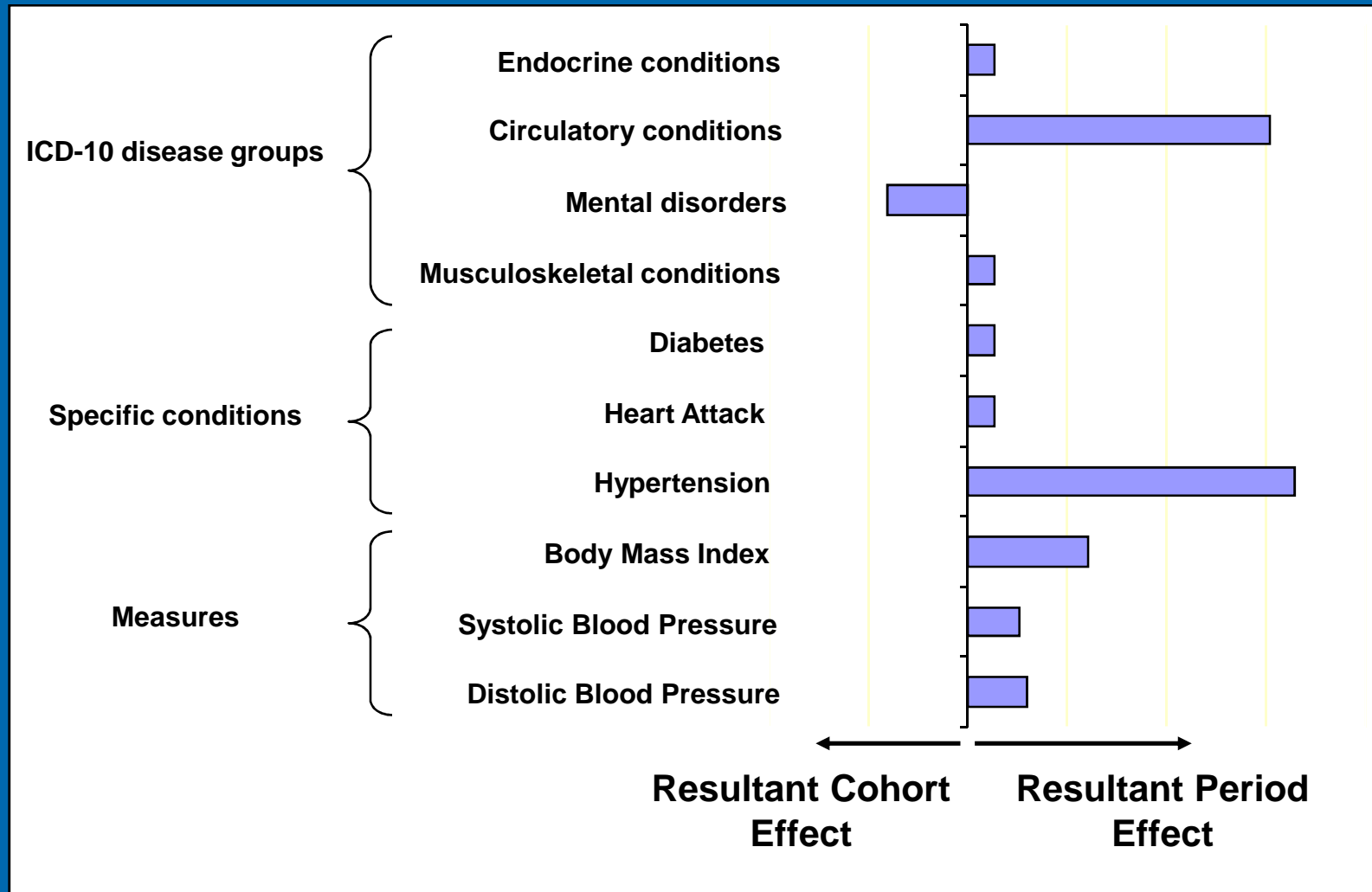
**May be possible to use repeated cross-sections to construct APC models**

**We use a hierarchical modelling framework with period and cohort treated as random effects (ref Yang & Land, 2008)**

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# Period / Cohort Effects?

Log of variance components of period effect / cohort effect



# Conclusions

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- **Compared with their wartime predecessors, English baby boomers are moving into retirement with improved cardiovascular health.**
  - **However, the baby boom cohort has a higher prevalence of mental illness and shows no improvement in self-rated health.**
  - **There remains substantial scope to reduce health risks and future disability.**
-

# Acknowledgements

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**Professor David Melzer, Peninsula Medical School**

**Dr William Henley, Dr Iain Lang, Peninsula Medical School**

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# Thank You

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***“They never phone, they never visit,  
they never text message...”***

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# The identification problem

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**Period (P) = Age (A) + Cohort (C)**

1994 ← 54 1940

↓                      ↓

# APC model

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If  $\pi_{ijk}$  = probability of diabetes

$$\text{Log} \left( \frac{\pi_{ijk}}{1 - \pi_{ijk}} \right) = \mu + \beta_1 \text{age} + \beta_2 \text{age}^2$$

+ period<sub>j</sub>

+ cohort<sub>k</sub>

←

$$\text{period}_j \sim N(0, \sigma_p^2)$$

↓

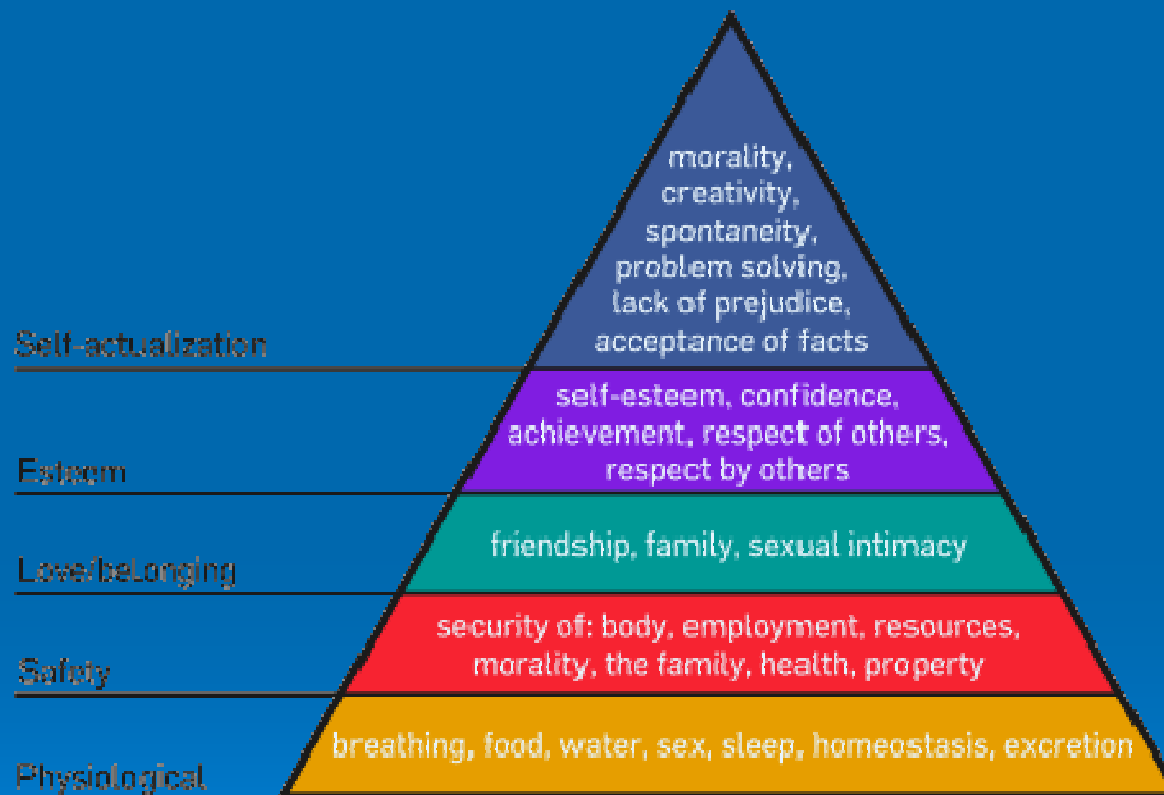
$$\text{cohort}_k \sim N(0, \sigma_c^2)$$

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# Maslow's hierarchy of need theory

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Ref: Abraham Maslow, A Theory of Human Motivation, 1943

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# Conditions

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- 1 not applicable
  - 1 cancer (neoplasm) including lumps, masses, tumours and growth
  - 2 diabetes. incl. hyperglycemia
  - 3 other endocrine/metabolic
  - 4 mental illness/anxiety/depression/nerves (nes)
  - 5 mental handicap
  - 6 epilepsy/fits/convulsions
  - 7 migraine/headaches
  - 8 other problems of nervous system
  - 9 cataract/poor eye sight/blindness
  - 10 other eye complaints
  - 11 poor hearing/deafness
  - 12 tinnitus/noises in the ear
  - 13 menieres disease/ear complaints causing balance problems
  - 14 other ear complaints
  - 15 stroke/cerebral haemorrhage/cerebral thrombosis
  - 16 heart attack/angina
  - 17 hypertension/high blood pressure/blood pressure (nes)
  - 18 other heart problems
  - 19 piles/haemorrhoids incl. varicose veins in anus.
  - 20 varicose veins/phlebitis in lower extremities
  - 21 other blood vessels/embolic
  - 22 bronchitis/emphysema
  - 23 asthma
  - 24 hayfever
  - 25 other respiratory complaints
  - 26 stomach ulcer/ulcer (nes)/abdominal hernia/rupture
  - 27 other digestive complaints (stomach, liver, pancreas, bile d
  - 28 complaints of bowel/colon (large intestine, caecum, bowel, c
  - 29 complaints of teeth/mouth/tongue
  - 30 kidney complaints
  - 31 urinary tract infection
  - 32 other bladder problems/incontinence
  - 33 reproductive system disorders
  - 34 arthritis/rheumatism/fibrositis
  - 35 back problems/slipped disc/spine/neck
  - 36 other problems of bones/joints/muscles
  - 37 infectious and parasitic disease
  - 38 disorders of blood and blood forming organs
  - 39 skin complaints
  - 40 other complaints
  - 41 unclassifiable (no other codable complaint)
  - 42 complaint no longer present nb only use this code if it is a
  - 97 inadequate information to code.
  - 99 not answered/refusal
- 
- 

# Previous work...



“Smoking cessation and transition into retirement: analyses from the English Longitudinal Study of Ageing.” *Age & Ageing*. 2007 Nov; 36(6): 638-43

Lang IA, Rice NE, Wallace RB, Guralnik JM & Melzer D.

**1712 smokers (aged 55 to 70) followed up for 5 to 6 years.**

**Retirees more than twice as likely to quit smoking as those who remained in work. (Odds Ratio = 2.50 (95% CI 1.35-4.62))**

**Retirees should be targeted with smoking cessation interventions.**