

# EXPERT BRIEFING

Winter Warmth

Age UK Knowledge hub



# Winter Cold and Health

Everything you wanted to know but didn't dare ask

Professor James Goodwin

Head of Research, Age UK



# Hippocrates 400BC



- Whoever wishes to investigate medicine properly, should proceed thus:

in the first place to consider **the seasons of the year**, and what effects each of them produces for they are not at all alike, but differ much from themselves in regard to their changes.

- Secondly he must study **the warm and the cold winds**, both those which are common to every country and those peculiar to a particular locality ...

# What Older People Face in the Winter

- Temperatures as low as – 20°C (winter 2011/12)
- Increased precipitation – rain, ice, hail, snow
- Increased wind speeds and chilling factor
- Shorter days, longer nights
- Isolation, loneliness, trapped in home
- Increased difficulty in performing ADLs
- Expense in heating home (fuel poverty), extra clothes, food
- Infectious diseases of winter (colds, flu)
- Exacerbation of existing health problems (chronic long term conditions) eg angina, joint problems, bronchitis, hypertension, etc

Low temperature is the main cause of illness and death in the winter in the older population

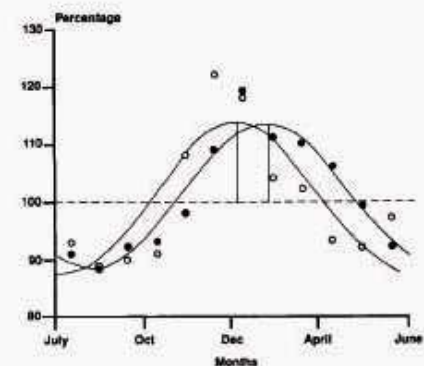
Aderdeen,Scotland  
0-8°C in January



Yakutsk ,Siberia  
-26.6°C  
All cause mortality  
unaffected



Kuwait  
8-18°C in January



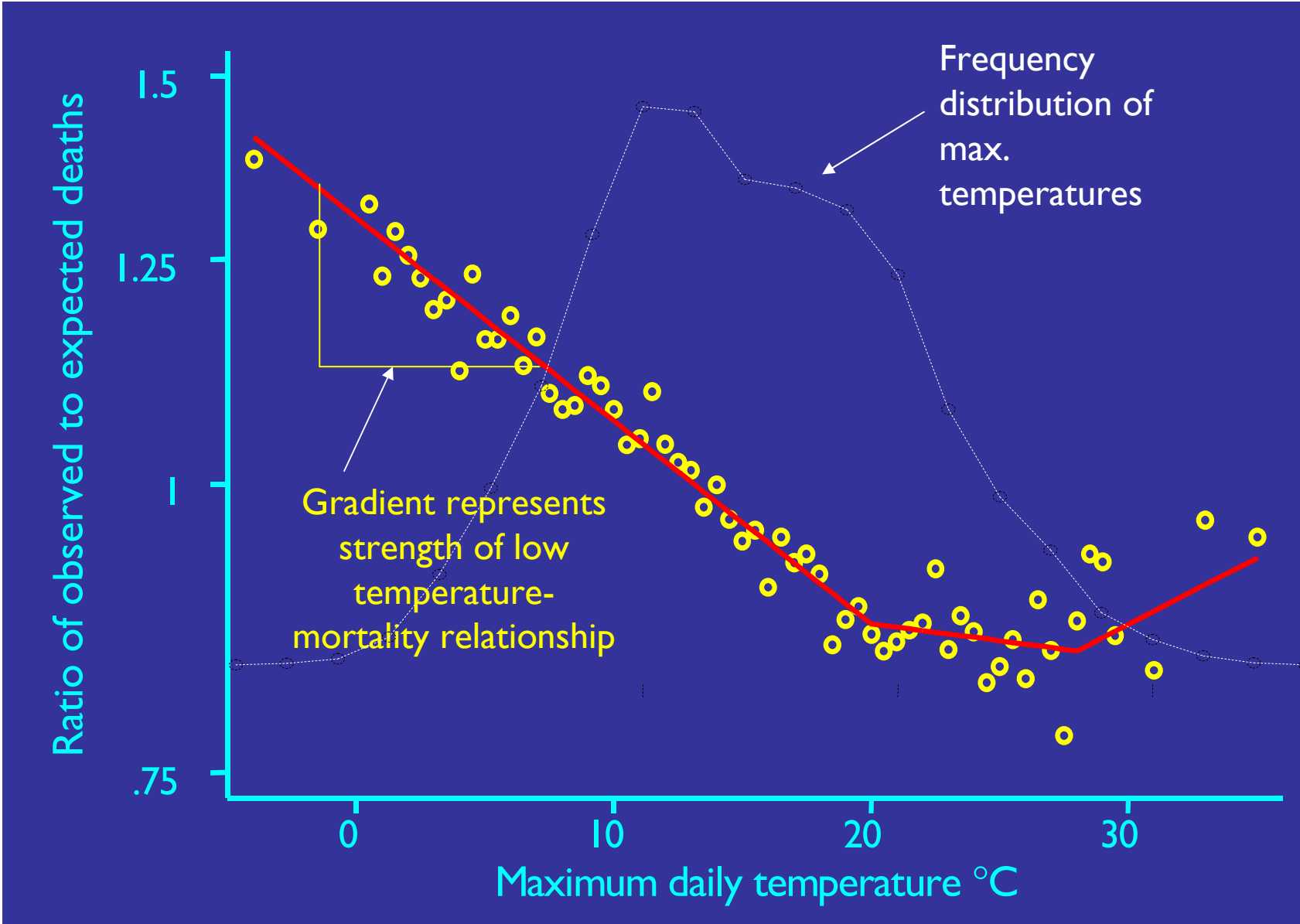
# Eurowinter Study

## Findings

- **Percentage increases in all cause mortality per 1°C (below 18°C) are greater in warm than in cold regions (eg Athens vs south Finland)**
- **High indices of cold related mortality are associated with**
  - high mean winter temperatures
  - low living room temperatures
  - limited bedroom heating
  - low clothing protection
  - physical activity
- **Lag effects exist between onset of cold and death**

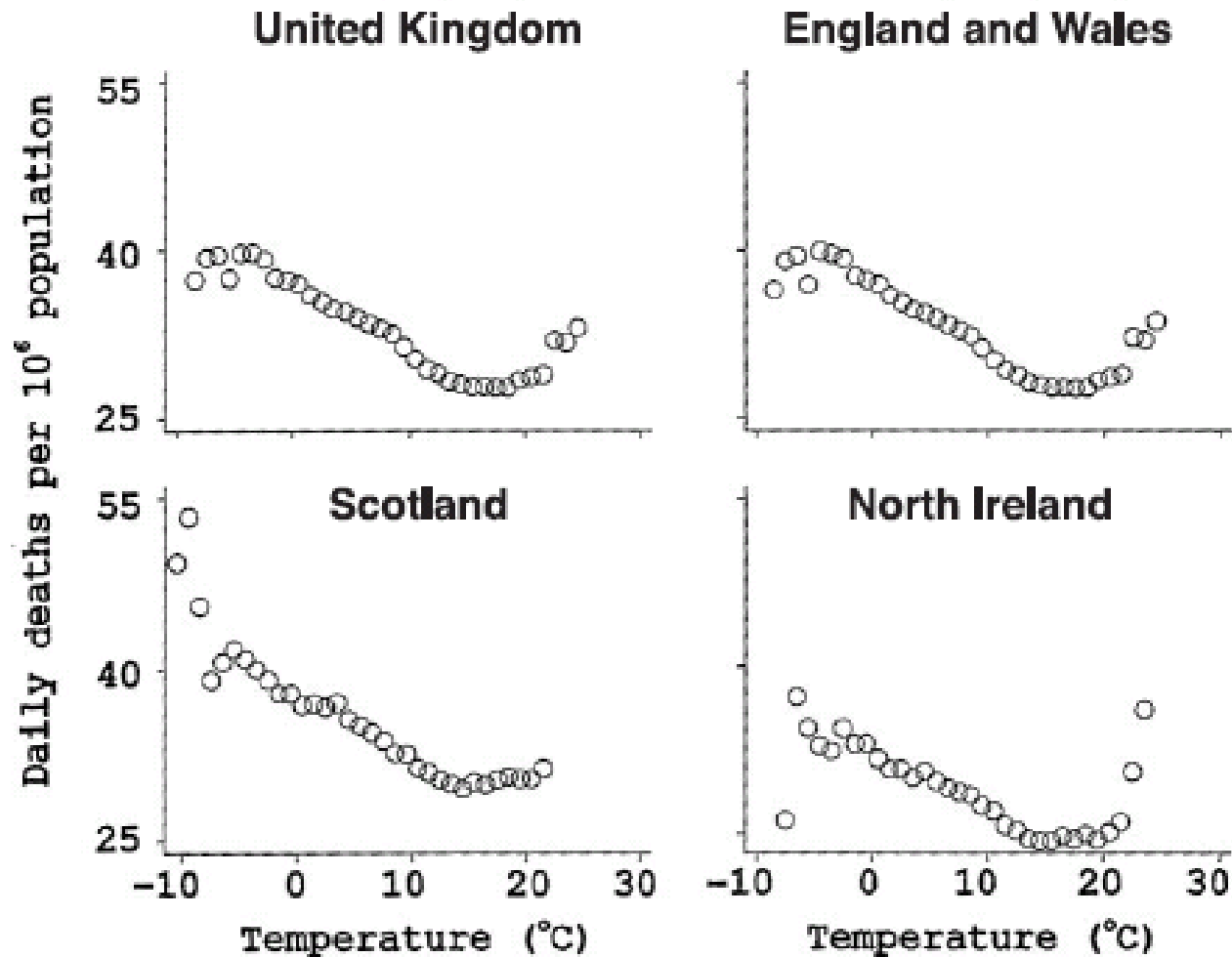
Eurowinter Group (1997). *Lancet*, 349, 1341-1346

# Mortality and temperature distribution UK

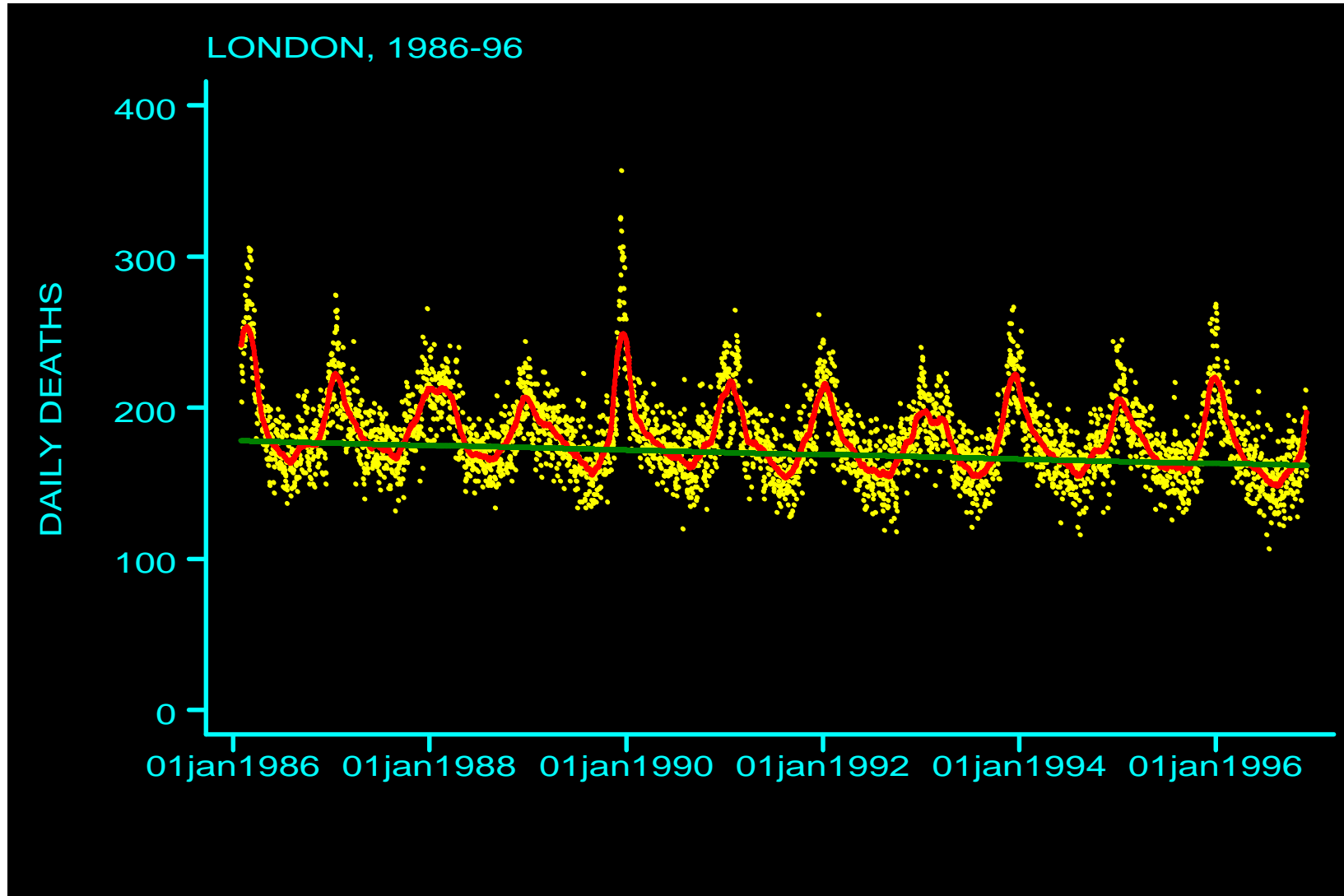




# Temperature and All Cause Mortality for the UK



# Excess Winter Deaths



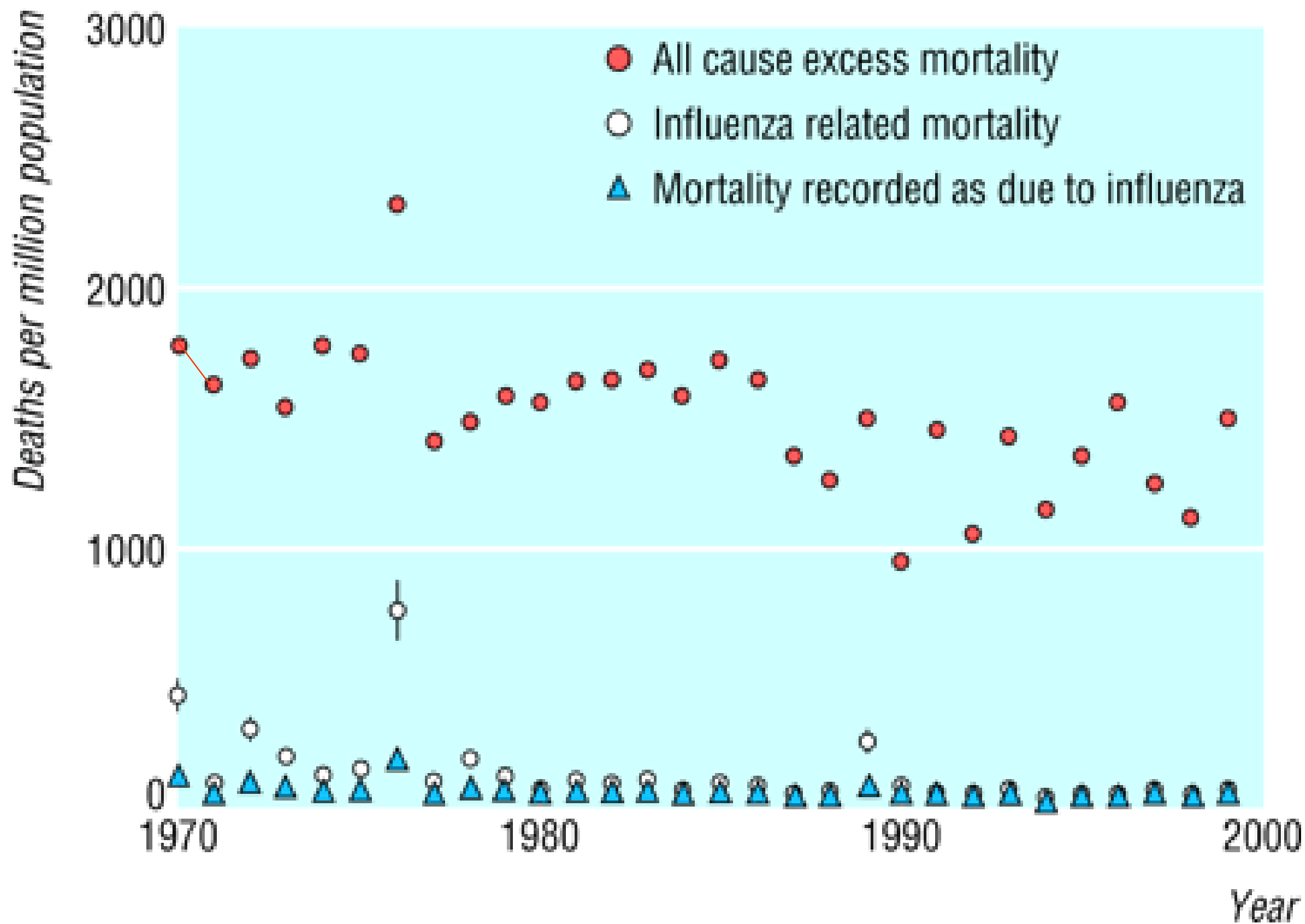
# Excess Winter Deaths - Regression Model

For every 1°C reduction in the average ambient temperature in the winter, there are 8,000 more deaths

*Curwen M (1997)*

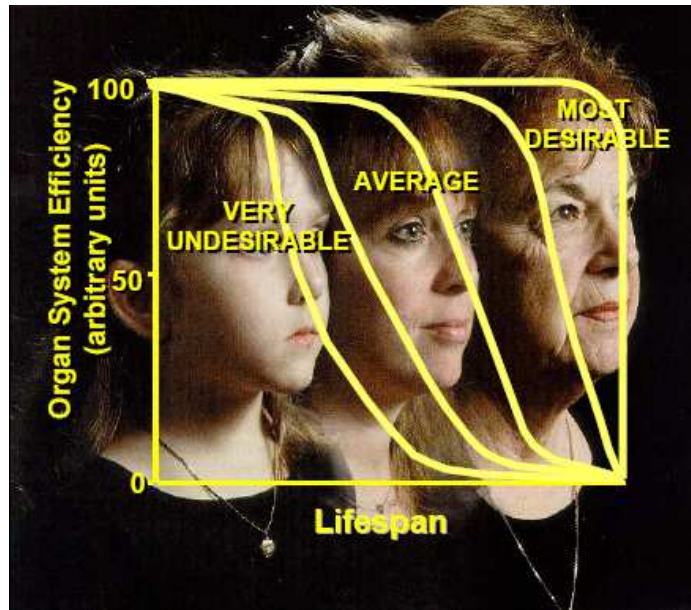
# Causes of Winter Death

- Less than 1% due to hypothermia
- Small number of deaths due to influenza, except in epidemic years (eg winter '89/90)
- Respiratory illness (eg COPD, bronchitis) 12 day' lag effect'; deaths declining due to warmer homes
- Thrombotic illness (eg MI, stroke) 3-7 day 'lag effect'; deaths show little change over time and are related to outdoor cold exposure



Why does cold affect older people more than younger ?

## ‘Age -related decline’

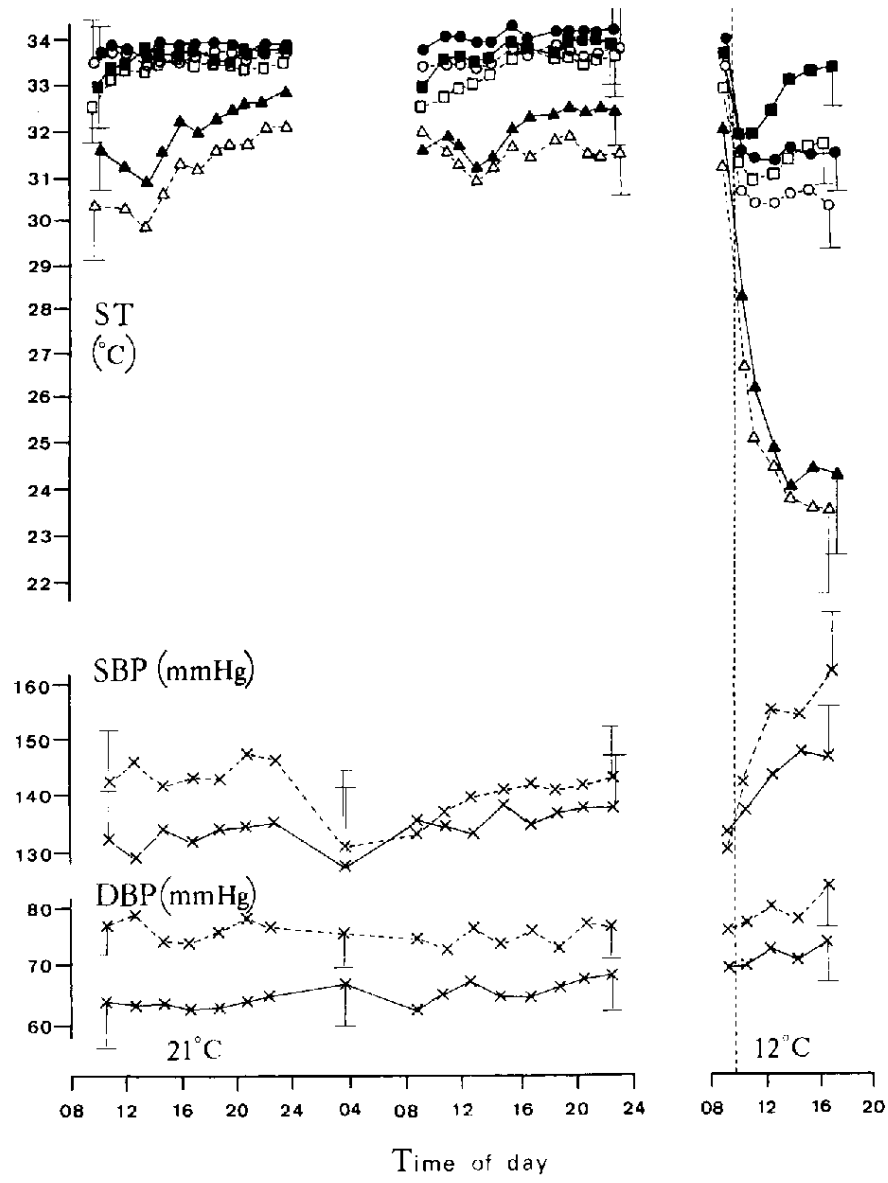


- All the systems of the body decline in efficiency with age
- Increased homeostatic instability eg thermoregulatory and cardiovascular responses

# Cold Exposure and Physiological Responses I

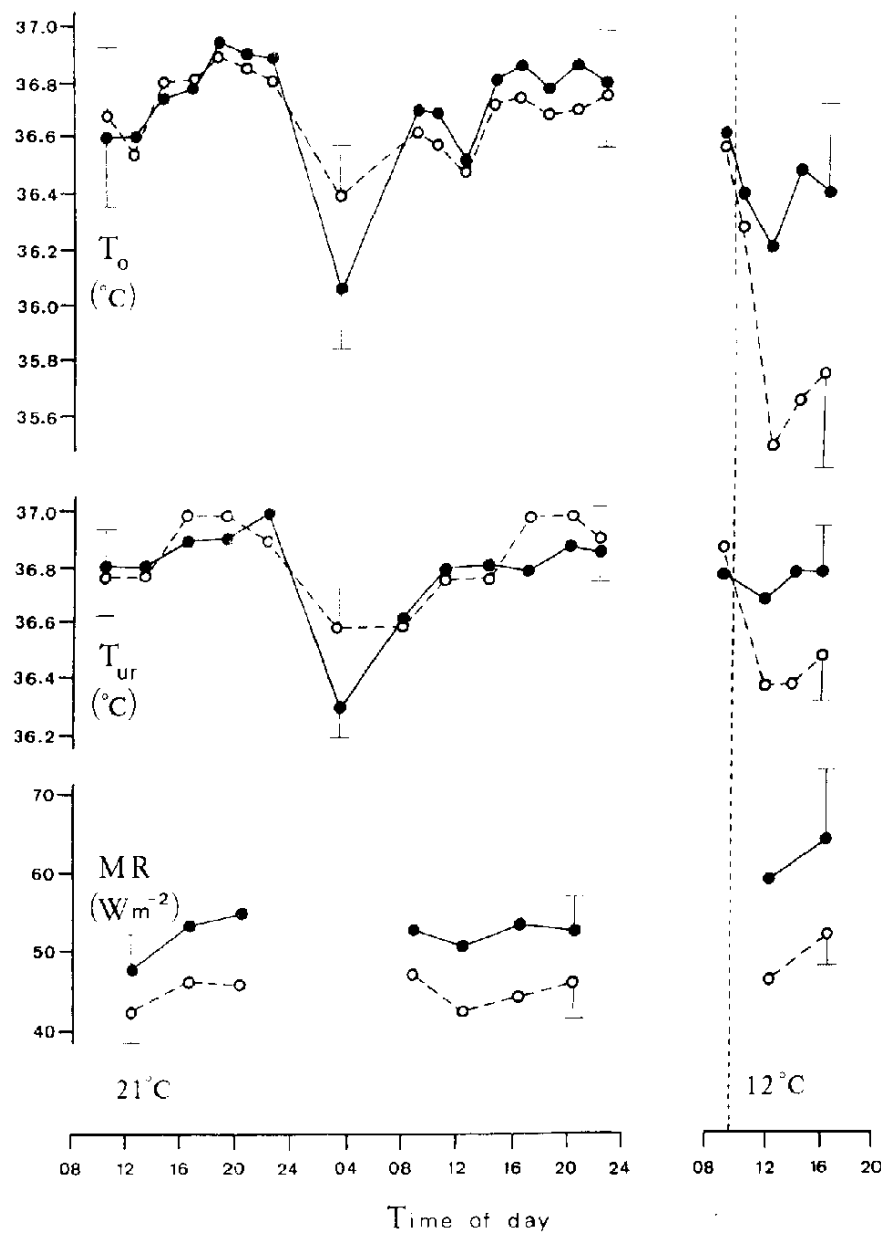
**Young subjects**  
(n=11) ———

**Old subjects**  
(n=11) - - - - -



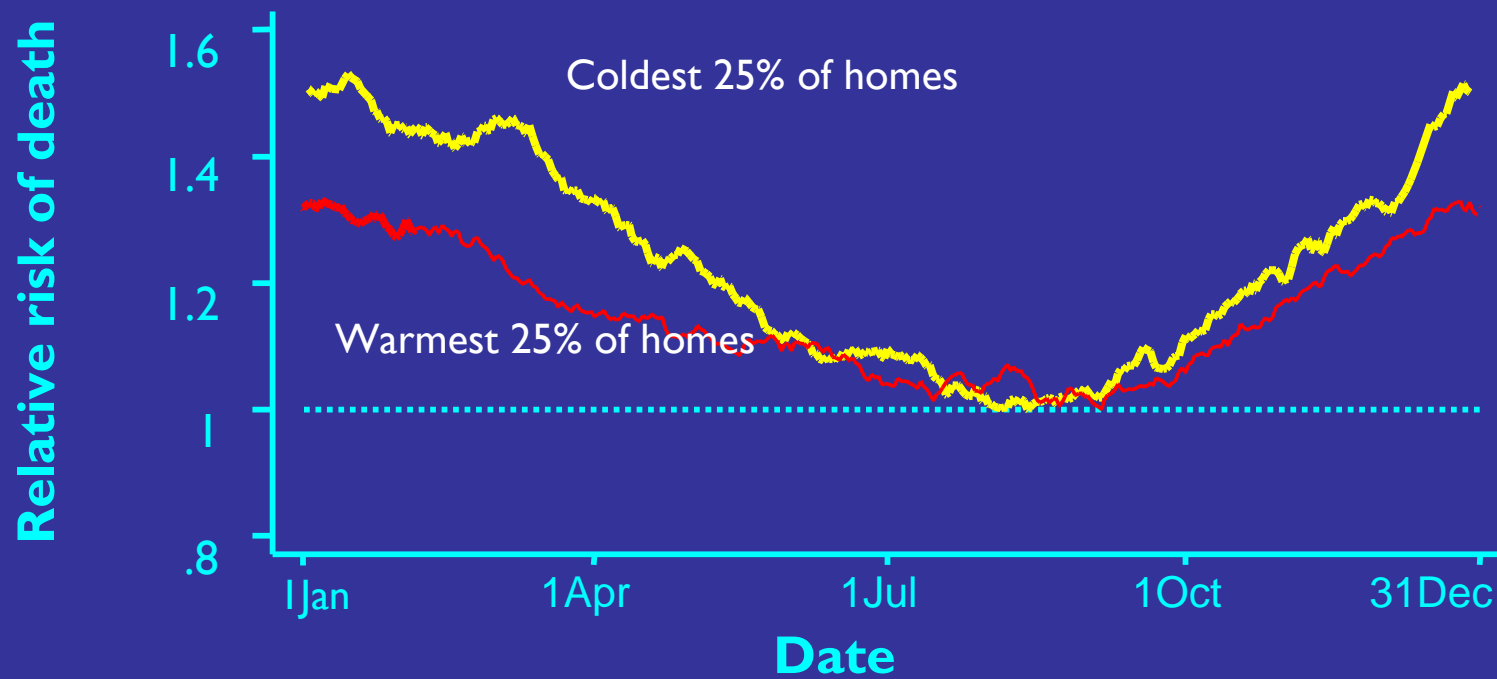
# Cold Exposure and Physiological Responses II

**Young subjects**  
 (n=11) ●  
**Old subjects**  
 (n=11) ○





# Inside Cold



# Inside vs Outside Cold

- Few older people live in homes without central heating but many restrict their use of it mainly on grounds of cost (fuel poverty)
- Moving from a cold home to outside cold carries significantly more risk to health than moving from a warm home
- Relatively minor cold exposures in daily life are sufficient to induce significant hypertension and haemoconcentration
- Linear inverse relationship between activity levels and indoor cold with increased outdoor excursions in older people living in cold homes

# Fuel Poverty

Households are considered by the Government to be in 'fuel poverty' if they spend more than 10% of their household income on fuel to keep their home in a 'satisfactory' condition

Fuel poverty numbers are dependent on both income and fuel, but fuel price rises have the most immediate effect

The latest official figures for the UK show 4.8 million people aged 60+ living in fuel poverty, but this does not include recent price rises (2)

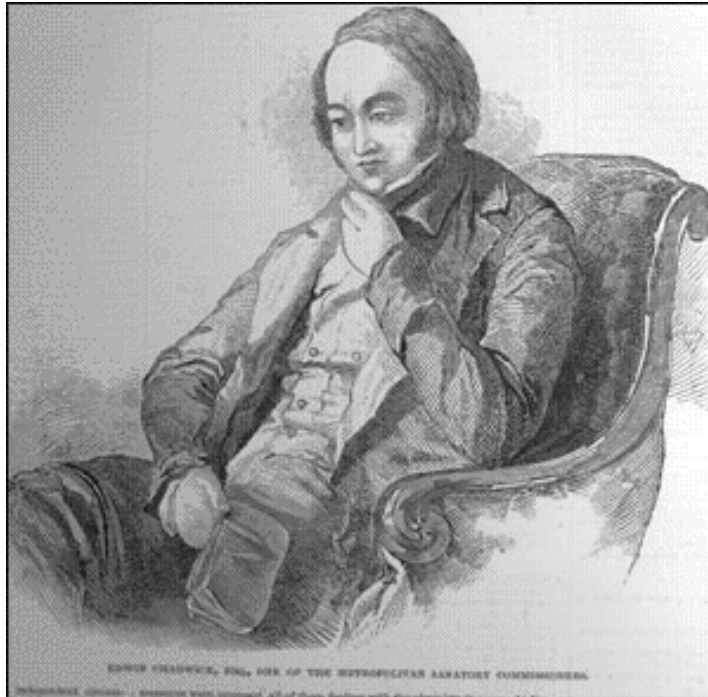
# Summary of the Evidence I

- Exposure to cold raises blood pressure and heart rate in older people
- There are 'trigger sites' – hands, feet, face and head
- Transient exposure to cold will raise blood pressure
- These increases are persistent
- Risk of blood co-agulation increases as a result of fluid movements when blood pressure rises
- Body temperature, core and skin, fall quickly on exposure to cold
- Moderate levels of activity reduce the risk of body cooling and high blood pressure

## Summary of the Evidence II

- Extremes of cold incur high rates of morbidity and mortality in older people via respiratory and thrombotic illness
- Indoor and outdoor cold are independent risk factors
- Respiratory mortality appears to be falling due to warmer homes
- Predisposing factors appear to be:
  - age (frailty, co-morbidity)
  - home conditions
  - high-risk behaviour
  - social isolation
  - limited access to health and social care
  - social inequality

# Public Health Advice



*“We will not be bullied into good health by the likes of Mr Chadwick”*

The London Times, 1848