Health impact of air pollution effects of climate change

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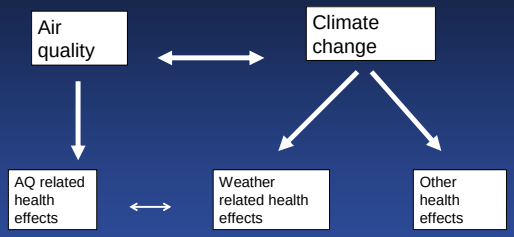
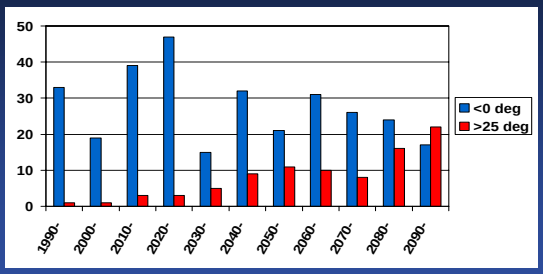
HEI Annual Conference
Chicago 2007

Air pollution and climate change

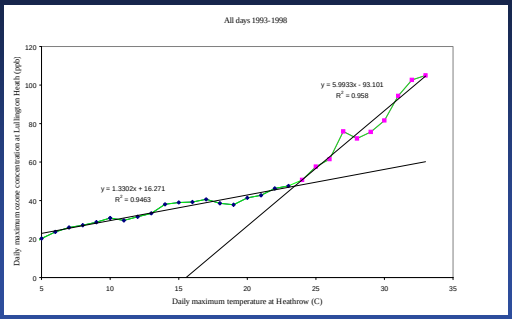


No of days in each decade with at least one hour in which the windspeed is < 2 m/sec and maximum or minimum temperature for the day is <0 deg or >25 deg, respectively

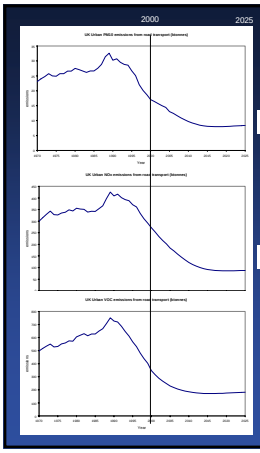


Source: Department of Health 2001

Relationship between daily maximum temperatures at Heathrow and daily maximum ozone concentrations at Lullington Heath, West Sussex



Source: Department of Health 2001



Trends in UK urban emissions from road transport 1970 to 2025 (ktonnes)

PM10

NOx

VOC

Quantitative risk assessment

C-R function

X

Predicted - baseline exposure

Relative risk

Attributable fraction

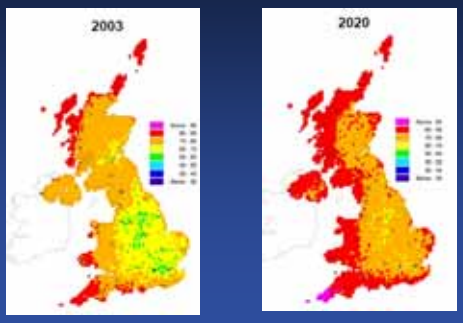
X

Health outcome baseline

ATTRIBUTABLE BURDEN

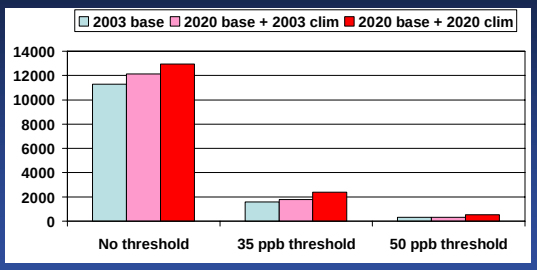
Concentration - response function relating outcome to unit of pollution

UK. Annual mean of maximum daily running 8-hour average ozone concentrations in 2003 and 2020



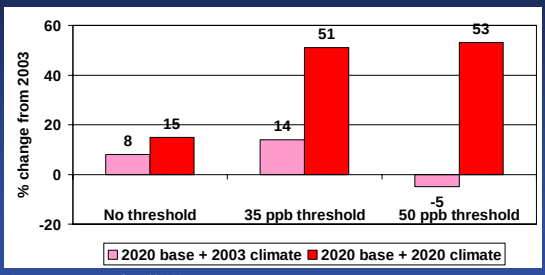
Source: AEAT 2006

UK: deaths attributable to ozone in 2003 and 2020 (with and without climate change)



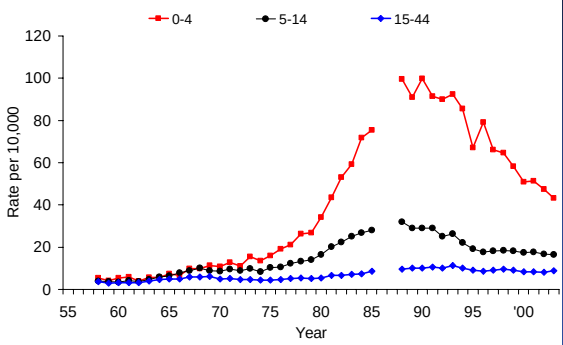
Source: Department of Health 2007

UK. Predicted deaths attributable to ozone in to 2020 compared with 2003 baseline (% change)



Source: Department of Health 2007

Hospital admissions for asthma by age, England & Wales 1962-2003



Conclusion

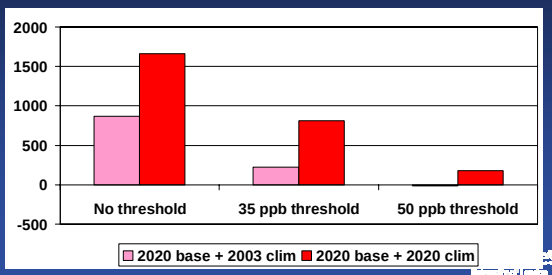
- Prediction of AP health effects associated with climate change is sensitive to
  - meteorology
  - emissions
  - baseline health data
  - exposure-response relationships

Acknowledgments

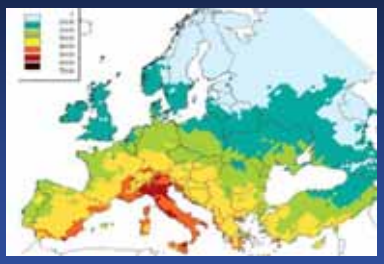
John Stedman AEAT

Dick Derwent RD Scientific

UK. Additional ozone deaths predicted for 2020 with and without climate change (Dept Health 2007)



Health effects attributable to ozone (above 35ppb) in 2000 (1997 meteorology). Deaths brought forward, based on time-series evidence



Source:
EU 2005. Staff Working Paper