Health impacts of Household Energy use in developing countries:
implications for setting international standards



Dr Nigel Bruce

Department of Public Health and Policy, University of Liverpool &

Department of Public Health and Environment , WHO

World Health Organization

UNIVERSITY OF LIVERPOOL

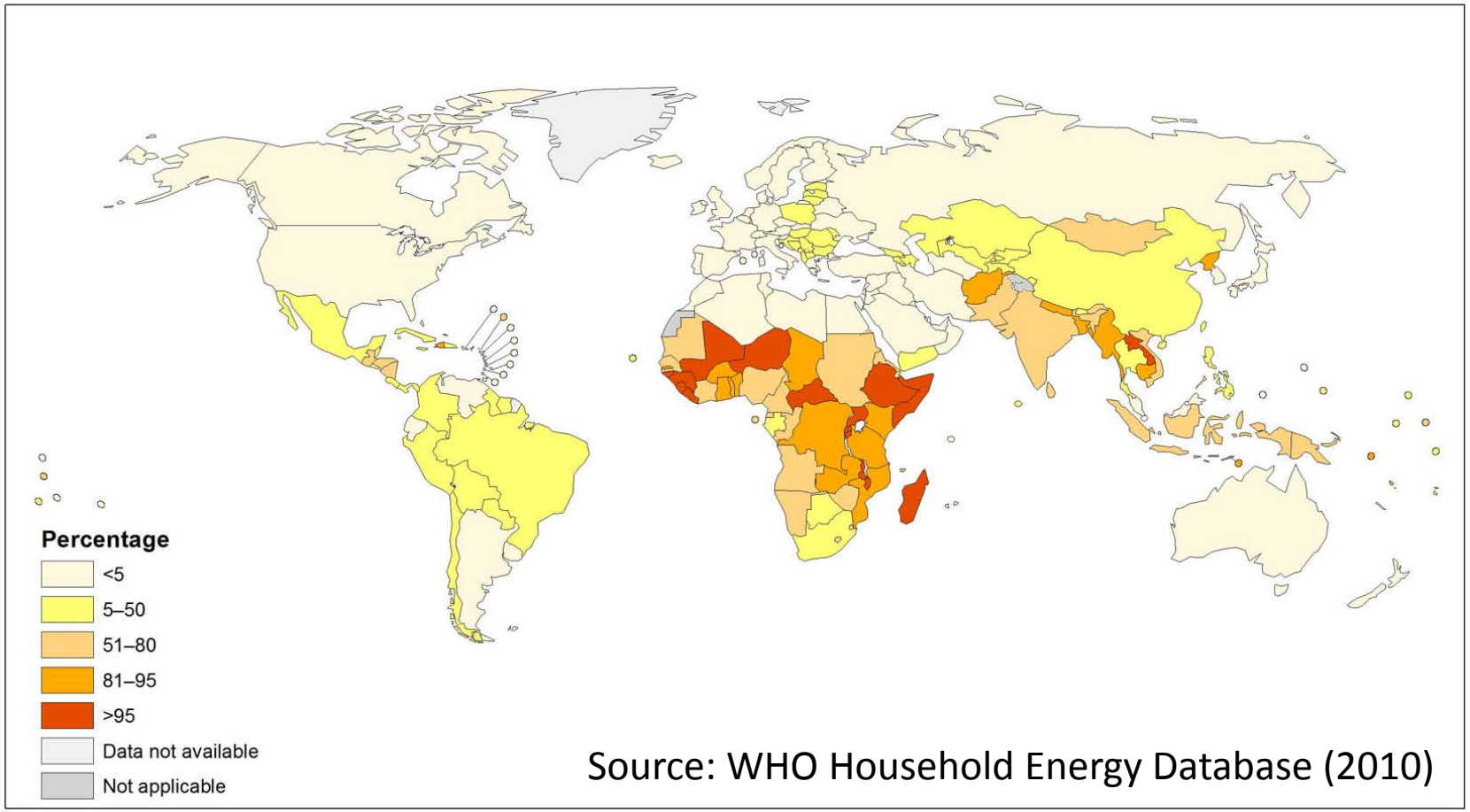
Lack of access to clean, safe energy in the home

No electricity:
Lighting with crude kerosene wick lamp

No access to clean fuels:
Cooking (heating) with wood on an open fire

Lack of access to clean, safe energy in home:

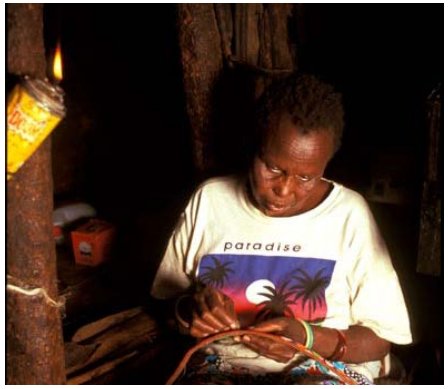
Indicator: solid fuel use (SFU) for cooking



3 billion people; 42% of homes

How does this energy access situation impact health?

- Cooking and heating with solid fuel:
  - Traditional stoves → poor combustion
  - High levels of 'household air pollution'
  - High risk of burns and scalds
- I.3 billion have no electricity
  - Use candles, kerosene for lighting
  - High levels of pollution
  - High risk of burns, house fires
- Fuel collection: injuries and violence
- Women and young children most affected



Health consequences

Risk	Health outcomes	Burden
Household air pollution (HAP)	• Child pneumonia • Chronic obstructive lung disease (COPD) • Lung cancer (coal)	1.96 million premature deaths (2004)
Injuries		

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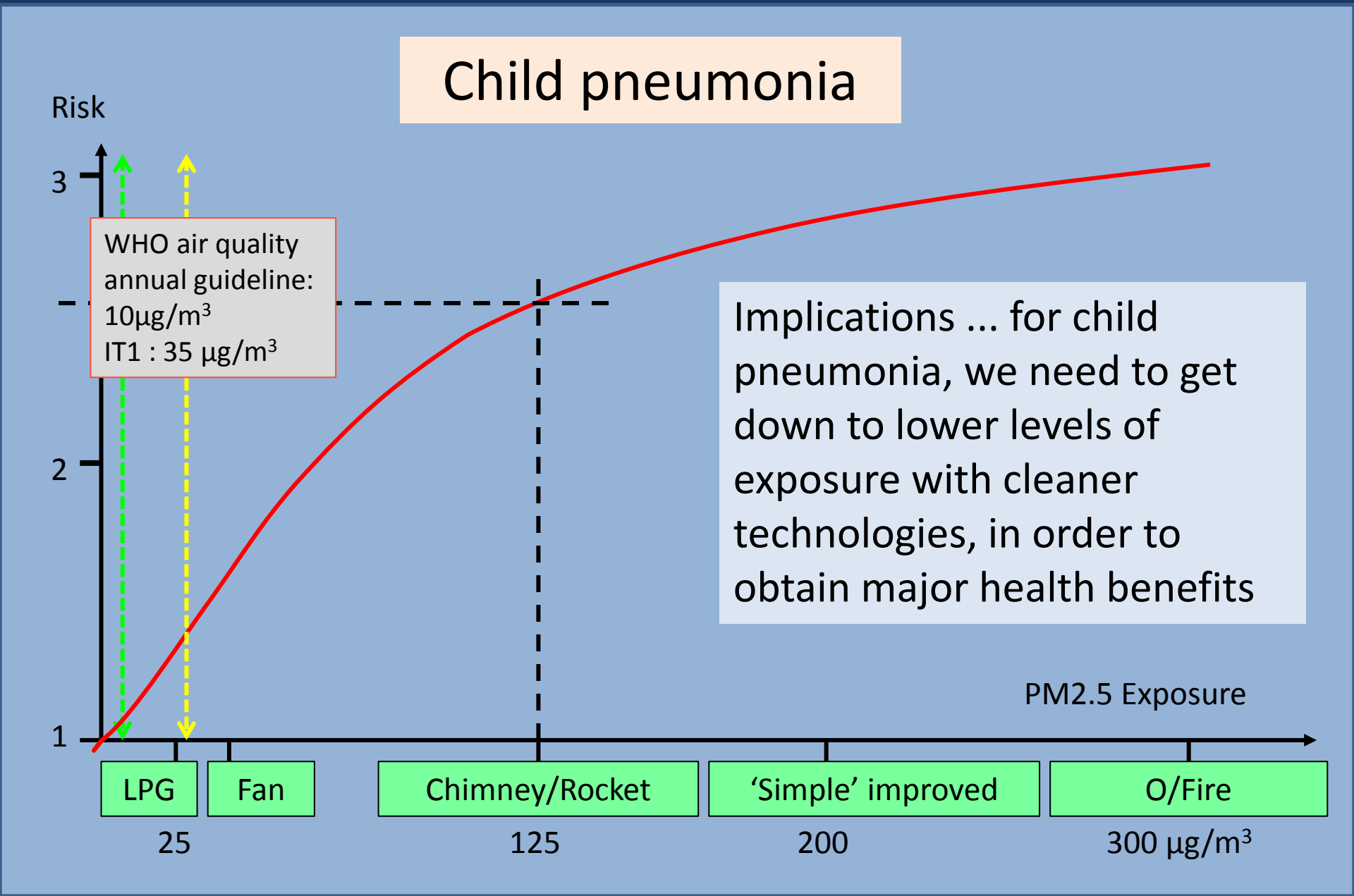
Injuries	• Burns and house fires • Scalds • Poisoning (kerosene) • Injuries in fuel collection	High % of 300,000 annual burns deaths, plus severe injuries

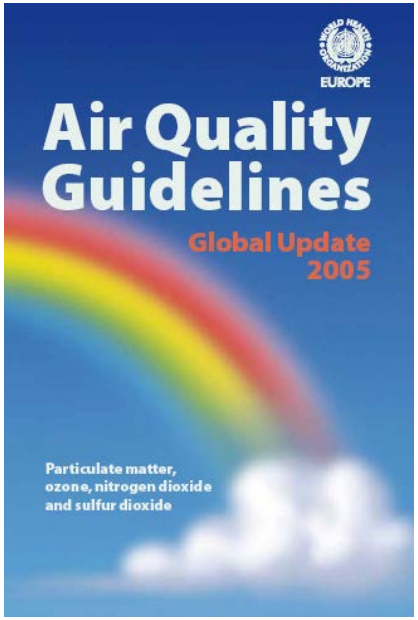
Exposure-response relationship

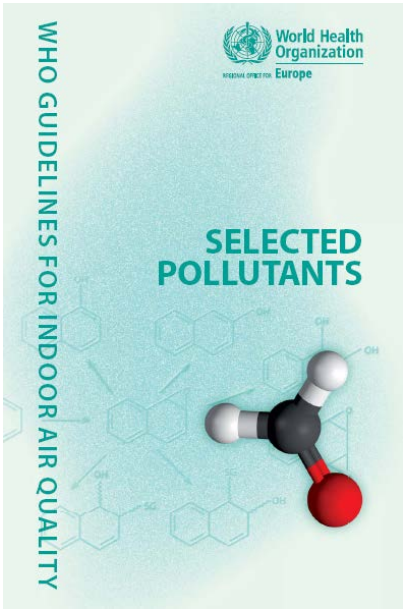


Relationship between emissions and exposure

- Emissions
  - Chimney
  - Home
- Ventilation
- Room size
- Time:
  - Inside
  - Outside
- Neighbours

WHO Indoor air quality guidelines: household fuel combustion





Guidelines: content and timeframe

- Key topics:
  - Emissions from range of stove/fuel options
  - Levels of HAP and exposure
  - Health impacts of HAP (including exposure-response for pneumonia, COPD, lung cancer, CVD, etc.)
  - Burns and poisoning
  - Impacts of interventions on HAP/exposure (field studies)
- Due for publication early 2013

Summary

- Large health burden:
  - Nearly 2 million premature deaths from air pollution
  - Many deaths and injuries from burns, scalds and poisoning
  - Injuries/violence in fuel collection
- Important issue for standards to address:
  - Emissions → exposure
  - Safety
- WHO Guidelines will provide key evidence:
  - Note process & timeframe in IWA
  - Incorporate new evidence as standards evolve

Thank you!

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