

EuroHEAT:

Improving Public Health Responses to Heat-Waves

Brussels, May 2007

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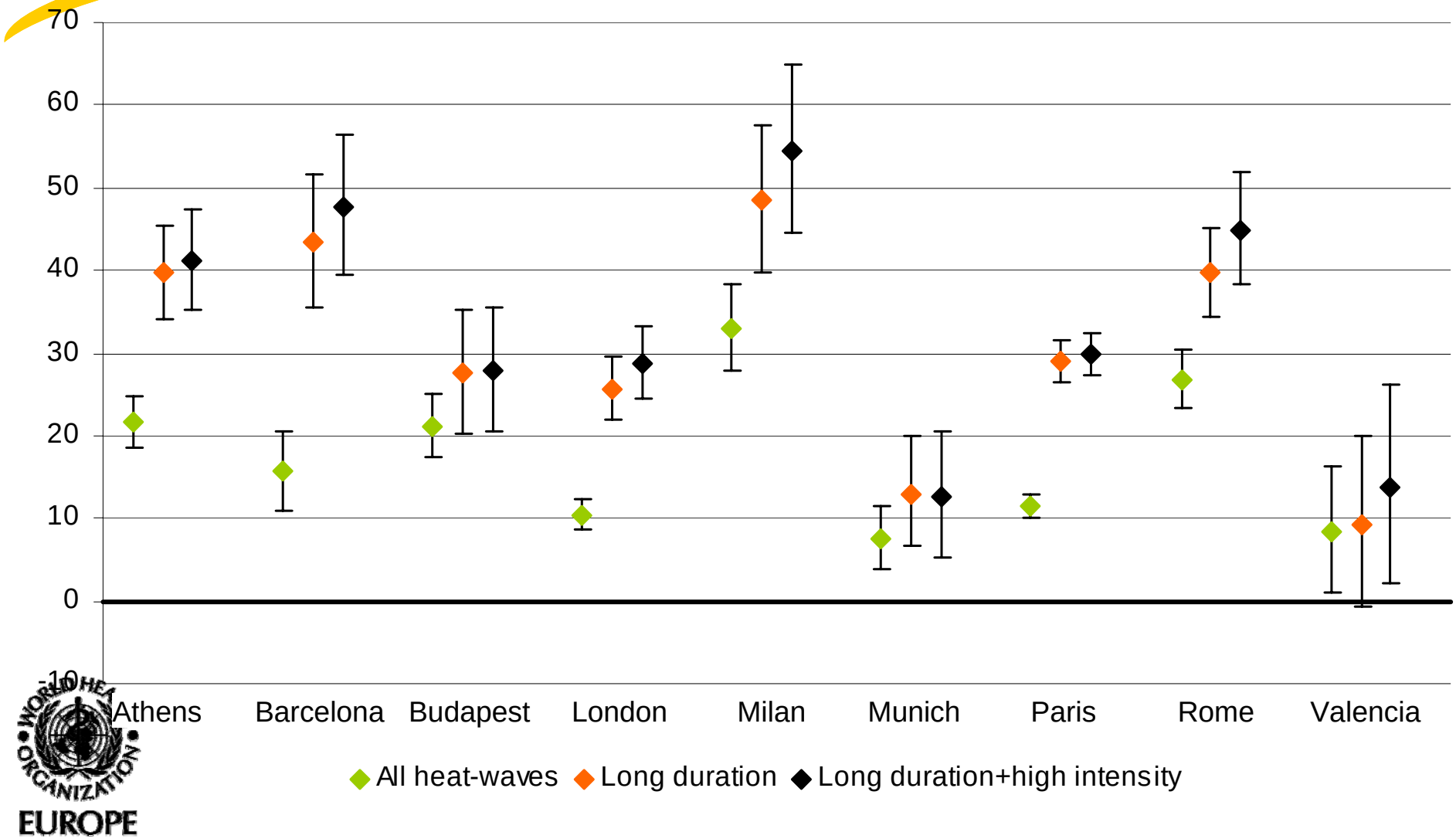
EuroHEAT WP2 results:

Effect of **heat-waves** with different characteristics (all, with long duration and high intensity) on total mortality among people aged 65+ (% increase and 90% CI)



EUROHEAT: WP3 results

Age group	Low* PM_{10} % increase (95% CI)	High** PM_{10} % increase (95% CI)
All ages+	11.1 (6.3, 16.0)	12.6 (8.7, 16.8)
0-64 yrs	7.6 (2.3, 13.2)	7.7 (4.3, 11.2)
65-74 yrs	8.8 (3.6, 14.3)	9.3 (4.8, 14.0)
75-84 yrs+	11.2 (4.2, 18.6)	13.6 (8.6, 18.9)
85+ yrs+	12.6 (5.5, 20.1)	19.4 (8.1, 31.9)

*: at the 25th percentile of the city-specific distribution of ozone

**: at the 75th percentile of the city-specific distribution of ozone

+: significant interaction at P<0.05

Percent increase in the total daily number of deaths in days with a heat-wave and a “low” or “high” level of PM10 (random effects models)

WP 4 Results

- **Elderly**: Greatest effects of heat and heat waves were in the elderly but important differences in risk. Age interacts with many other determinants, particularly gender, and co-morbidities.
- **Adults**: Excess mortality observed in adults for extreme heat -waves. Mental illness/disability and occupational exposures explain some of the risk in adults.
- **Children** are at risk of heatstroke mortality in very severe heat-waves.

Determinants of risk: Age

Integrated management of chronic disease

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Summary of epidemiological evidence

Disease	Risk of heat related death
COPD	++
Asthma	+
Neurological damage, Parkinson's, etc	+++
Schizophrenia, psychotic illnesses	++
Dementia, Alzheimer's	+++
Diabetes, renal disease	+++
Previous stroke	++
Ischaemic Heart disease	++

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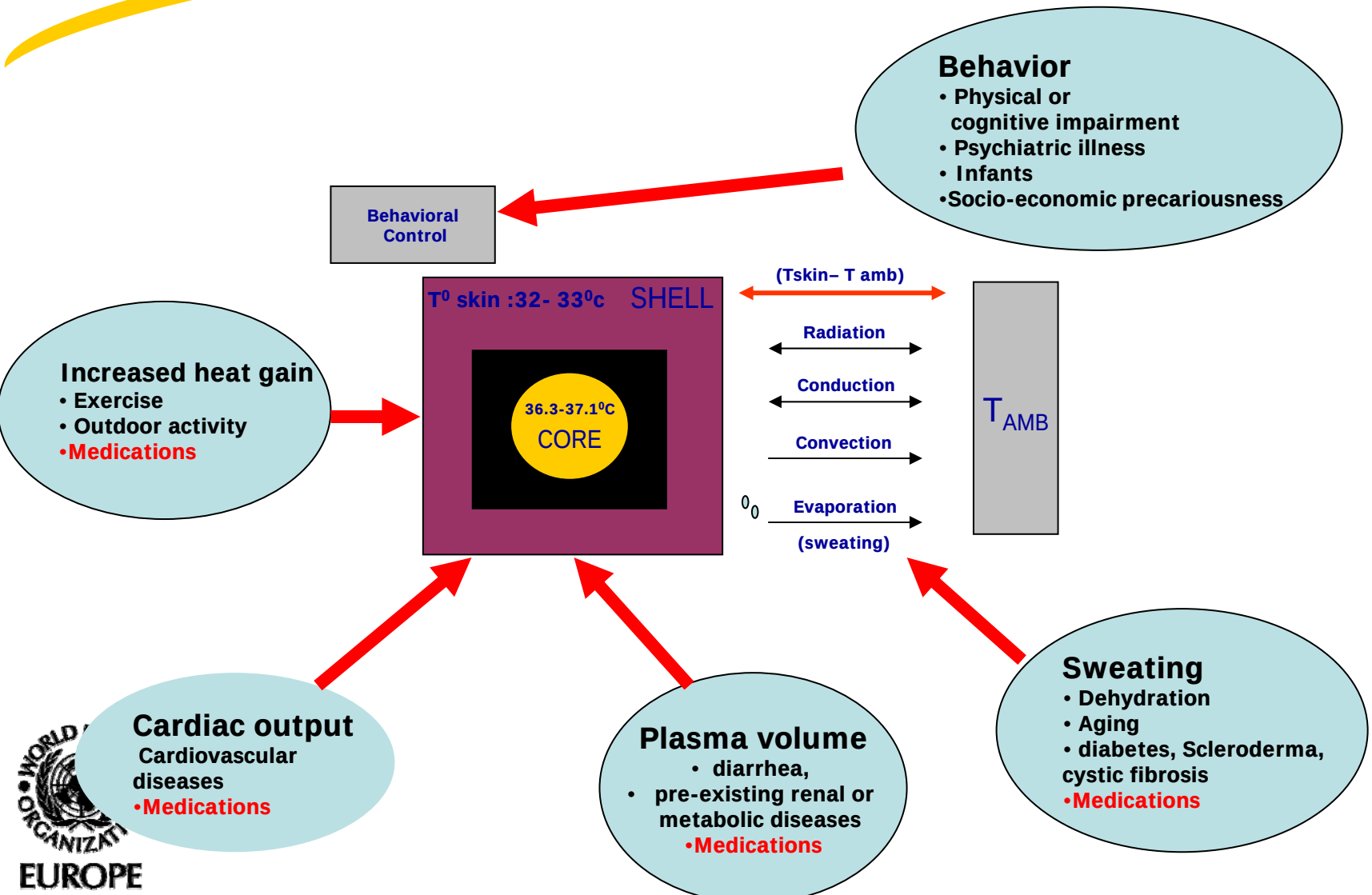
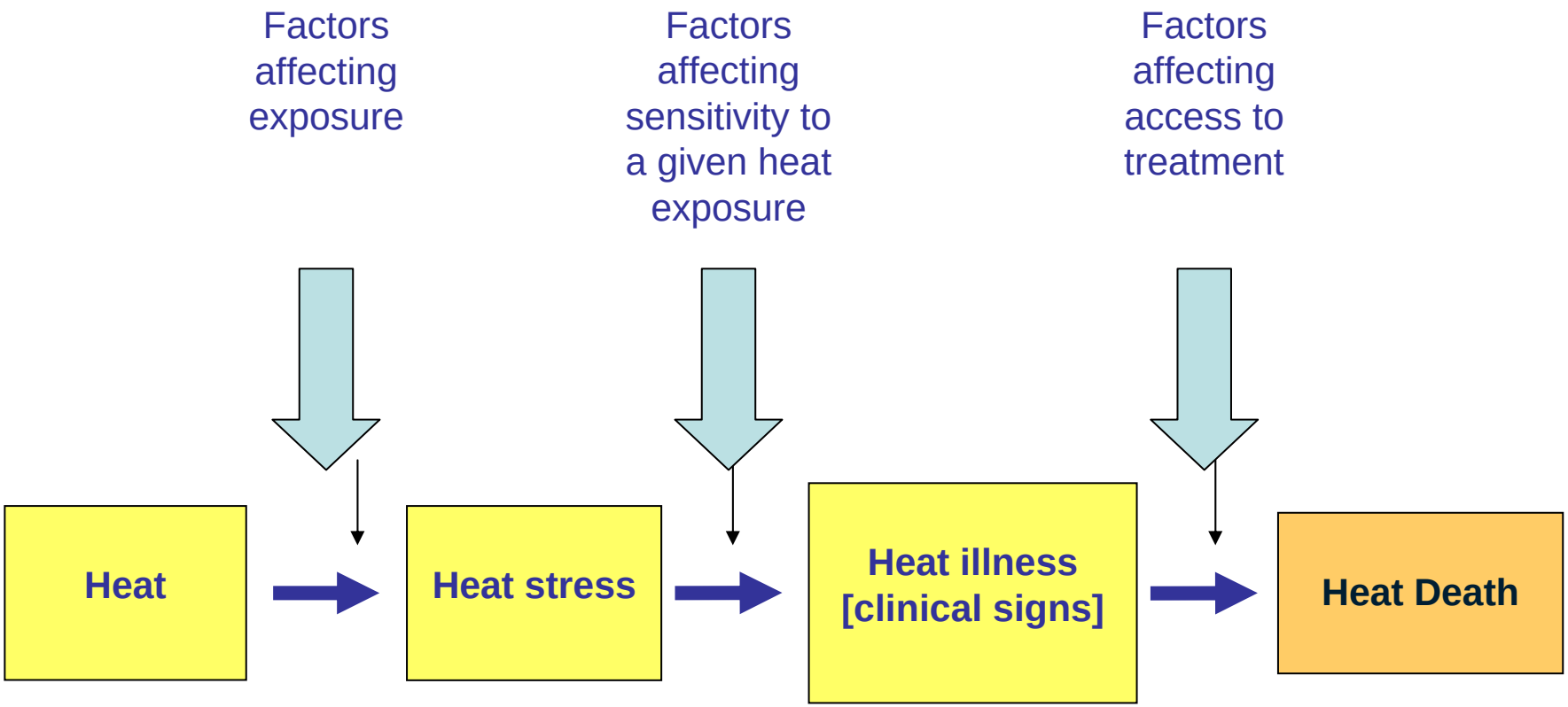
Risk Factors of heat illness



Intervention



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Reducing the risks of heat health impacts

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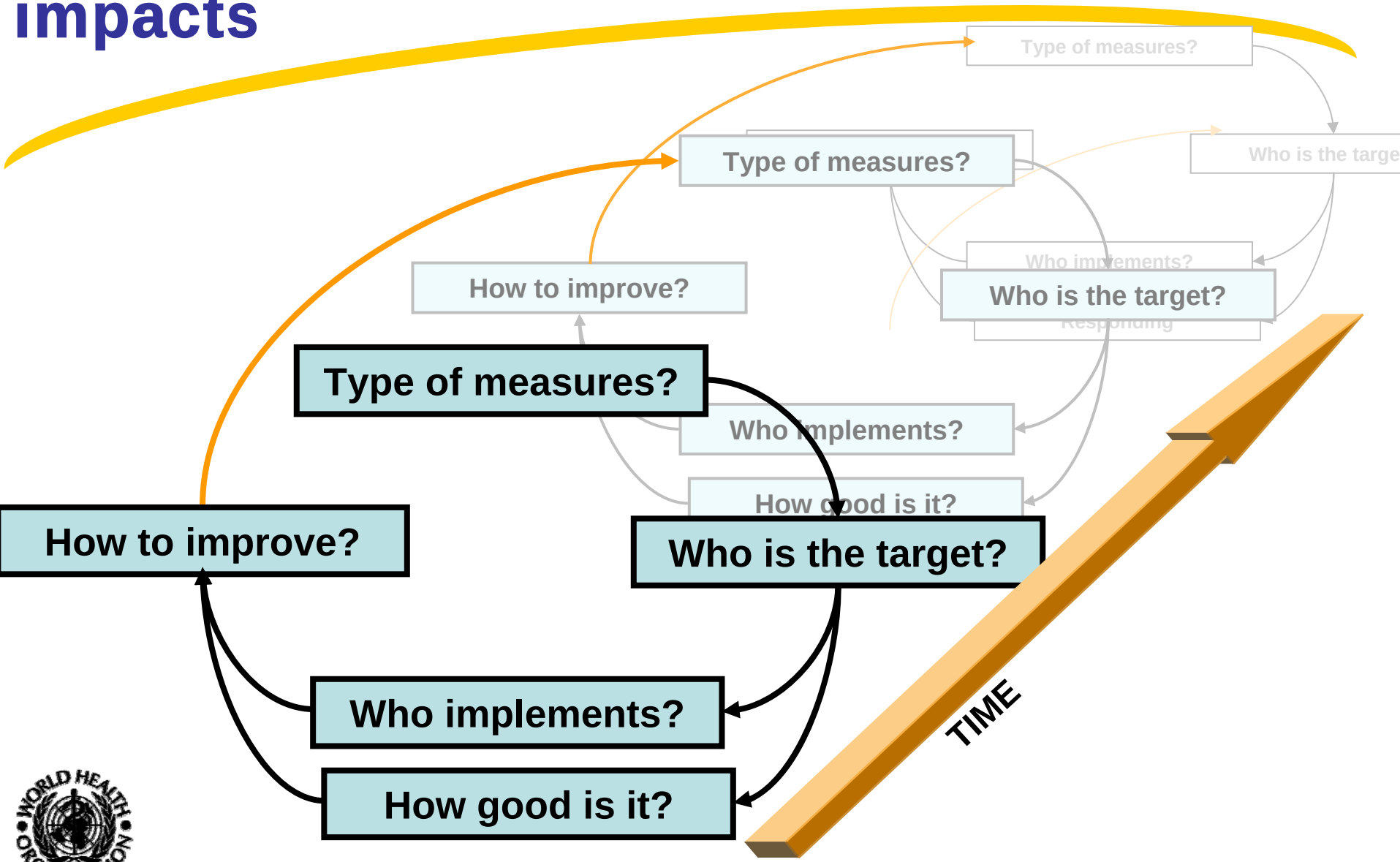

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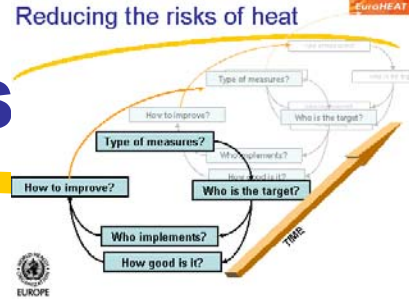
Core elements of heat action plans



- Collaborative mechanisms between institutions and a lead body to coordinate emergency responses;
- Accurate and timely meteorological forecasts;
- Reduction of exposure to heat;
- Particular care for vulnerable populations;
- Provision of health care, social services and infrastructure;
- Risk communication mechanisms;
- Urban planning, energy and transport policies;
- Monitoring and evaluation.

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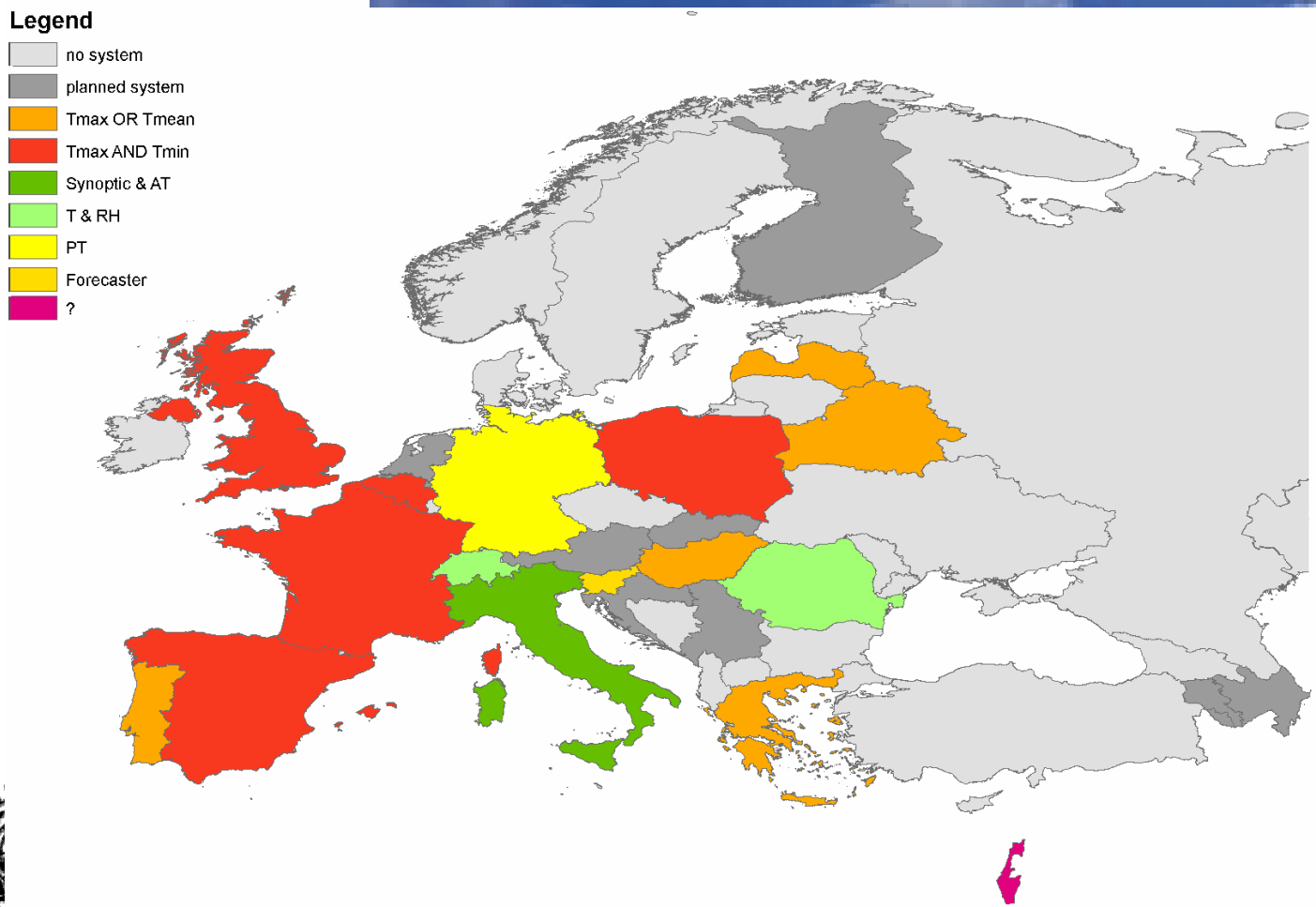
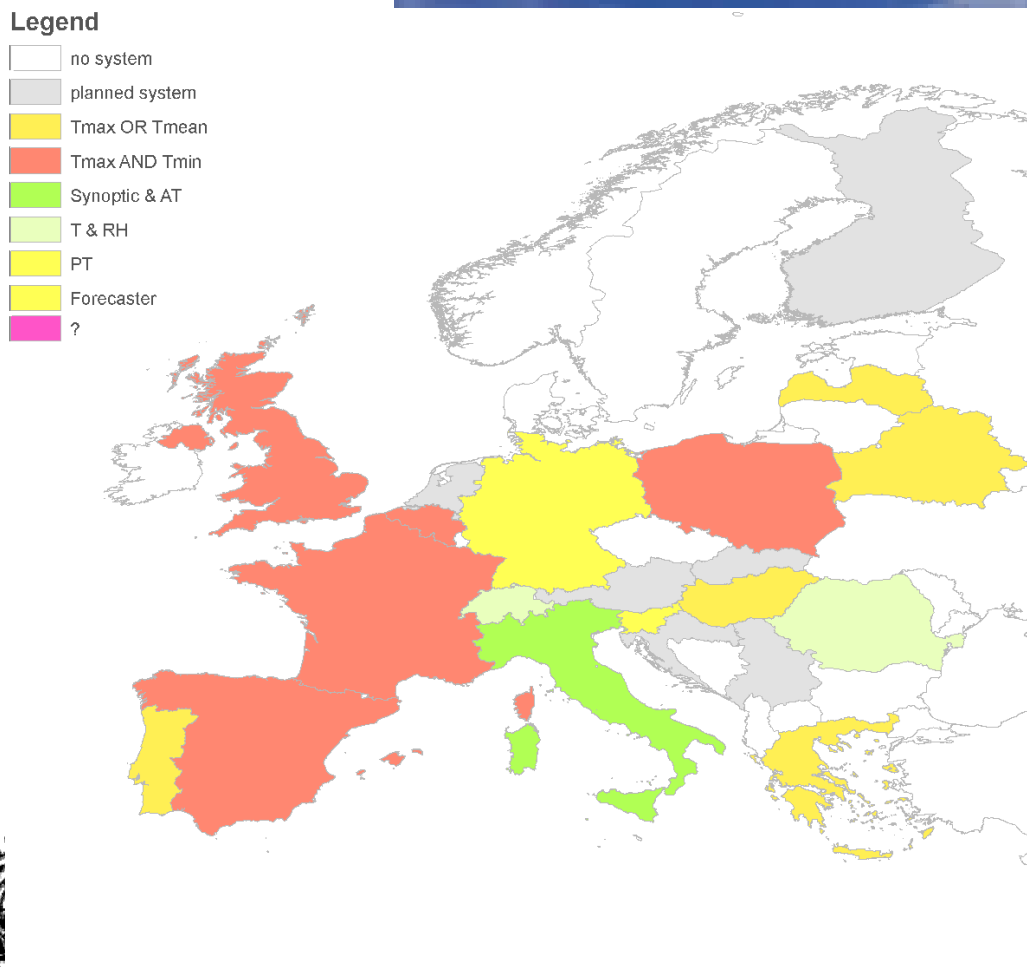
HHWSs in Europe

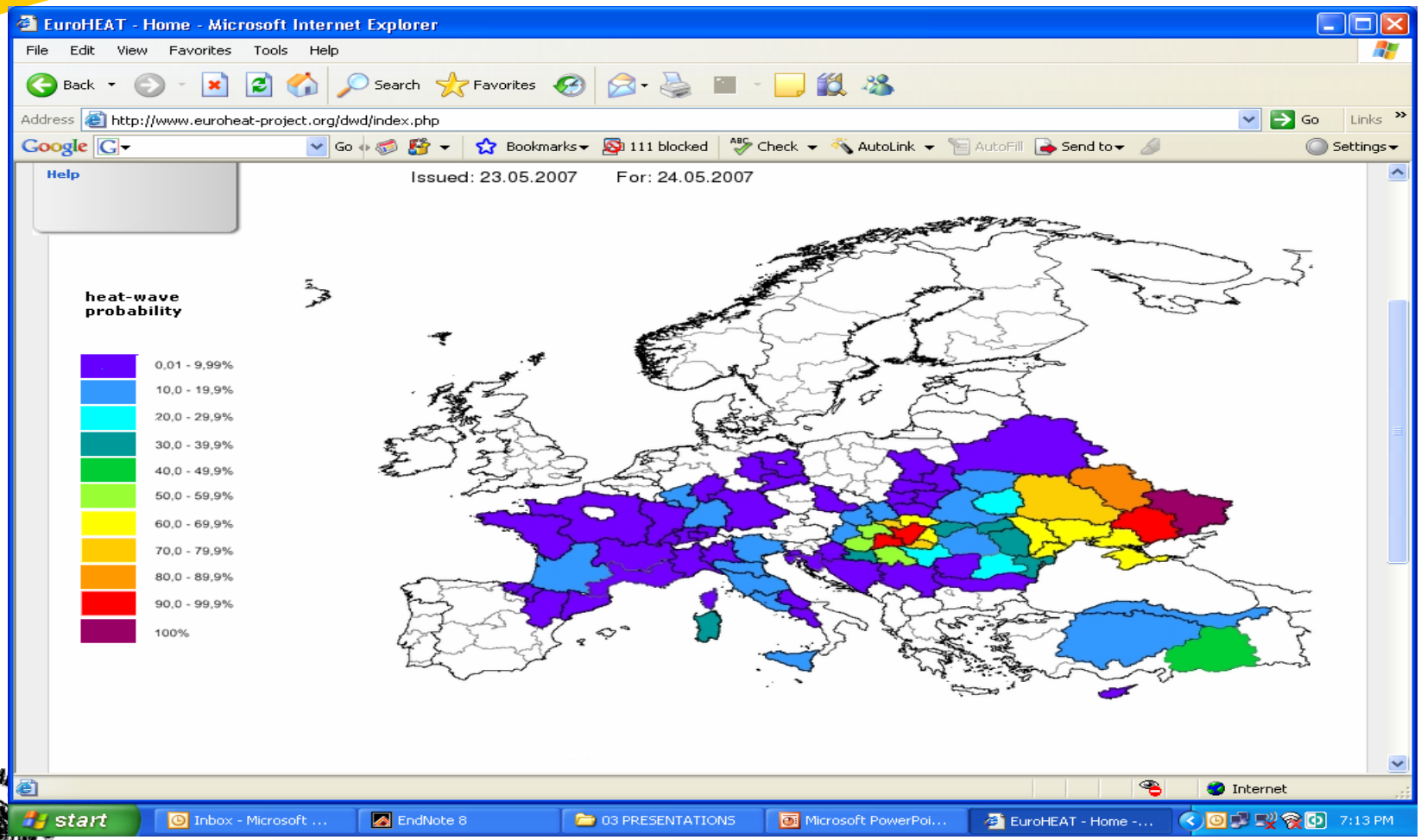


HHWSs in Europe



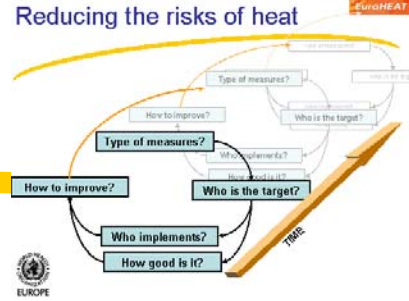
- 16 countries with HHWSs could be identified
- most systems implemented after 2003
- different methods (heat wave definitions)
- sometimes regional specific thresholds
- not all countries have heat plans
- lead times: 1 - 3 days

Seasonal forecasting



http://www.euroheat-project.org/dwd/index.php

Awareness raising



- Keep your house/apartment cool
- Keep the body cool and hydrated
- Help others
- Be alert!

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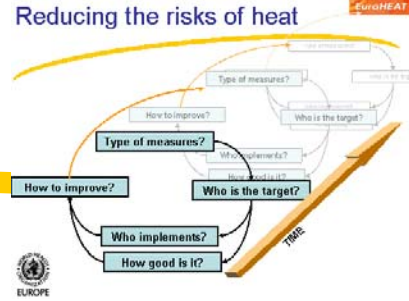
Particular care for people at risk



- Taking action for people at risk:
  - Organization of local and social services
  - The important role of the general practitioners
    - **Population based approach and risk population based approach**

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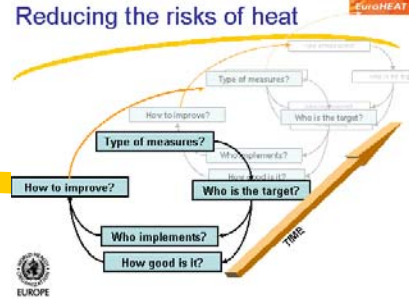
The role of GPs



Is to understand and advice people on:

- Thermoregulation and cardiovascular responses
- Pathogenic mechanisms, clinical manifestation, diagnosis and treatment
- Early signs of heatstroke and initiate cooling
- Risk factors for morbidity and mortality
- Identification of patients at risk - education
- Pre-heat-wave medical assessment
- Side effects of prescribed medication and adjust dosage
- Monitor drug therapy and fluid intake

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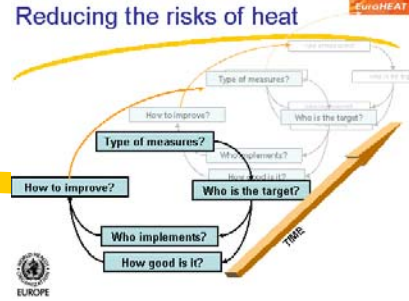
For care home and hospital managers and staff



- Preparation of the building and facilities
- Working arrangements
- Residents
- Organization for home care
- Staff training

Reducing the risk
Before a heatwave

Heatwaves can happen suddenly, and rapid rises in temperature affect vulnerable people **very rapidly**. Make as much use as possible of existing care plans to assess which individuals are at particular risk, and to identify what extra help they might need.

Health and social care providers need to plan ahead to ensure that care and support for people at risk can be accessed in the event of a heatwave. Anyone living alone is likely to need at least daily contact, whether by care workers, volunteers or informal carers. People with mobility or mental health problems, who are on certain medication, or living in accommodation that is hard to keep cool, will probably need extra care and support.

If you are caring for someone in their own home, these are the steps you should take **before** the weather gets hot. Where possible, involve their family and any informal carers in these arrangements.

Environment

- Check any south-facing windows, which let in most sunlight, can be shaded, preferably with curtains. Metal Venetian blinds may make things worse.
- Check the person's home or room can be properly ventilated, without causing any additional health risk, discomfort or security problems.
- Consider the possibility of moving the person to a cooler room. People living in top floor accommodation may be at particular risk as heat rises.

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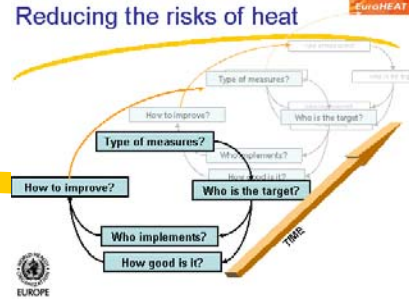
Reduction of heat exposure (1)



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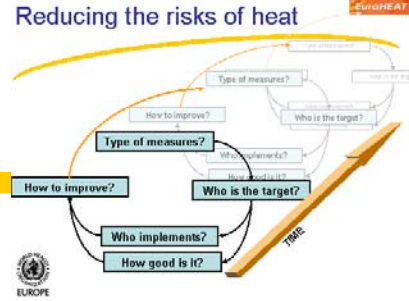
Short term: • Access to cooled spaces • Thermometers • Fans and drinking water • Mobile evaporative coolers	• Cheap, immediate benefit • Can be implemented by individuals	• Inherently inequitable; • may be of limited public health benefit • [potential problems with fans and drinking] • Increase energy use and greenhouse gas emissions

Reduction of heat exposure (2)



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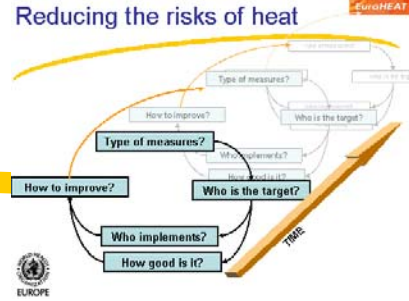
Medium term • Increase external shading • Cool paints on outside walls • Cool pavements/ roof gardens • Building structures: radiant barriers, insulation • Energy efficient air conditioning • Risk maps (UHI)	• Can be designed not increase energy consumption • Can be implemented at building or city scale	• Moderately expensive • Effectiveness proven in case studies but uncertain at urban or regional scale

Urban planning, energy and transport policies



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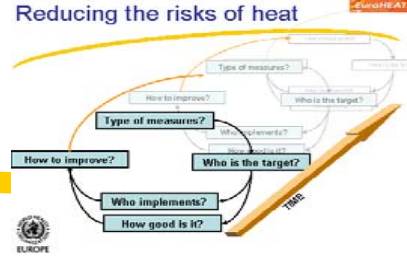
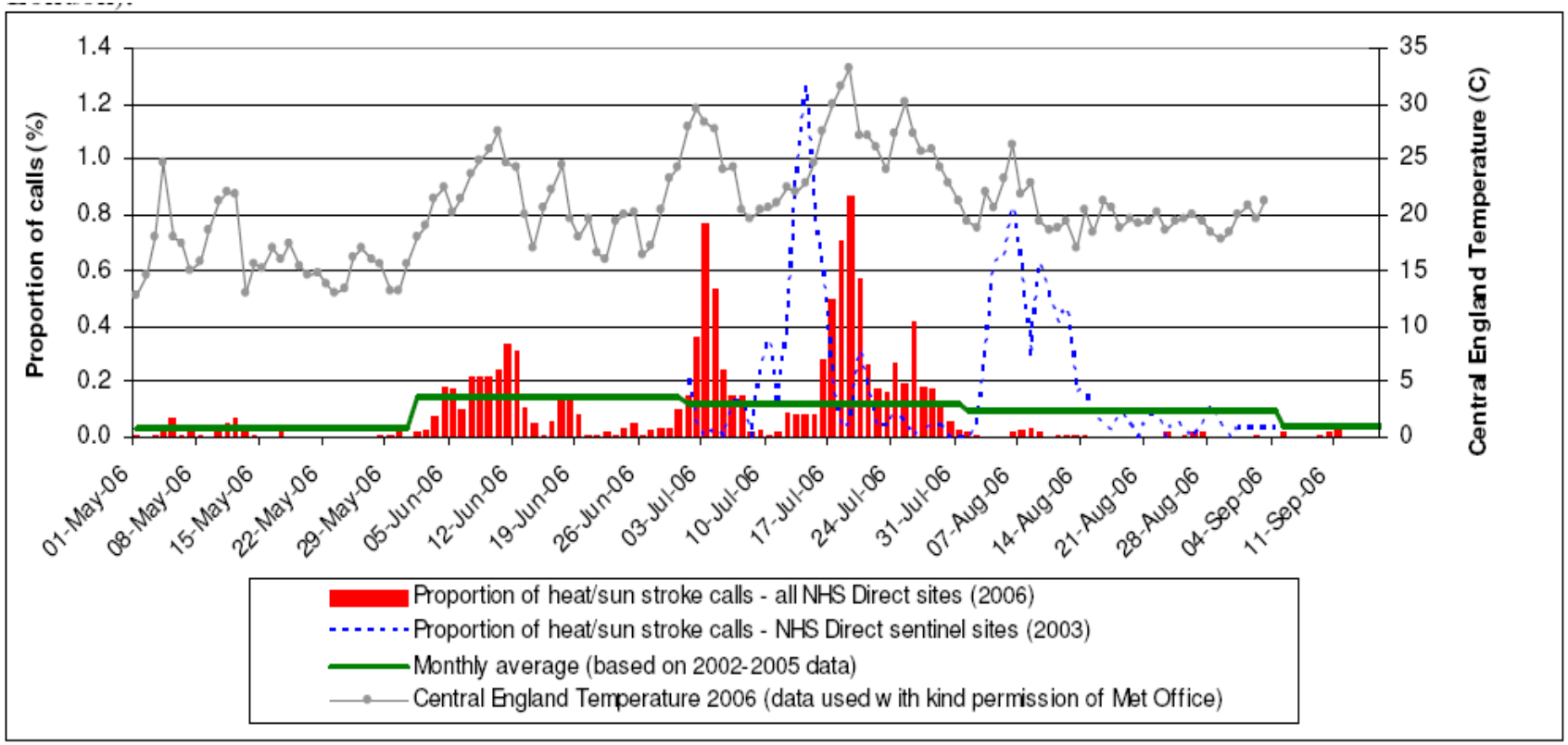
• Urban planning, transport for energy efficiency • Land-use changes • Mitigation of climate change	• Reduced energy consumption and greenhouse gas emissions • Inherently equitable • Major potential health benefit	• Long lead times • Requires political will (at international level, in the case of climate change mitigation) • Costly (but cost effective, in the long term?)

Real time data





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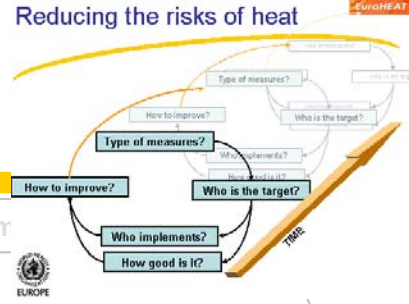
Monitoring and evaluation



Type of measures?

How to improve?

Who is the target?

Type of measures?

Who implements?

How good is it?

How to improve?

Who is the target?

Who implements?

How good is it?

TIME

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WHO – next steps

- Dissemination of results and products
- Continuation of EuroHEAT network
- Assist countries in developing and implementing heat action plans
- Coordinate monitoring and evaluation
- Develop guidance materials for extreme events such as flooding, droughts, fires, ...

Red Cross Climate Centre

- Use guidance
- Support in implementation
- Contribute to dissemination
- Jointly offer training

Partners

London School of Hygiene and Tropical Medicine (United Kingdom)
Sari Kovats et al

National Institute of Environmental Health (Hungary)
Anna Paldy et al

German Weather Service (Germany)
Christina Koppe
Paul Becker

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Paola Michelozzi et al

University of Athens (Greece)
Antonis Analitis
Klea Katsouyanni

World Health Organization
Franziska Matthies
Simon Hales
Bettina Menne

http://www.euro.who.int/globalchange

http://www.euroheat-project.org/dwd/index.php