

Klimaförändringar i Skandinavien – Sundhedsvæsenets beredskap

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Climate change is a real risk

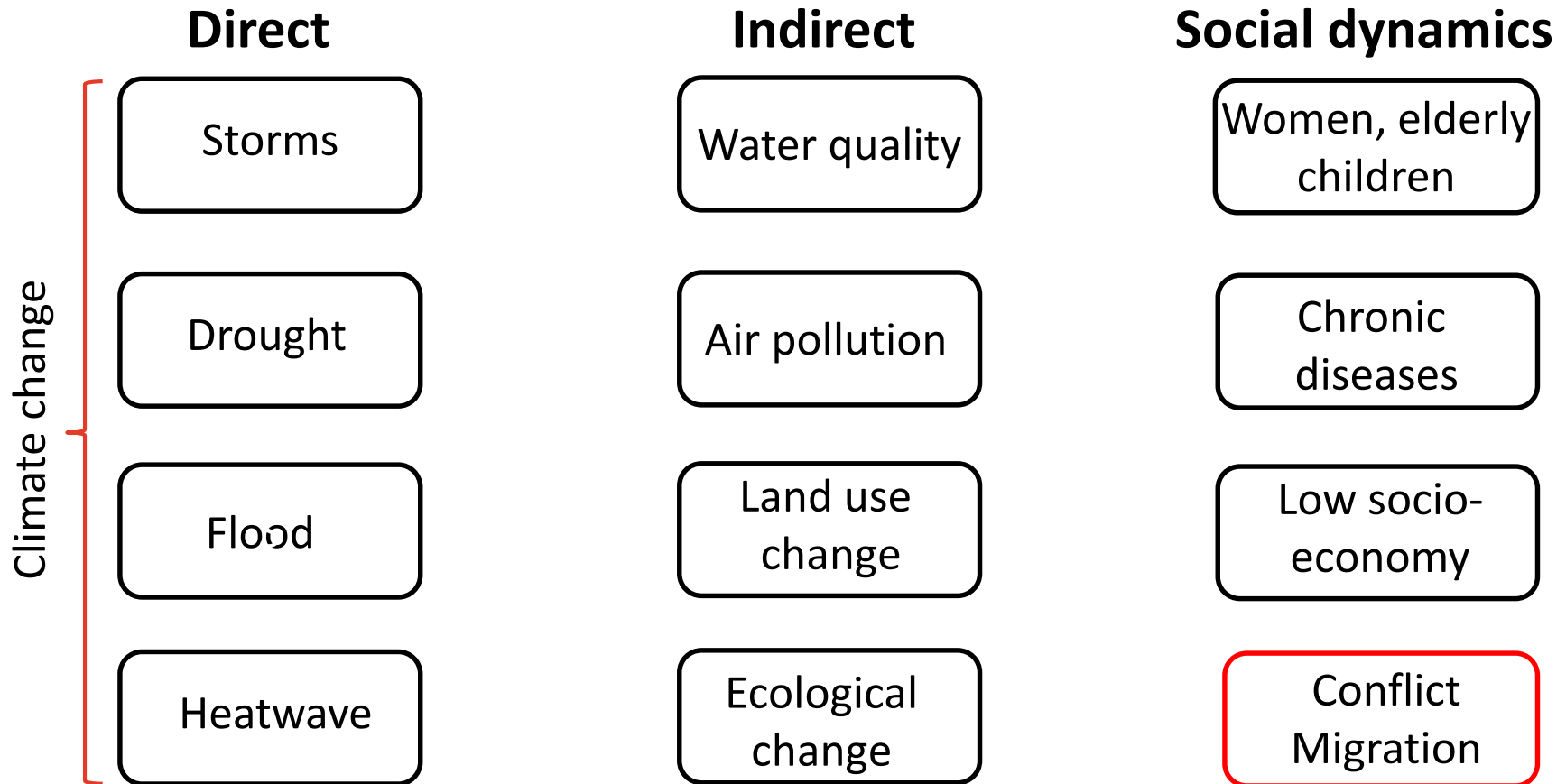
Paris Agreement 2015

- Global temperature rise this century (well) below 2°C
- 133 out of 197 countries have ratified

World Economic Forum: The Global Risks Report 2017

- Likelihood: Extreme weather event (1)
- Impact: Extreme weather event (2), failure of climate change mitigation and adaptation (5)

Direct, indirect effects of climate change on living conditions and social dynamics



Effects of climate change on disease panorama

Cardiovascular diseases

Respiratory disease

Infectious diseases

Allergies

Mental illness

Undernutrition

How to act on climate change?

Mitigation:

reductions in human emissions of green house gases

Adaptation:

lower the risks posed by the consequences of climatic changes

When will Scandinavia be fossilfree?

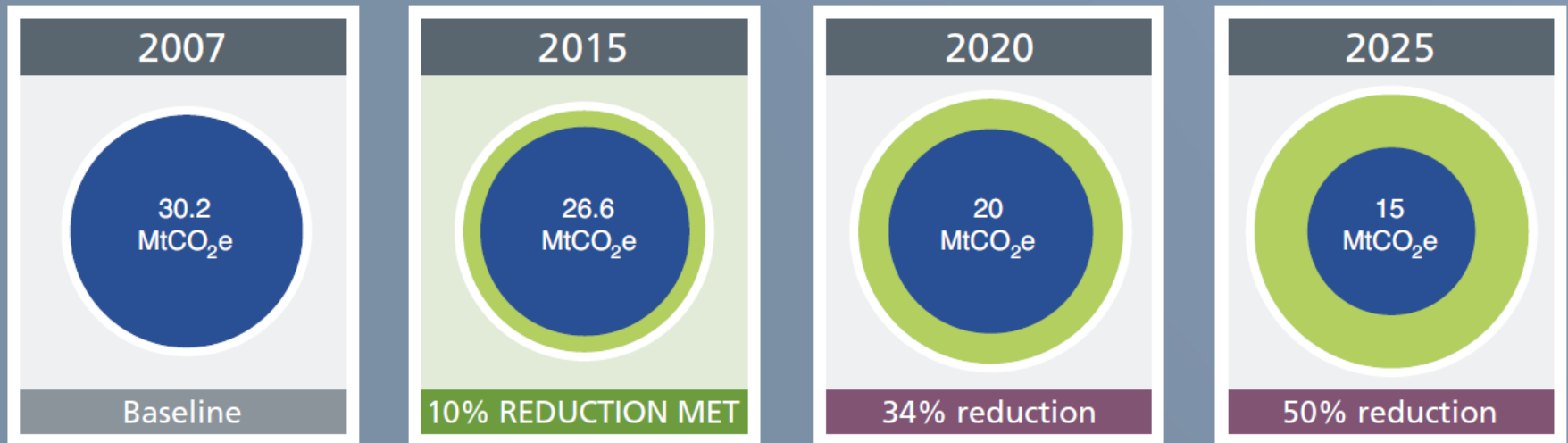


... and the health care systems – national plans?

National programs for mitigation in Health Care?

England: yes - carbon footprint has fallen by 10% between 1997 and 2015

Climate Change Act levels of ambition for the wider sector



4

Sustainable development in the health and care system

<http://www.sduhealth.org.uk/policy-strategy/reporting/sustainable-development-in-health-and-care-report-2016.aspx>

Sweden, Denmark: no

Mitigation: Size of emissions of greenhouse gases in health care?

Country	Health Care (% of GDP*)	Health Care: greenhouse gas emission, % of all emissions	Health Care: greenhouse gas emission, MT CO ₂ e,
Denmark	10.8	?	?
Sweden	11.9	?	?
England	9.1 (UK)	3-4%	22.8 MT
USA	17.1	10%	655 MT

*GDP – gross domestic product

Eckelman MJ, Sherman J. Environmental Impacts of the U.S. Health Care System and Effects on Public Health. PLoS One. 2016 Jun 9;11(6):e0157014.

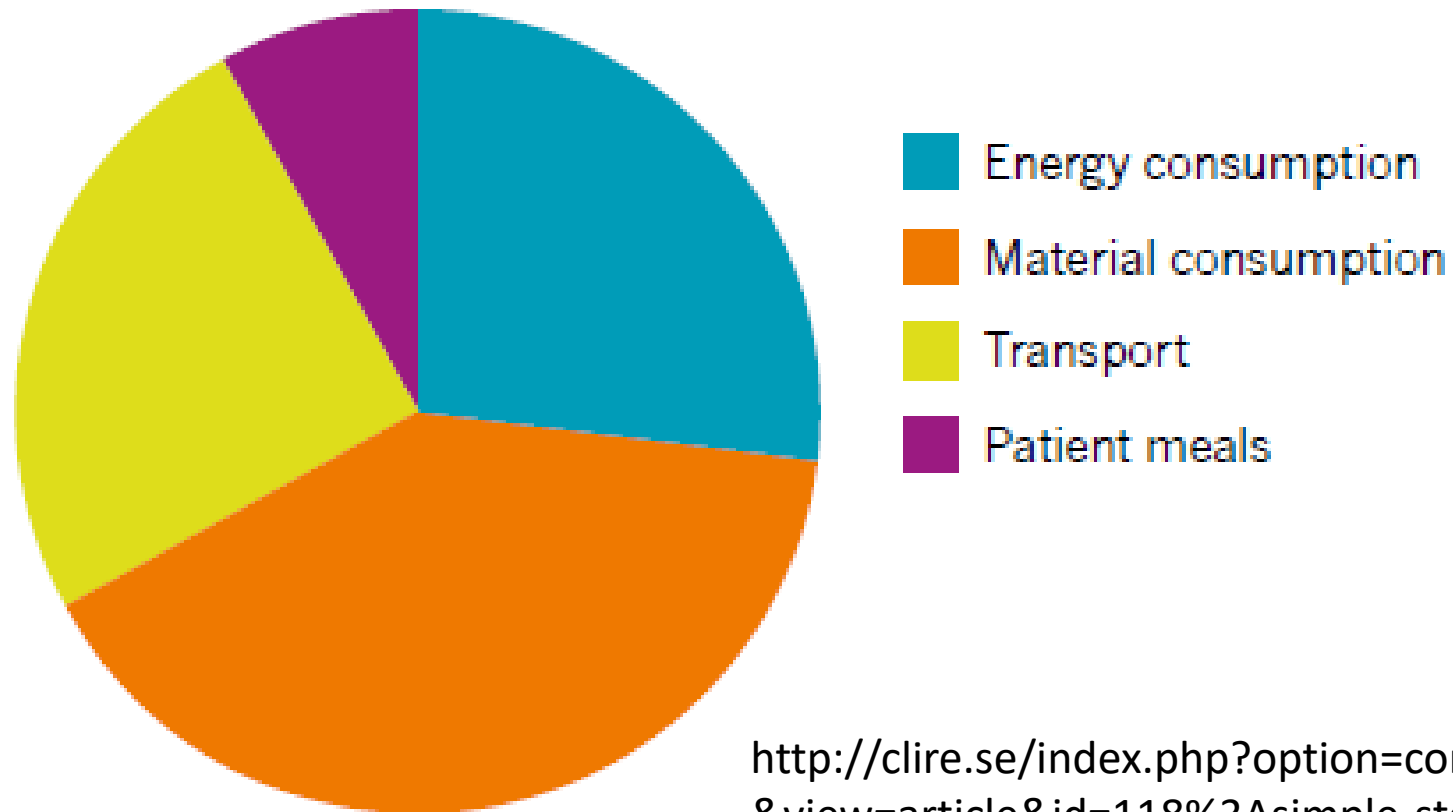
Klimaregion Nordjylland - klimaregnskab

CO₂e udledninger (ton):

Region Nordjylland	2010	2011	2012	2013	2014
Bygninger og arealer	55.350	45.598	43.400	45.002	39.282
Forplejning	27.187	26.491	19.670	19.268	20.290
Patientartikler	22.725	22.161	21.333	22.897	22.737
Service og administration	26.126	22.506	23.618	28.318	20.479
Transport	15.501	15.720	20.330	20.917	19.671
Udstyr	13.610	13.575	18.427	16.327	12.838
Øvrig sundhed	51.677	41.439	42.967	44.470	42.437
Total	212.177	187.489	189.745	197.198	177.734

[http://www.rn.dk/Om-Region-Nordjylland/KlimaRegion/~media/Rn_dk/Om%20Region%20Nordjylland/KlimaRegion/RN%20Klimaregnskab%202014%20-2020.ashx](http://www.rn.dk/Om-Region-Nordjylland/KlimaRegion/~/media/Rn_dk/Om%20Region%20Nordjylland/KlimaRegion/RN%20Klimaregnskab%202014%20-2020.ashx)

Distribution of CO2 emissions in health care: Example Skåne Region, 2011



[http://clire.se/index.php?option=com_content
&view=article&id=118%3Asimple-steps-to-
reduce-climate-impact-from-
healthcare&catid=34%3Ageneral&Itemid=57&l
ang=sv](http://clire.se/index.php?option=com_content&view=article&id=118%3Asimple-steps-to-reduce-climate-impact-from-healthcare&catid=34%3Ageneral&Itemid=57&lang=sv)

SIMPLE STEPS TO REDUCE THE CLIMATE IMPACT OF HEALTHCARE



1. Mapping the climate impact of the clinic (Urology Clinic and the Clinical Hand Unit, SUS University Hospital in Malmö)
2. Identifying the areas with the greatest impact
3. Measures to reduce impact
4. Evaluating the results

<https://noharm-europe.org/articles/news/europe/clire-report-shows-how-healthcare-can-reduce-its-climate-footprint>

Benefits and co-benefits of reducing carbon footprint

Reduce emission of CO₂ (9-41% reduction during 4 years)

And important co-benefits:

- Make activities/flows more effective
- Reduce wastefulness
- Free up value-creating time

<https://noharm-europe.org/articles/news/europe/clire-report-shows-how-healthcare-can-reduce-its-climate-footprint>

Adaptation

- Heatwaves
- Changing panorama of infections
- Storms, floods
- Exposure to pollen → allergies

Fremtidens temperatur i Danmark

- Den årlige middeltemperatur i Danmark er steget cirka 1,5°C siden 1870 og forventes at fortsat at stige
- Temperaturen vil stige 1,2 – 3,7 grader i løbet af dette århundrede (lave- højesценarie)
- Hedebløge* – øget frekvens (x2-3) og længde

-
- Gennemsnittet af de højeste registrerede temperaturer målt over tre sammenhængende dage overstiger 28°C

<https://www.dmi.dk/klima/fremtidens-klima/danmark/ekstrem-vejr/>

Effects of extreme heat on health

- Sweating, reduction of blood volume
 - Redistribution of blood flow
 - Increase in heart rate
- } Increased burden on heart and blood circulation
- Increased breathing → Increased burden on pulmonary function
- On day 2 of a heat wave with temperature above 27.5°C - mortality increases 10%, and on day 7 by 20-25% in vulnerable groups

Värmeböljor och dödlighet bland sårbara grupper – en svensk studie. Östersund: Statens folkhälsoinstitut; 2010. R 2010:12.

Vulnerable groups for extreme weather events

- Infants, small children
- Age above 65 years
- Chronic heart/lung/renal diseases
- Severe obesity/diabetes
- Treatment with specific pharmaceutical agents (diuretics, ACE-inhibitors, digoxin, lithium, antiepileptic medication)
- Severe mental illness or dementia
- Socially isolated elderly/chronic diseases
- Work or physical activity in heat exposed environment

Heat-health action plans to reduce mortality*

Heatwave early warning systems

(Swedish Meteorological and Hydrological Institute):

- Information on high temperatures: Maximum 26°C at least 3 consecutive days
- Class 1 warning for very high temperatures: Maximum 30°C at least 3 consecutive days
- Class 2 warning for very high temperatures: Maximum 30°C at least 5 consecutive days or maximum 33°C at least 3 consecutive days

*http://www.who.int/globalchange/publications/WMO_WHO_Heat_Health_Guidance_2015.pdf?ua=1

Heat-health action plan to reduce mortality in the municipalities and regions

1. Action plan that is implemented in the organisations
2. General advice to staff within home care service, home nursing, nursing home, primary health care.
3. Advice to doctors and nurses within hospital care

- Considerable increase of health risk in vulnerable groups at temperatures of 26°C and above lasting for 3 days or more (heat warning from SMHI).
- Preventive measures are monitored drinking, cool environment, shower, minimized physical activity, focus on high risk medications.

Infections

- Heat, more rain, humidity, flooding of sewers etc → change of infection panorama and exposure (tapwater)
- Foodborne infections such as Salmonellosis, Campylobacteriosis, E. coli (VTEC).
- Tapwater – Legionella
- Seawater - Vibrio vulnificus (badsårsfeber)
- Ticks: Borrelios, tick borne encephalitis
- New vectors (mosquitos) and new infections

More pollen- increase in allergy

- Better growth conditions for pollen-bearing plants
- Prolonged pollen seasons for allergens such as hazel, alder, birch, grass and sages
- New pollen-bearing species: ragweed (Ambrosia) - gained a footing in Denmark
- Stronger allergens
- One third of all 5-year old children in Denmark/Sweden have at least one of atopic dermatitis, asthma, or allergic rhinoconjunctivitis

Climate change – slight increase in the risk of accidents

- Strong winds, heavy rains and thunder storms
- Danger from flying objects and falling trees
- Traffic accidents
- Lightning

Conclusions

Sundhedsvæsenets beredskap?

Mitigation –

- Reduction of carbon footprint in health care systems need more focus to reach the goal of a fossil free society within 30 years (disposable material, pharmaceuticals, reduce waste)
- N.B. Co-benefits (cost-effectiveness, better care)

WIN-WIN SITUATION!

Conclusions

Sundhedsvæsenets beredskab?

Adaptation –

- **Heat-health action plan**

More need to be done on the national and regional levels

- **New infection panorama**

Education, information, resources, overlap with antimicrobial resistance

- **Pollen**

Education, information, resources

An active role of the medical profession is needed!

2015

Policy
Climate and health

The Swedish Medical Association



And other issues...

- A diet for both sustainability and better health
- The health co-benefits of a fossil free society

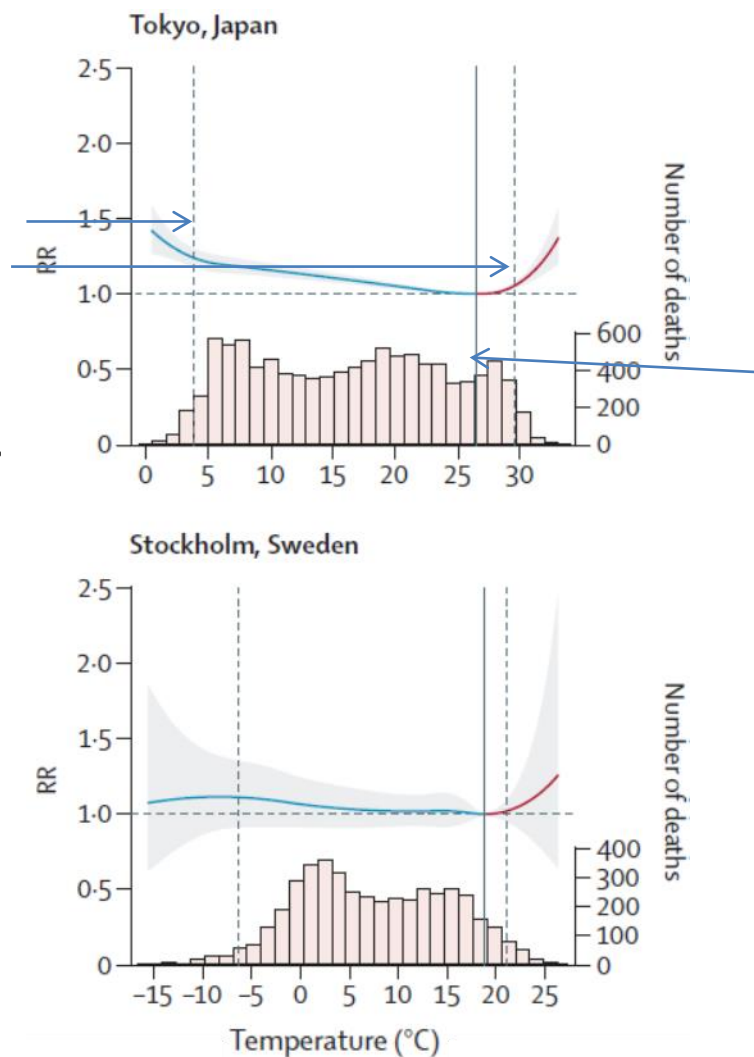
Tak!



Nord-Koster

Effekter av kyla och värme på mortalitet i Tokyo och Stockholm

Streckade linjer anger 2,5:e och 97,5:e percentilen. Nivåer under 2,5 är extrem kyla och över 97,5 extrem värme



Temperaturen med minimal mortalitet
Temperaturer under denna nivå är kyla (blå linje) och över är värme (röd linje)