Figure 1-1  The cyclic behavior of healthcare action and reaction

Source: (Pelikan & Schmied, n.d.)
The carbon footprint of the European healthcare sector is at least 5% of total EU’s greenhouse gas emissions. US 7 %. Global 4,4 %.

For comparison: Direct emissions from aviation account for about 3% of the EU’s total greenhouse gas emissions.
History – Sustainable healthcare for 15 years

- Sustainable Healthcare by Sweden in London, Berlin, Oslo, Copenhagen
- CleanMed Europe in Malmö 2012
- Different international collaborations and boards
- Working with Nordic hospitals, but also in UK, Taiwan, US etc
- Big international and Nordic network

Innovation agenda 2015 – start of NCSH

- Swedish hospitals and regions are very forward
- The Nordics are world leaders and a link to research and innovation.
- Conclusion: Sweden is too small. We need to make it Nordic!
<table>
<thead>
<tr>
<th>Sustainable hospitals</th>
<th>Good environmental performance</th>
<th>Good environmental performance</th>
<th>Applications for healthcare</th>
<th>Good sustainability performance and applications for healthcare</th>
<th>Smart locally produced organic food</th>
<th>Support/boost sustainability performance</th>
<th>Management system, reporting, training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction industry</td>
<td>Life Science</td>
<td>Med Tech</td>
<td>Clean Tech</td>
<td>&quot;Regular&quot; Companies</td>
<td>Food Industry</td>
<td>ICT</td>
<td>Management</td>
</tr>
</tbody>
</table>
The Nordic Center for Sustainable Healthcare aims to:

- Raise the status and awareness of sustainable healthcare
- Boost innovation and investments in sustainable healthcare
- Bring world-class solutions and ideas to the Nordics
- Deliver Nordic solutions & knowledge to the world
What we at NCSH address

- Energy efficiency in healthcare- and hospital buildings
- Hazardous substances in medical devices
- Transportation in healthcare
- Climate impact from healthcare operations
- Supply chain management and human rights in the supply chain
- Reduction of dangerous chemicals
- Improving the sustainability performance in Med Tech and Life Science
- Waste water treatment and water management
- Single-use items
- Green building design
- Packaging
- Pharmaceuticals in the environment
- Waste management and waste reduction
- Infectious waste treatment
- Innovation & export
- & more
New hospital in Grønnköpingkið city

- 453 000 inhabitants – 1,5 million in the region
- University hospital
- Totally new on a new location
- ER, maternity ward etc
- Planning to be built in 2021

Will be the greenest hospital in the world with state of the art solutions

All solutions must exist in a Nordic hospital and be available on the market
**Grøn** is the Danish word for green with the Nordic letter ø

**Köping** is a common part of old Swedish city names and refers to trading - typical Swedish ö

ð is a letter used in Icelandic, Faroese and Elfdalian. It was also used in the rest of Scandinavia during the Middle Ages.

If you add an n to the Danish Grøn you get the Norwegian word for green - **Grønn**

**ki** is the last part of Helsinki - the Finnish capital and the last part in the Finnish word for city - kaupunki
The worlds most sustainable healthcare 2030
Nordic Conference on Sustainable Healthcare

DTU – Copenhagen 2020 – June 12
Platform for internationalization: Energy- and Climatesmart healthcare

- Financed by the Swedish Energy agency
- Operated by NCSH
- 2-4 years
- Purpose: Internationalization of Energy- and Climate-smart Healthcare
What we do:

- Promote innovation with hospitals, companies and testbeds
- Best practice cases from Swedish Hospitals
- International collaboration to increase the spread of Swedish solutions to speed up the process to a more climate friendly Healthcare globally
Examples:

- Study visits at Nordic Hospitals
- Collaboration with Testbeds and Research institutes to evaluate new technology
- Start new spin off projects
- Pitching innovative solutions to hospitals
- International conferences with partners
Future healthcare – Smart and sustainable today

- Sustainable, digital and holistic.
- Healthcare as a leverage for smart circular cities.
- DTU in Denmark and Upgraded Finland are partners
Nordic white paper on sustainable healthcare

• Part of the Nordic Prime Minister initiative on targeting the SDG:s.

• All Nordic countries and territories:
  • Iceland
  • Norway
  • Denmark
  • Finland
  • Sweden
  • Åland
  • Greenland
  • Faero Island
Why are the Nordics frontrunners?
We want to do the right things
Everyone has a relation to nature
First EPA in the world – long traditions
Trust – Nordics have trust in the state and in each other
Strong legislations
Politicians can make unpleasant decisions
Hospitals at the forefront

• Public procurement is a strong tool
• Management – sustainability is present
• Organisation – from environmental managers to 250 environmental coordinators

• Systems for environmental performance:
  • Environmental management systems – structure - Chemical management systems
  • Statistics on almost everything
  • Testbeds – Innovation procurement etc
  • Reports
System solutions

The hospital does not act alone. Part of an ecosystem:

• District heating
• District cooling
• National recycling programs
• Regional biogas digestion
• Waste water treatment
• Clean energy
• Clean water
• Clean transportations
Innovative companies

- CleanTech with solutions for healthcare
- Medtech with good environmental performance
- Outside hospital technology – waste water treatment – energy etc.
- Authorities promote and fund innovations, testbeds etc.
- Sustainable healthcare is identified as 1 of 4 export strongholds
Holistic - circular

- Most hospitals work with all environmental issues
- Understanding of end of life – supply chain etc
- Top 5% in everything – not best in anything.
- Reduction of pharmaceuticals in the environment
- Procurement and supply chain management
- Climate
- Green building design
- Chemicals
- Materials, single use items etc
- Energy efficiency
- Food
- Transportation
- Waste and clinical waste
- Water

**Investments**, **Status**, and **Importance** scores are shown for each category.
Daniel Eriksson

Phone: +46 707-94 42 13
Mail: daniel.eriksson@tem.se
Twitter: @DanielatTEM

Johannes Brundin

Phone: +46 (0)730677431
Mail: johannes.brundin@tem.se

www.tem.se
www.nordicshc.org