

“Building a knowledge sharing network to deliver the evidence needed to transform care”



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For EuHPN Workshop November 23-25, 2016

Our New Erasmus MC (ONE)



Once in a lifetime??

Presentation overview

2000 - 2010

**Looking for
the evidence to
transform care**

2010 - 2015

**Adding to the
evidence needed**

2016 - ?

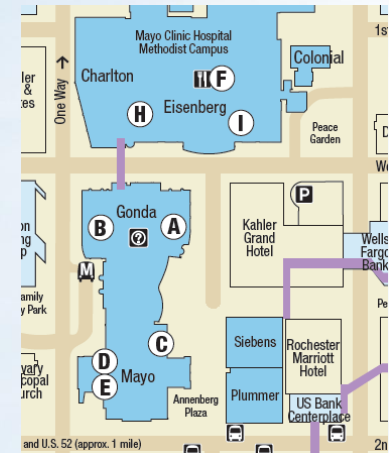
**Building a
knowledge
sharing network**

We started with...

2000-2010

Looking for
the evidence to
transform care

- “Thinking differently, working differently, building differently”
- The “business case” for the new Erasmus MC (convincing government/financers)
- Guiding principles and ambitions
- Looking for the evidence out there (literature, conferences, study visits)
- Using the evidence to steer the design process



Commitment to principles

Eind
2016

Looking for
the evidence to
transform care

- Patient first
- Creating an identity
- Facilitating the professional
- Efficient hospital management
- Safety first
- Healing is leading
- Sustainable is cheaper in the end



Making use of the evidence out there

2000 -
2010

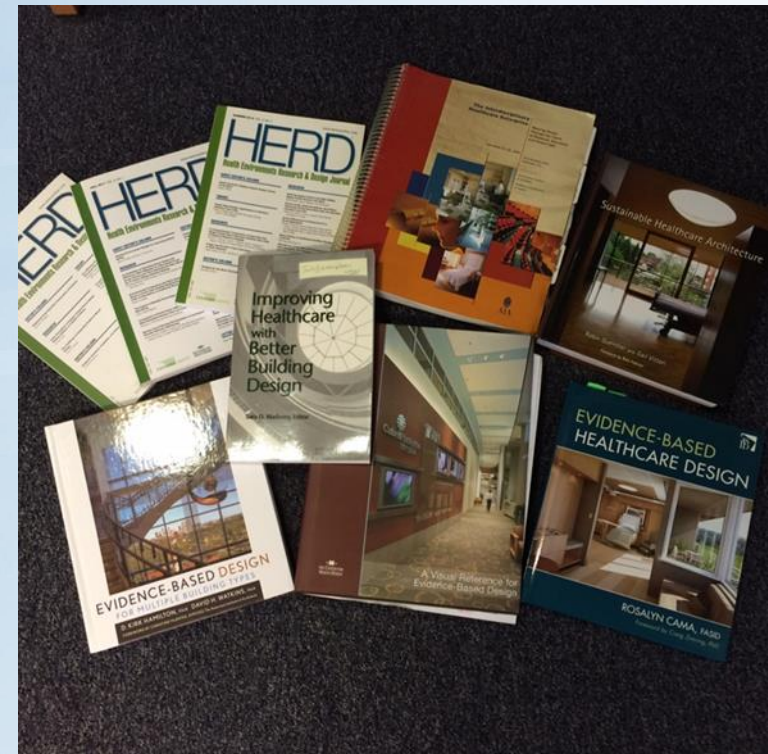
Looking for
the evidence to
transform care

Some examples:

- Single patient rooms (with en-suite bathrooms) for efficiency
- Reduction of noise for reducing stress
- Applying standardization to gain flexibility

Sources among others:

- The Center for Health Design
- International Academy for Design & Health
- AIA – Academy of Architecture for Health
- Guidelines

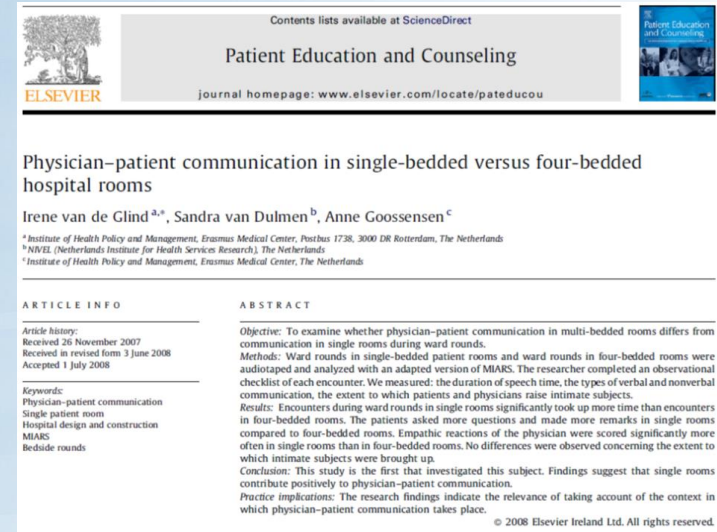


Our own effort

2000 -
2010

Looking for
the evidence to
transform care

- Investing in a dedicated team of people – translating between hospital and architects/engineers
- Investing in a knowledge base to guard the design and the principles applied
- Using opportunities to test new elements (mock-ups and test ward)
- Sharing our concept and starter lessons learned with other projects
- Nurturing the network with fellow travelers on such a unique journey



Then we collaborated

2010 -
2015

Adding to
the evidence
needed

- EBD became more known, we were more actively looking for the best solutions
- We started coming to EuHPN-network meetings, hearing about and seeing good examples of specific design solutions
- We set up a research collaboration with TNO/DuCHA (2010-2014)
- We did a POE on the first finished part of our building
- We shared our lessons learned at an international event at Erasmus MC



Academic Hospital Build
Lessons learned on innovative design concepts and project management

Research findings

2010 -
2015

Adding to
the evidence
needed

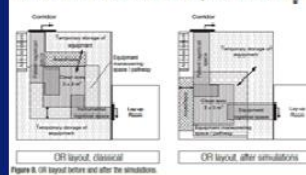
2 Conducting Research in a Hospital Setting: Lessons Learned at Erasmus MC (1)

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During the years 2010-2014 Erasmus MC's Redevelopment Program operated a research collaboration with independent research organization TNO/ Dutch Center for Health Assets (DuCHA), resulting in 2 published articles, additional lighting systems in the A&E Department and measures for providing a 'positive distraction' in waiting and treatment areas, and an innovatively procured bed washing robot. Another project failed, which provided more lessons learned. Finally we conducted POE-research on the first finished part (article accepted but not yet published).

Process Simulation During the Design Process Makes the Difference: Process Simulations Applied to a Traditional Design [CEU]
Roberto Travassari, Riem Goedhart, and Jan Maarten Schraagen



Before planning 24 OR's (including 2 hybrid OR's), we looked at the lay-out and logistics by simulation in a real life set-up and at the air flow systems to be preferred for the laying up process. This resulted in 2 published articles in peer reviewed journals.

Laying-up of sterile instruments in the operating theatre: equal or superior protection by using a horizontal unidirectional air flow system
A.A.J. Vreugdenhil¹, F.A. Soudant², R. Rasmussen³, A. Rouben⁴, F. Wauters⁵, M.J.J. Peck⁶, M.C. Vis⁷



We have not been able to find evidence for stress reduction using a SkyCeiling in a CT-treatment room, but an image like this in the A&E waiting room have reduced 'incidents' significantly. Also verbal history was powerful and led to the decision to invest in more of these systems in the new building. Research conducted in collaboration with Karin Tanja-Dijkstra PhD, Twente University.



After a literature review by TNO/DuCHA and a test-installation of a lighting system with higher lux (1000 instead of 700) and light temperature (6500K instead of 3000K), the design team were asked to install these settings in the trauma-area of the new A&E Department. These settings have been defined to support staff in their 24/7 alertness while dealing with trauma-patients and to avoid adaptation problems while travelling in- and out of trauma rooms.



More research findings

2010 -
2015

Adding to
the evidence
needed

Conducting Research in a Hospital Setting: Lessons Learned at Erasmus (2)

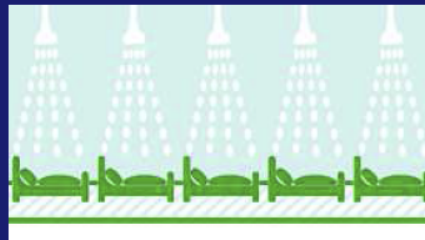
Liesbeth van Heel, MSc, Erasmus University Medical
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Effects of Newly Designed
Hospital Buildings on Staff
Perceptions: A Pre-Post Study
to Validate Design Decisions

Eliane Schreuder¹, Liesbeth van Heel¹, Rien Goedhart²,
Elise Dusseldorp¹, Jan Maarten Schraagen¹, and Alex Burdorf¹

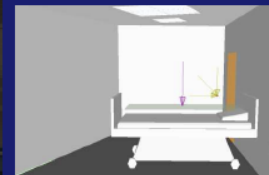
Accepted on January 21, 2015

Advised by TNO/DUCHA and as pilotproject for the Low Carbon Buildings in Healthcare initiative, Erasmus MC initiated the procurement 'Robotic Bedwashing Facility'. In this procurement we asked the market to design a more cost efficient solution to disinfect hospital annually 70.000 beds and mattresses, that also used less energy and water. We used the Forward Commitment Procurement principles that included a series of market soundings that stimulated cross supply chain interaction, a competitive dialogue and outcome based requirements. In the selection phase less emphasis was put on the past experiences with bedwashing facilities than in regular procurements. This project won us the Public Procurement of Innovation Award 2014.



Finally, as part of the collaboration with TNO/DuCHA, Erasmus MC studied the effects of a dynamic lighting system on the sleep pattern and sleep quality of inpatients of the Hematology department at our Cancer Institute. We

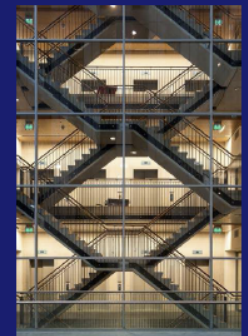
started a RCT in 9 identically equipped rooms, with patients that were required to stay in isolation in their room for at least a period of 17 days. However: after 1 year, we had only managed to include 8 patients in the study; those in the experimental setting complained of visual discomfort. So we had to terminate this very promising and unique study in June 2013. No publication could be made of this failed project.



Some lessons learned: we were not aware enough of the critical measurements between the patients position and the light source; availability of Actiwatch systems was a problem; after we had won over the physicians in accepting that sleep quality might affect wellbeing and outcomes, they were motivated to inform patients and ask them to participate in the study. A lot of factors played a role, and together they forced us to end the study before it was finished.

In our POE-research 12 Hypotheses were tested 6 month prior and 6 month (November 2012 and 2013) after the move to the new building. Approx. 350 unique responses to both surveys (out of a total of 600 both times). Yellow means the hypothesis is affirmed by the study outcomes, white means not yet found to be influenced by the new building. Overall size effect of the appreciation of the new compared to previous workspaces: 1,2 (on a scale of 1 – 10).

- H1: Indoor climate is better
- H2: Perceived atmosphere of safety is higher
- H3: The workspace is appreciated as more supporting to the work
- H4: Perceived wellbeing is higher
- H5: More welcome to movement (e.g. stairs)
- H6: Perceived productivity is higher
- H7: Identification with Erasmus MC is higher
- H8: Perceived sustainability of the building is higher
- H9: Perceived orientation is better
- H10: Satisfaction with amenities is higher
- H11: More welcome to sharing knowledge
- H12: Work atmosphere is better



Our POE-research

2010 -
2015

Adding to
the evidence
needed

Staff experience

pre- and post-study with a control group
(that did not move to the new building)
online survey of perceived performance
of the building(s)

Results

significant improvement in 7 of 12
aspects that were measured
interpreted by relating them to specific
design choices

Research conducted in collaboration
with TNO/DuCHA

Research

THE CENTER FOR HEALTH DESIGN®

Health Environments Research
& Design Journal

2015, Vol. 8(4) 77-97

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Effects of Newly Designed Hospital Buildings on Staff Perceptions: A Pre-Post Study to Validate Design Decisions

Eliane Schreuder, MSc¹, Liesbeth van Heel, MSc², Rien Goedhart, MSc²,
Elise Dusseldorp, PhD³, Jan Maarten Schraagen, PhD¹,
and Alex Burdorf, PhD⁴



More questions...

2010 - 2015
Adding to
the evidence
needed

- What is necessary or possible in the evaluation of the second part of the hospital
 - Focus on single room and transition issues
 - Can we reproduce research done elsewhere to strengthen the knowledge base
- What helps us in the next phase
- What helps us and others and what hinders knowledge sharing...

One size fits all? Mixed methods evaluation of the impact of 100% single-room accommodation on staff and patient experience, safety and costs

Jill Maben,¹ Peter Griffiths,² Clarissa Penfold,¹ Michael Simon,^{3,4}

Janet E Anderson,¹ Glenn Robert,¹ Elena Pizzo,⁵ Jane Hughes,⁶

Trevor Murrells,¹ James Barlow⁷

2016 -

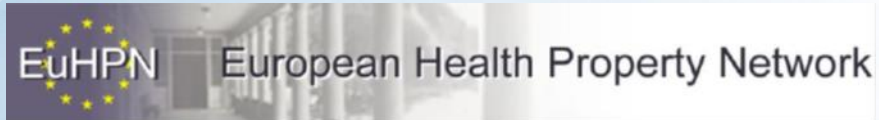
building a
knowledge
sharing
network

What helps...

2016 -

Building a
knowledge
sharing
network

- Telling the story at different podia with posters and presentations (between 2005 and 2016)
- Participating in European projects (LCB Healthcare & EcoQUIP)
- Symposium at Erasmus MC (2014)
- Visits to and from other projects and the design industry, both nationally and internationally
- Membership of Dutch healthcare real estate networks (both for general hospitals and university medical centers)
- EuHPN-membership



**EUROPEAN
HEALTHCARE DESIGN**
RESEARCH • POLICY • PRACTICE



What hinders...

2016 -

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knowledge
sharing
network

“Healthcare real estate wins with professional owner- and guardianship”

But:

- Building your own knowledge base (in dedicated people) is often too costly for individual hospitals
- New knowledge on EBD from magazines disseminates slowly to (junior) consultants in the industry
- TNO/DuCHA is no longer the expertise center in our country
- Universities look only at specific aspects (not the full picture)



When is help most useful

- In setting out the integrated business case – requires a boardroom counterpart (now often consultants, banks, PFI/PPS consortia)
- In review sessions or second opinions – using the knowledge, experience and lessons learned from other hospitals (technical requirements, masterplan, contract documents)
- Evaluation of the finished product and benefits realization management as part of the project – to give impulse to innovation and quality improvement

2016 -

building a
knowledge
sharing
network



What are we looking at

2016 -

building a
knowledge
sharing
network

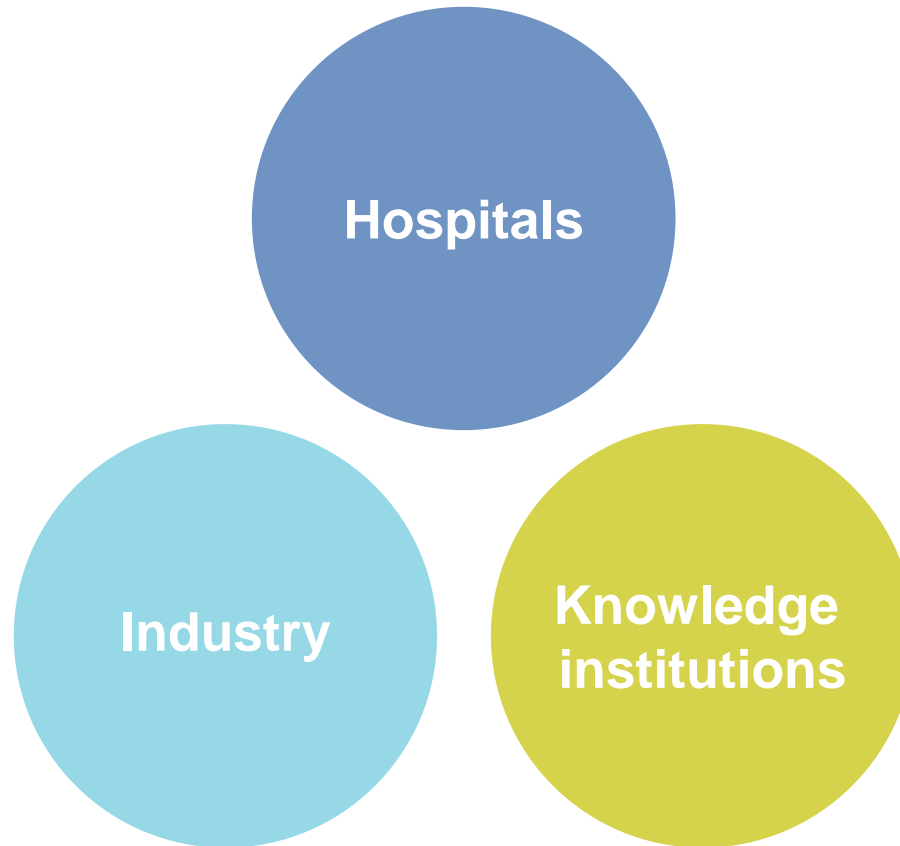
How can we continue to develop knowledge needed in the sector (when governmental supported institutions step aside in an increasingly commercial field)

How can we introduce 'reason' in a field with ever higher standards (installations and devices)

How can we find out what really works and would help others as well



Developing the model of knowledge sharing



Interaction between....



Hospitals

The diagram consists of two overlapping circles. The top circle is dark blue and labeled 'Hospitals'. The bottom circle is light blue and labeled 'Industry'. The circles overlap in the center, representing interaction between the two sectors.

Industry

Leading to (new) answers
to challenges, new
products, devices,
buildings, designs,
advise, higher quality and
costs, etc.

Collaboration between



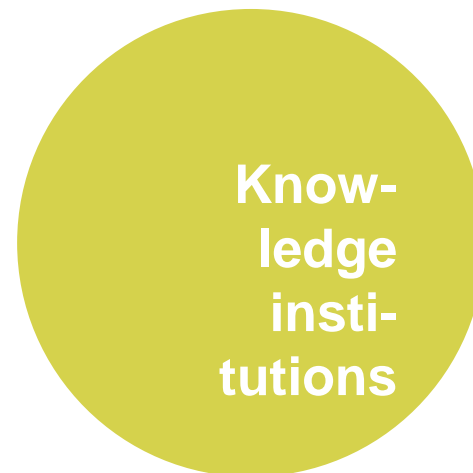
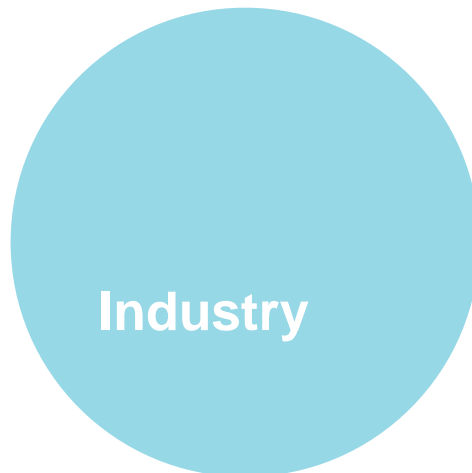
Hospitals

Knowledge
institutions

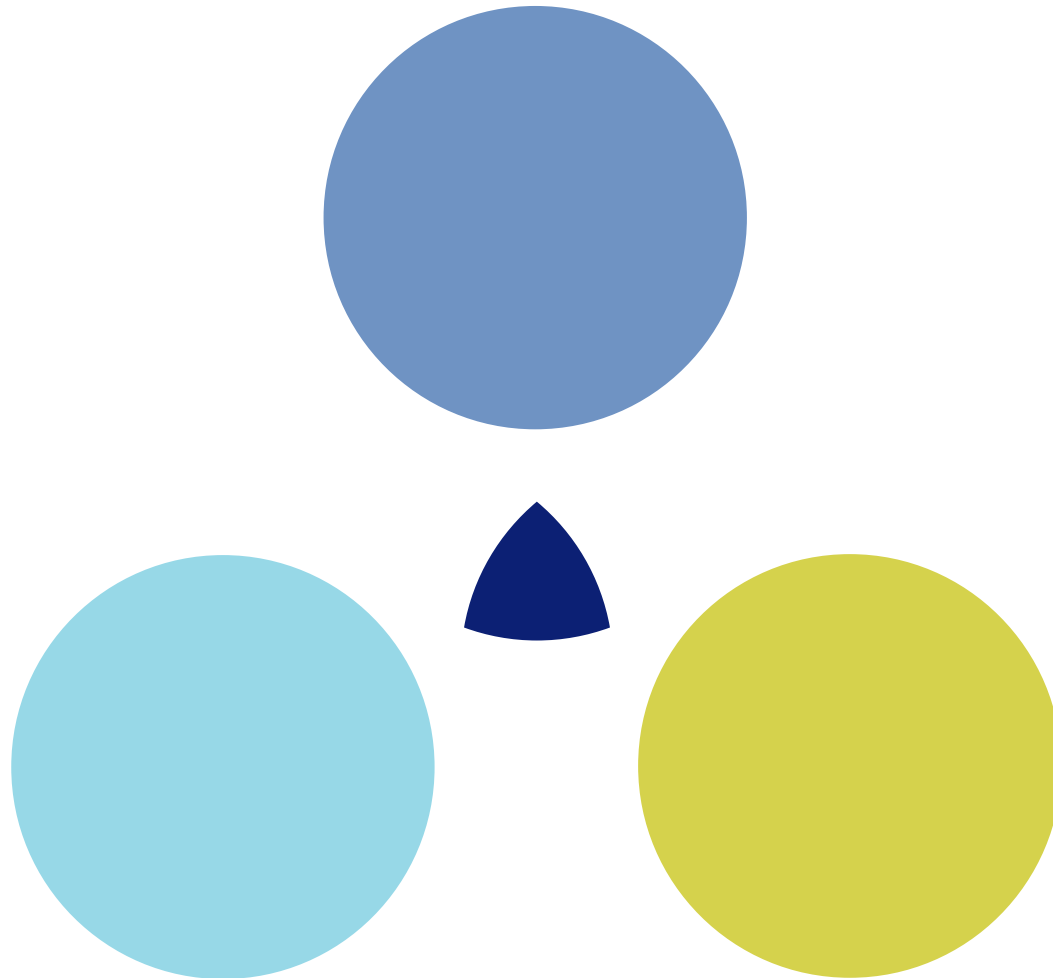
Leading to collaboration in
guidelines, strategic alliances to
develop & publish knowledge;
participating in reviews, providing
internships for students & PhD
candidates etc.

Joint efforts between

New technologies being
developed, contract research, but
also students and PhD candidates



What would be even better

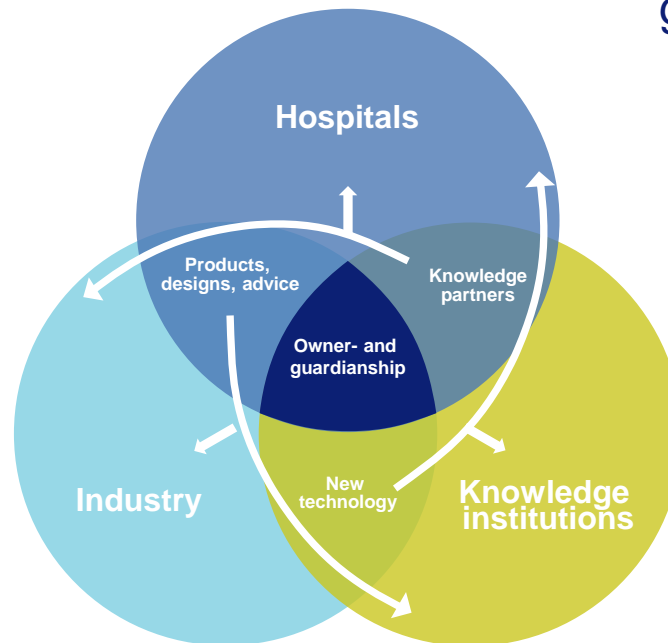


Better answers to new challenges in the healthcare sector resulting in better quality designs, better products, lower cost to the sector...

Resulting in a knowledge sharing platform?

Developing knowledge,
for example: 75.000
clean beds a year...

Strengthening ownership,
guardianship and innovation



Within the Netherlands, and beyond?
Talks are taking place as we speak!

Some closing thoughts...

Hospitals are becoming “hubs” in a Web of Care; these networks (often around a University Medical Center) are needed to face new challenges

Hospitals with our kind of experience can become “hubs of knowledge” in this Web of Care for others, adding value in this particular field of expertise

A platform like EuPHN could be used as an example for creating a knowledge sharing network ‘at home’ to accelerate the needed transformation for Future Hospitals



Thank you for your attention!

Maybe “once in a lifetime” is just not good enough!

Visit us at

www.erasmusmc.nl/nieuwbouw

Contact me at

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Liesbeth van Heel,
Erasmus MC

