

How to be successful in health care innovation by combining research and Hospital-Industrial collaboration

Professor Kristian Kidholm
CIMT – Center for Innovative Medical Technology
Odense University Hospital
University of Southern Denmark

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Odense University Hospital
Svendborg Hospital

Content

1. Innovative digital health technologies at Odense University Hospital
2. Lessons learned from research in innovation
3. Conclusion: How can hospital research improve hospital-industrial collaboration?

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Common challenges for European hospitals

- The demographic challenges – more patients with more chronic disease
- The staff challenge – lack of staff and staff burnout
- The economic challenge for public tax paid hospitals
- COVID-19 and the next pandemic
- Patients asking for involvement and empowerment
- Energy and environment....



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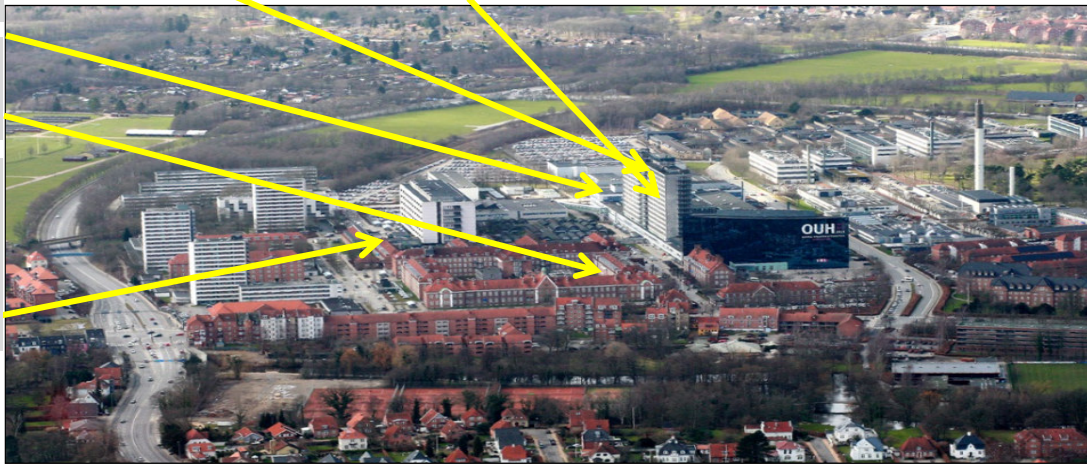
Innovative digital solutions and technologies



Home monitoring – diabetic foot ulcer

Online ECG heart monitoring

Home monitoring of ICD pacemaker



Home IV infusion of antibiotics

Home monitoring of premature infants

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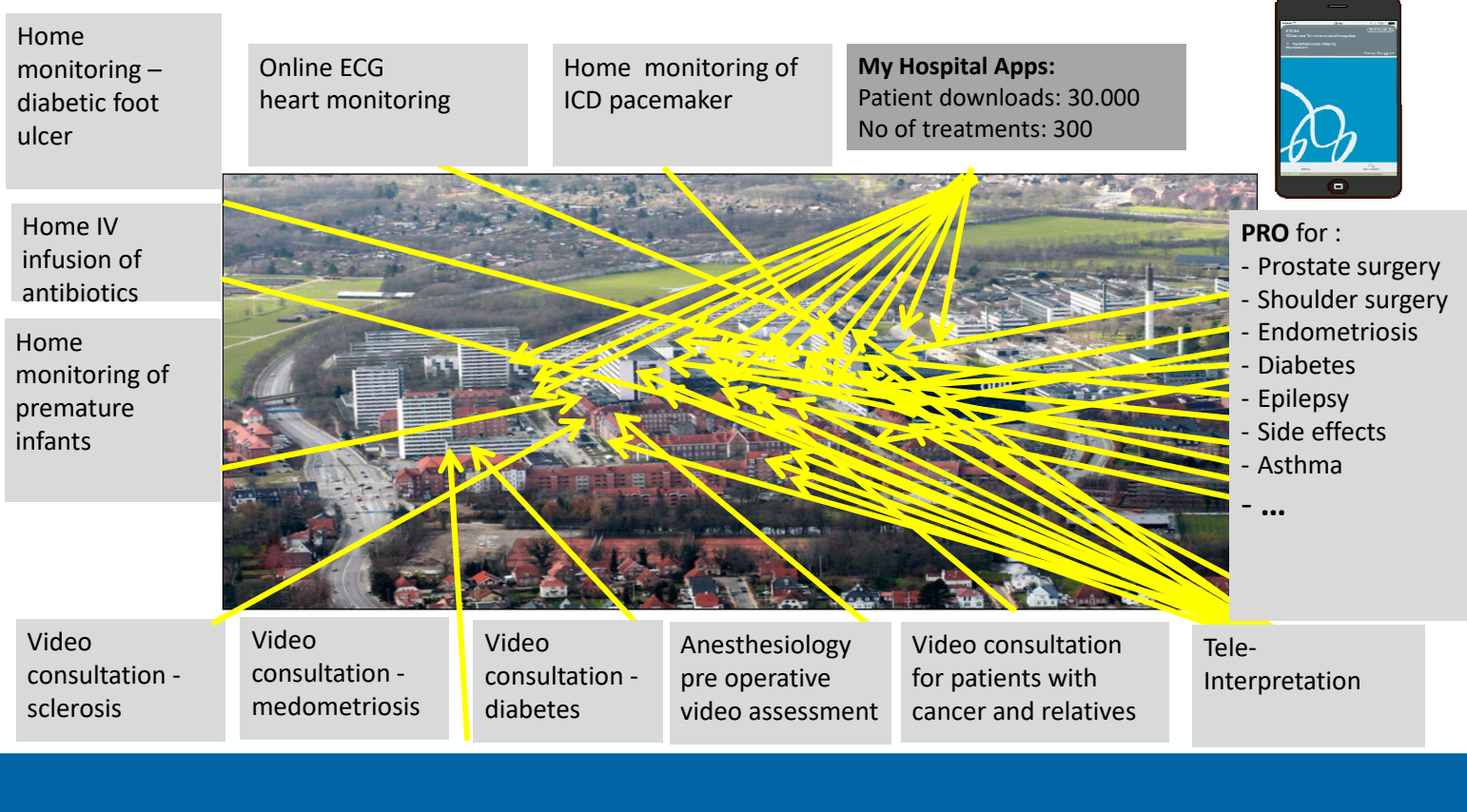
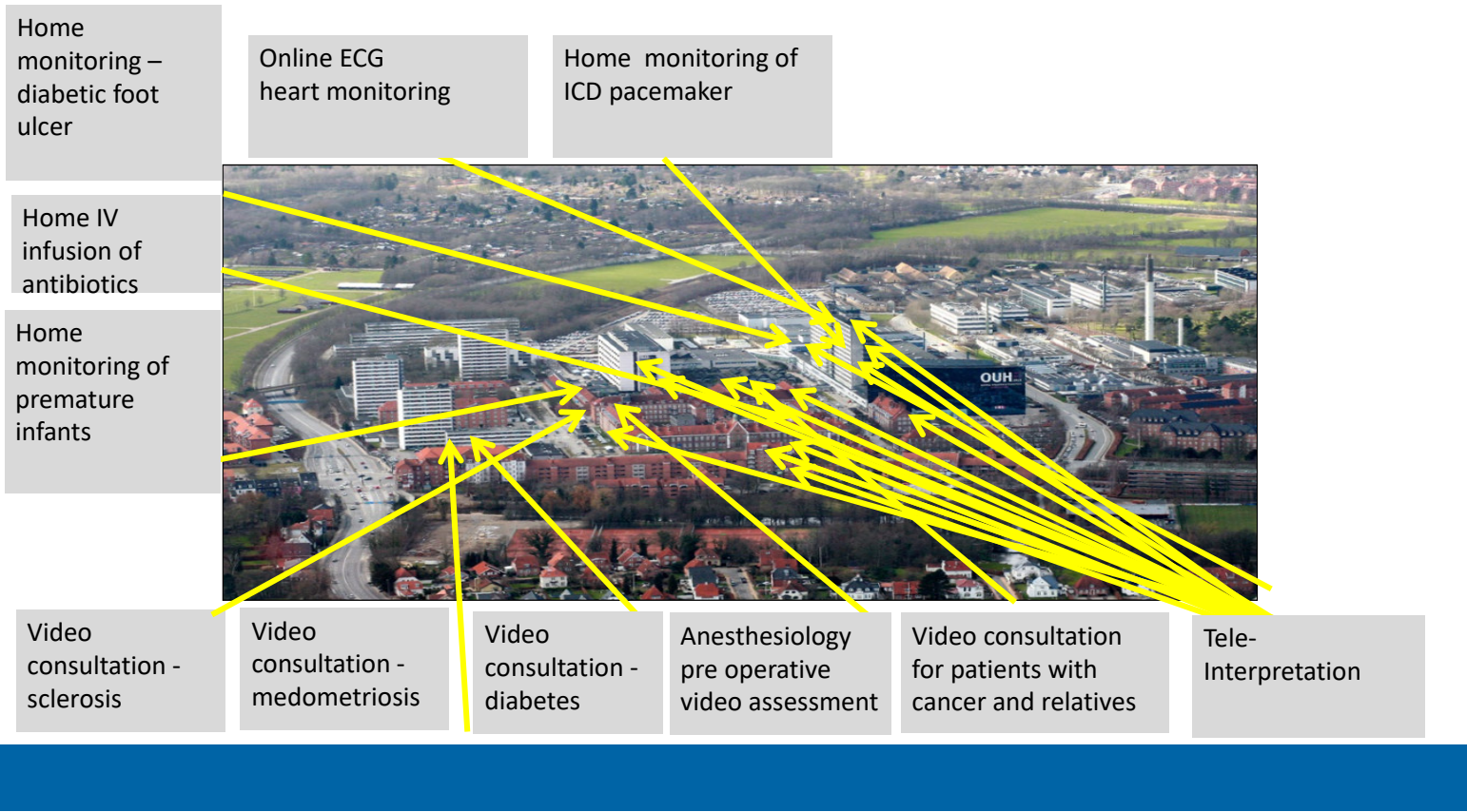
Video consultation - sclerosis

Video consultation - medometriosis

Video consultation - diabetes

Anesthesiology pre operative video assessment

Video consultation for patients with cancer and relatives



Lessons learned from research - Many disappointments ...

Anne Sorknæs et al. (2013):

- Home monitoring - COPD
- RCT (n = 266)
- No impact on admissions
- No impact on mortality
- High increase in costs

Anna Leena Vuorinen (2015)

- Home monitoring – CHF and diabetes
- RCT (n = 517)
- No impact on QALY
- No impact on clinical outcomes



Isabelle Manrey (2017)

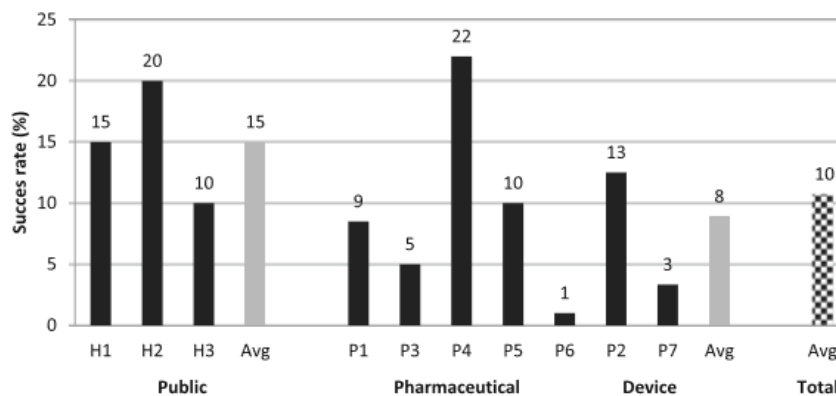
- Home monitoring - diabetes, COPD, CHF
- RCT (n = 302)
- No impact on QALY
- High increase in costs

Sabrina S Sørensen (2017)

- Case management and home monitoring – COPD
- RCT (n = 150)
- No impact on QALY
- Increase in costs

Experiences from research - Many disappointments ...

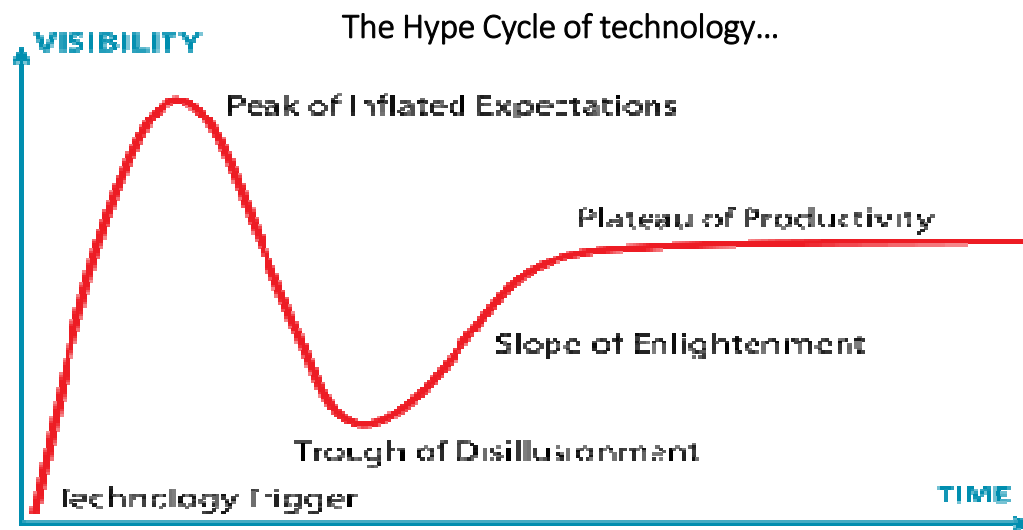
By sector: Proportion of R&D product portfolio in routine use/commercialised ("success rate")



Fasterholdt et al. (2018)

A qualitative exploration of early assessment of innovative medical technologies. Health Services Research.

Experiences from research - Many disappointments ...



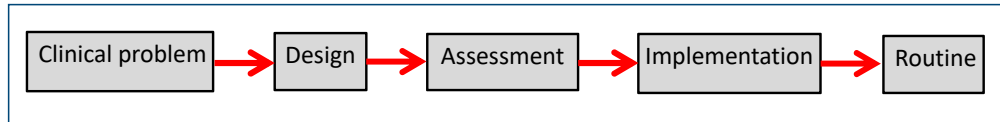
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Lesson no. 1: Consider the whole innovation process

Assessment

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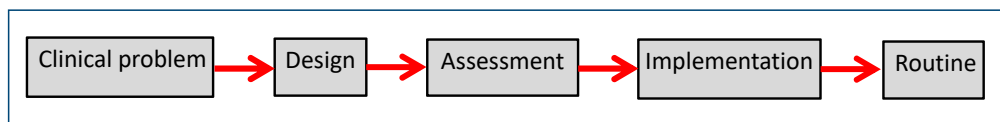
Lesson no. 1: Consider the whole innovation process



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Lesson no. 1: Consider the whole innovation process

Case: Home monitoring of premature infants – Kristina Garne Holm



RESEARCH/Original Article

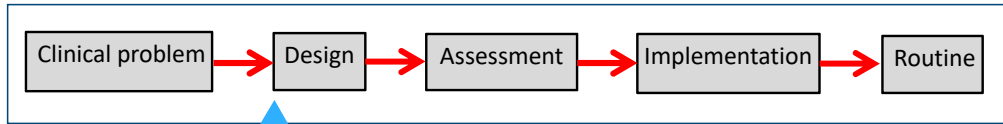
Cost analysis of neonatal tele-homecare for preterm infants compared to hospital-based care

Maja K Rasmussen¹, Jane Clemensen^{1,2,3},
Gitte Zachariassen^{2,3}, Kristian Kidholm¹,
Anne Brødsgaard^{4,5}, Anthony C Smith^{1,6} and
Kristina G Holm^{1,2,3}



Lesson no. 1: Consider the whole innovation process

Case: Home monitoring of premature infants – Kristina Garne Holm



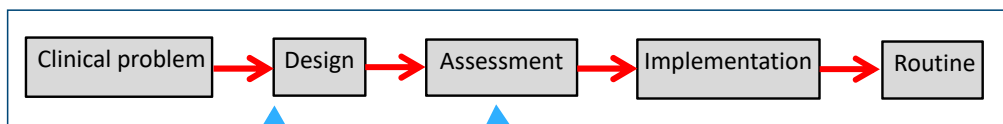
Participatory Design:

- Interview with parents
- Focus group with parents
- Focus group with staff
- Workshops with parents and staff



Lesson no. 1: Consider the whole innovation process

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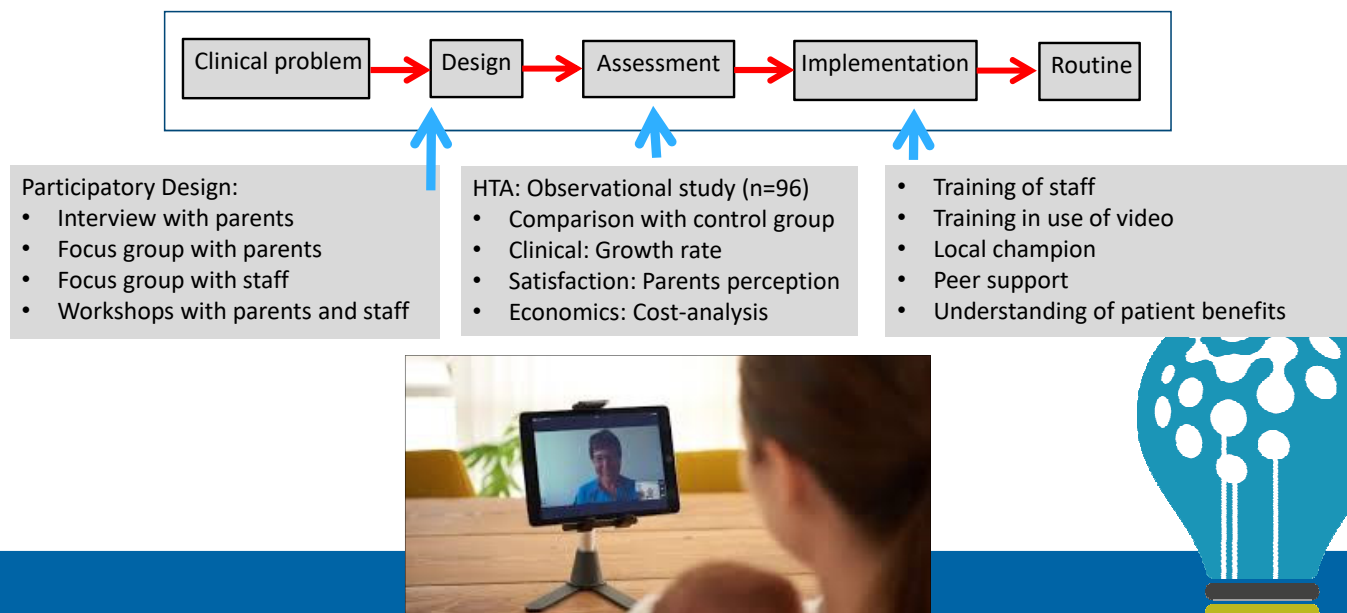
HTA: Observational study (n=96)

- Comparison with control group
- Clinical: Growth rate
- Satisfaction: Parents perception
- Economics: Cost-analysis



Lesson no. 1: Consider the whole innovation process

Case: Home monitoring of premature infants – Kristina Garne Holm



Lesson no. 2: Be comprehensive in defining the value

Multidisciplinary assessment (domains):

1. Health problem and characteristics of the application
2. Safety
3. Clinical effectiveness
4. Patient perspectives
5. Economic aspects
6. Organisational aspects
7. Socio-cultural, ethical and legal aspects

RESEARCH/Methods

The Model for Assessment of Telemedicine (MAST): A scoping review of empirical studies

Kristian Kidholm¹, Jane Clemensen¹, Liam J Caffery² and Anthony C Smith²

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1. Include more than clinical outcomes

- Organisational impact?
- Economic impact?
- Patient perception?

2. Should patient perspectives be the primary outcome?

- Improved empowerment?
- Improved self-efficacy?
- Changing the doctor-patient relation?

RESEARCH/Methods

The Model for Assessment of Telemedicine (MAST): A scoping review of empirical studies

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Lesson no 3. What research design is needed?

Cohort study

Patients after implementation

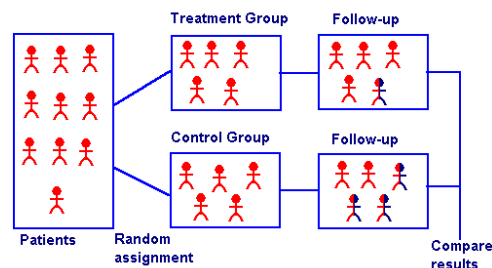
Observational study

Patients before implementation

Patients after implementation

→ TIME

Randomised Controlled Trial



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Lesson no 3. What research design is needed?



Liu and Wyatt. "The case for RCTs to assess the impact of clinical information systems." *Journal of the American Medical Informatics Association* 18.2 (2011): 173-180.

Lesson no 3. What research design is needed?



Liu and Wyatt. "The case for RCTs to assess the impact of clinical information systems." *Journal of the American Medical Informatics Association* 18.2 (2011): 173-180.

Conclusion:

How can hospital research improve hospital-industrial collaboration?

1. **By recruiting of patients for design of innovative technologies**
2. **By improving the value proposition**
 - What is the value to patients and relatives?
 - What is the value to hospitals and health insurance systems?
3. **By ensuring scientific quality of:**
 - Design studies
 - Cost-effectiveness studies

Danke schön!

Kristian.kidholm@rsyd.dk

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