

The model for Assessment of Telemedicine and Integrated Care: MAST

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Content

1. Introduction to MAST
2. The use of MAST
3. Lessons learned from studies using MAST
4. Conclusion



MAST – Model for Assessment of Telemedicine

STEP 1:

Preceding assessment:

- Is the technology and the organization matured?

STEP 2:

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

STEP 3:

Transferability assessment

3

The use of MAST

2017: 22 empirical studies

16 studies: Assessment of monitoring of patients with chronic disease
13 studies: RCTs

Often three publications based on one study:

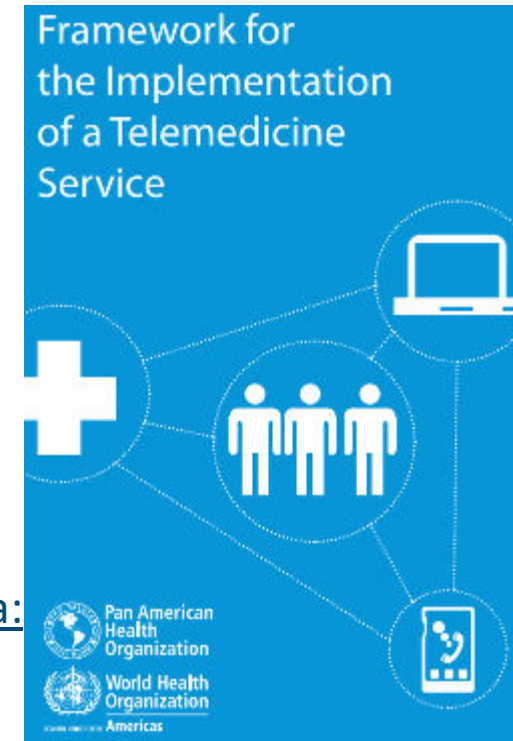
- the clinical results or patient perception
- the economic aspects
- the organisational aspects

2022: 393 citations

- Ødegaard et al. 2022: [Two-way text message interventions and healthcare outcomes in Africa](#):
- Lau et al. 2022: [Online community-based exercise intervention with adults living with HIV](#)
- Allner et al. 2021: [Telemedicine projects in rural areas of Germany](#).

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

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



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)

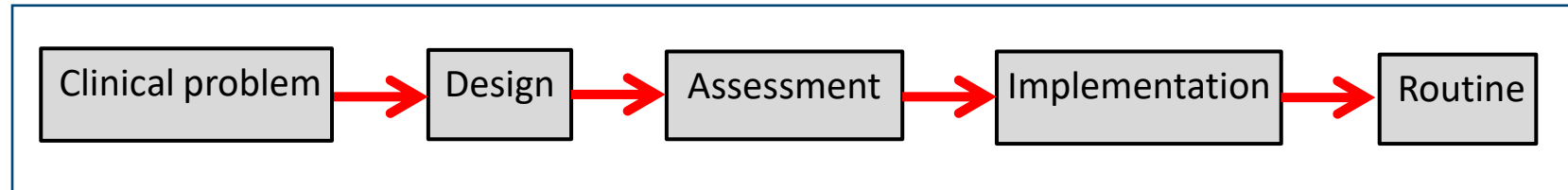
- Case management and home monitoring – COPD
- RCT (n = 150)
- No impact on QALY
- Increase in costs



Lesson no. 1: Consider the whole innovation process

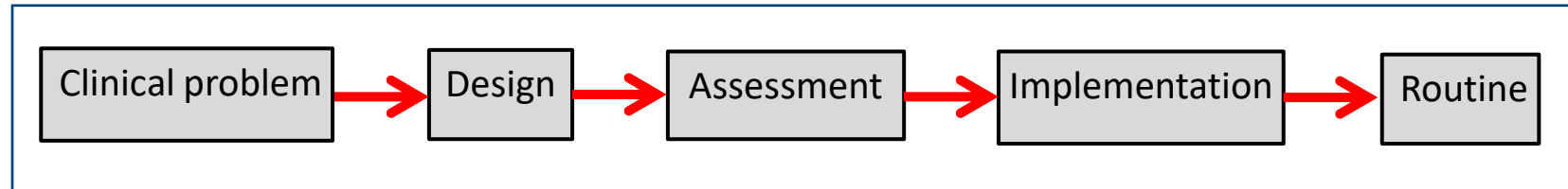
Assessment

Lesson no. 1: Consider the whole innovation process



Lesson no. 1: Consider the whole innovation process

Case: Home monitoring of premature infants – Kristina Garne Holm



RESEARCH/Original Article

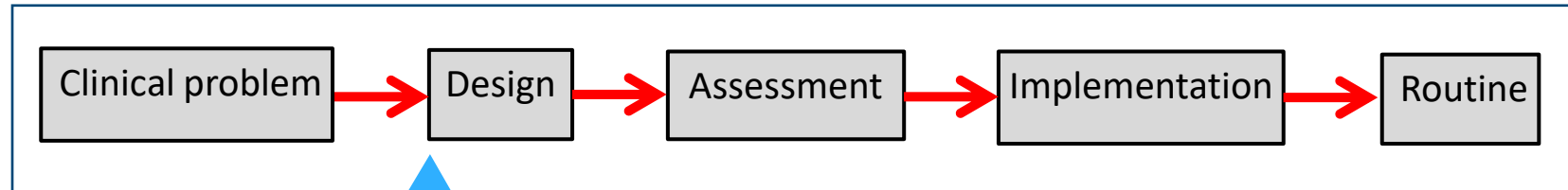
Cost analysis of neonatal tele-homecare for preterm infants compared to hospital-based care

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



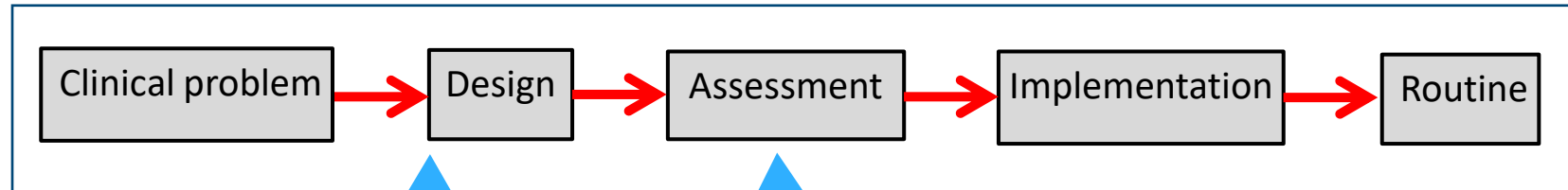
Participatory Design:

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



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- Interview with parents
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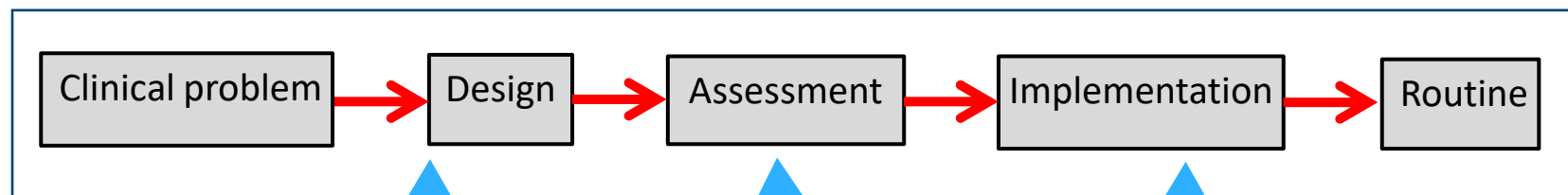
HTA: Observational study (n=96)

- 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



Participatory Design:

- Interview with parents
- Focus group with parents
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HTA: Observational study (n=96)

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- Satisfaction: Parents perception
- Economics: Cost-analysis

- Training of staff
- Training in use of video
- Local champion
- Peer support
- Understanding of patient benefits



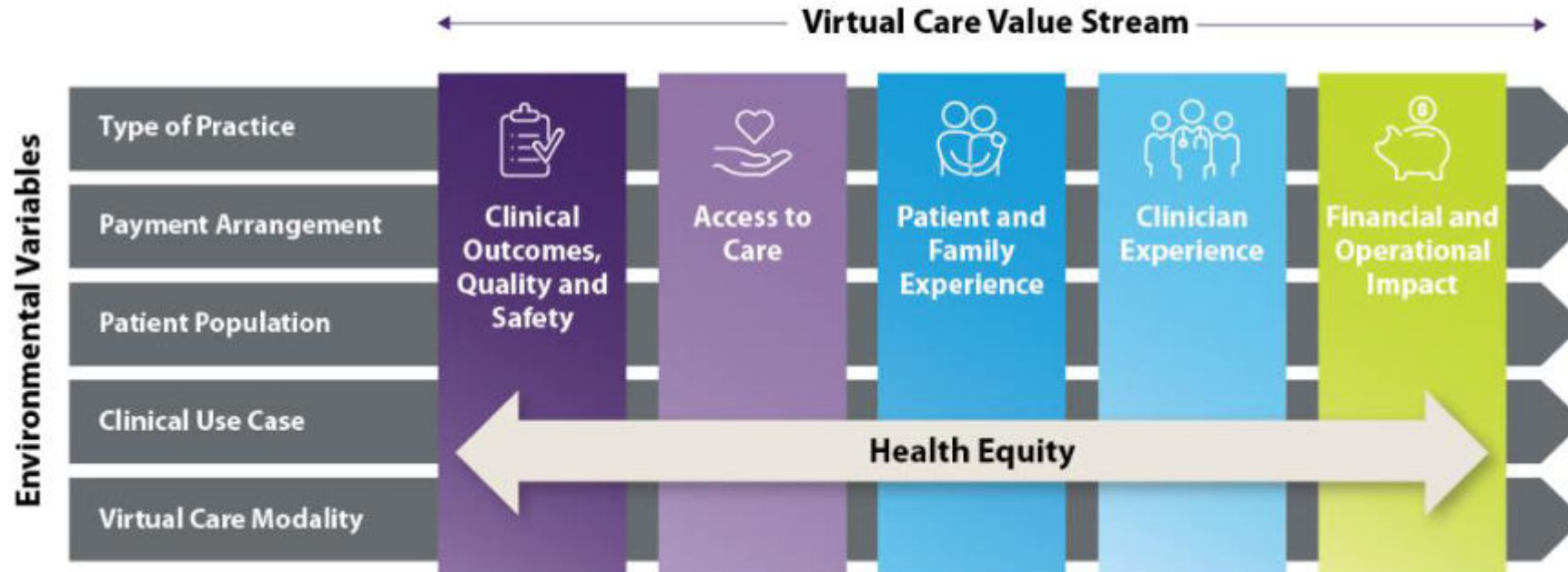
Lesson no. 2: Be comprehensive in selection of outcomes

Multidisciplinary assessment (domains):

1. Health problem and characteristics of the application
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Lesson no. 2: Be comprehensive in selection of outcomes

Measuring beyond dollars and cents



Lesson no. 2: Be comprehensive in selection of outcomes

Should patient perspectives be the primary outcome?

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

Lesson no 3. What research design is needed?

Cohort study

Patients after implementation

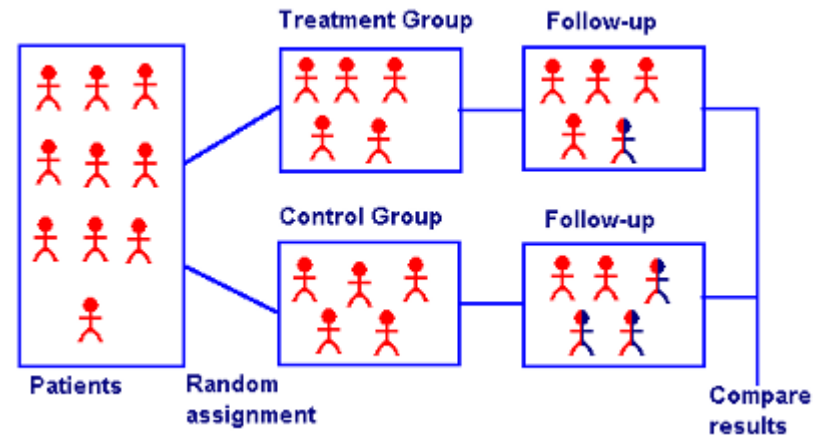
Observational study

Patients before implementation

Patients after implementation



Randomised Controlled Trial



Lesson no 3. What research design is needed?



16

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?



17

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Lesson no 3. What research design is needed?



Liu and Wyatt. "The case for RCTs to assess the impact of digital health technologies." *Journal of the American Medical Informatics Association*

EVIDENCE STANDARDS FRAMEWORK FOR DIGITAL HEALTH TECHNOLOGIES

March 2019

NICE Framework for DHT

Tier 1: (eg. EPR platform)

- Useful for UK professionals
- Users involved in design

Tier 2: (eg. Apps providing advice)

- + Reliable info content
- + Safety in access to platform

Tier 3a/b: (eg. DHT providing treatment)

- + Demonstrate effectiveness:
- + Clinical outcomes (QoL)
- + User satisfaction
- + Health care resources
- + **Evidence:** Observational/RCT/RWD

Conclusion

1. Digital health care services will be a major part of the future health care system
2. HTA and scientific studies are needed for assessment of new digital services
3. MAST can be your guide in your next study: More than clinical outcomes, more than RCT!



Article [Talk](#)

Model for assessment of telemedicine

From Wikipedia, the free encyclopedia

Thank you!

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