





Remote Patient Monitoring, barriers and enablers

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Definition

Telemonitoring or 'remote patient monitoring' (RPM) or 'remote care' or 'care at a distance': Measurements and
queries are collected from the patient by means of digital technologies to monitor and capture medical and other
health data from patients (at a distance) and electronically transmit this information to healthcare providers for
assessment. It is a technology to enable monitoring of patients outside of conventional clinical settings, such as in
the home or in a remote area.

(KCE report 354, 2022)

• Remote patient monitoring (RPM) can be defined as "a mode of healthcare delivery that gathers and integrates patient data outside of traditional healthcare settings, allowing providers to **track**, **assess**, **and engage patients regardless of location**." RPM can thus constitute an alternative (but also a complement) to conventional care, with potential **social and economic value** for both patients and providers.

(Miranda et al, 2023)

The (expected) intervention outcomes 2025 when telemonitoring is implemented

Patient care and health outcomes => positive effect on:

- Self-care or patient empowerment
- Quality of care
- Patient education
- · Symptoms of disease
- Quality of life

Organisation and system outcomes:

- Treat more patients (and reduce admission and visits)
- Reduce workload
- Reduce costs
- Improve adherence to guidelines
- Contribute to continuity of care

(Gijsbers et al, 2022)

The (expected) intervention outcomes 2025 when telemonitoring is implemented

BUT WE FIND MIXED RESULTS IN LITERATURE!

- Methodological differences Research
- Methodological differences Implementation
 - Incomplete approach and lack of know how
 - No alignment with existing care process

(Christensen et al 2018, Dawes et al 2021, Taylor et al 2021, KCE report 354 a, Verma et al 2022, Ekstedt et al 2023)



Typical issues re-designing & implementing services

Task substitution, roles & responsibilities

- Lack of clear definitions or boundaries for roles & responsibilities
- Inadequate training or preparation for tasks
- Confusion about accountability and ownership of tasks
- Concerns quality of work
- Communication errors & inefficiencies

(Maier & Aiken, 2016)



Challenges specific for RPM projects?

- Data collection
- Reliability and validity
- Interoperability
- Authorization,
- Authentication
- Aggregation of data

- Effectiveness
- Stability
- Relevant dashboard
- Clinical algorithms
- Threshold values
- Timely responds

- Reimbursement
- Legislation, GDPR, MDR
- Profitability
- Acceptance
- Digital literacy
- Match with ecosystem

(Roderick et al 2016, Lakmini et al 2019, Thomas et al 2021, Gijsbers et al 2022, KCE report 354a 2022, De France et al 2023, Liljeroos et al 2023, Miranda et al 2023)



EHMA 2025

Solution?

Organisationa l

Interpersonal

Aspects of

- Have a central monitoring unit/dedicated professional monitoring RPM
- Integrate RPM into workflow with system to manage alerts
- Provide incentives to encourage uptake of RPM
- Enhance coordination between primary and secondary care
- Encourage two-way interactive communication between patient and team
- Enhance pt self-management via support, education and feedback
- Use data from RPM to tailor and personalise care
- Ensure collaborative and multidisciplinary team involvement (including primary care to increase coordination and continuity)

(Thomas et al 2021

EHMA 2025

Solution?

Intrapersona l (patient or staff)

Intervention (RPM design)

- Select patients at high risk of readmission (e.g. moderatesevere disease, high healthcare use, comorbidities)
- Motivate patients and staff to use RPM
- Increase adherence to RPM through routine data entry checks and frequent follow-ups
- Co-design with target population
- Make it simple and easy to use
- Ensure accurate and sensitive measurements to enable early detection
- Patient-specific measurements need to be used
- Enhance self-management (e.g. monitor medication adherence)

(Thomas et al 2021

Solution?

► Int J Health Policy Manag. 2023 Mar 1;12:7299. doi: 10.34172/ijhpm.2023.7299 🗹

Towards A Framework for Implementing Remote Patient Monitoring From an Integrated Care Perspective: A Scoping Review

Rafael Miranda 1,2,*, Mónica Duarte Oliveira 1,3, Paulo Nicola 4, Filipa Matos Baptista 2, Isabel Albuquerque 5

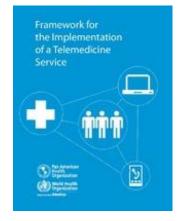
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PMCID: PMC10461888 PMID: <u>37579426</u>

The Telemedicine Program Design Canvas: a visual tool for planning telemedicine interventions 3

Neha Verma ™, Izabella Samuel, Samuel Weinreb, Mackenzie Hall, Kai Zhang, Mariana Bendavit, Vibha Bhirud, Jordan Shuff, Youseph Yazdi, Soumyadipta Acharya

Oxford Open Digital Health, Volume 1, 2023, oqac002, https://doi.org/10.1093/oodh/oqac002





> Int J Technol Assess Health Care. 2012 Jan;28(1):44-51. doi: 10.1017/S0266462311000638.

A model for assessment of telemedicine applications: mast

Kristian Kidholm ¹, Anne Granstrøm Ekeland, Lise Kvistgaard Jensen, <u>Janne Rasmussen</u>, Claus Duedal Pedersen, Alison Bowes, Signe Agnes Flottorp, Mickael Bech

Affiliations + expand

PMID: 22617736 DOI: 10.1017/S0266462311000638



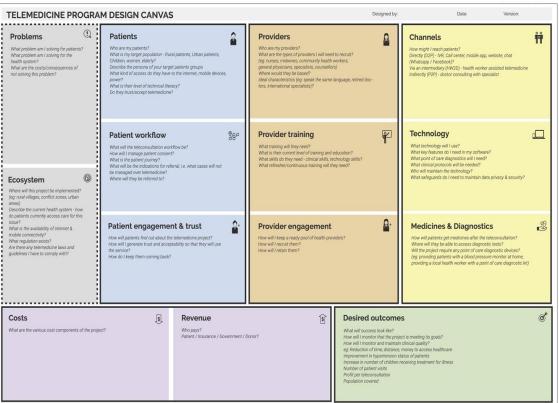
Solution?

DESIGN AND ALIGN:

- DEFINE THE CONCEPT
- INITIATE THE PROJECT
- DEVELOP THE CARE PATH
- TEST AND IMPLEMENT

Verma et al. The Telemedicine Program Design Canvas: a visual tool for planning telemedicine interventions, *Oxford Open Digital Health*, Volume 1, 2023,

oqac002, https://doi.org/10.1093/oodh/oqac002





Use cases

Large bowel surgery - From start to implementation:

- 1st time: 9 months; Now: 6 months
- 3 months is achievable through a structured approach

Outcome large bowel surgery

- 75 patients included.
- Length of stay: Median from 6 to 2 days, Average from 9 to 3 days.
- Safety: No false positives or negatives
- Patient satisfaction: +90% overall patient satisfaction.

Other use cases (FOD innovation project)

 Bariatric surgery / Kidney surgery / Bladder surgery / Pancreatic surgery / Antireflux surgery



Implementing RPM

Take away messages

- Use a conceptual framework (TPDC is useful at organizational level)
- Be aware of barriers and enablers
- Align with existing care pathways
- Use an implementation strategy (projectmanagement)
- Pay attention to Change management (process redesign)
- Contract with partners and stakeholders
- Use a conceptual framework (TPDC is useful at organizational level)
- Cave health equity







TOTeM

Integrating technology in healthcare

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