

Breaking Silos in the Management of Patients with Multiple Chronic Conditions

Josep Roca MD, PhD

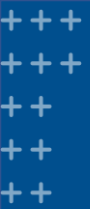
Emeritus Researcher at IDIBAPS
Co-founder of Health Circuit S.L.

jroca@recerca.clinic.cat



HOSPITAL MANAGEMENT 2024
10.December.2024





AGENDA

- 1. Which are the required features for digital tools to efficiently support healthcare services ?**
- 2. How to scale-up digitally enabled integrated care services (lessons learned) ?**

DOCTORAL THESIS

Evaluation and Digital Transformation of Integrated Care Services

Erik Baltaxe

DOCTORAL PROGRAM IN MEDICINE AND TRANSLATIONAL
RESEARCH

Supervisors: Josep Roca & Isaac Cano

Barcelona, July 3 of 2024

Assessment of digital tools supporting healthcare services for chronic patients: experience from a dual hospital

Domain validation in four local eHealth interventions

01

Technical

- Robustness
- Privacy and security
- Interoperability
- Transferability
- Smartness

02

Clinical

- Safety
- Medical benefit

03

Usability

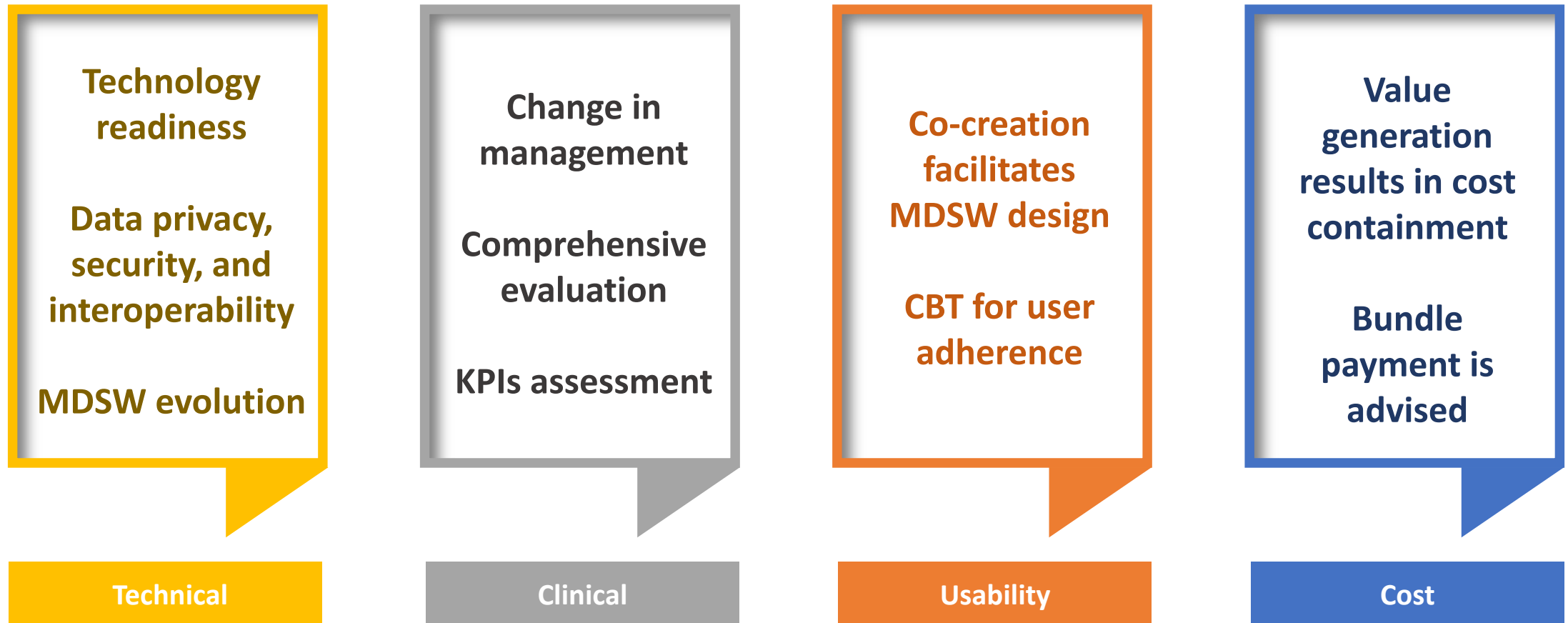
- Ease of use
- Feasibility

04

Cost

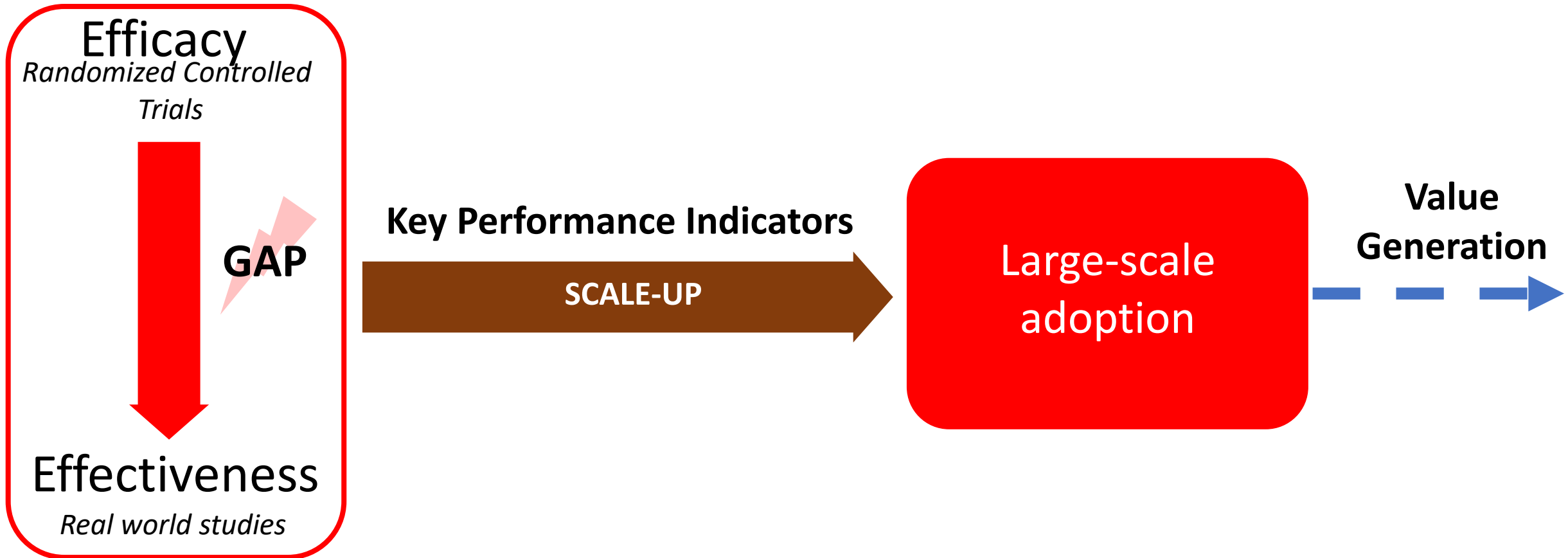
- Value generation
- Affordability

Assessment of digital tools: Results and Lessons Learned



Bridging the efficacy-effectiveness gap

- Hospital at Home
- Prehabilitation
- Prevention of unplanned hospitalizations



Thompson D. Replication of Randomized, Controlled Trials Using Real-World Data: What Could Go Wrong? Value Health. 2021;24(1):112-115.

Applicability of evidence for the context of a relative effectiveness assessment. European network for health technology assessment. 2015. EU Commission.

www.eunetha.eu



Breaking Silos in the Management of Patients with Multiple Chronic Conditions

Health care

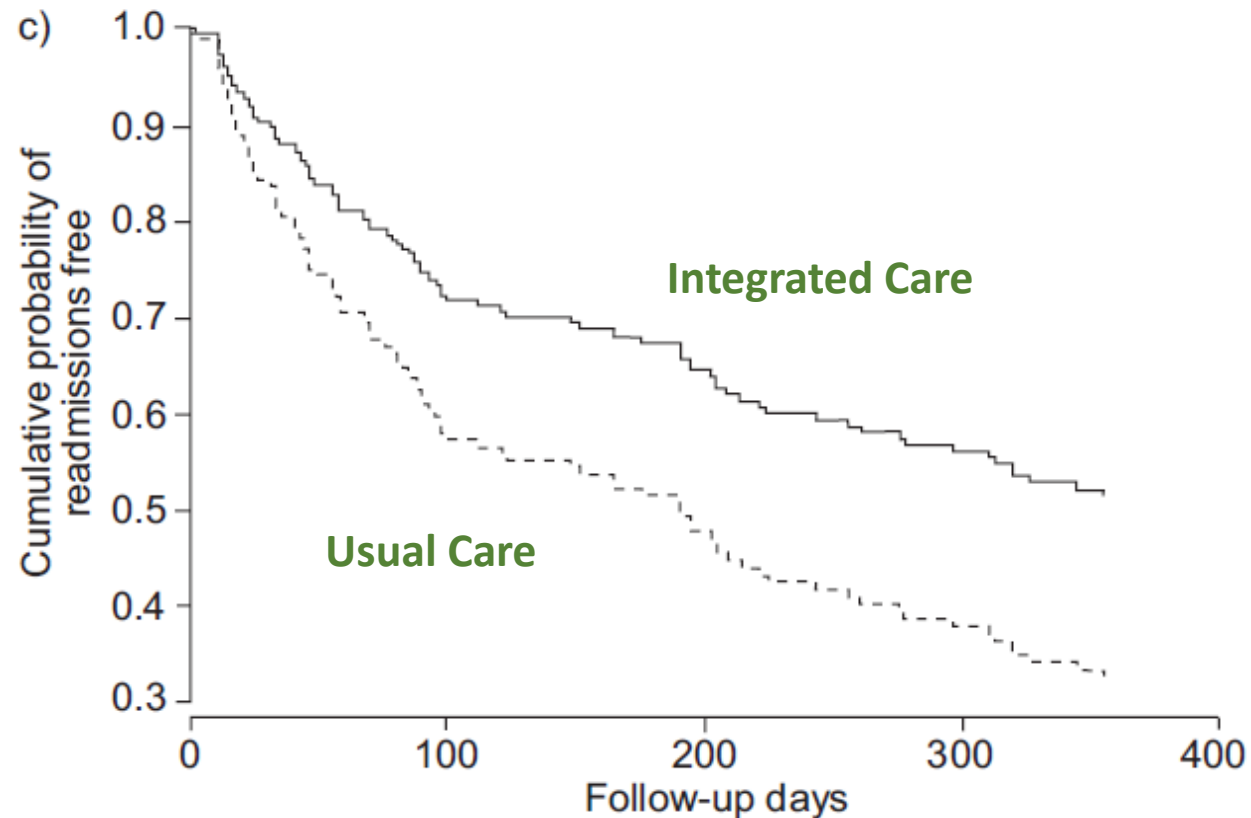
- **Organizational silos:** Organizational structures with poor collaborative work (healthcare tiers)
- **Information silos:** Lack of record sharing/integration of new info due poor interoperability
- **Knowledge silos & Silo mentality:** Disease-oriented approach vs patient-centered approach

Conventional healthcare shows inefficiencies to reduce the high burden generated by chronic conditions

Scalability of digitally enabled patient-centered care with a collaborative approach is a priority to achieve sustainable adoption of evidence-based interventions

Integrated Care Prevents Hospitalizations for Exacerbations in COPD patients

Casas A et al *Eur Respir J.* 2006 Jul;28(1):123-30



| | IC | UC | p-value |
|---|---------------|---------------|---------|
| Subjects | 65 | 90 | |
| Number of readmissions | | | |
| 0 | 36 (55) | 30 (33) | 0.028 |
| 1 | 14 (22) | 34 (38) | |
| ≥ 2 | 15 (23) | 26 (29) | |
| Number of readmissions during follow-up year | 0.9 ± 1.3 | 1.3 ± 1.7 | 0.028 |
| Rate of readmissions during follow-up year | 1.5 ± 2.6 | 2.1 ± 3.1 | 0.033 |
| Difference on rate of re-admissions per year | 0.5 ± 2.6 | 1.5 ± 3.1 | 0.003 |
| Survival without readmissions | 32 (49) | 28 (31) | 0.03 |
| Total deaths | 12 (19) | 14 (16) | 0.67 |

Effectiveness of community-based integrated care in frail COPD patients: a randomized controlled trial

Hernández C et al. *NPJ Prim Care Respir Med.* 2015 Apr 9;25:15022

Community-based integrated care main findings:

1. Significantly enhanced survival
2. Marked decrease of ER visits with no changes in total hospital admissions per year
3. Healthier lifestyle, improved self-management and higher health-related quality of life.

Lessons learned:

1. Need for better personalization of care - *Enhanced health risk assessment*
2. Preparation of the community-based workforce - *Training & Education*
3. Change Management – *Role of the nurse case manager*
4. Mature digital support with an adaptive case management approach – *Favoring collaborative work between the nurse case manager and the advanced care nurse.*

- Healthcare evolution towards digitally facilitated, integrated, and patient-centered care.
- Transferability from original good practices to early adopters.
- *Catalan original good practice*: Open Innovation Hub for ICT-supported Integrated Care Services for Chronic Patients.



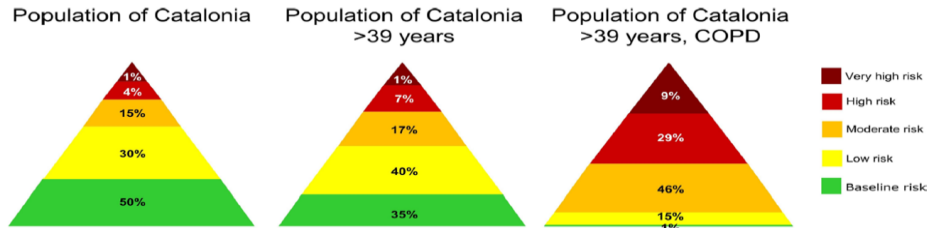
CAPACITY BUILDING IN EUROPE FOR DIGITALLY ENABLED INTEGRATED CARE



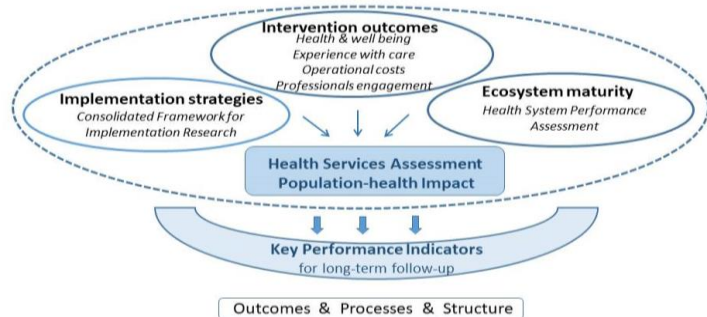
JADECARE

www.jadecare.eu (2020 – 2023)

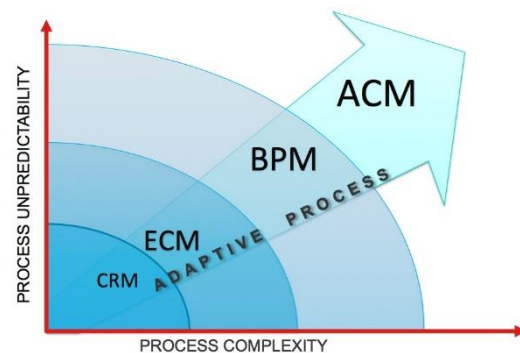
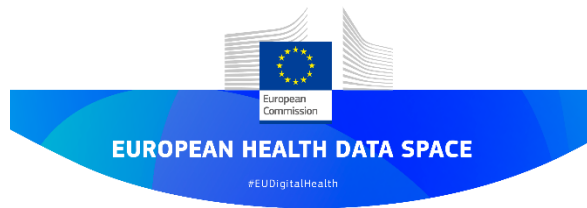
Clínic-Barcelona: Three main blocks of action



B1 ➤ **Health Risk Assessment**
(Personalized service selection & clinical decision making)



B2 ➤ **Scale-up of Evidence-based Services**
(Value-generation as a goal) - Quintuple Aim (KPIs for quality maintenance after adoption)

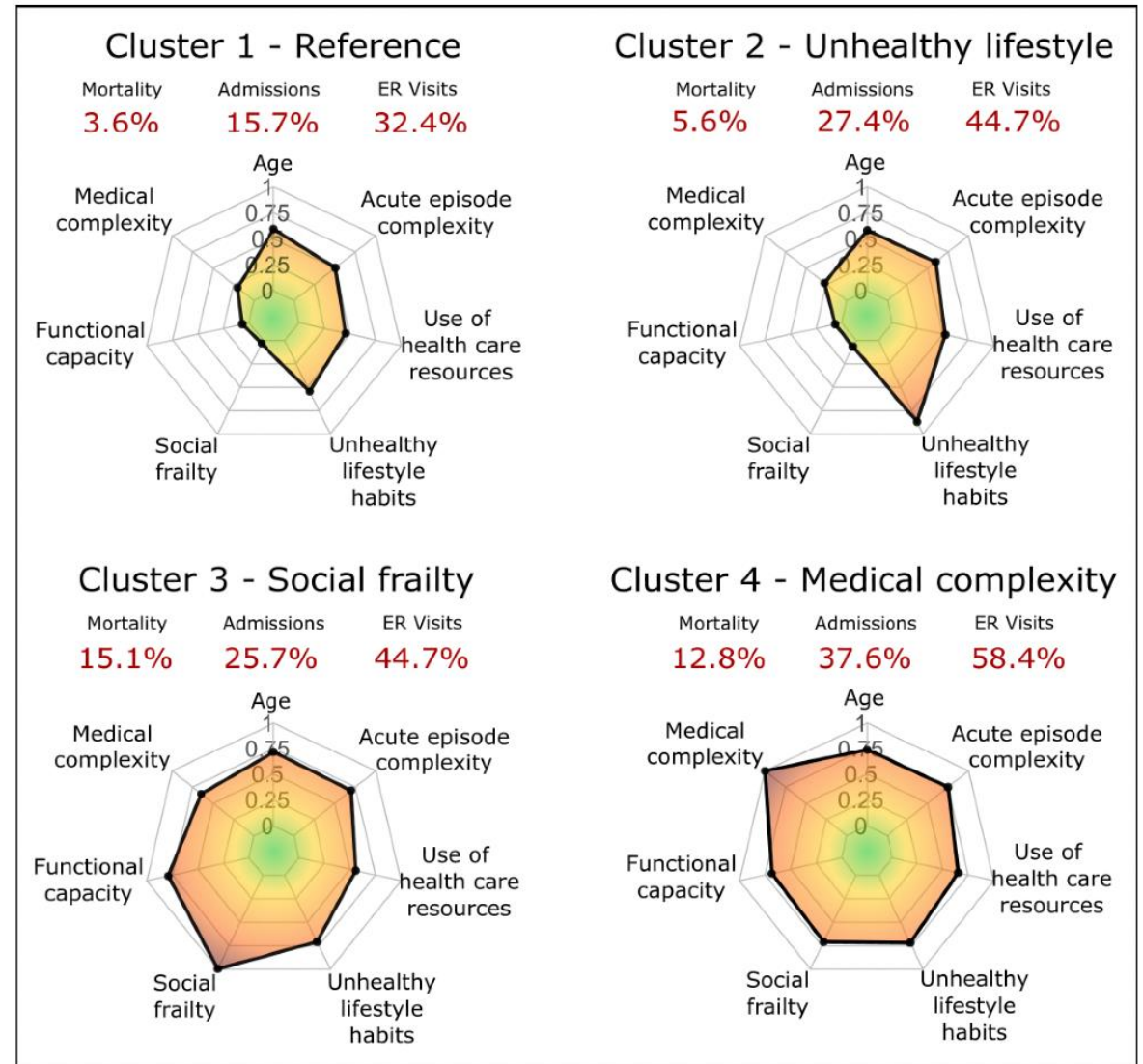
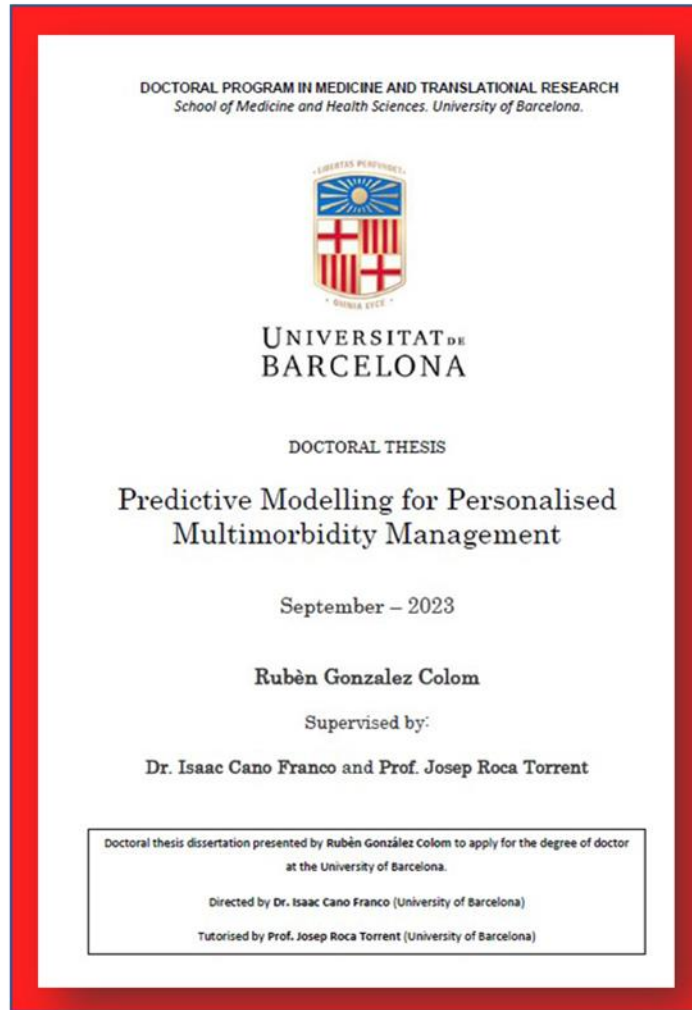


B3 ➤ **Mature Digital Health**
*(Collaborative Adaptive Case Management)
 Transition toward Open EHR &*

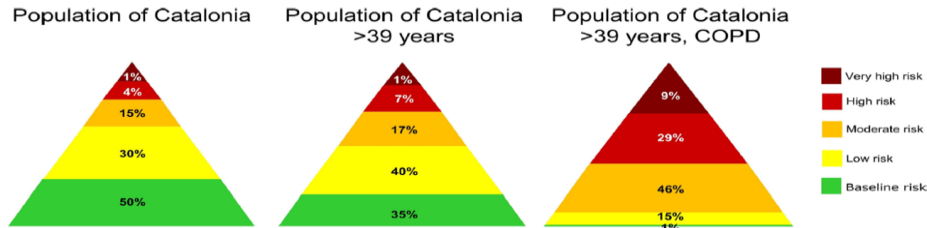


Prevention of Unplanned Hospital Admissions in Multimorbid Patients Using Computational Modeling: Observational Retrospective Cohort Study

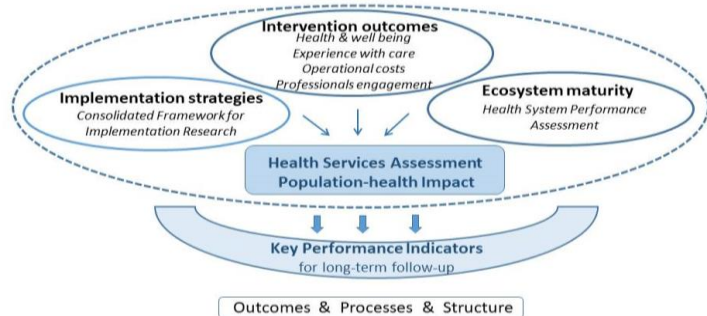
Gonzalez-Colom R et al. *J Med Internet Res* 2023 | vol. 25 | e40846



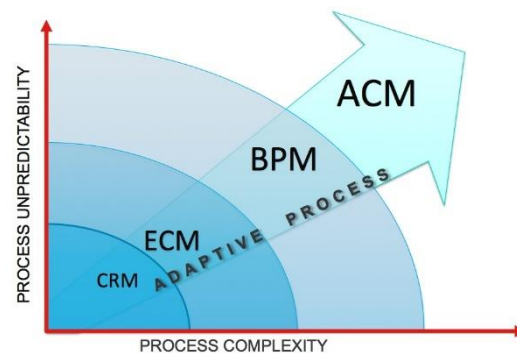
Clínic-Barcelona: Three main blocks of action



B1 ➤ **Health Risk Assessment**
(Personalized service selection & clinical decision making)



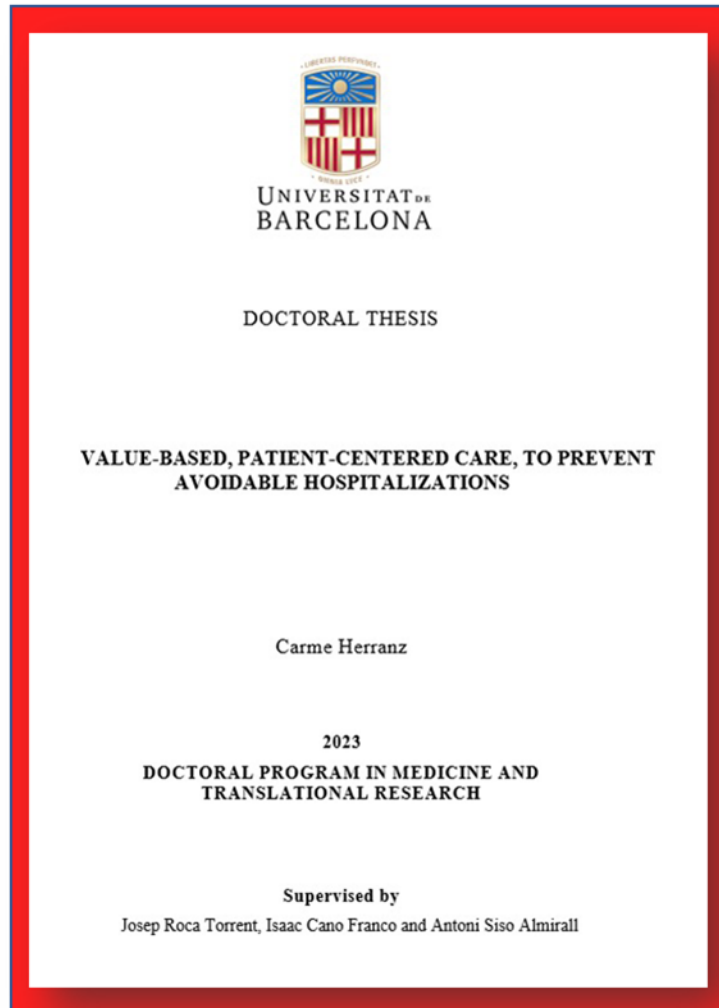
B2 ➤ **Scale-up of Evidence-based Services**
*(Value-generation as a goal) - Quintuple Aim
 (KPIs for quality maintenance after adoption)*



B3 ➤ **Mature Digital Health**
*(Collaborative Adaptive Case Management)
 Transition toward Open EHR &*



Prevention of Unplanned Hospitalizations in Patients with Multiple Long-Term Conditions

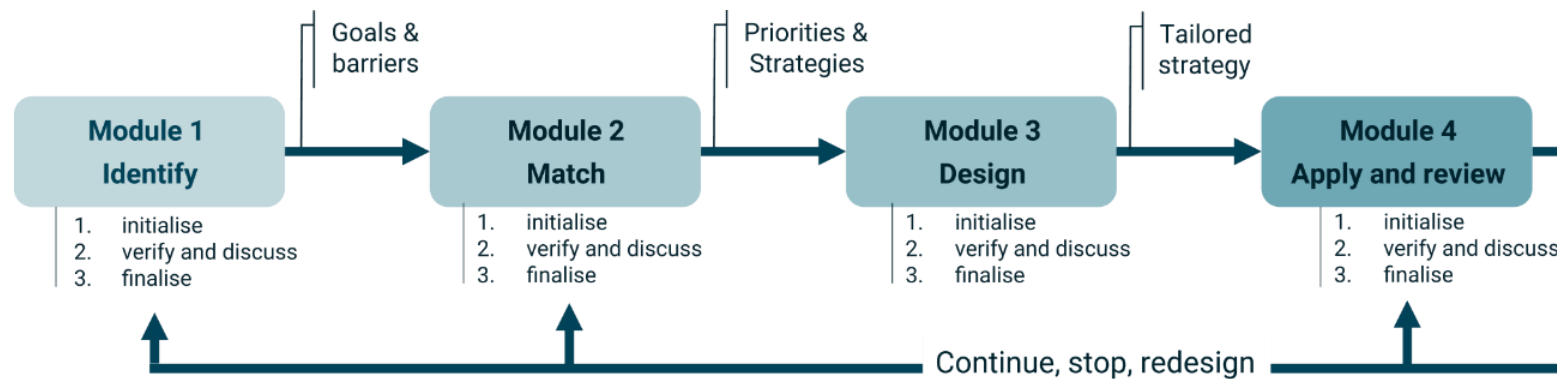


Herranz C et al. A Practice-Proven Adaptive Case Management Approach for Innovative Health Care Services (Health Circuit): Cluster Randomized Clinical Pilot and Descriptive Observational Study (*J Med Internet Res* 2023;25:e47672)

Herranz C et al. Toward Sustainable Adoption of Integrated Care for Prevention of Unplanned Hospitalizations: A Qualitative Analysis. *International Journal of Integrated Care*, 2024; 24(2): 28, 1–14.

The need for a highly applicable implementation toolkit guiding the service deployment and sustainable adoption

The BREAKING SILOS Toolkit represents a breakthrough in implementation support by providing an integrated digital platform that: 1) Guides stakeholders through implementation with context-sensitive pathways, 2) Enables data-driven health risk assessment and stratification, 3) Facilitates multidisciplinary care coordination through shared care plans, and 4) Supports continuous monitoring and adaptation for long-term sustainability.



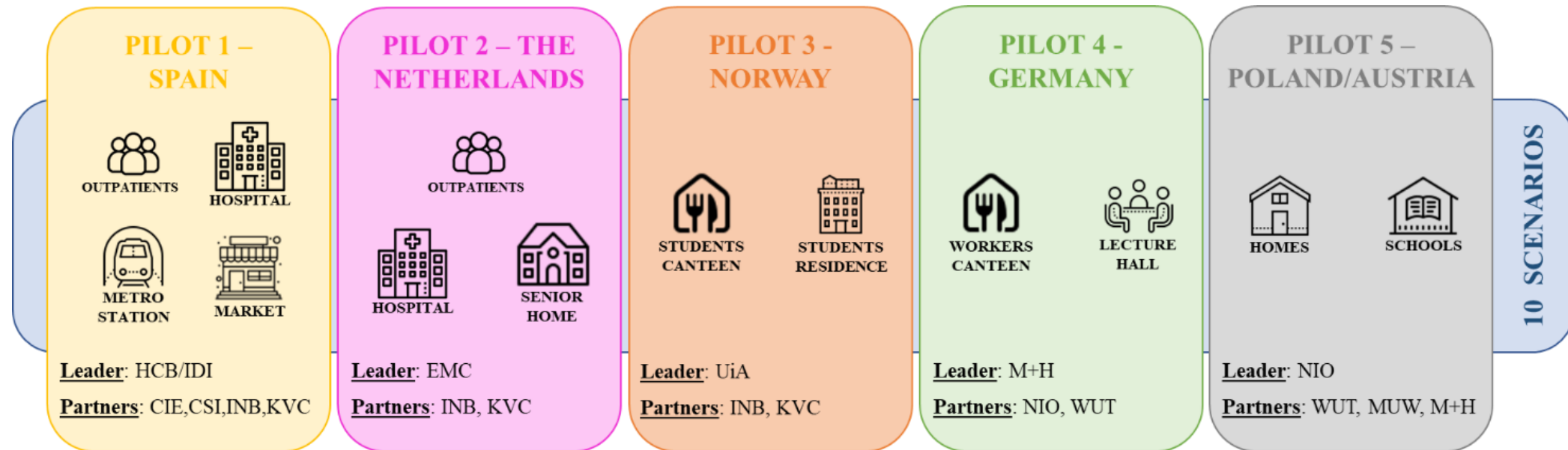
The BREAKING SILOS Toolkit is an adaptation of the ItFits Toolkit, proven effective for implementation of complex interventions.

Vis, C. et al. *J Med Internet Res* 25, e41532 (2023)

Knowledge for Improving Indoor Air Quality and Health (KHIA)

(<https://k-healthinair.eu> - 2022-2026)

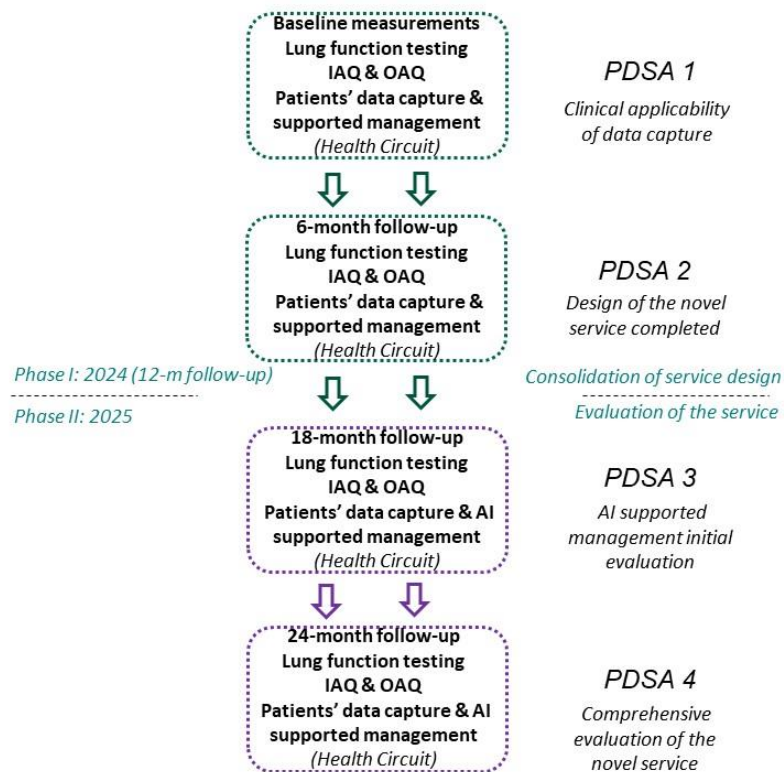
The Horizon-Europe research project KhiA has as a main objective to explore the relationships between the quality of the air inside buildings/homes (indoor air quality, IAQ) and the health of citizens (acute effects).



Gómez-Lopez A et al. Protocol for the Enhanced Management of Multimorbid Patients with Severe Asthma and Chronic Obstructive Pulmonary Disease (COPD) : Role of Indoor Air Quality 2024 *Accepted in BMJ Open Respiratory Research*.
(accessible in medRxiv DOI:[10.1101/2024.05.17.24307036](https://doi.org/10.1101/2024.05.17.24307036))

2025 Program: piloting the Breaking Silos Toolkit

Protocol for the Enhanced Management of Multimorbid Patients with Chronic Pulmonary Diseases (Key Sequential Steps)



Expected Outcomes

- Quintuple Aim assessment of the service
- Evaluation of the deployment process
- Dashboard for quality assurance of the service

Study protocol flowchart:

The four main components of the service are designed and assessed at the end of the first year (2024).

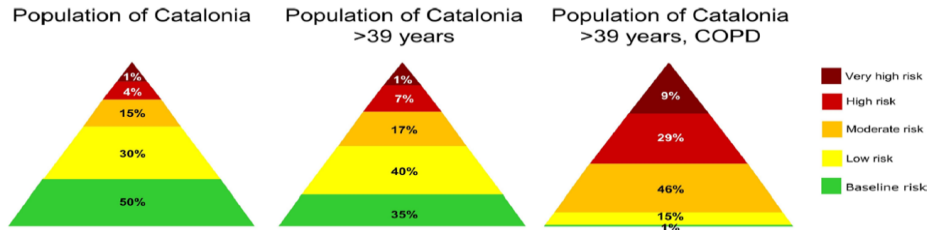
The second year, 2025, addresses evaluating the novel service following a Quintuple Aim approach and assessing the implementation process using the BREAKING SILOS Toolkit

Throughout the protocol, four Plan-Do-Study-Act (PDSA) co-creation cycles, six months duration each, are conducted.

Follow-up of a cohort of 200 patients: 80% COPD with co-morbidities (> P₈₀ in the risk stratification pyramid) and 20% severe asthma patients (stages 5 and 6)

Gómez-Lopez A et al. Protocol for the Enhanced Management of Multimorbid Patients with Chronic Pulmonary Diseases: Role of Indoor Air Quality 2024 Accepted in *BMJ Open Respiratory Research*

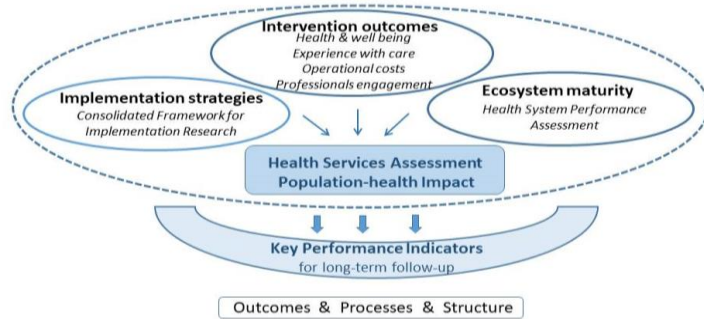
Clínic-Barcelona: Three features within the Health Circuit platform complementing the institutional health information systems with a Software as Service (SaS) approach.



B1 ➔

Health Risk Assessment
(Personalized service selection & clinical decision making)

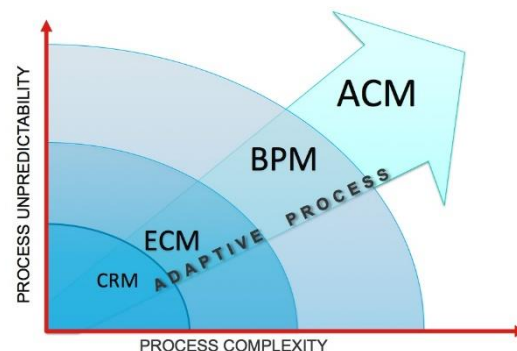
Clinical Decision Support Tools



B2 ➔

Scale-up of Evidence-based Services
(Value-generation as a goal) - Quintuple Aim (KPIs for quality maintenance after adoption)

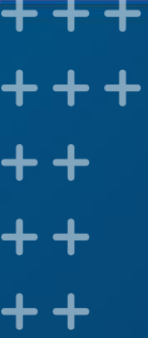
Breaking Silos Toolkit



B3 ➔

Mature Digital Health
(Collaborative Adaptive Case Management) Transition toward Open EHR &

Adaptive Case Management



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