

Enablers and Obstacles in Digital Cardiac Rehabilitation

Oonagh Mary Giggins
NetwellCASALA

Dundalk Institute of Technology
Dundalk, Co Louth, Ireland
oonagh.giggins@dkit.ie

Orla Moran
NetwellCASALA

Dundalk Institute of Technology
Dundalk, Ireland
orla.moran@dkit.ie

Michael Wilson
NetwellCASALA

Dundalk Institute of Technology
Dundalk, Ireland
Michael.wilson@dkit.ie

Julie Doyle

NetwellCASALA
Dundalk Institute of Technology
Dundalk, Ireland
julie.doyle@dkit.ie

Abstract

Digital cardiac rehabilitation (CR) offers immense potential to improve patient outcomes, yet adoption remains limited. This Birds of a Feather (BoF) session will bring together researchers, clinicians, and designers to collaboratively explore the enablers and obstacles experienced by patients, clinicians, and healthcare systems to adopting digital CR technologies. During this interactive session, participants will identify key barriers, brainstorm strategies to overcome them, and highlight factors that support successful implementation. The session aims to generate practical insights, foster interdisciplinary discussion, and inspire collaboration to ensure digital health solutions developed are both usable and impactful in real-world settings.

CCS Concepts

• **Human-centered computing** Human computer interaction (HCI) HCI design and evaluation methods;

Keywords

Digital health, Cardiac rehabilitation, Health technology adoption, Barriers and enablers

ACM Reference Format:

Oonagh Mary Giggins, Michael Wilson, Orla Moran, and Julie Doyle. 2026. Enablers and Obstacles in Digital Cardiac Rehabilitation. In *Interactive Health Conference (IH '26)*, July 05–08, 2026, Porto, Portugal. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3786579.3803813>

1 Introduction

Cardiovascular disease (CVD) is the leading noncommunicable disease worldwide for the past two decades [1]. Although mortality rates have declined, CVDs were still responsible for an estimated 19.8 million deaths in 2022, representing approximately 32% of all global deaths [2] Cardiac rehabilitation (CR) is an evidence-based intervention that can significantly improve outcomes for individuals living with CVD, supporting recovery after an acute event

and helping to prevent further illness and death. Active engagement in the exercise training component of CR has been proven to be effective in reducing all-cause and cardiovascular mortality, lowering the risk of hospital readmission, and improving cardiovascular risk factors [3], [4], [5]. Despite its proven benefits, uptake and adherence to traditional center-based CR exercise programs remain suboptimal due to barriers such as travel, scheduling conflicts, and limited accessibility, particularly in rural or underserved areas [6], [7]. Digital and technology-enabled approaches have been proposed to enhance access and boost participation. However, successful adoption of digital CR depends on understanding both the enablers and obstacles experienced by patients, clinicians, and healthcare systems. Focusing on initial uptake is particularly important in CR, as CR programs are typically time-limited (e.g., 6–12 weeks); if patients do not begin engaging with digital CR, sustained use becomes irrelevant.

2 Main Goal and Relevance

The goal of this Birds of a Feather (BoF) is to bring together researchers, clinicians, designers, and digital health innovators to explore the enablers and obstacles to adopting digital CR technologies. Through an interactive workshop, participants will identify practical barriers and success factors from multiple perspectives, fostering a collaborative understanding of what helps or hinders technology adoption in CR. This session is highly relevant to IH conference attendees as it addresses the intersection of Health and HCI, combining clinical insights, user experience design, and implementation challenges in real-world healthcare settings. This BoF is designed as a starting point for community building. Participants will be invited to join a follow-up mailing list, which will be used to circulate a summary of key discussion points. Furthermore, we will use this to explore opportunities for future collaborations, such as workshops or joint publications (e.g., a workshop submission to future HCI venues).

3 Intended Audience

This BoF will be of interest to HCI researchers and practitioners in digital health, clinicians involved in CR or chronic disease management, behavior change and implementation scientists, PhD students and early-career researchers exploring digital interventions, and industry or start-up professionals developing health technologies.



This work is licensed under a Creative Commons Attribution 4.0 International License. *IH '26, Porto, Portugal*

© 2026 Copyright held by the owner/author(s).

ACM ISBN 979-8-4007-2422-0/2026/07

<https://doi.org/10.1145/3786579.3803813>

4 Suggested Locale

A flexible room with movable seating to allow small-group discussions. Tables or surfaces for sketching, sticky notes, or quick storyboarding. Projector or large screen for presentation display. The session could take place during a break, lunch, or dedicated afternoon slot.

5 Overview of activities

- 1) Icebreaker/Warm-up (10 mins)
 - a) Engage participants and quickly surface initial thoughts about barriers and enablers to digital CR.
 - b) Use Slido for participants to submit responses in real time.
- 2) Identifying Enablers and Obstacles (30 mins)
 - a) Small interdisciplinary groups create two maps
 - b) Obstacles: key barriers to adoption
 - c) Enablers: factors supporting adoption
 - d) Visualize insights using sticky notes, sketches or storyboards.
- 3) Prioritization and Ideation (20 mins)
 - a) Groups select the most critical obstacles and brainstorm potential solutions.
 - b) Explore ways to leverage enablers in real-world contexts.
 - c) Use voting/dot-mapping to highlight priority barriers or opportunities
- 4) Group Share-Back (10 mins)
 - a) Groups present their findings in 2-3 minutes
 - b) Facilitators synthesize cross-cutting themes and identify actionable insights.

6 Organisers

This BoF session will be organized and facilitated by researchers from NetwellCASLA in Dundalk Institute of Technology.

- OMG is a research physiotherapist leading work on enhancing women's health and physical performance across the lifespan. Her research focuses on developing and evaluating exercise- and technology-based interventions to support cardiovascular health, reduce sedentary behavior, and improve rehabilitation outcomes.
- MW is an HCI researcher specializing in user-centered design for digital health applications. He brings experience in facilitating interdisciplinary workshops and collaborative discussions.
- OM is a psychologist and behavior change researcher with expertise in digital interventions for older adults and clinical populations. She brings experience in facilitating participatory research, bridging research, clinical practice, and implementation.
- JD is a researcher in HCI, and her research focuses on designing inclusive, usable, and empowering solutions to support healthy ageing. Her work spans user-centered design, accessibility, and engagement strategies, as well as digital health trials assessing effectiveness, acceptability, and sustainability in real-world settings.

7 Advertising strategy

We will promote the BoF by sharing it via IH conference communication channels and social media, and directly inviting researchers, clinicians, and industry professionals with interests in digital health and CR.

Acknowledgments

This work is supported by the ARC HUB for ICT, which is co-funded by the Government of Ireland and the European Union through the ERDF Southern, Eastern & Midland Regional Programme 2021–2027..

References

- [1] Shanthi Mendis, Ian Graham, and Jagat Narula. 2022. Addressing the Global Burden of Cardiovascular Diseases; Need for Scalable and Sustainable Frameworks. *Glob. Heart* 17, 1 (July 2022). <https://doi.org/10.5334/gh.1139>
- [2] World Health Organization. 2025. Cardiovascular Disease. Retrieved March 5, 2026 from <https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-cvds>
- [3] Lindsey Anderson, David R Thompson, Neil Oldridge, Ann-Dorthe Zwisler, Karen Rees, Nicole Martin, and Rod S Taylor. 2016. Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database of Systematic Reviews* 1 (January 2016). <https://doi.org/10.1002/14651858.CD001800.pub3>
- [4] Patrick R Lawler, Kristian B Filion, and Mark J Eisenberg. 2011. Efficacy of exercise-based cardiac rehabilitation post-myocardial infarction: A systematic review and meta-analysis of randomized controlled trials. *Am. Heart J.* 162, 4 (2011), 571–584. <https://doi.org/10.1016/j.ahj.2011.07.017>
- [5] Rod S Taylor, Allan Brown, Shah Ebrahim, Judith Jolliffe, Hussein Noorani, Karen Rees, Becky Skidmore, James A Stone, David R Thompson, and Neil Oldridge. 2004. Exercise-based rehabilitation for patients with coronary heart disease: systematic review and meta-analysis of randomized controlled trials. *Am. J. Med.* 116, 10 (2004), 682–692. <https://doi.org/10.1016/j.amjmed.2004.01.009>
- [6] Samaneh Bakhshayeh, Masoumeh Sarbaz, Khalil Kimiafar, Farveh Vakilian, and Saeid Eslami. 2021. Barriers to participation in center-based cardiac rehabilitation programs and patients' attitude toward home-based cardiac rehabilitation programs. *Physiother. Theory Pract.* 37, 1 (January 2021), 158–168. <https://doi.org/10.1080/09593985.2019.1620388>
- [7] John Daly, Andrew P. Sindone, David R. Thompson, Karen Hancock, Esther Chang, and Patricia Davidson. 2002. Barriers to Participation in and Adherence to Cardiac Rehabilitation Programs: A Critical Literature Review. *Prog. Cardiovasc. Nurs.* 17, 1 (January 2002), 8–17. <https://doi.org/10.1111/j.0889-7204.2002.00614.x>