

BACKGROUND

- Modern cardiac implantable electronic devices can generate remote alerts that identify patients at increased risk of heart failure (HF) decompensation.
- Medtronic's OptiVol™ based TriageHF™ risk tool uses a traffic light system to stratify hospitalisation risk and reduce heart failure hospitalisations (Ahmed et al 2024).

Identify high-risk heart failure patients.

TriageHF™ technology assesses a patient's risk of heart failure: high, medium, or low.

Patient's risk level is generated by assessing¹:

- OptiVol™ 2.0 fluid status monitoring
- Patient activity
- AT/AF burden
- Ventricular rate during AT/AF
- Percent of ventricular pacing
- Shocks
- Treated VT/VF
- Night ventricular rate
- Heart rate variability



Risk score

Risk of a HF hospitalization in the next 30 days²:

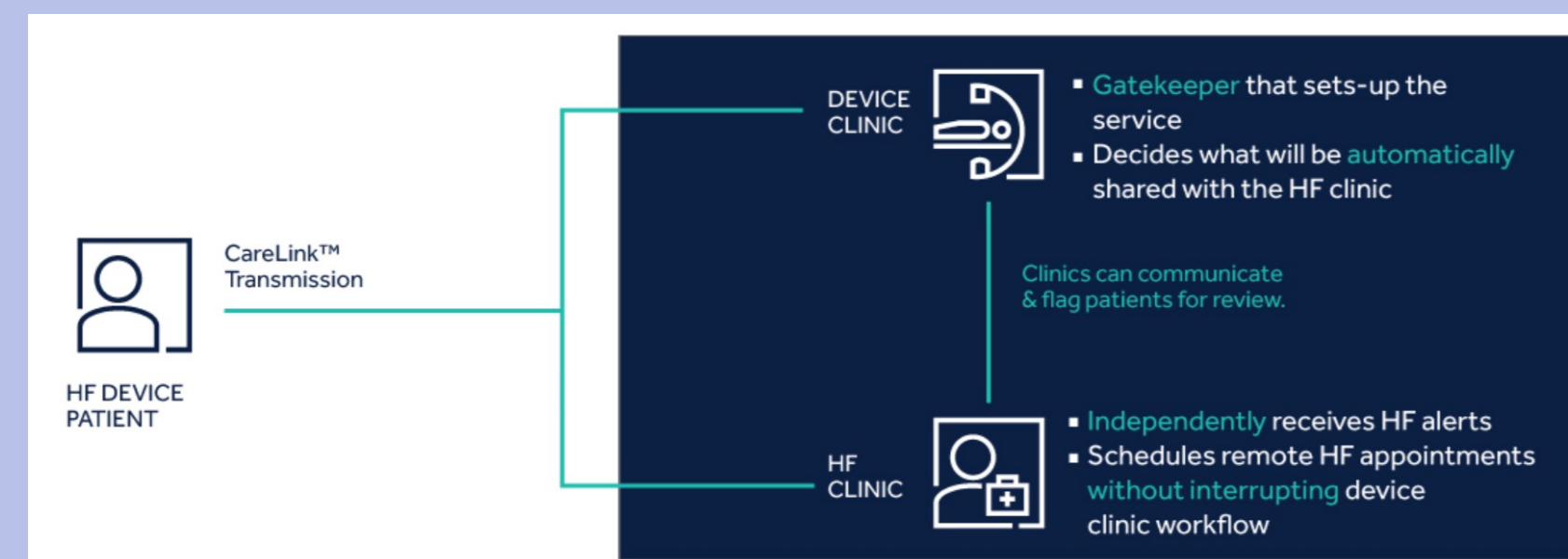
- High** Hazard ratio 10 times
- Medium** Hazard ratio 2.1 times
- Low** Negative predicted value 99.4%

- Recent NICE guidance (DG61, 2024) recommends TriageHF™ for early identification of patients at imminent risk of HF admission.

Heart failure algorithms for remote monitoring in people with cardiac implantable electronic devices

Diagnostics guidance | DG61 | Published: 24 October 2024

- NICE guidance does not describe the method for implementation of using TriageHF™ to prevent hospitalisations



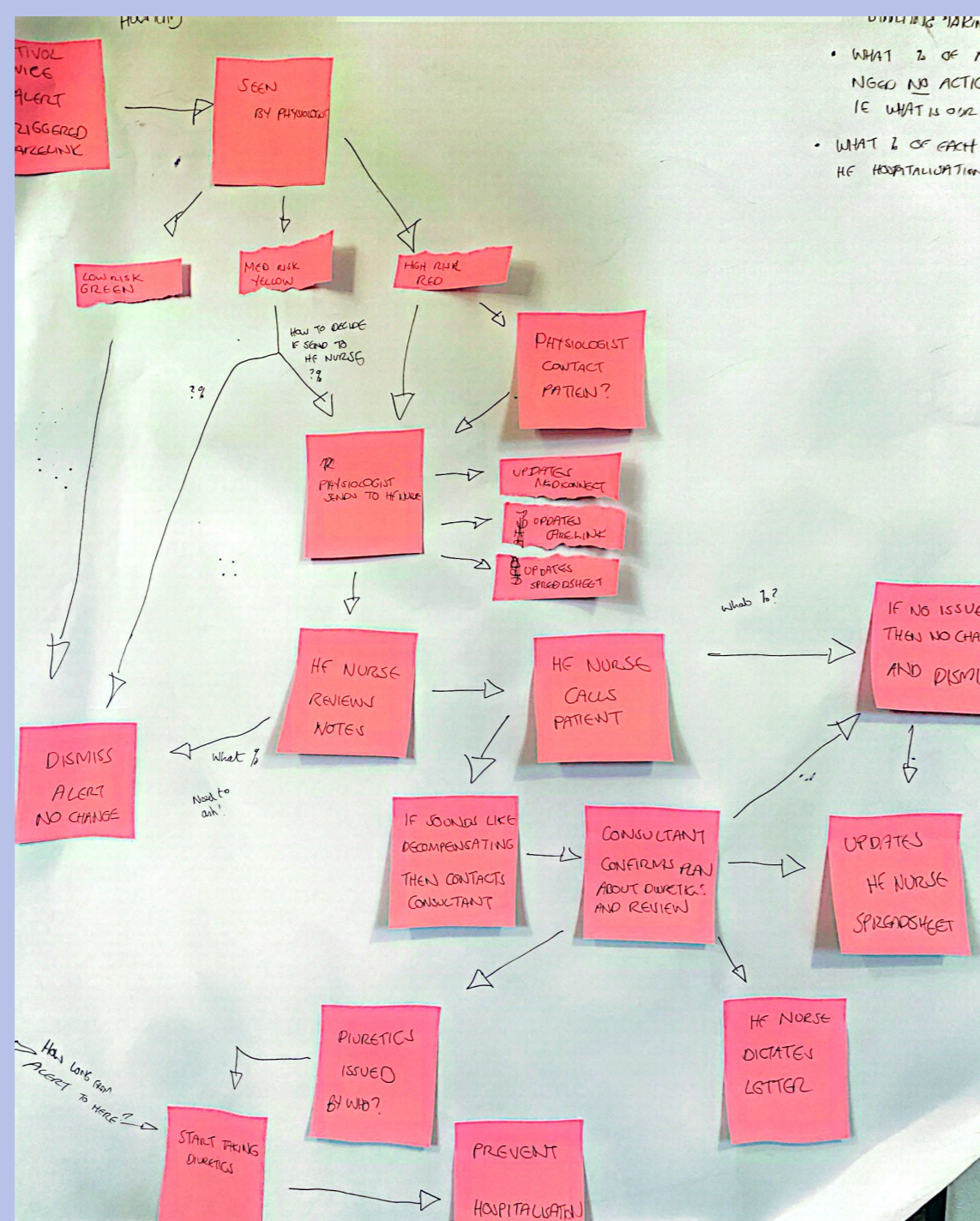
- Medtronic have a Co-Management system to facilitate HF nurses to access CareLink™ for HF alerts

AIMS

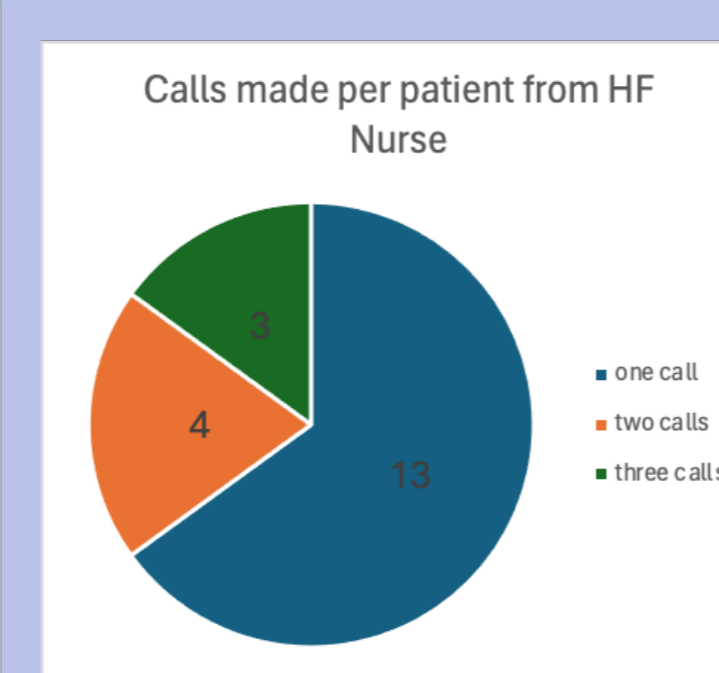
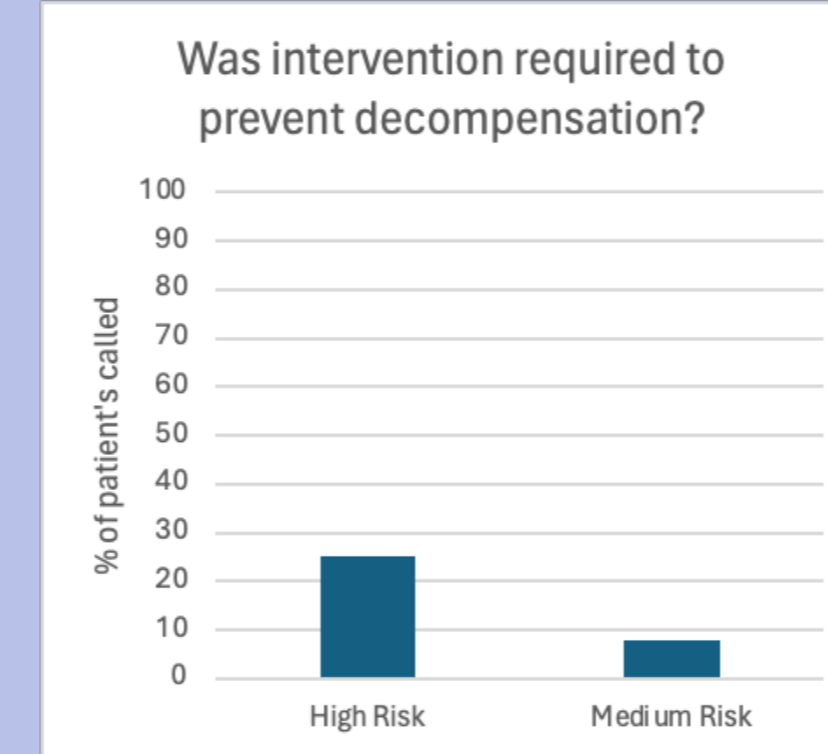
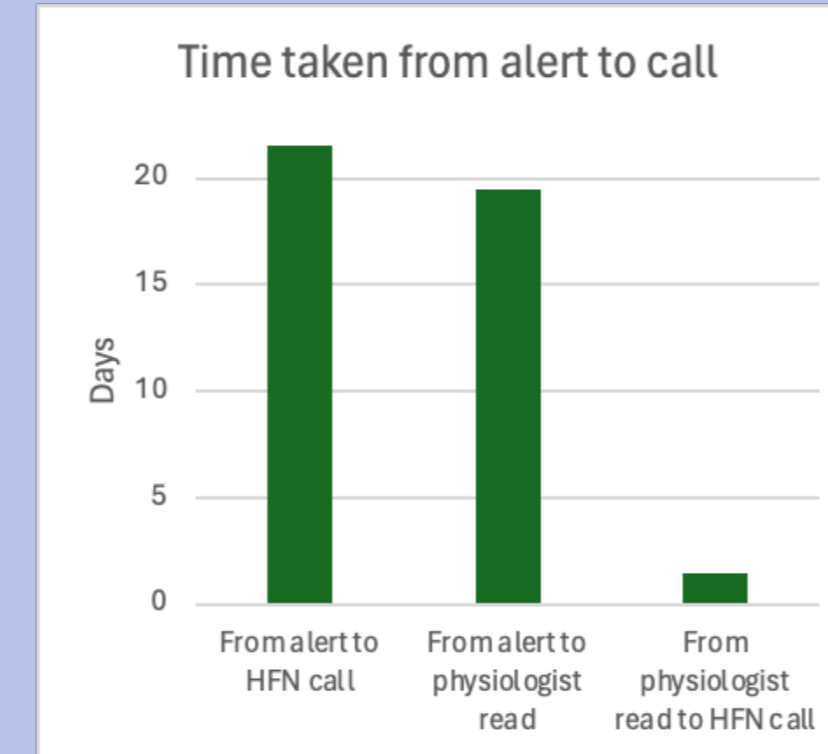
- Perform process review for remote HF alerts
- Audit current heart failure alert management
- Identify process measures and set standards
- Develop interventions to improve workflow
- Introduction of Carelink™ Co-management

PROCESS REVIEW

- Interviews with team members
- Meetings with Medtronic Reps
- Issues:
 - Volume of alerts, huge backlog
 - Competing time for alerts
 - Communication challenges
 - Duplication of work
 - Inappropriate patients
 - Ineffective calls
 - High-risk calls not always getting to HF nurses
 - Significant time and effort required to sort each alert



INITIAL AUDIT



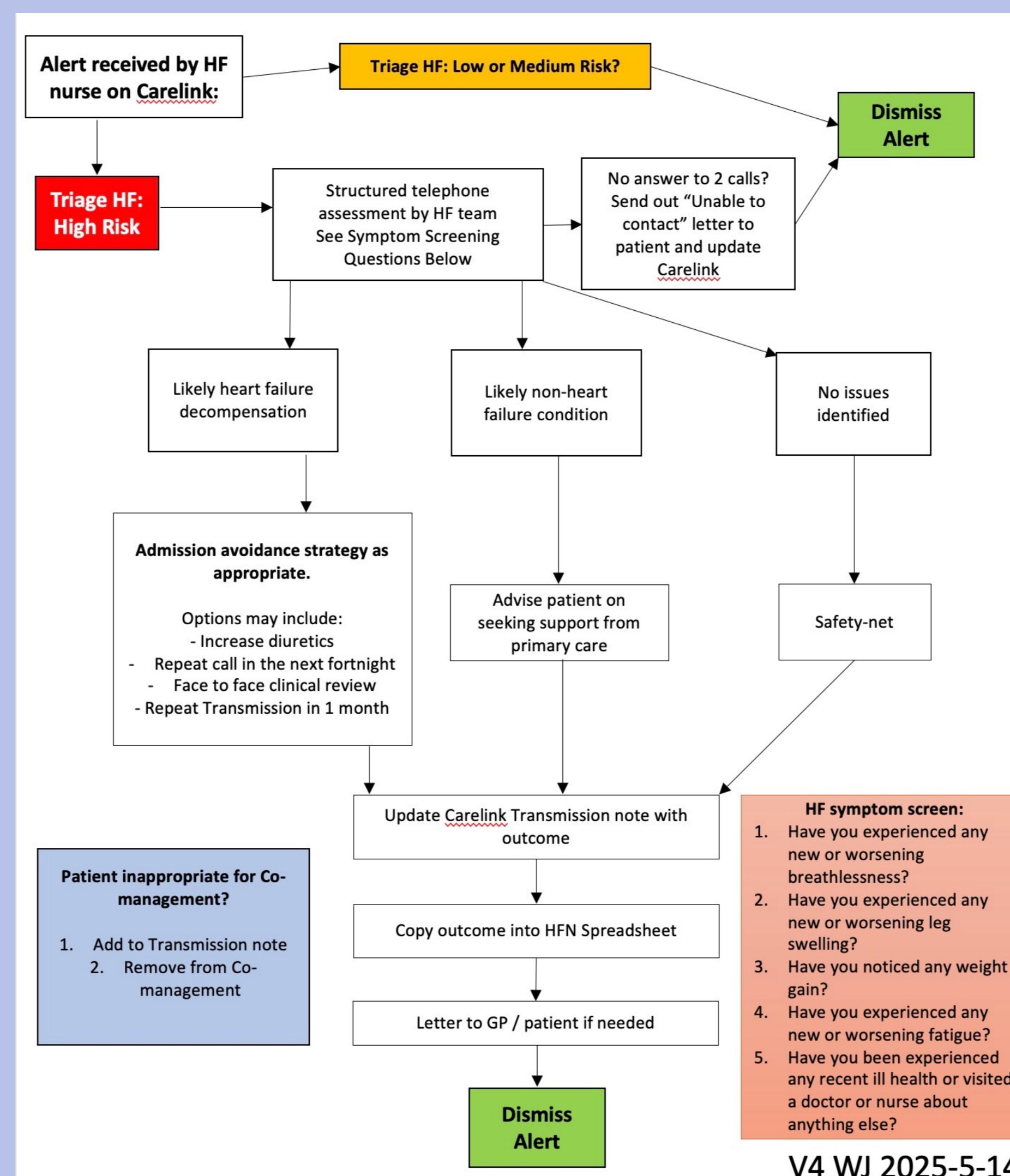
MEASURES

- Process Measures:** Percentage of high-risk alerts managed within 3, 7, and 30 days; proportion with HF nurse input.
- Outcome Measures:** HF hospitalisations and volume of unread device transmissions
- Balancing Measures:** Training time required, frequency of HF nurse calls

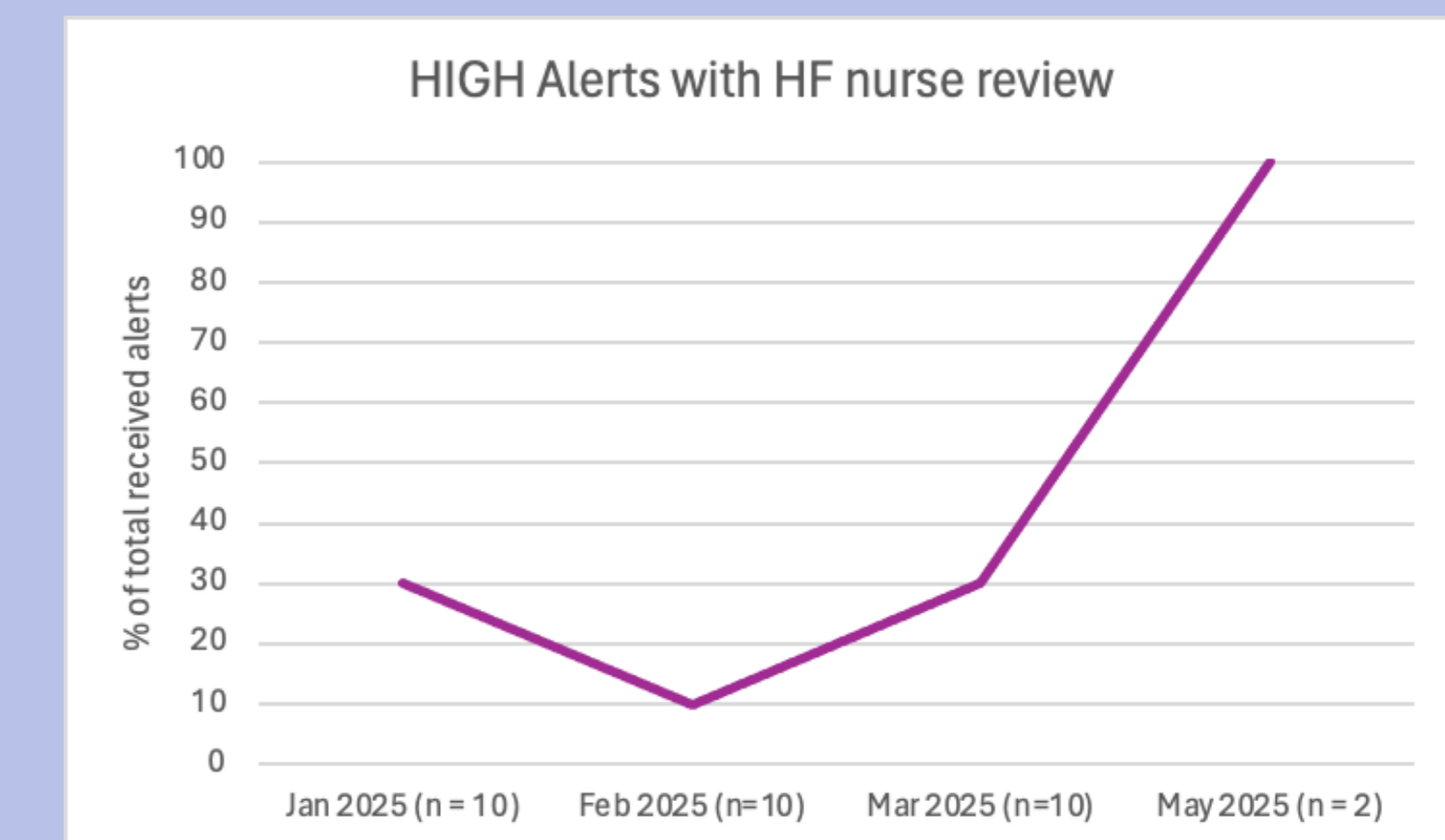
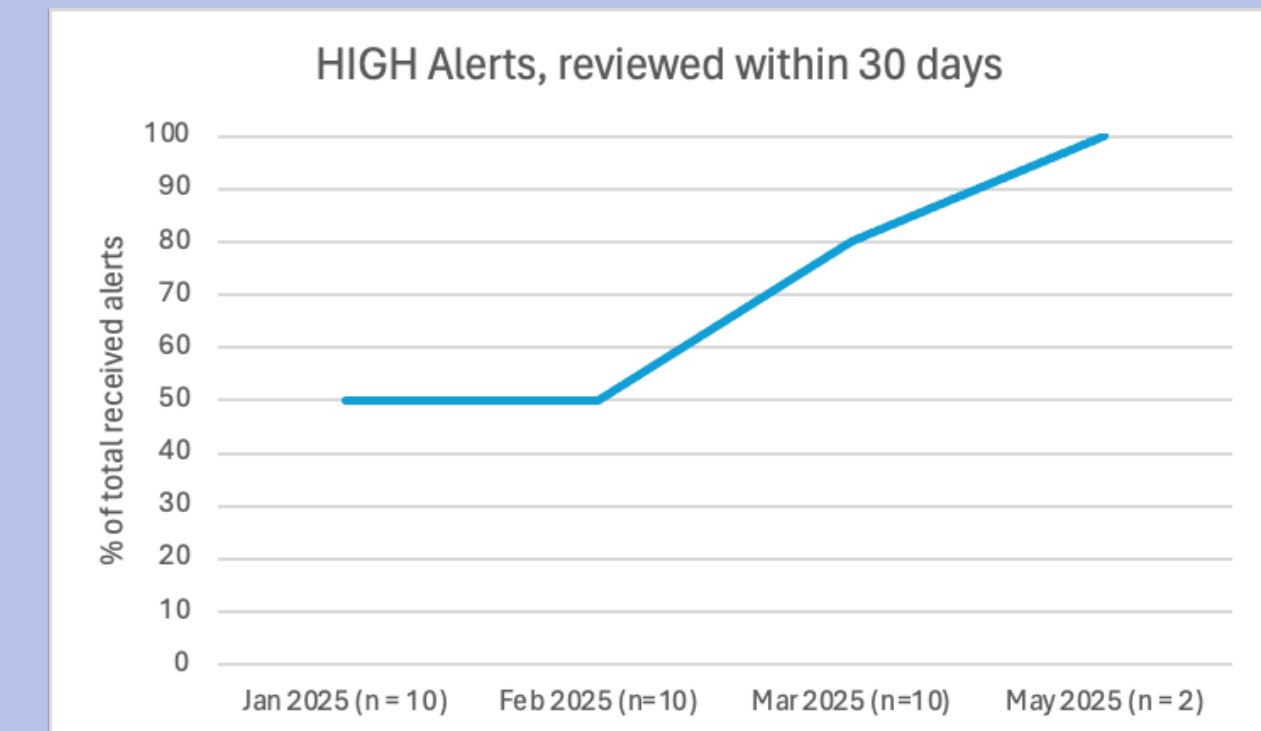
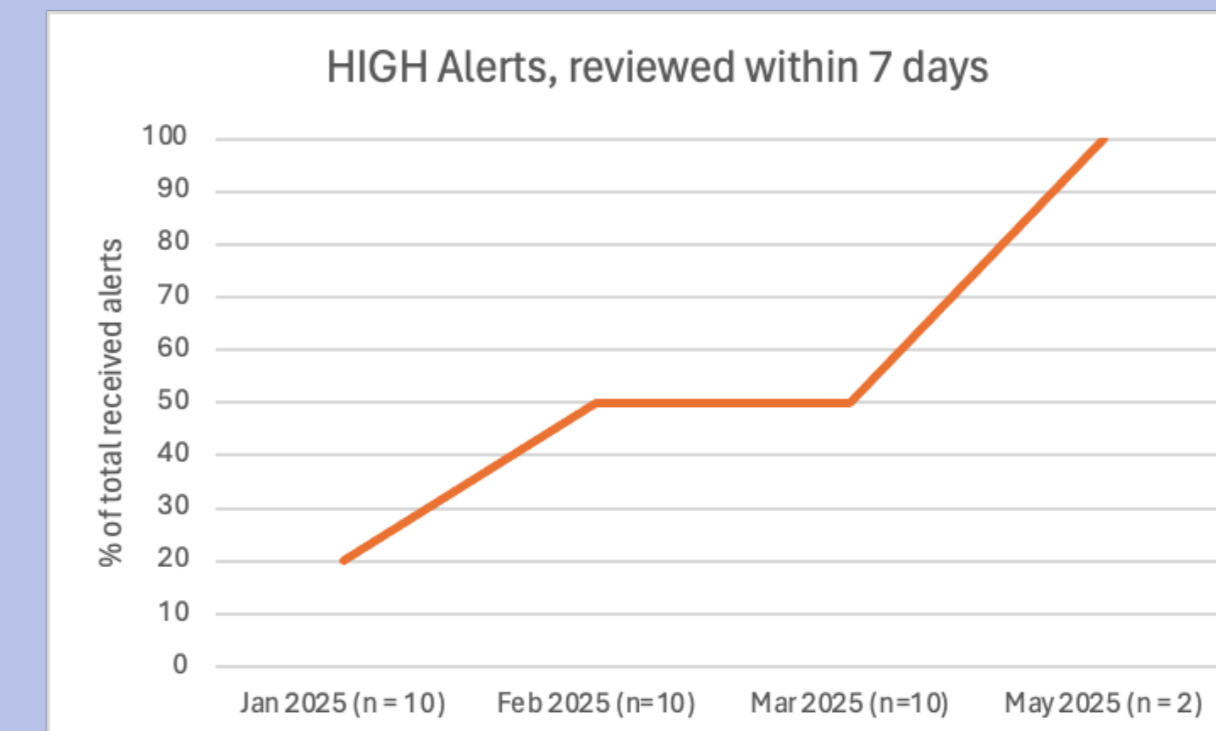
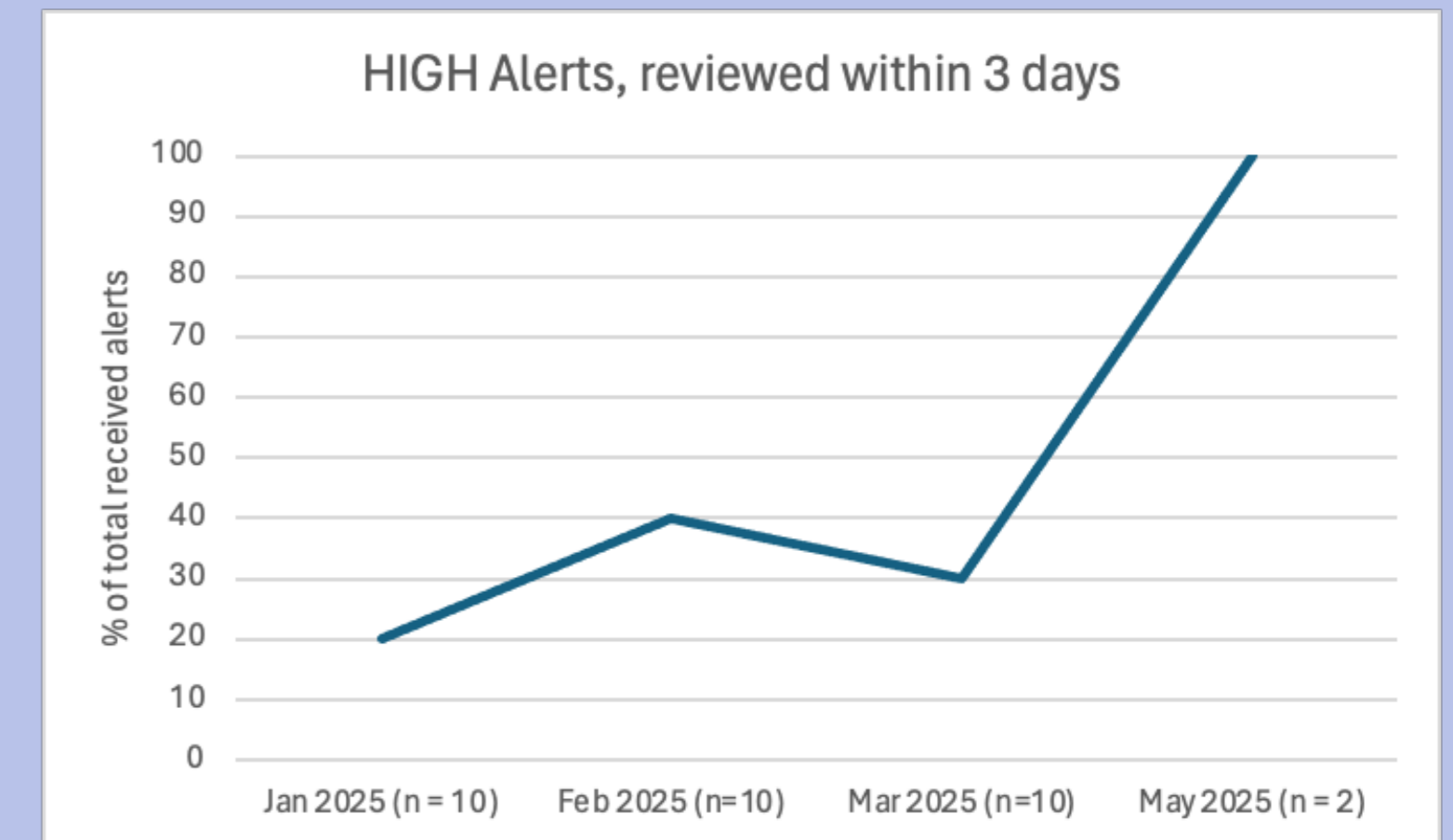
INTERVENTIONS

- Meeting with HF lead nurse from Sandwell and West Birmingham NHS FT
- HF team education sessions on TriageHF™ & Co-management
- Identification of 547 heart-failure patients with compatible devices for inclusion
- Addition of patients to Co-Management on CareLink™
- Medtronic CareLink™ training for all 8 HF nurses
- Adoption of Medtronic's CareLink™ Co-Management system, started May 2025
- New pathway for HF nurses and cardiac physiologists

NEW CO-MANAGEMENT PATHWAY



RUN CHARTS



DISCUSSION

- This project identified significant challenges in HF alert management
- It describes the implementation of Medtronic Co-management system.
- Provisional data suggests improvement in response to alert and involvement of HF nurse
- Further data collection will assess its impact on the outcome and balancing
- Work relied on leadership, and collaboration between HF doctors, nurses, cardiac physiologists and industry representatives.
- The project utilised learnings from the principles of the BCS Emerging Leaders programme
- It reflects personal interests in digital innovation, HF, and sustainable service improvement.

ACKNOWLEDGEMENTS & REFERENCE

Many thanks to all of the Heart Failure nurses and physiologists for their enthusiasm and encouragement.

Many thanks to Helen Simpson and all of the Medtronic team for their support with the project.

Ahmed FZ, et al. Association of a device-based remote management heart failure pathway with outcomes: TriageHF Plus real-world evaluation. ESC Heart Fail. 2024 Oct;11(5):2637-2647. doi: 10.1002/ehf2.14821. Epub 2024 May 7