

## Breaking Down the Barriers in Cardiac Rehabilitation to Improve Enrolment

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### Problem Statement

- Enrolment in the Cardiac Rehabilitation (CR) Package in TTSH has been very low in post-myocardial infarction (MI) patients: Year 2016 = 23.2% | Year 2017 = 13.4% | **Year 2018 = 8.5%**
- CR is a comprehensive secondary prevention program designed to improve cardiovascular health following a cardiac-related event or procedure:
  - Reduces the risk of death from any cause
  - Reduces the risk of death from cardiac causes
  - Reduces risk of recurrent myocardial infarction
  - Decreases hospital readmissions
  - Improves functional status, quality of life and mood

**References:**  
 • Pelliccia, A., Sharma, S., Gati, S., Bäck, M., Börjesson, M., Caselli, S., Collet, J. P., Corrado, D., Drezner, J. A., Halle, M., Hansen, D., Heidbuchel, H., Myers, J., Niebauer, J., Papadakis, M., Piepoli, M. F., Prescott, E., Roos-Hesselink, J. W., Graham Stuart, A., Taylor, R. S., ESC Scientific Document Group (2021). 2020 ESC Guidelines on sports cardiology and exercise in patients with cardiovascular disease. *European heart journal*, 42(1), 17–96. <https://doi.org/10.1093/eurheartj/ehaa605>  
 • Virani, S. S., Newby, L. K., Arnold, S. V., Bittner, V., Brewer, L. C., Demeter, S. H., Dixon, D. L., Fearon, W. F., Hess, B., Johnson, H. M., Kazi, D. S., Kolte, D., Kumbhani, D. J., LoFaso, J., Mahtta, D., Mark, D. B., Minissian, M., Navar, A. M., Patel, A. R., Piano, M. R., ... Williams, M. S. (2023). 2023 AHA/ACC/ASCP/NLA/PCNA Guideline for the Management of Patients With Chronic Coronary Disease: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. *Circulation*, 148(9), e9–e119.  
 • Hilary K. Wall, MPH1; Haley Stolp, MPH (IHRC, Inc.); Briana Lucido, MPH,1 CHES; and Kaitlin Graff, MSW, MPH. The Million Hearts®/AACVPR Cardiac Rehabilitation Change Package 2018

### Potential Solutions

- System Innovation**
  - Streamlined the referral process
  - Addressed the affordability of CR
  - Ensured endorsement of CR from primary physicians
- Digital Innovation: Heart-Track™**  
 A gamified, wearable technology that automates patient's exercise progression and prescriptions, anytime, anywhere.
  - Co-created by a multidisciplinary team
  - Focuses on patient activation by empowering patients to exercise on their own
  - Remotely monitored for safety and effectiveness
  - Sustainable solution for the continuum of care from hospital to community



Cardiac Rehab Finisher  
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### Project Aim

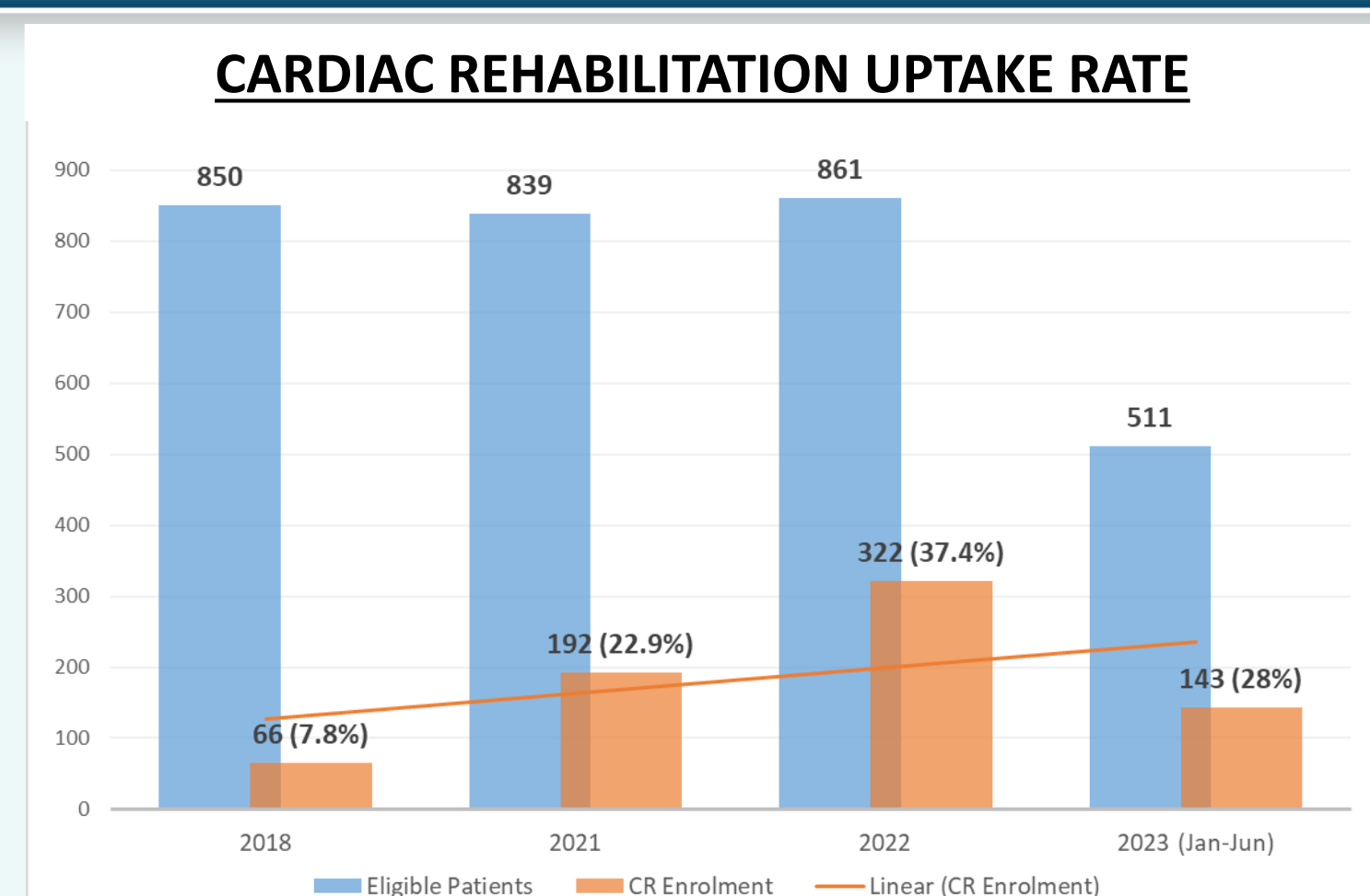
To increase enrolment of cardiac rehabilitation (CR) package from 7.8% to 50% in eligible post-Acute Coronary Syndrome (ACS) patients over 6 months

- Cardiac Rehabilitation Package: Consist of 8 or 10 sessions of exercise sessions with 2 pre and post assessment, and 6 interactive talks.
- ACS (Acute Coronary Syndromes): Include ST elevation myocardial infarction, Non ST elevation myocardial infarction & Unstable angina.
- Eligible post-ACS patients: Defined as patients admitted under Cardiology, who have been revascularized and suitable/fit to proceed with exercise.

### Lessons Learnt

- Healthcare staff can also “individualise” the exercise requirements based on patient capabilities. “Remote care and telehealth will definitely play a substantial and significant role in years to come”.
- The remote care system allows us to be able to focus on more complex patients.
- Hospital can continue with care even as in-person rehabilitation classes closed in the pandemic.

### Outcomes & Impacts



- A total of 2,211 eligible patients were included for data analysis from January 2021 to June 2023.
- The overall enrolment rate improved from 7.8% in Year 2018 to a peak of 37.4% in Year 2022, and an overall average of 29.7% over 3 years.
- Patient enrolment into the 12 session CR package was at 65.3% as compared to 34.7% of patients on a per-session basis
- Enrolment for 12 session CR package increased from Year 2021 to Year 2023 by 57%.