

Early Results Following Implementation of “Keep Your Move in The Tube”[®] Cardiac Surgery Activity Program

Rachel Born PT, DPT, Kate Knott CRNP, Rebecca Sandler, RN, MS, JB Hensley, MBA, Dawn Roach RN, Kyungsook Gartrell Ph.D, RN, Rawn Salenger MD



Background:

- Sternal Precautions post-cardiac surgery vary.¹⁻⁶
- This can limit patients' mobility, increasing caregiver burden and the need for post-acute care.¹⁻⁶

Objectives:

- As part of our Cardiac Enhanced Recovery after Surgery program, we implemented Keep Your Move in the Tube © (KYMITT) activity program.¹
- KYMITT utilizes shortened lever arms that lessen sternal stress allowing increased patient mobility.¹
- We hypothesized that implementation of KYMITT would facilitate early mobility and discharge directly home for our patients without further complications.

Subjects:

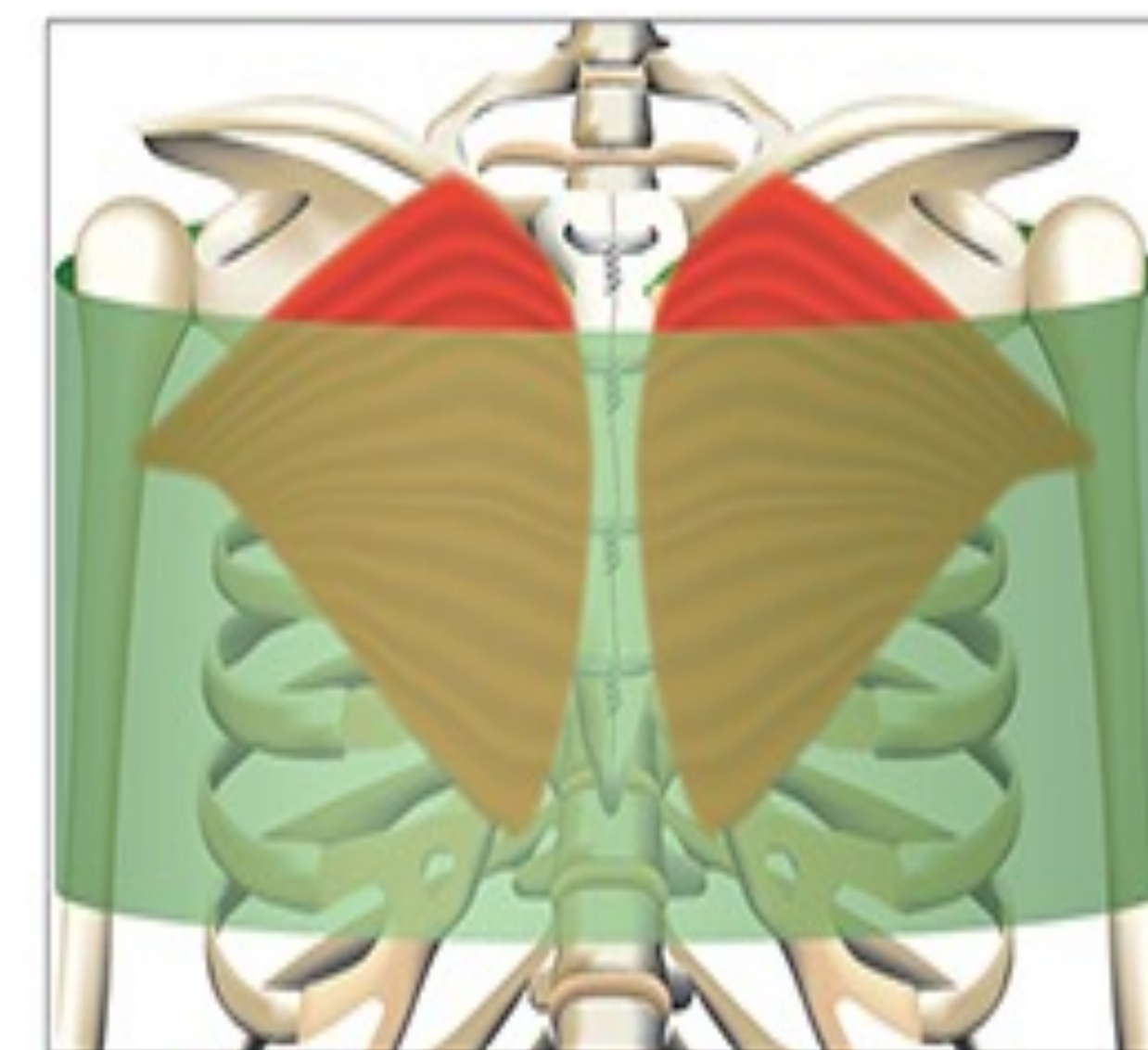
- 338 consecutive adult cardiac surgery patients with a median sternotomy from October 2020 through May 2021.
- No patients were excluded regardless of risk factors for poor wound healing.

Methods:

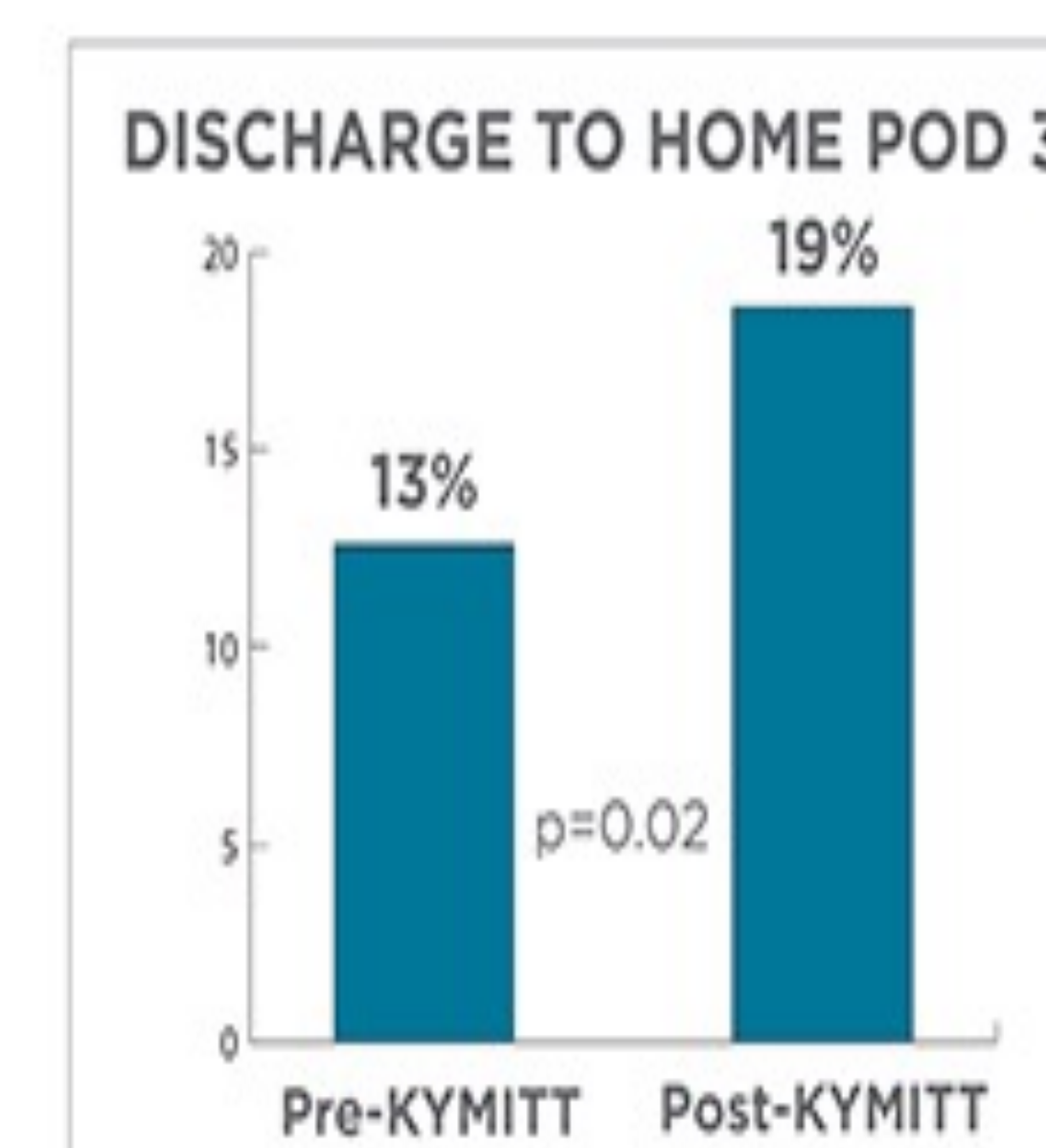
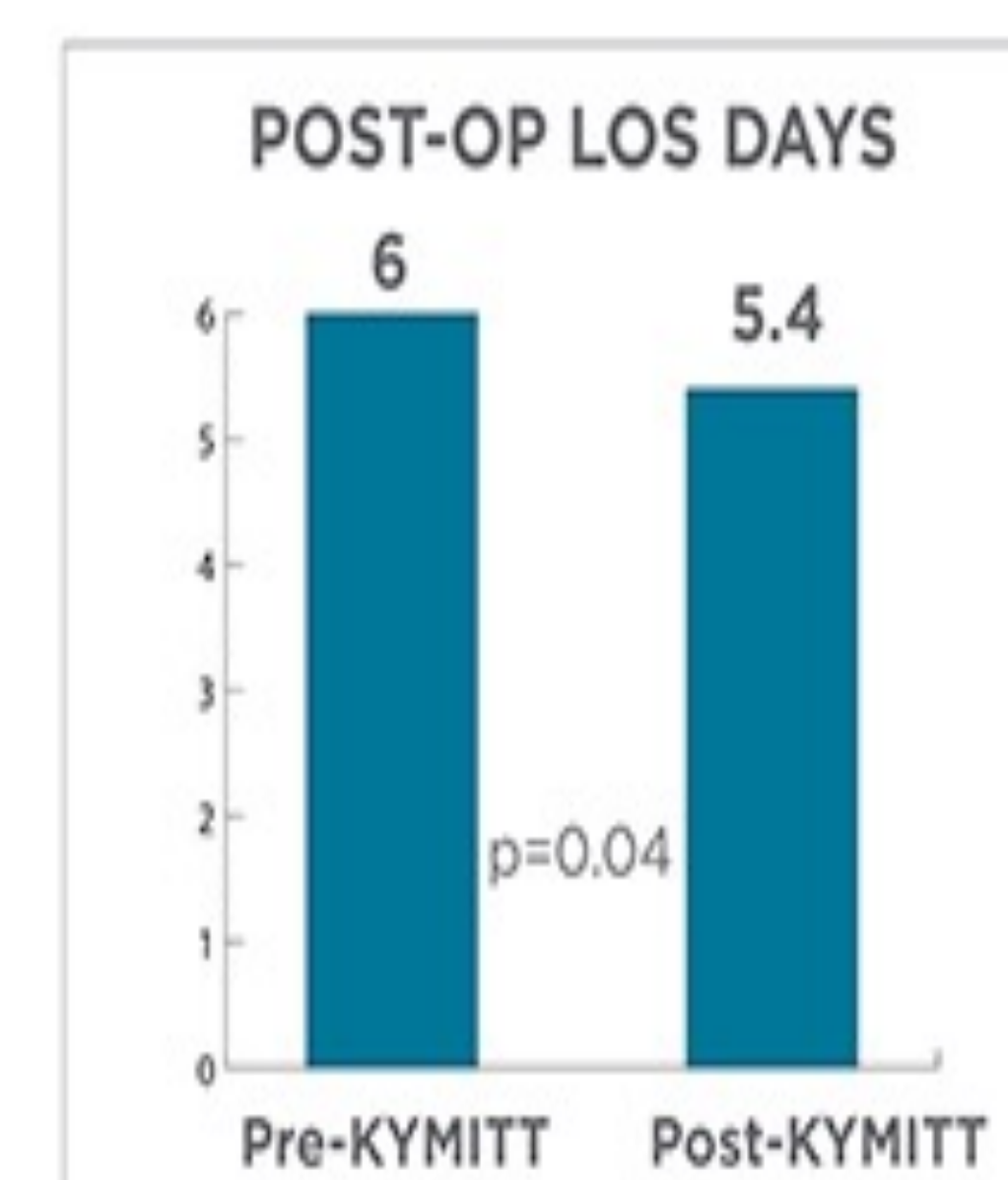
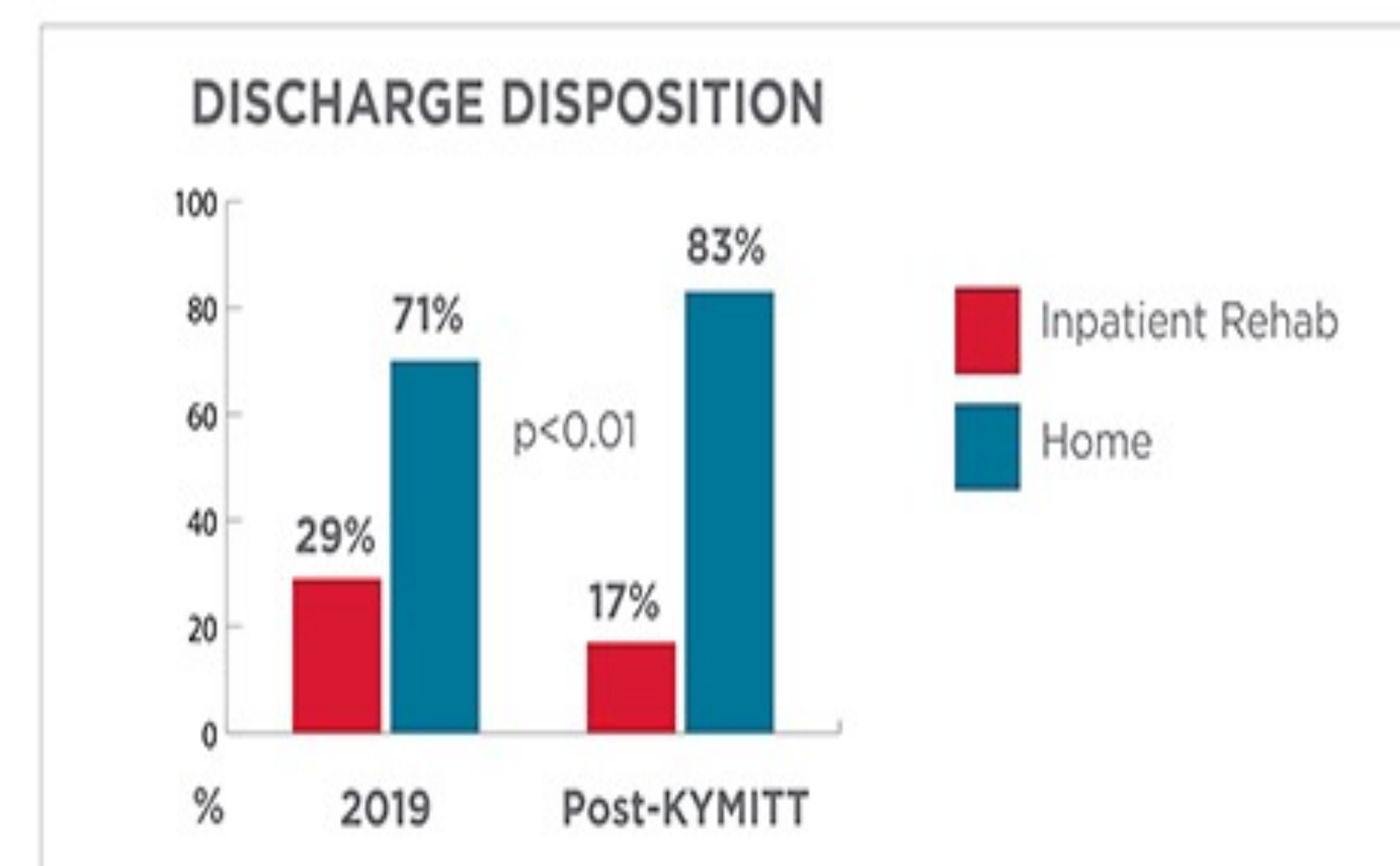
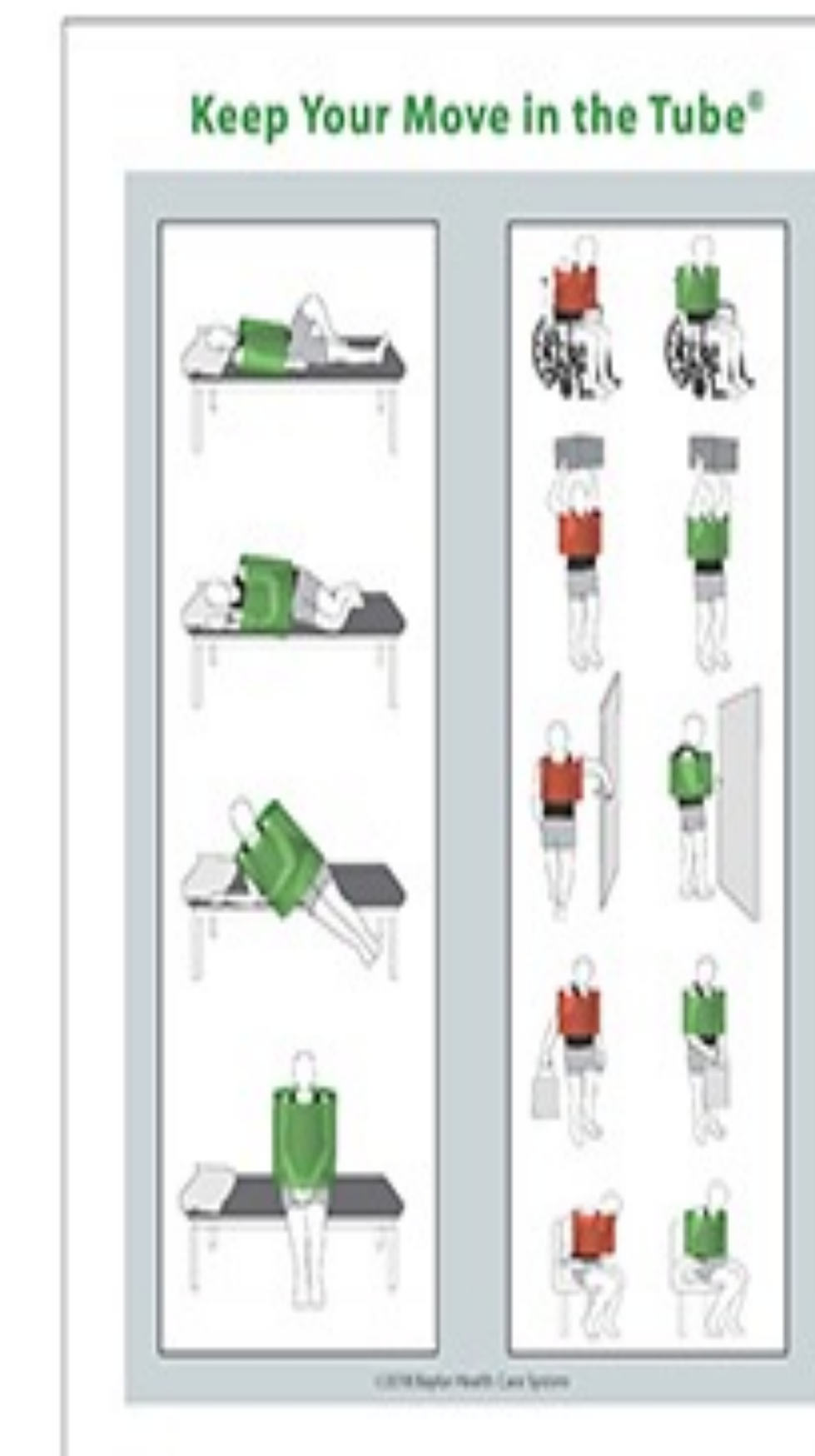
- Outcomes data for the trial cohort were compared to historical controls who underwent adult cardiac surgery from January 1 to December 31, 2019. (n=546)
- SPSS 27 (IBM, Armonk, NY) was used for data analysis.

References

1. El-Ansary D, Lapiere TK, Adams J, et al. An evidence-based perspective on movement and activity following median sternotomy. *Phys Ther.* 2019; 99:1587-1601.
2. Adams J, Lotshaw A, Exum E, et al. An alternative approach to prescribing sternal precautions after median sternotomy, keep your move in the tube. *Proc(Bayl Univ Med Cent).* 2016;29:97-100.
3. Holloway C, Pathare N, Huta J, et al. The impact of less restrictive poststernotomy activity protocol compared with standard sternal precautions in patients following cardiac surgery. *Phys Ther.* 2020;100:1074-1083.



The trunical tube (shown in green) is the basis of the KYMITT approach.



Results:

- There were no significant differences between the groups preoperatively. Average age was 66 and 74% were male.
- KYMITT patients experienced a significantly shorter mean post-operative length of stay (pLOS) versus the control group. (5.4 vs. 6.0, $p=0.04$) and were more likely to be discharged home by the third post-operative day compared to control patients. (19% vs. 13%, $p=0.02$)
- A significantly larger portion of KYMITT patients were discharged to home (83% vs. 71%) and a smaller portion of KYMITT patients were discharged to rehabilitation (17% vs. 29%) compared with control patients ($p < 0.01$).
- There was no difference in 30-day readmission rate or sternal complications.

Conclusions/Clinical Reference:

- Implementation of KYMITT was associated with decreased pLOS and increased discharge directly home, without an increase in sternal complications or readmission rates.
- KYMITT may benefit cardiac surgery patients by safely returning them home sooner, without increasing complications.

References

4. Cahalin L, Lapiere TK, Shaw D, et al. Sternal precautions: is it time for a change? Precautions versus restrictions- a review of literature and recommendations for revision. *Cardiopalm Phys Ther J.* 2011; 22:5-15.
5. Kattijahbe MA, Granger CL, Denchy L, et al. Standard restrictive sternal precautions and modified sternal precautions had similar effects in people after cardiac surgery via medial sternotomy (SMART trial): a randomized trial. *J Physiother.* 2018;64:97-106.
6. Ge W, Hains B, Sifara A. Noncontact measurement of the deformation of sternal skin during shoulder movements and upper extremity activities restricted by sternal precautions. *Phys Ther.* 2018; 98: 911-917.