

# Chest pain identified as low risk for acute coronary syndrome (ACS). Can a HEART score pathway identify more patients for early safe discharge than the current TIMI score pathway?

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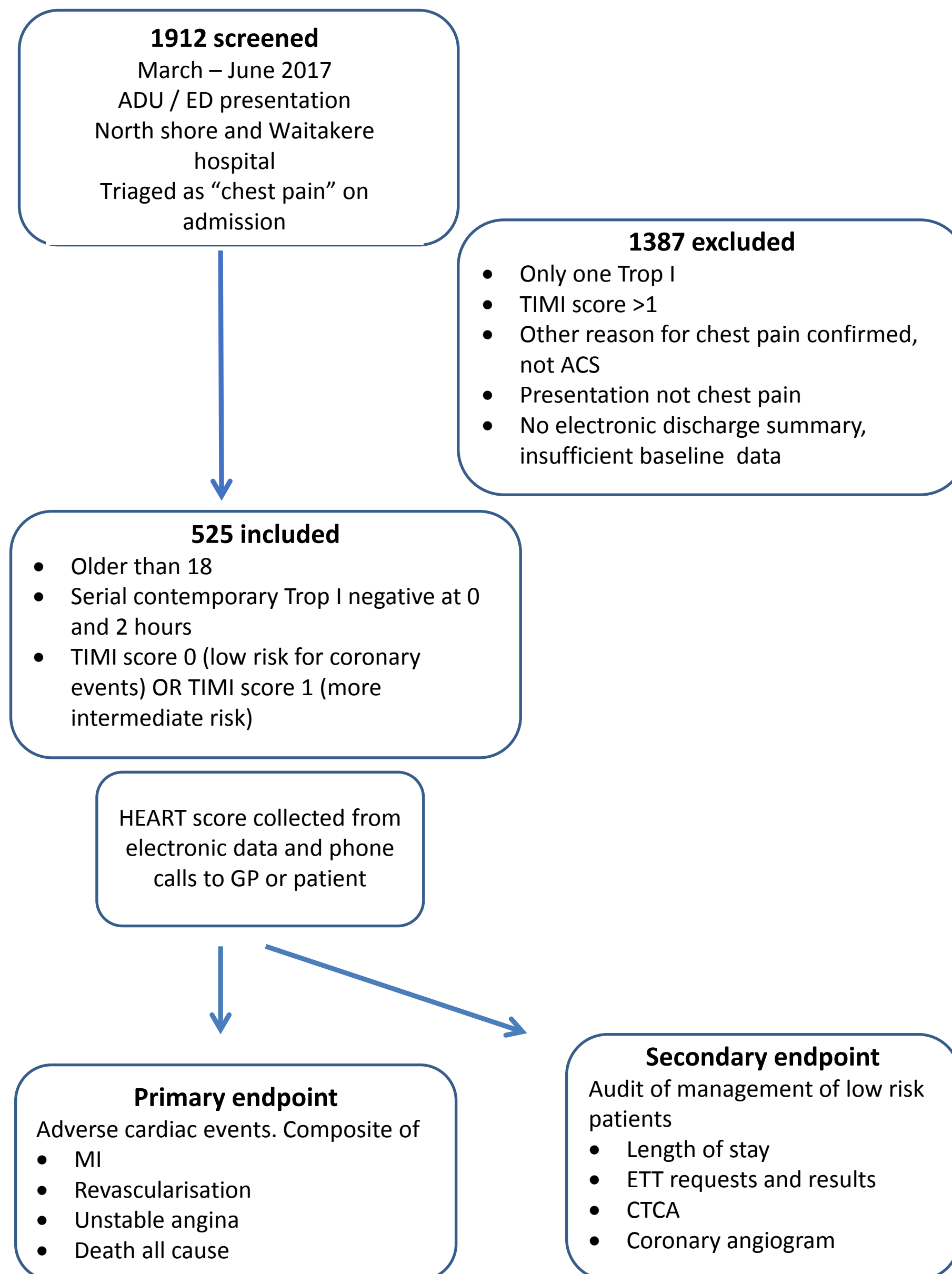
## Introduction

- WDHB developed a collaborative pathway using the TIMI score for patients with possible cardiac chest pain to predict risk for major adverse cardiac events and guide management
- Implementation of the pathway increased early discharge but many low risk patients are referred for potentially unnecessary cardiac tests.
- The HEART score is a newer risk tool, shown to outperform the TIMI score in undifferentiated chest pain. More patients could potentially be discharged early without further investigation using HEART score.

## Objectives

- To prove more patients can be identified as low risk using HEART score and that cardiac events in these patients would be acceptably low.
- To measure the magnitude of current potentially unnecessary cardiac testing.

## Methods



## RESULTS: Adverse cardiac events 3 months

		Total cohort	Event rate %	95% CI	Negative predictive value	
Neg serial Trop I	HEART 0 - 3	2	398	0.5%	0.14 – 1.81	99.4% (98.2 – 99.86)
	HEART 4 - 6	10	127	7.9%	4.3 – 13.9	
	TIMI 0	4	366	1.1%	0.4 – 2.8	98.9% (97.2 – 99.57)
	TIMI 1	8	159	5%	2.6 – 9.6	

### 12 Adverse Cardiac Events

- 12 Exercise treadmill, 7 diagnostic
- 7 Diagnostic CTCA
- 1 Diagnostic stress ECHO
- 10 Coronary angiogram
- 7 Revascularisation

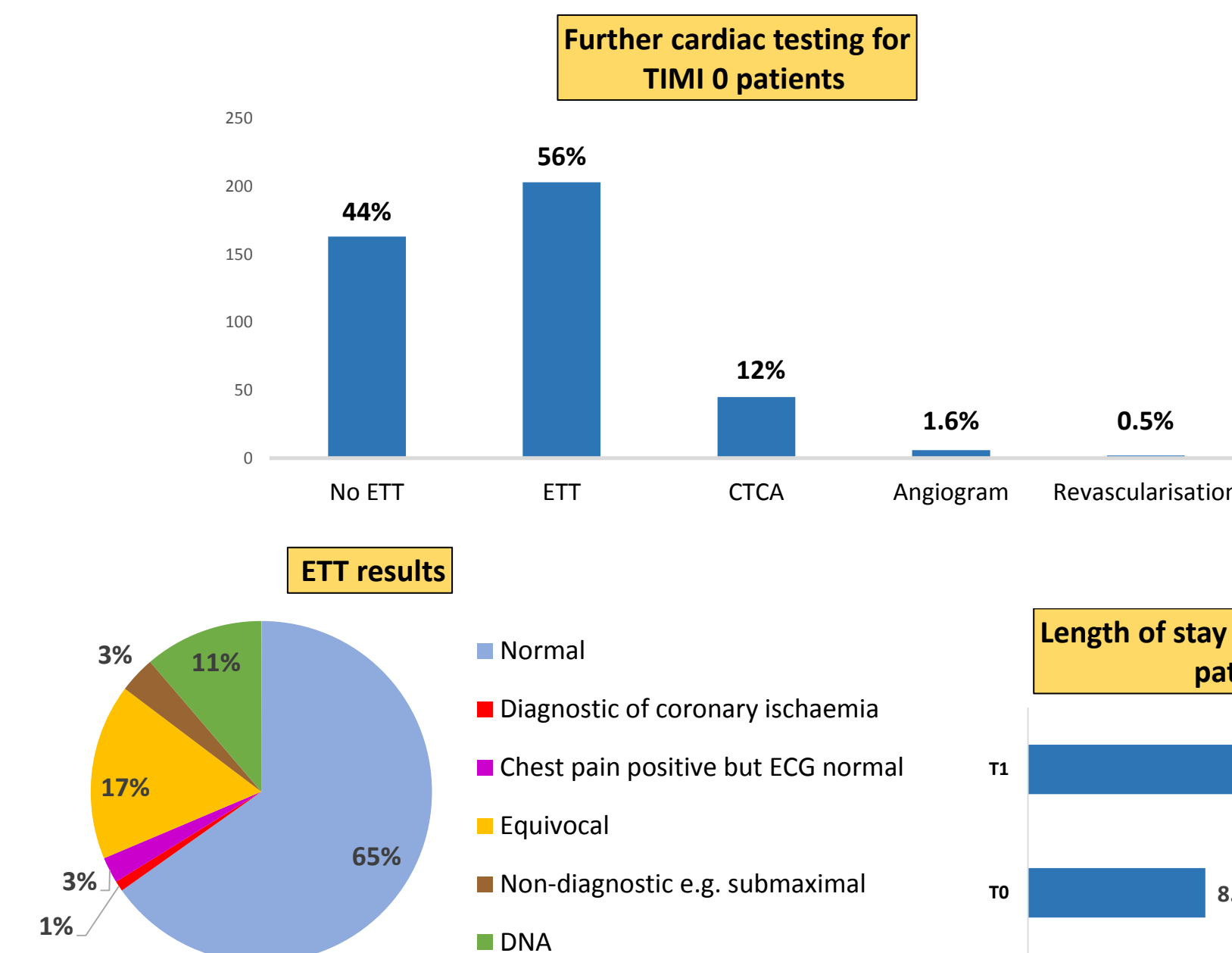
NO MI / death / CABG

## TIMI pathway cohort reclassified with HEART score

- This study excluded patients at high risk for cardiac events (TIMI score 2-7).
- In our lower risk cohort, 366 patients were classified as low risk with a TIMI score 0 while 398 patients were classified as low risk with a HEART score 0-3. 9% more patients were reclassified as low risk by using the HEART rather than the TIMI pathway.
- If we had used a cohort involving the entire chest pain population then it is likely that an even larger proportion of patients would be reclassified as low risk HEART (0-3).

## Further management of 366 TIMI 0 patients

- As per our chest pain pathway, TIMI 0 patients get serial ECG and TI after 2 hours. If all normal, to discuss with SMO to consider further options of discharge with reassurance and GP follow up vs Exercise treadmill test within 72 hours and same day ADU medical registrar assessment
- Despite very low risk our patients get extensive further investigations



## Literature Review

- In a recent large study that included all patients presenting with chest pain to the Emergency Department, 24% more patients were classified as low risk using HEART instead of TIMI score (1).
- Riley et al showed in 2017: “Utilizing the HEART Pathway as a decision aid for patients with undifferentiated chest pain resulted in significant cost savings.” (3).
- Poldervaart et al showed in 2017 that “The HEART score outperformed the GRACE and TIMI scores in discriminating between those with and without MACE in chest pain patients, and identified the largest group of low-risk patients at the same level of safety.” (2).

## Conclusions

- The HEART pathway safely identifies significantly more patients as low risk compared to our TIMI pathway.
- WDHB do further cardiac investigations in the majority of our low risk patients, despite evidence of an acceptably low miss rate for cardiac events. Length of stay is still long.
- We can reduce costs significantly and safely by incorporating HEART score in the pathway and by re-education of our physicians.

## References

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## Acknowledgments

Clinical Investigators – data collection

- Dr Seong Shin
- Dr Vivien Yong
- Dr Lavanya Pushparajah
- Dr Rebecca Roberts

Awhina Research Centre

- Dr Victoria Andersen, Rose Smart, Assoc. Prof. Wayne Miles, Dr Lifeng Zhou, Hamish Neave