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BACKGROUND

From Feb '17 to Jan '18, A&E has seen **6588 patients with complaints of chest pain**. Cardiology (CVM) is also one of KTPH's top 3 admitting disciplines (about 11% of admission load). CTCA is a non-invasive scan that allows doctors to view and evaluate the arteries that supply blood to the heart.

This project aims to create faster access to CTCA for patients with a moderate HEART score of 4 to 6, hence enhancing risk stratification of these patients. Patients are admitted to EDTU to receive the CT scan and report the following day.

METHODOLOGY

Representatives from A&E (clinician, nursing, and operations), Cardiology, and Diagnostic Radiology (DDR) met to discuss the protocol and workflow. The following were agreed upon:

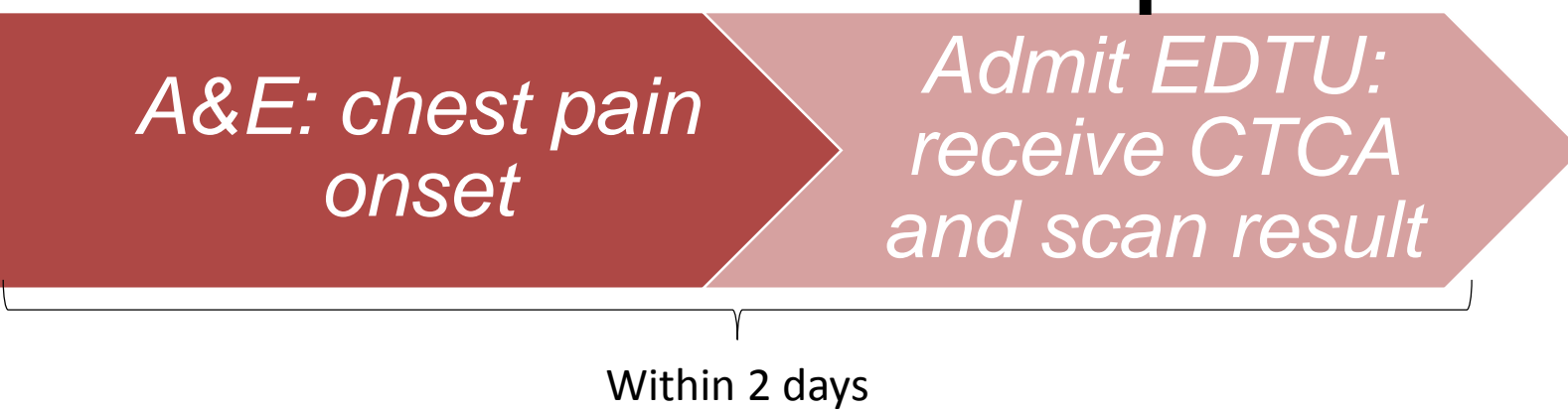
1. Appropriate patient selection at A&E for admission into EDTU.
2. Dedicated CT scan slot reserved every morning (Monday – Friday) for EDTU patients.
3. A&E doctors are given the right to order CTCA in the system. Previously this request was restricted only to the Cardiology department.
4. To ensure timely discharge from EDTU, the CT report is targeted to complete in 2 hours.

For patient

As-Is: Patient waits 42 days and 3 appointments for CTCA result



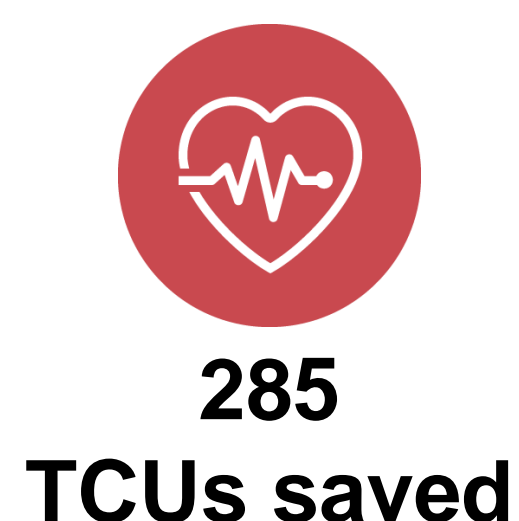
To-Be: CT scan done and report made available the following day



RESULTS

The project started in Feb '17. From Feb '17 to Jan '18:

1. **205 patients were risk-assessed with CTCA.**
2. **46% (95 patients) were discharged with no TCU.**
3. **285 outpatient appointments were saved.**



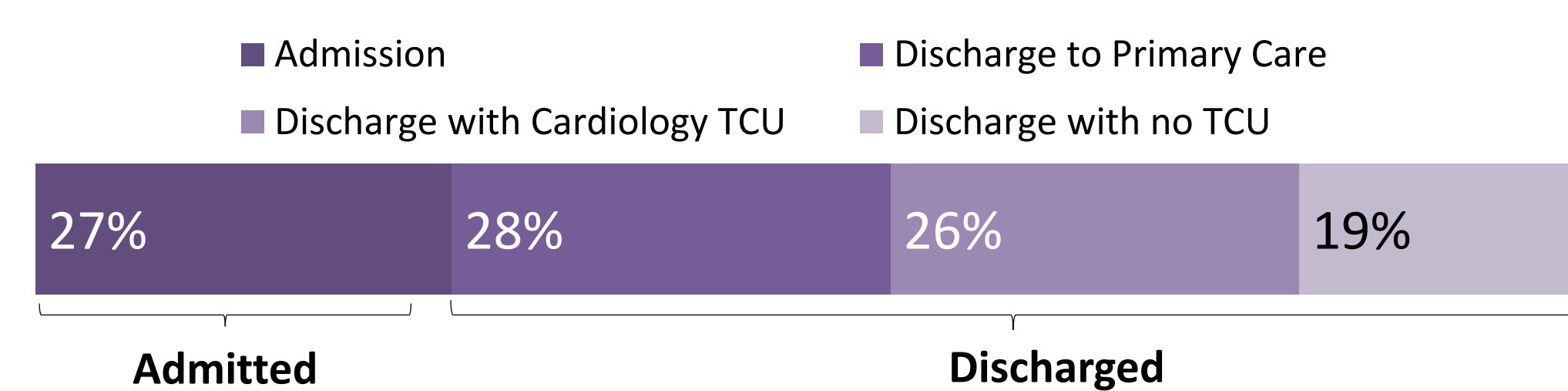
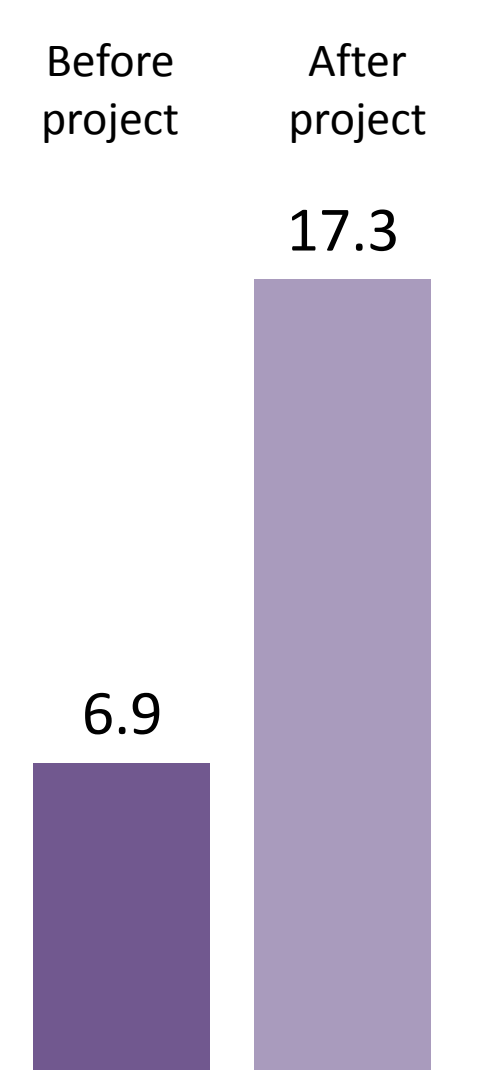
PROJECT IMPACT (1 YEAR BEFORE VS 1 YEAR AFTER)

BETTER

Better risk stratification at A&E helps manage cardiovascular resources for the system. Now, moderate risk patients can receive CTCA and be discharged without specialist follow-up, which was not possible previously.

1. (Chart on right) As a percentage of admissions, **EDTU admissions more than doubled (6.9% to 17.3%)**, while inpatient admissions dropped (93.1% to 82.7%). This frontloading of care helps patients receive early diagnosis and treatment.
2. (Chart below) **Majority of the 205 screened patients were discharged (73%)**. Almost half (47%) either followed up with primary care or have no need for follow-up.

EDTU as % of chest pain admissions



FASTER

This project reduces the wait time to obtain a CTCA report. Patients obtain a definitive diagnosis **from 42 days to 2 days**, with fewer specialist clinic visits. Also, in comparison with patients who were warded for CTCA, **the average length of stay (ALOS) reduced from 3.4 days (inpatient) to 0.66 days (EDTU)**. These contribute to a quick and hassle-free experience.

SAFER

The risk of an adverse cardiac event for moderate risk patients is 12 – 16%. Earlier investigation (CTCA) helps to reduce reattendances and readmissions for this group of patients, hence improving the confidence of safe discharge. Only **1 patient was readmitted** within 30 days of receiving a CTCA scan.

No. reattendances in 30 days	% reattendance in 30 days	No. readmissions in 30 days	% readmission in 30 days
6	2.9%	1	0.4%

SUSTAINABILITY

The protocol is well-sustained by the department till present. In Aug '17, a **second CTCA slot** is made available for EDTU patients. Since then, the average number of CTCA assessments has doubled, from **11 to 23 patients per month**. With effect from Mar '18, the **third CTCA slot** is made available.

CONCLUSION

In summary, this collaboration aims to expedite necessary diagnostics (CTCA) for the moderate risk chest pain patient (HEART score of 4 – 6). Instead of waiting for 42 days, this patient completes the risk assessment in 2 days by admitting to the EDTU. In the face of rising demand for cardiovascular care, this allows patients to receive the appropriate care for their risk profile.



More options for timely treatment, increased patient safety



Patients are risk-assessed early and receive appropriate care early



Hassle-free patient experience; Streamlined inter-disciplinary care