

Primary percutaneous coronary intervention (PPCI) transfer times: a quality improvement project of PPCI transfer times between Hinchingsbrooke Hospital and Royal Papworth Hospital

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Background

Decisive treatment of ST-elevation myocardial infarction (STEMI) is through reperfusion strategies such as fibrinolysis or primary PCI where available. In centres with primary percutaneous coronary intervention (PPCI), trained paramedics are responsible for activating a PPCI call after confirming STEMI in the community. Occasionally, PPCI

activation and transfer from district general hospitals (DGHs) may occur, where STEMI is diagnosed in patients who self-present to their local emergency departments (ED). One such DGH is Hinchingsbrooke Hospital (HH), with its designated PPCI centre at the Royal Papworth Hospital (RPH). The survival benefit from PPCI is time sensitive, with increasing call to balloon time (CBT) chipping away at the survival advantage of PPCI over fibrinolysis.¹ Prospective data from the National Registry of Myocardial Infarction showed that the odds of in-hospital death with PPCI were equal to those of fibrinolysis when PPCI was delayed by a maximum of 114 minutes.² This evidence forms the basis of the CBT of 120 minutes adopted in the National Institute for Health and Care Excellence (NICE) guidelines.³

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Call-Balloon time: PCI patients only

Standard: >75% of patients CTB < 150 minutes

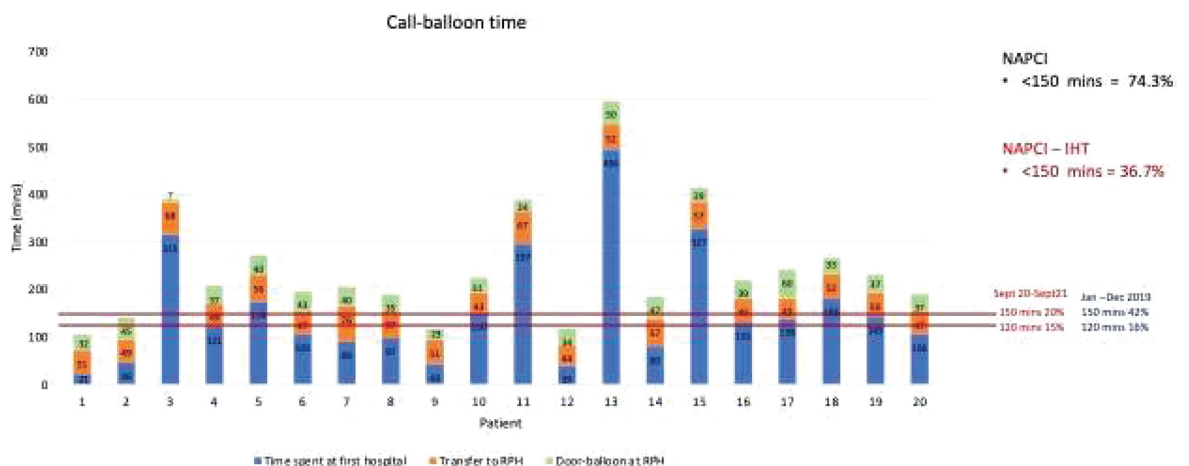


Fig 1. Graph showing the CTB times for first and second audit cycles compared with the national standard.

Aim

The aim was to retrospectively audit and improve the transfer times for the PPCI pathway between HH and RPH in line with NICE guideline 185 as well as the Myocardial Ischaemia National Audit Project (MINAP) standards.^{3,4}

Materials and methods

Using the model for improvement approach, we initially audited the transfer times between HH and RPH against NICE guidelines and the MINAP standards and this demonstrated transfer times above the national standard. Subsequently, we intervened by developing an algorithm for the rapid diagnosis of STEMI and re-educated colleagues in the emergency department. Following the intervention, we re-audited the transfer time between HH and RPH to assess for any improvement.

Data related to all PPCI transfers from HH to RPH in both audit cycles were extracted from the nationally submitted British Cardiovascular Intervention Society Database, timings from the ambulance crew, and the TOMCAT angioplasty database at RPH. Specific outlier patient records were reviewed to identify standout factors that may have precipitated transfer delays. The outcome measures were time to diagnosis (time between arrival at HH and activation of PPCI pathway), CTB (time from when patient/DGH called and deployment of PCI) and DTB (time between presenting to Papworth Hospital and deployment of PCI option).

Results and discussion

Overall, there was a significant improvement in the DTB times in the second cycle compared to cycle 1. However, there was an

increase in the CTB during the second cycle of the audit, due to a significant increase in the time to diagnosis (Fig 1). This was mainly due to the impact of COVID-19 on emergency department assessment times, leading to delays in confirming patients' eligibility for transfer.

Conclusion

Adherence to the established protocol and reduced COVID-19-related pressures will ensure reduced CTB, translating to improved outcomes for patients with STEMI requiring transfer from HH to RPH for PPCI. ■

References

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