

Reducing bleeding risk due to heparin infusion-related supratherapeutic aPTT levels: A quality improvement project.

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Background

- Heparin is a high-risk medication that requires careful management to ensure effective treatment and minimisation of bleeding.
- The likelihood of a major bleeding event is increased when the APTT is prolonged.
- In 2020 a standardised paper chart for prescribing and administration of heparin was introduced to improve management of heparin infusions (figure 1).
- Despite the standardised prescribing chart there were still reports of supratherapeutic APTT's and bleeding in some patients.
- In 2022 the organisation was transitioning to a digital health-record (DHR) system, which provided an opportunity to optimise heparin prescribing.

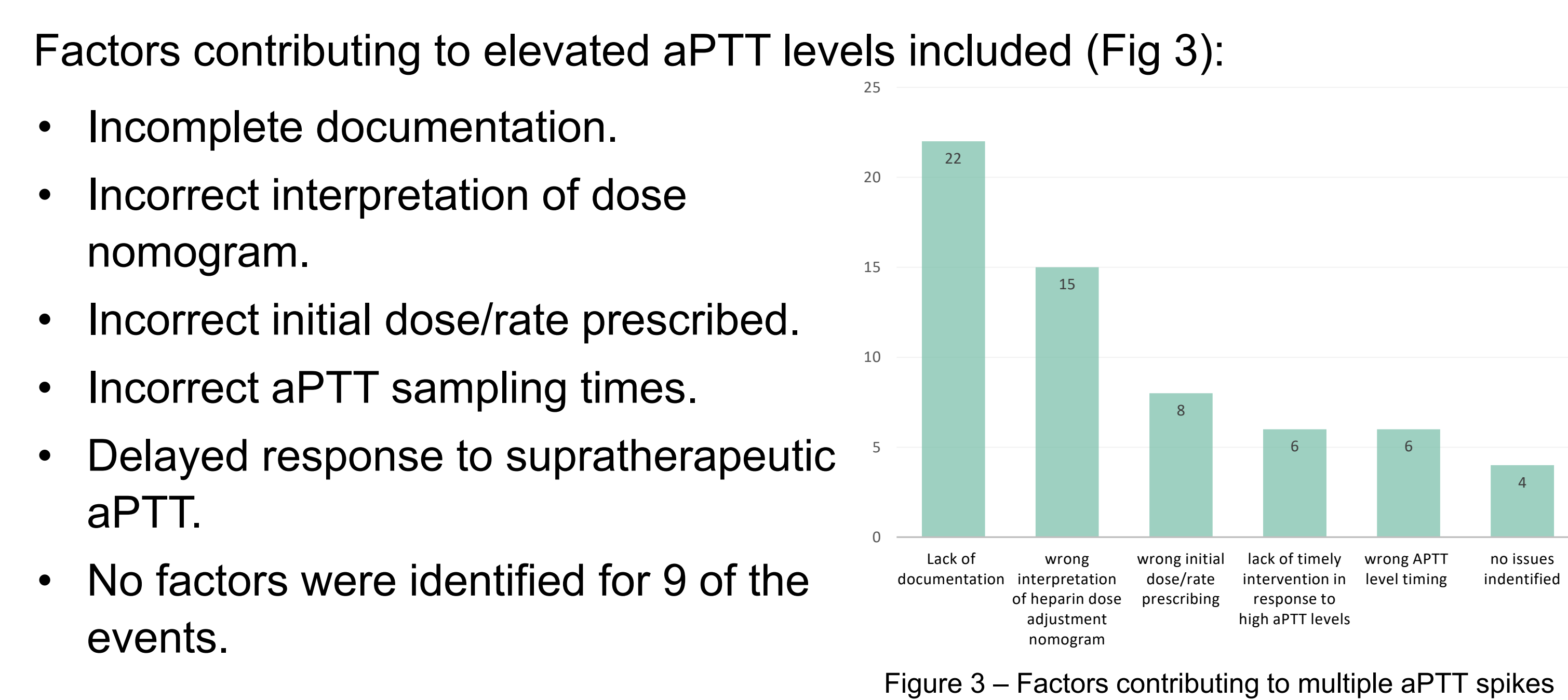
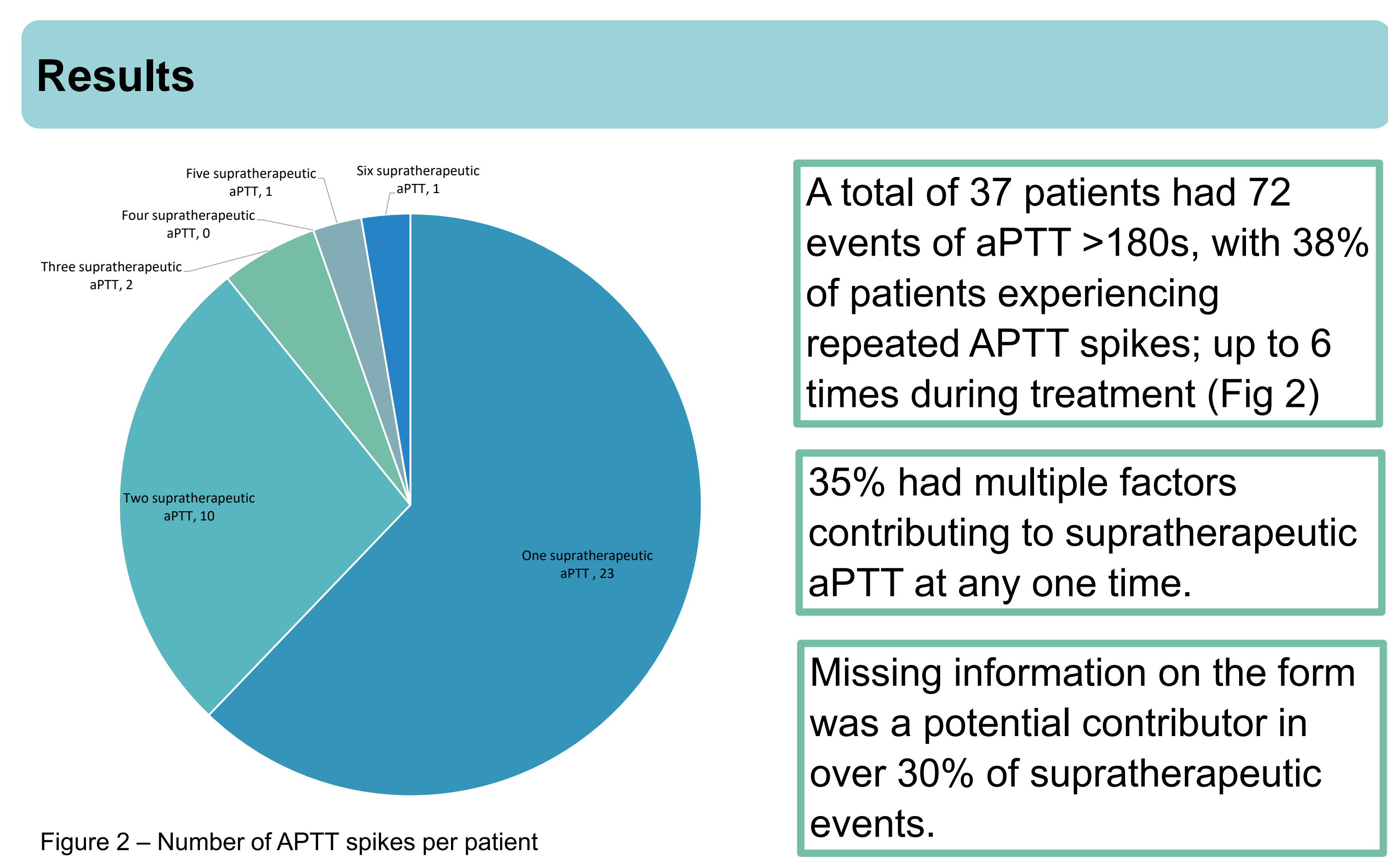
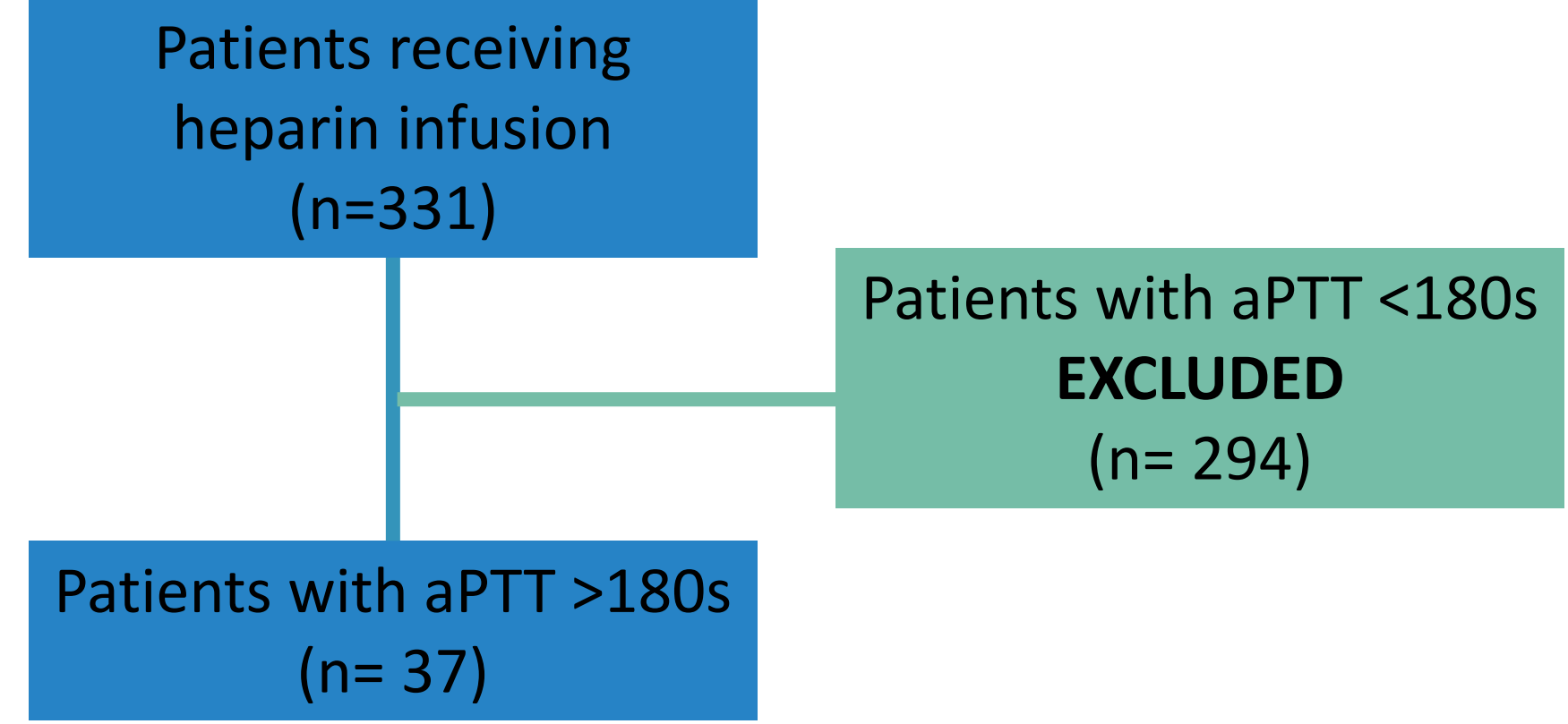
Aim

- Identify factors which contribute to supratherapeutic activated partial thromboplastin time (aPTT) levels >180 seconds.
- Identify potential modifications to the DHR system to optimise heparin infusion management.

Examples of contributing factors to supratherapeutic aPTT

Methods

A retrospective analysis of patient medical records was conducted for patients who received heparin infusions and had at least one aPTT level >180 seconds over a 6-month period (June-December 2021).



Incorrect initial dosing

Discussion

Prescribing using the DHR facilitated improvement to some identified issues including:

- Improved documentation with mandatory fields.
- Provided automatic weight-dose calculations.
- Prompted automatic first aPTT level orders at the correct time.

Due to the results of this audit indicating incorrect nomogram interpretation, an additional DHR change was implemented with the introduction of 'pop-out' alerts for prescribers when a patient receives consecutive supratherapeutic aPTT levels, which advises to pause the infusion and reduce to lower rate.

Further study is required to evaluate impacts of the implemented changes. Other areas of future research include nurse-driven heparin infusion protocol and dosing in obese patients using 'capped dose'.

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