

# INTRODUCTION OF A PRESCRIPTION CHART FOR PERI-PROCEDURAL BRIDGING ANTICOAGULATION

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## Background

Historically patients on warfarin who required invasive procedures were managed using intravenous heparin infusions. Local data showed that warfarinised patients spent an average of six more days in hospital, compared to patients who were not anticoagulated. Clinical advancement, and the need for improvement, resulted in the introduction of low molecular weight heparin (LMWH) in place of heparin infusions. Guidelines were required to facilitate the introduction of new practice and reduce the risk.

## Objective

To facilitate the management of patients on oral anticoagulation requiring invasive procedures by producing accessible guidance and documentation.

## Process

**2010:** A new hospital guideline, based on ACCP 8<sup>th</sup> edition guidelines, replaced intravenous heparin with subcutaneous low molecular weight heparin (LMWH). This allowed patients to return home before their oral anticoagulation had re-stabilised.

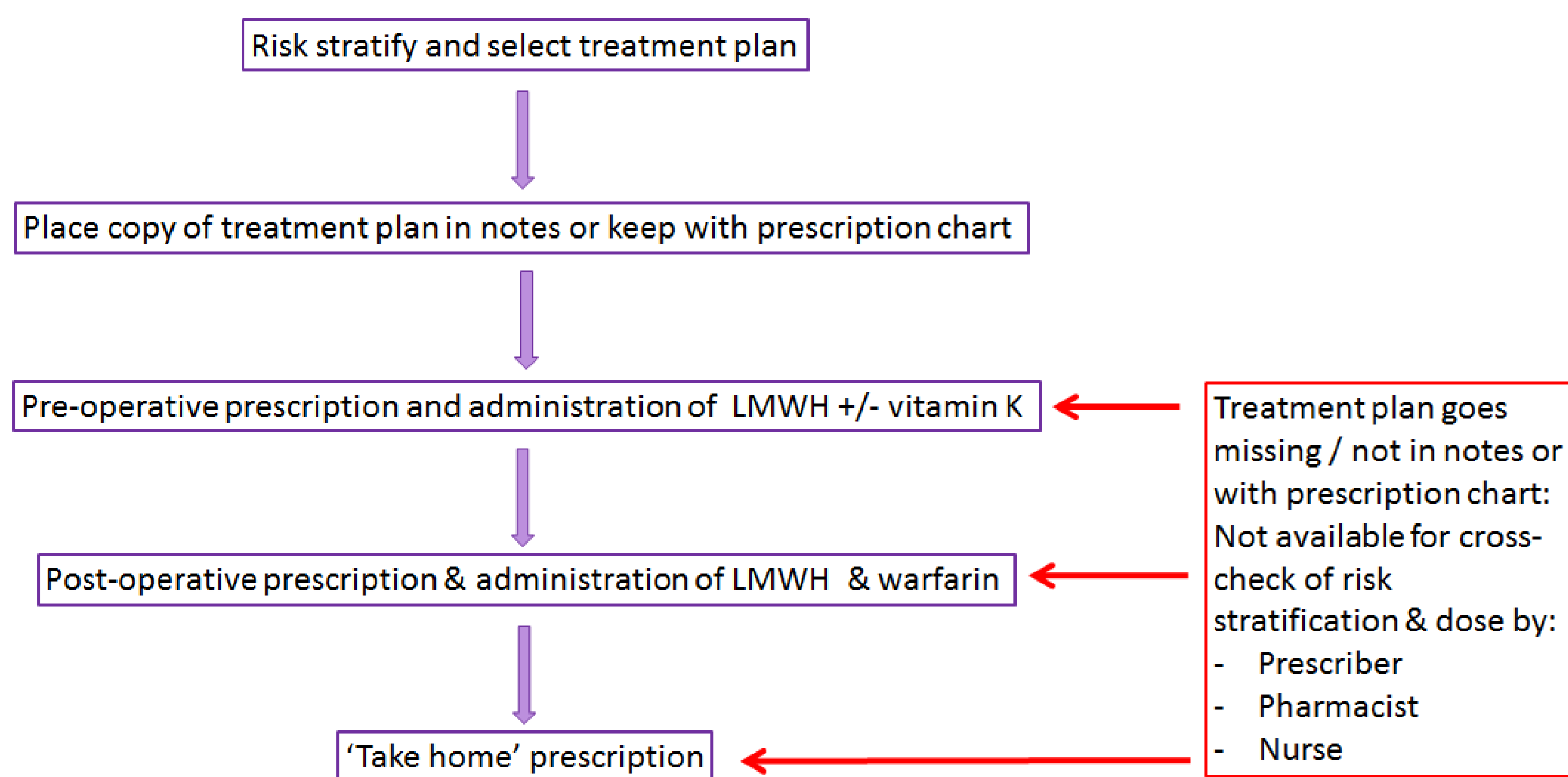
- Patients were stratified into high, intermediate or low risk of thrombosis
- All patients to receive prophylactic dose LMWH immediately post-procedure: intermediate and high risk patients to have the dose escalated over 3 or 5 days
- Pre-printed treatment plans gave guidance on reversal of anticoagulation and LMWH dosing. The plan was to be included in patient's notes or attached to inpatient drug chart
- Warfarin to be restarted at the patient's usual dose (without loading doses) to avoid rapid over-anticoagulation.

**2011:** Following an audit of 52 patients and review of incident reports, the guideline was reviewed by the Anticoagulation Pharmacist and Consultant Haematologist:

- Low & Intermediate Risks combined into "Standard Risk"
- A double-sided "bridging prescription chart" was developed to include:
  - tick-boxes for risk stratification.
  - LMWH dosing guide and pre-printed prescription for completion by the prescriber.
  - guidance for reversal of oral anticoagulation pre-procedure
  - management of epidurals
  - restarting oral anticoagulation

The prescription chart was piloted in the orthopaedic department and re-audited (13 patients). A questionnaire was circulated to obtain feedback from staff.

**Figure 1 - Opportunities for error before introduction of prescription chart**



## Results

Figure 1 shows the error types that occurred when bridging plans were in use. A review of the internal incident reporting system also highlighted:

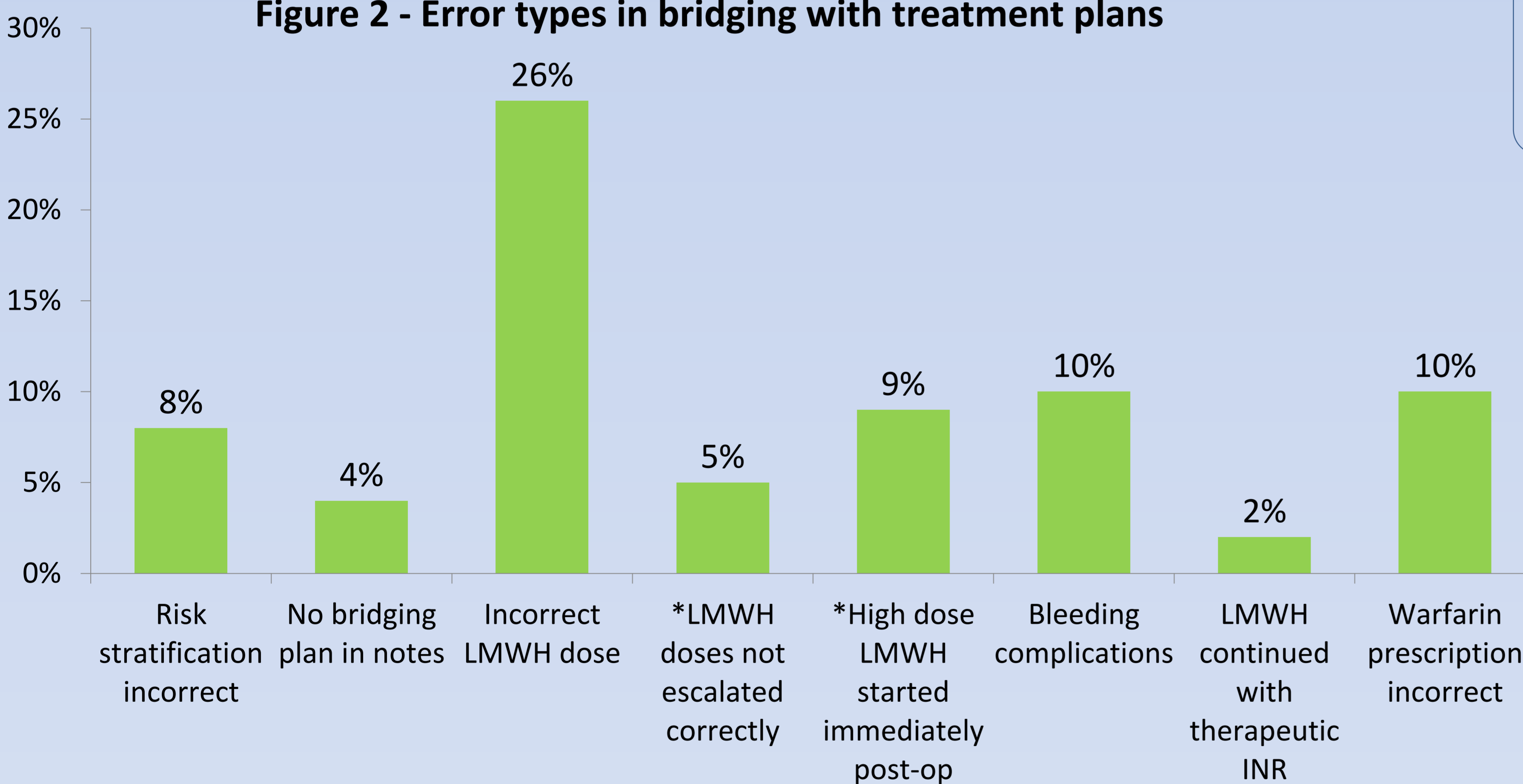
- Incorrect dose LMWH prescribed (too low / too high).
- Bridging anticoagulation not prescribed.
- Not referred for anticoagulation monitoring follow-up after discharge (on LMWH & warfarin).

Results from the pilot audit were:

- All patients were correctly risk-stratified, prescribed and administered the correct LMWH doses.
- A small improvement in warfarin prescription i.e. reduced use of loading doses (8% incorrect).
- No thrombotic or bleeding complications.
- 5 patients (38%) were not correctly referred for ongoing anticoagulation care following hospital discharge. This reflects a wider issue with poor referral rates.

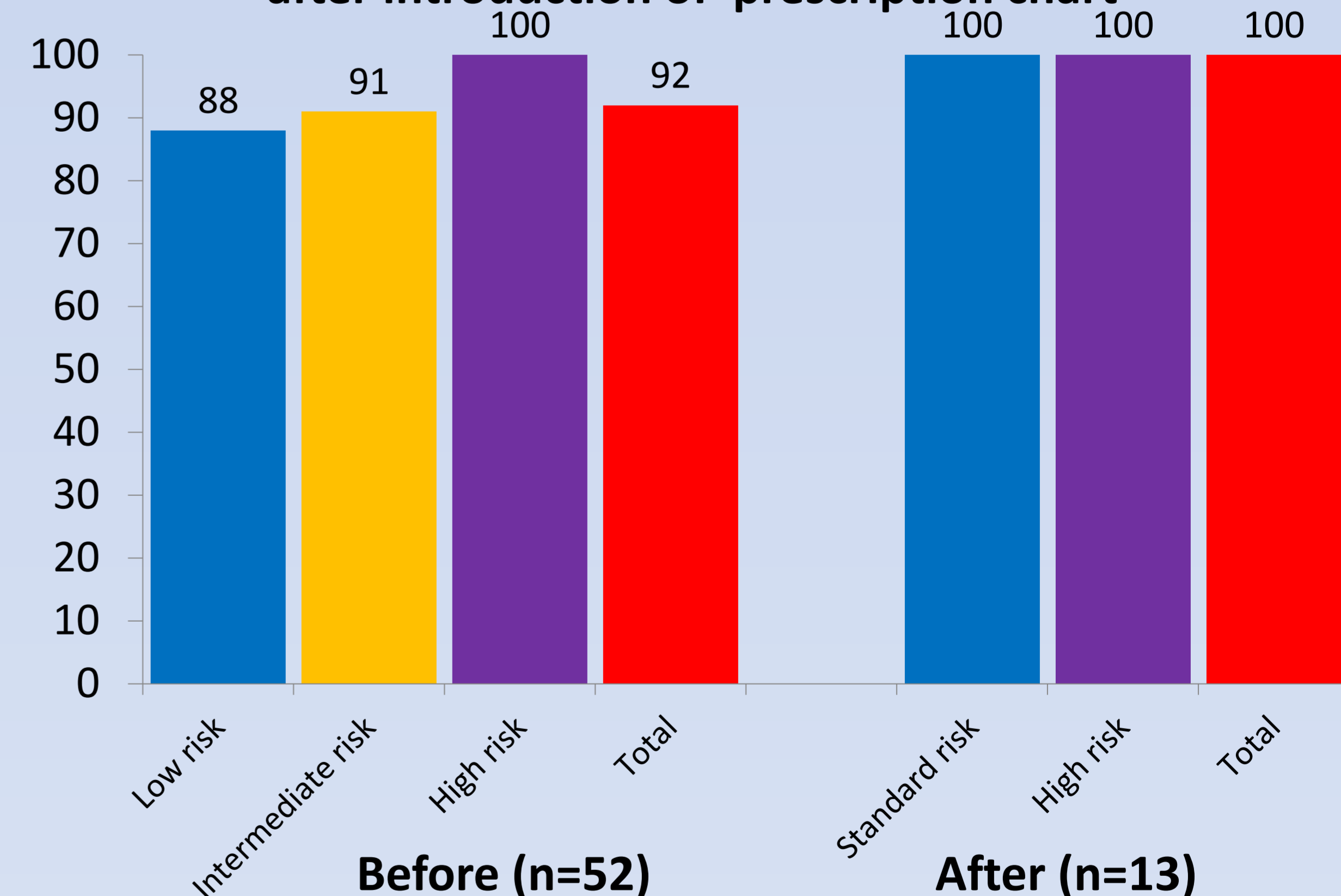
11 out of 12 respondents to the questionnaire indicated that they felt the prescription chart was helpful and made them more confident that they were prescribing and administering the appropriate anticoagulant treatment.

**Figure 2 - Error types in bridging with treatment plans**

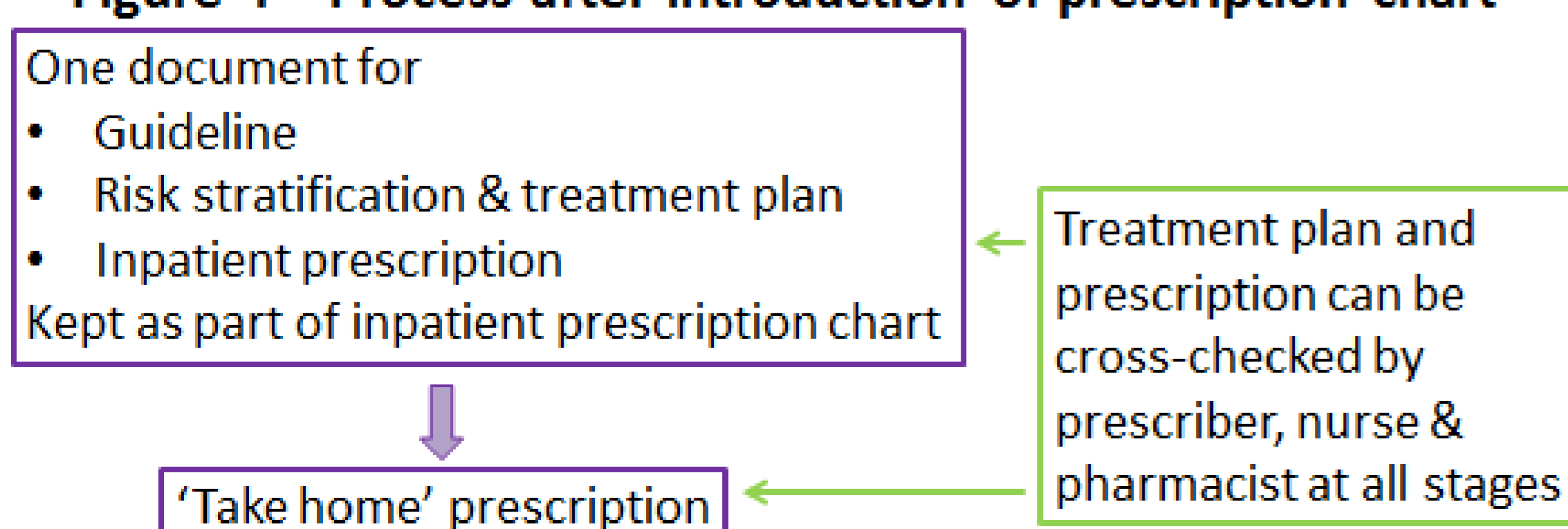


\* = as a % of Intermediate & High risk patients

**Figure 3 - % correct risk stratification before & after introduction of prescription chart**



**Figure 4 - Process after introduction of prescription chart**



## Conclusion

Combining the clinical guideline and prescription appeared to improve the management of patients requiring peri-procedural anticoagulation bridging. Following introduction of the prescription chart across all three hospitals in the trust, further audit is required to assess the whether bridging anticoagulation is managed in accordance with the updated hospital guideline (risk stratification, LMWH dosing and warfarin management). Further work is required to improve referral rates on discharge from hospital.

## Acknowledgements

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## References

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