

Eyes in the Sky

Remote proactive surveillance supporting multi-site medication safety during digital transformation

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Aim

Optimise the safe prescription and administration of high risk medications via remote, pharmacist-led surveillance of patient records during and immediately after implementation of a full-stack integrated electronic medical record (including medication administration).

Facility Served In order of EMR deployment	Facility Type ¹	Size	Duration of service
Hospital 1	Acute Group A Hospital (Principle Referral)	410 beds	42 days
Hospital 2	Acute Group D Hospital (Small Rural Hospital)	22 beds	14 days
Hospital 3	Acute Group B Hospital (Large Hospital)	164 beds	16 days
Hospital 4	Acute Group A Hospital (Large Hospital)	217 beds	11 days

¹Australian Institute of Health and Welfare 2015. Australian hospital peer groups. Health services series no. 66. Cat. no. HSE 170. Canberra: AIHW.

Methods

A pharmacist proactively reviewed patients ordered high risk medications during electronic medical record implementation at four acute hospitals within the health service.

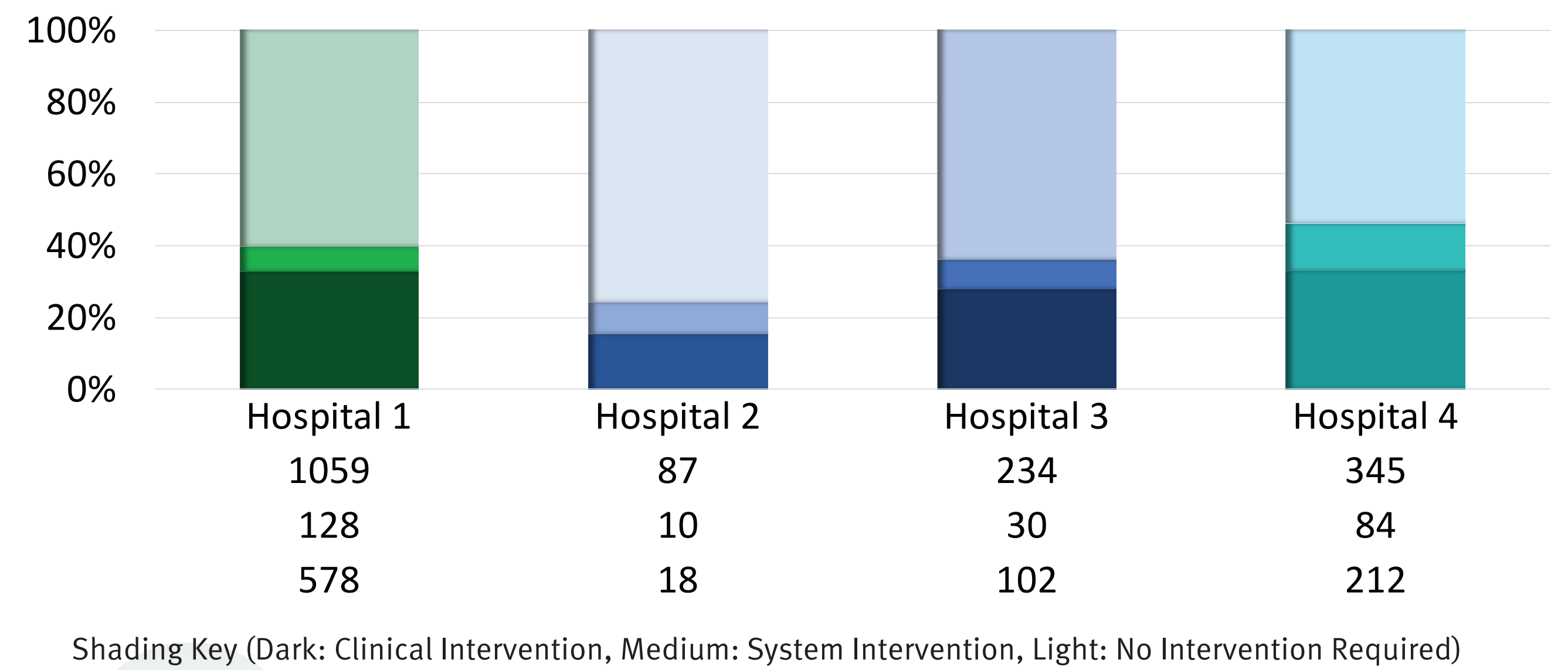
Interventions made by the pharmacist were recorded, codified and risk-assessed for potential patient harm.

The safety surveillance service operated independently and in addition to project implementation governance and standard pharmacy services (e.g. ward, clinic and dispensary based services).

Following successful implementation at the founding site, Hospital 1, the service was extended to remotely support Hospitals 2-4. Each site was monitored during and in the weeks immediately after implementation of the electronic medical record (EMR).

In preparation for transition to business-as-usual, training was provided to pharmacists at all hospitals to integrate use of the surveillance tool into daily practice.

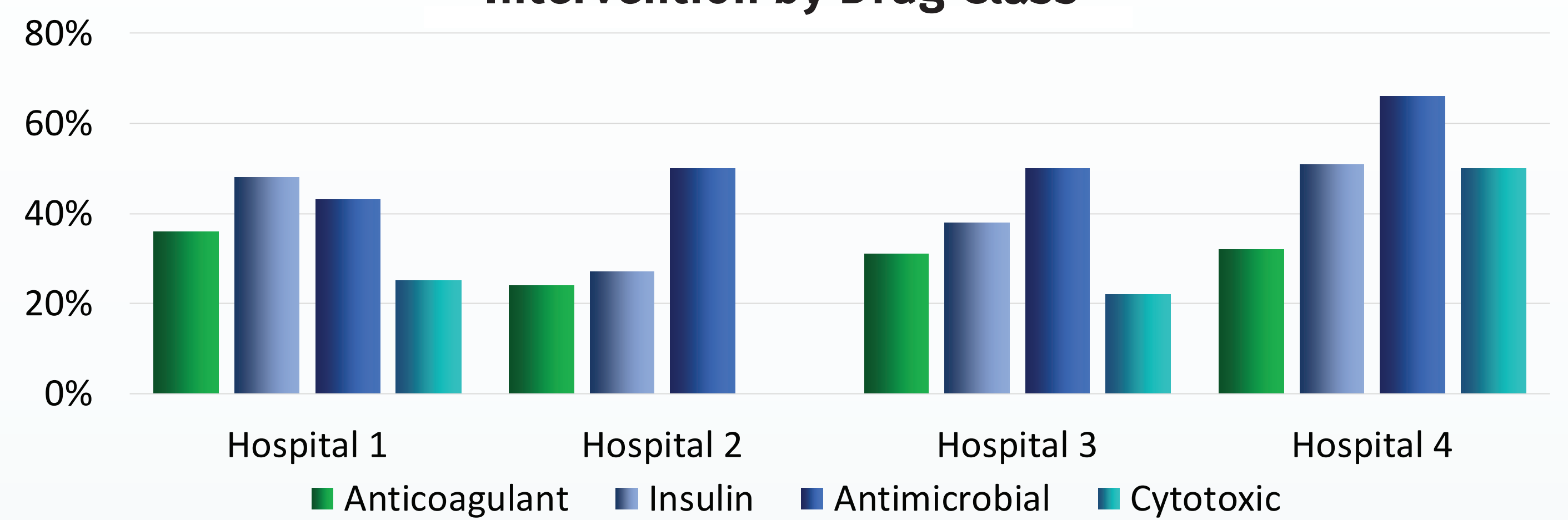
Medication orders Reviewed



Conclusion

The introduction of an EMR made remote surveillance of medication possible in our health service. Our use of the EMR as a proactive medication safety tool prevented harm and facilitated rapid resolution of identified system issues during a high risk transition period. This may pave the way for remote pharmacist-led medication safety services of the future.

Percentage of Medication Orders Requiring Intervention by Drug Class*



Case: Intravenous Heparin

heparin additive 25,000 unit(s) **1,000 unit/kg/hr**
sodium chloride 0.9% PREFILLED SYRINGE (CONTINUOUS) 50 mL
Rate: 195.4 mL/hr, Total volume (mL): 50, 50 mL, IV continuous infusion, start: 22/12/17 07:12:00 AEST, Indication: Acute Coronary Syndrome, infuse over 0.3 hour(s)

Patient: Emergency Department presentation for Acute Coronary Syndrome.

Error: Patient prescribed 1000 units/kg/hr (97,700 units/hr) when 12 unit/kg/hr (1000 units /hr) intended.

Intervention: Prescriber contacted to advise of error and provided advice regarding how to correct.

Result: Order corrected prior to administration of incorrect dose.

Benefits of proactive medication safety surveillance during EMR implementation

Staff

- ✓ Real-time feedback and education to clinicians
- ✓ Rapid identification of clinicians requiring extra training or support
- ✓ Promotion of a culture of safety, support & shared learning

Governance

- ✓ Ability to identify and analyse trends or patterns prior to issues occurring
- ✓ Rapid identification, escalation & management of system issues

Patients

- ✓ Prevents errors from turning into patient harm

Case: Intravenous Gentamicin

Actual weight: 320 kg
1) Target dose: 4 mg/kg
2) Calculated dose: 1,280 mg
3) Dose Adjustment: 840 mg 66 %

Patient: Emergency department presentation for pyelonephritis.

Error: Intended dose (320mg) accidentally entered into weight field in EMR drug calculator. Calculator rounded to maximum allowable dose (840mg).

Intervention: Prescriber contacted to advise of error.

Result: Order corrected prior to administration of incorrect dose.

Results

A total of 2887 orders were reviewed for 729 patients across the four hospitals.

Of patients reviewed, 62% required intervention by the pharmacist, of which 83% were proactive in nature.

The mean time taken to complete the remote surveillance of high risk medication orders was 4.1 hours/day (range 0.25-12 hours/day).

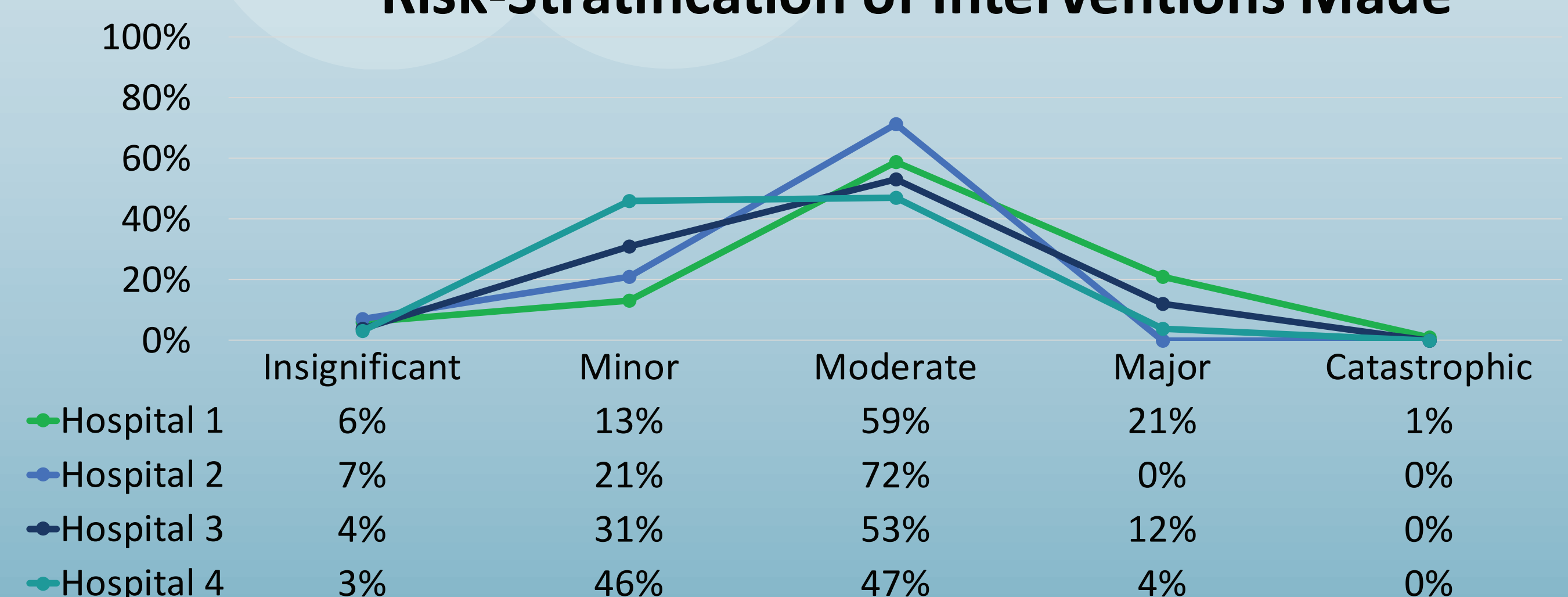
Anticoagulants were the medication most commonly intervened on and 55% of total interventions made were assessed as having high risk of harm to patients.

Acknowledgements

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We care about you

Risk-Stratification of Interventions Made



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