Northern Health ACS program

Justin Neagle – Anticoagulation Stewardship Pharmacist

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Anticoagulation Stewardship (ACS) Team

Service commenced in October 2020, launched as part of World Thrombosis Day

- Justin Neagle: ACS Pharmacist
- Yin Lim: Head of Diagnostic Haematology and Clinical Thrombosis & Research Lead

- VTE and Anticoagulation Committee (VAC)
  – *reports to Medication Safety (standard 4)*
  - Chair: Haematology Thrombosis Lead (Dr. Hui Yin Lim)
  - Secretary: Anticoagulation Stewardship Pharmacist (Justin Neagle)
  - Membership includes:
    - Clinical representation from General Medicine, Intensive Care, Cancer Services, Surgery, Women's & Children's, Emergency, Anaesthesia and Cardiology
    - Nursing and Education
    - Haematology/Thrombosis Fellow
    - Quality Pharmacist (Cynthia Donarelli, previous ACS pharmacist)

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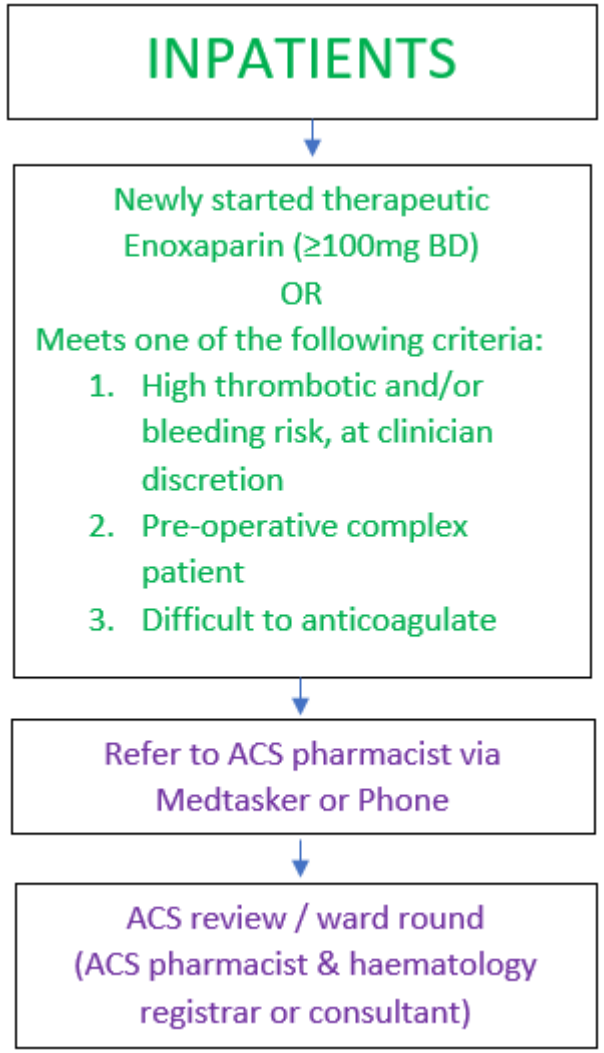
Anticoagulation Stewardship service

Our Vision: *To improve VTE health outcomes and safety for patients prescribed anticoagulants utilising a multidisciplinary approach*

Objectives

- ✓ To promote **safe** and **judicious** use of anticoagulant therapy
- ✓ To **reduce** thrombotic and anticoagulant-related complications
- ✓ To engage **multidisciplinary support** in the management of high risk patients on anticoagulants
- ✓ To **educate** and **empower** patients and staff to use anticoagulant therapy safely



https://intranet.nh.org.au/departments-and-services/pharmacy/anticoagulation-stewardship/

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medtasker
PAINLESS HOSPITAL COMMUNICATIONS

Anticoagulation Stewardship Pharmacist

0427 512 324
(M-F 0830 -1730)

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Summary of Activities

Quality

- Secretary of VTE and Anticoagulation Committee
- Audits
- Monitoring and follow up of anticoagulation related incidents/Riskmans
  - ISR 3/4 Riskman and SCIRT review and follow up
  - Review and reporting of Hospital Acquired Complications (HACs)
- Procedure reviews and update
- Point of care INR devices

Clinical

- Inpatient referrals
- INR result screening and follow up
- Urgent review clinic
- Pharmacy Medical Team Lead

Other

- Education and Training
- EMR design involvement
- Projects

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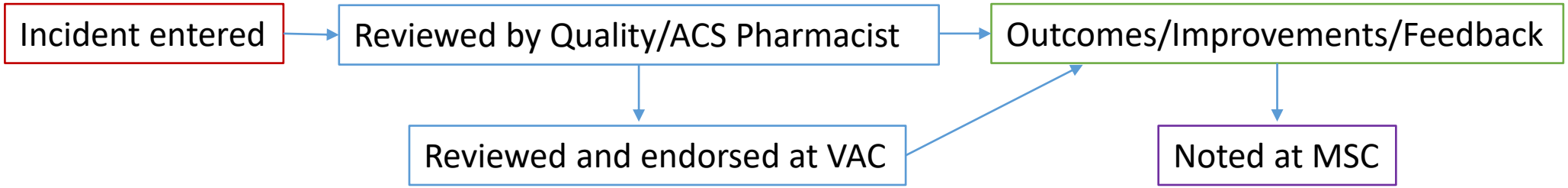
Audits

- Warfarin initiation audit
- INR >4 audit
- Anticoagulant prescribing audit
- ***Low Risk PE discharge pathway audit***
- QAP: Coagucheck device testing
- VTE risk screen and prophylaxis prescribing audit

Riskman and SCIRT reviews

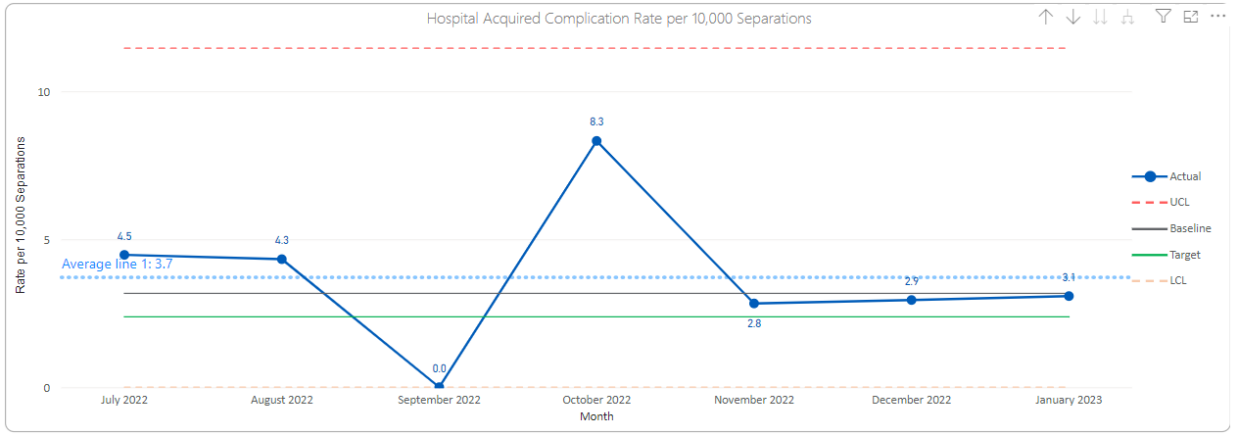


- Impact/Actions
  - Changes made to Haemostasis and Thrombosis Procedure
  - Education delivered for medical, nursing and pharmacy staff
  - Further advocacy for early referral and involvement to ACS

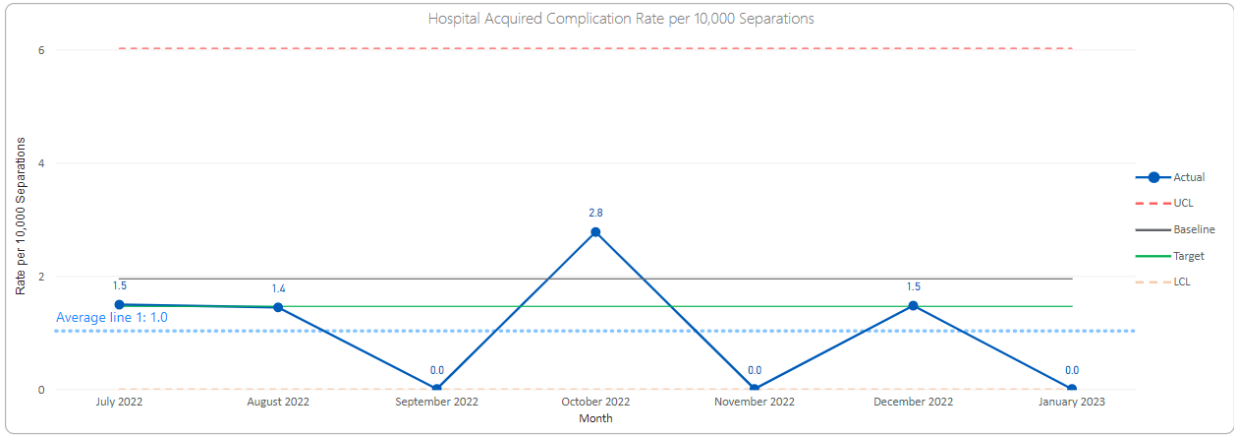
- Themes
  - Lack of clear documentation – may be somewhat alleviated with EMR
  - Lack of ACS involvement – EMR dashboards may assist in future
  - Failure to acknowledge or follow up recommendations

Hospital Acquired Complication (HAC) review

- Investigate trends and follow up discrepancies



VTE



Haemorrhagic Disorders due to Circulating Anticoagulants

Inpatient referrals / INR screening

- Daily INR results spreadsheet
  - INR >4
  - Trends
- Pharmacist referrals
- Medical Team referrals
- Weekly Haematology meeting

Urgent Review Clinic

- ED VTE discharges →EDNOAC email group
  - DVT
  - PE → Low Risk PE discharge pathway
- Warfarin initiation / discharges
- Other Pharmacy and Haematology referrals

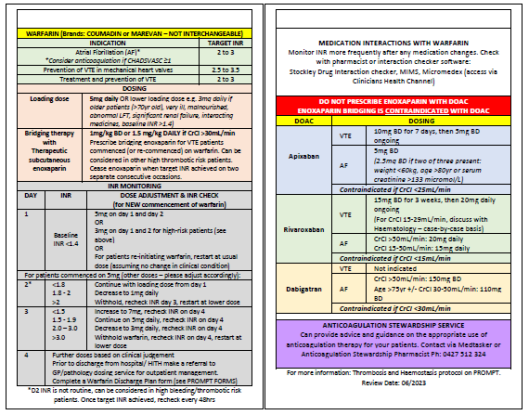
Training and Education

Ongoing education across disciplines

- ACS presented as part of Medical Grand Round
- HITH Registrar warfarin teaching session (routine 3 monthly, in line with registrar rotations)
- JMO teaching – ACS overview and anticoagulation incident case studies
- Nursing in-services and post-grad study day sessions
- Pharmacy lunchtime education and intern training sessions

Anticoagulation quick reference lanyard cards

- Printed and distributed to Pharmacists and JMOs



WARFARIN [Brands: COUMADIN or MAREVAN – NOT INTERCHANGEABLE]

INDICATION	TARGET INR
Atrial Fibrillation (AF)* *Consider anticoagulation if CHADSVASC ≥1	2 to 3
Prevention of VTE in mechanical heart valves	2.5 to 3.5
Treatment and prevention of VTE	2 to 3

DOSING

Loading dose	5mg daily OR lower loading dose e.g. 3mg daily if older patients (>70yr old), very ill, malnourished, abnormal LFT, significant renal failure, interacting medicines, baseline INR >1.4)
Bridging therapy with Therapeutic subcutaneous enoxaparin	1mg/kg BD or 1.5 mg/kg DAILY if CrCl <30mL/min Prescribe bridging enoxaparin for VTE patients commenced (or re-commenced) on warfarin. Can be considered in other high thrombotic risk patients. Cease enoxaparin when target INR achieved on two separate consecutive occasions.

INR MONITORING

DAY	INR	DOSE ADJUSTMENT & INR CHECK (for NEW commencement of warfarin)
1	Baseline INR <1.4	5mg on day 1 and day 2 OR 3mg on day 1 and 2 for high-risk patients (see above) OR For patients re-initiating warfarin, restart at usual dose (assuming no change in clinical condition)
For patients commenced on 5mg (other doses – please adjust accordingly):		
2*	<1.8 1.8 - 2 >2	Continue with loading dose from day 1 Decrease to 1mg daily Withhold, recheck INR day 3, restart at lower dose
3	<1.5 1.5 - 1.9 2.0 – 3.0 >3.0	Increase to 7mg, recheck INR on day 4 Continue on 5mg daily, recheck INR on day 4 Decrease to 3mg daily, recheck INR on day 4 Withhold warfarin, recheck INR on day 4, restart at lower dose
4	Further doses based on clinical judgement Prior to discharge from hospital/ HITH make a referral to GP/pathology dosing service for outpatient management. Complete a Warfarin Discharge Plan form [see PROMPT FORMS]	

*D2 INR is not routine, can be considered in high bleeding/thrombotic risk patients. Once target INR achieved, recheck every 48hrs

MEDICATION INTERACTIONS WITH WARFARIN

Monitor INR more frequently after any medication changes. Check with pharmacist or interaction checker software:
Stockley Drug Interaction checker, MIMS, Micromedex (access via Clinicians Health Channel)

DO NOT PRESCRIBE ENOXAPARIN WITH DOAC
ENOXAPARIN BRIDGING IS CONTRAINDICATED WITH DOAC

DOAC		DOSING
Apixaban	VTE	10mg BD for 7 days, then 5mg BD ongoing
	AF	5mg BD *(2.5mg BD if two of three present: weight <60kg, age >80yr or serum creatinine >133 micromol/L)*
	Contraindicated if CrCl <25mL/min	
Rivaroxaban	VTE	15mg BD for 3 weeks, then 20mg daily ongoing (For CrCl 15-29mL/min, discuss with Haematology – case-by-case basis)
	AF	CrCl >50mL/min: 20mg daily OR CrCl 15-50mL/min: 15mg daily
	Contraindicated if CrCl <15mL/min	
Dabigatran	VTE	Not indicated
	AF	CrCl >30mL/min: 150mg BD Age >75yr +/- CrCl 30-50mL/min: 110mg BD
Contraindicated if CrCl <30mL/min		

ANTICOAGULATION STEWARDSHIP SERVICE

Can provide advice and guidance on the appropriate use of anticoagulation therapy for your patients. Contact via Medtasker or Anticoagulation Stewardship Pharmacist Ph: 0427 512 324

For more information: Thrombosis and Haemostasis protocol on PROMPT.
Review Date: 06/2023

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EMR design involvement

Rollout September 2023

Build involvement

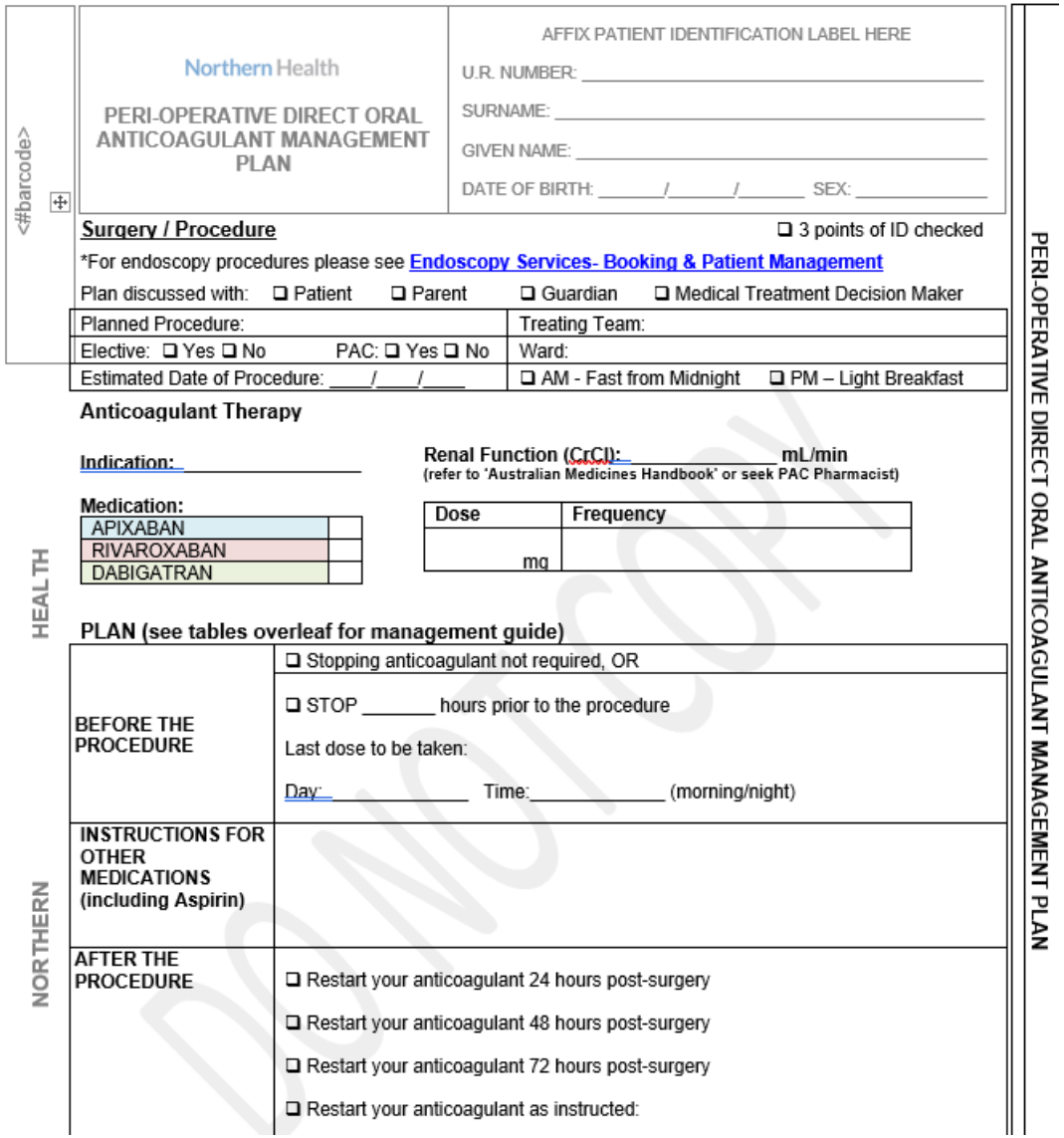
- Alerts
- VTE risk screening / prophylaxis
- Heparin infusions
- Warfarin discharge form

Expected Benefits

- Dashboards → patient identification
- Greater access to data → auditing and quality improvement

Other projects

- Anticoagulation Peri-operative Management Plan
- Fast Track Warfarin Reversal
  - ➢ POC INR devices
- Online Anticoagulation Training Package
  - ➢ To be developed post-EMR



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PERI-OPERATIVE DIRECT ORAL ANTICOAGULANT MANAGEMENT PLAN

AFFIX PATIENT IDENTIFICATION LABEL HERE

U.R. NUMBER: _____

SURNAME: _____

GIVEN NAME: _____

DATE OF BIRTH: _____/_____/_____ SEX: _____

Surgery / Procedure ❑ 3 points of ID checked

*For endoscopy procedures please see Endoscopy Services- Booking & Patient Management

Plan discussed with: ❑ Patient ❑ Parent ❑ Guardian ❑ Medical Treatment Decision Maker

Planned Procedure:	Treating Team:
Elective: ❑ Yes ❑ No PAC: ❑ Yes ❑ No	Ward:
Estimated Date of Procedure: ____/____/____	❑ AM - Fast from Midnight ❑ PM – Light Breakfast

Anticoagulant Therapy

Indication: _____

Renal Function (CrCl): _____ mL/min
(refer to 'Australian Medicines Handbook' or seek PAC Pharmacist)

Medication:

APIXABAN	
RIVAROXABAN	
DABIGATRAN	

Dose	Frequency
mg	

PLAN (see tables overleaf for management guide)

BEFORE THE PROCEDURE	❑ Stopping anticoagulant not required, OR ❑ STOP _____ hours prior to the procedure Last dose to be taken: Day: _____ Time: _____ (morning/night)
INSTRUCTIONS FOR OTHER MEDICATIONS (including Aspirin)	
AFTER THE PROCEDURE	❑ Restart your anticoagulant 24 hours post-surgery ❑ Restart your anticoagulant 48 hours post-surgery ❑ Restart your anticoagulant 72 hours post-surgery ❑ Restart your anticoagulant as instructed:

HEALTH NORTHERN

PERI-OPERATIVE DIRECT ORAL ANTICOAGULANT MANAGEMENT PLAN

DO NOT COPY

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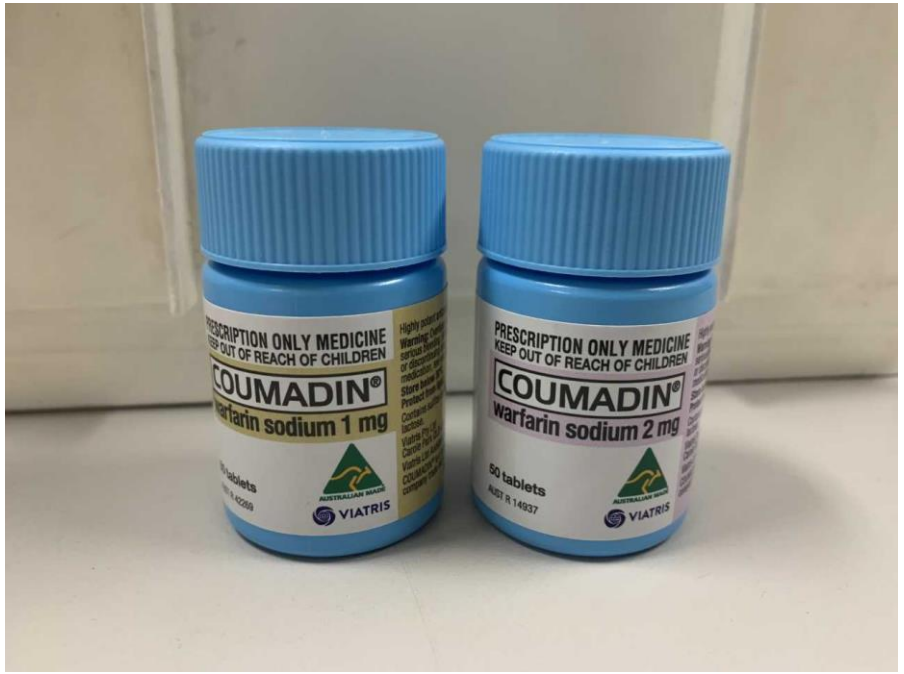
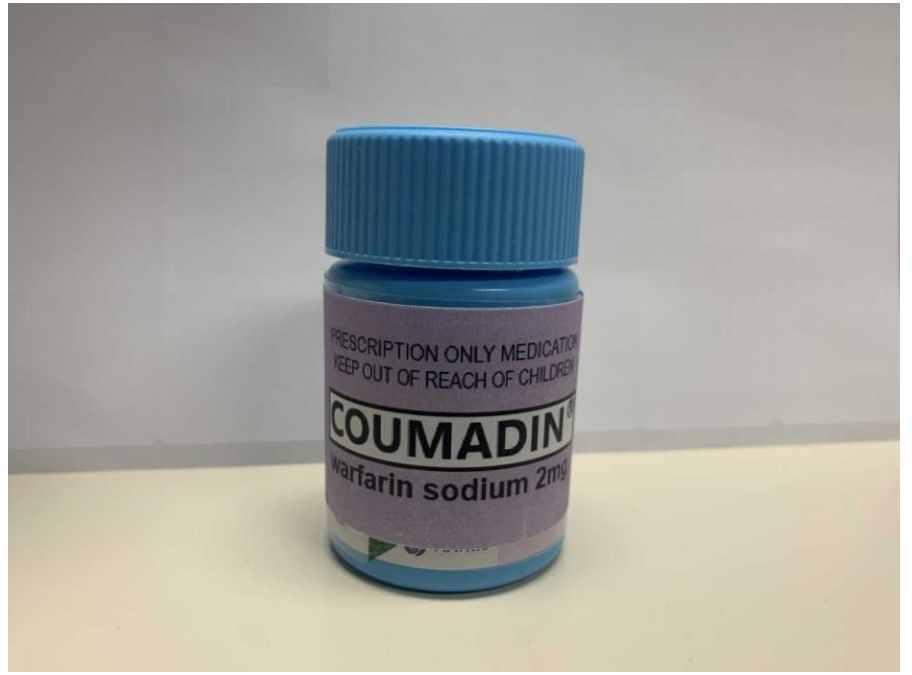
Other projects

- Warfarin packaging risk mitigation





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Other projects

- Warfarin packaging risk mitigation

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Other projects

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Wrap Up

Done well

- Low Risk PE discharge pathway
- Post discharge follow up / clinic

Areas identified for further improvement

- EMR anticoagulation dashboard
- Online training module