Anticoagulation Stewardship Program, Alfred Health

Victorian Medicines Roundtable 2023

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Anticoagulation Stewardship (ACS) Program

- Implemented late 2016
- 1.0 FTE pharmacist
- Responsible for management & oversight of anticoagulant therapy
- ACS committee formed early – monthly meetings; review safety incidents; report to DTC
- Stakeholder consultation, literature, baseline audit

Overall, liaison service to promote the safe and optimal use of anticoagulants across all campuses of Alfred Health
→ Improve clinical outcomes for patients
→ Reduce adverse events
→ Ensure appropriate, cost-effective utilisation
in the inpatient, peri-operative, outpatient settings

Early Priorities

1. Hospital-acquired VTE
2. Perioperative management
3. Anticoagulation in ‘complex’ scenarios (e.g. APLS)
4. Education
5. Outpatient follow-up

Key pillars of ACS Program

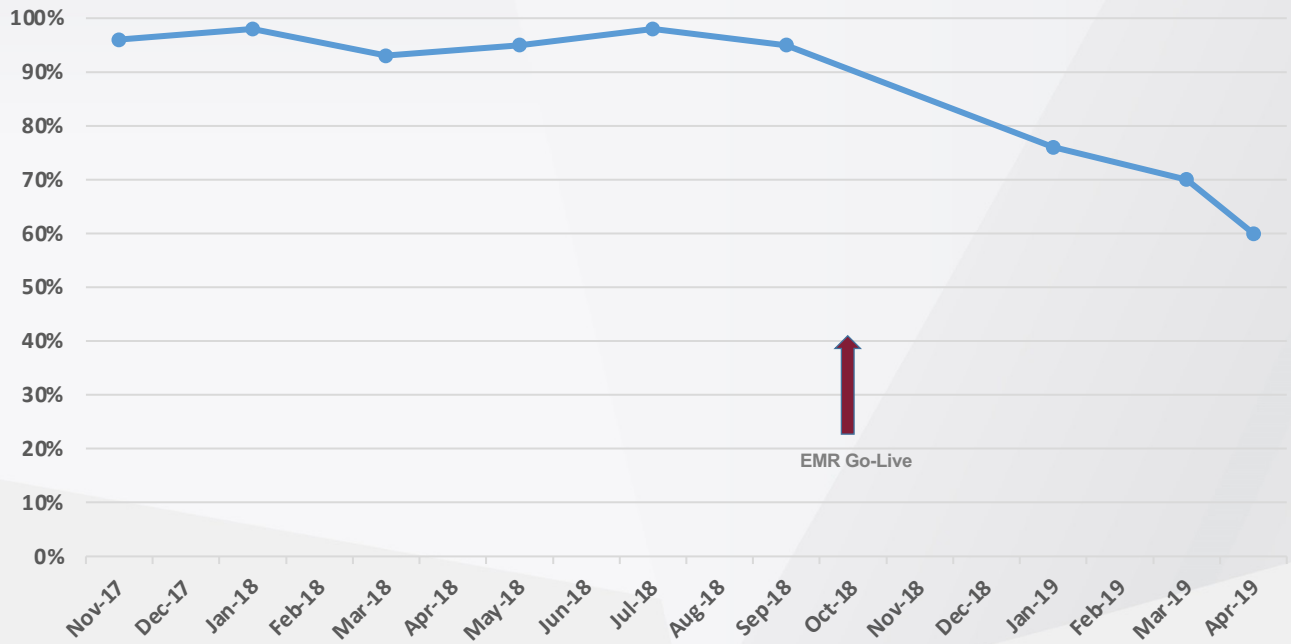
- Projects & audits
- Education
- Governance
- Clinical input

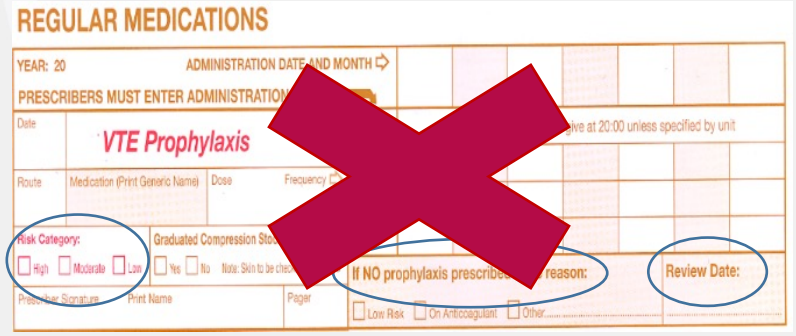
What did we stumble upon?

- *Dabigatran not administered to patient T/F over weekend → stroke*
- *Rivaroxaban WH 5/7 prior to surgery, Rx 2/7 Tx enoxaparin*
- *Significant delays in VTE prophylaxis → fatal PE*
- *Apixaban transcribed instead of rivaroxaban, incorrect dosing*
- *Rivaroxaban concomitantly prescribed with carbamazepine for proximal DVT → extension*

Etc etc…

VTE prophylaxis compliance





Changes implemented

Stepwise solution to improve thromboprophylaxis in EMR via:

1

Medications

** (VTE Pharmacological Prophylaxis Contraindicated - ACTIVE BLEEDING)
**
** (VTE Pharmacological Prophylaxis Contraindicated - LOW RISK)
**
** (VTE Pharmacological Prophylaxis Contraindicated - OTHER - see details below)
**
** (VTE Pharmacological Prophylaxis Contraindicated - THERAPEUTIC ANTICOAGULATION)
**

2

Discern: Open Chart - ETQCTEST, MR PHARMACY1 (2 of 2)

Cerner

VTE Prophylaxis Alert

VTE Risk Assessment has not been completed for ETQCTEST, PHARMACY1

No Pharmacological VTE Prophylaxis has been considered for ETQCTEST, PHARMACY1, this is a requirement for all patients who have been admitted for more than 24 hours

Please ensure appropriate VTE Prophylaxis is prescribed or reason for contraindication is documented on the MAR

Risk Form | OK

3

VTE Risk Assessment - ETQCTEST, MRS PHARMACY2

*Performed on: 11/06/2019 1059 Australi | By: Test , TongEricaA

Venous Thromboembolism (VTE) Risk Assessment

The VTE Prophylaxis PowerPlan must be ordered on completion of this risk assessment form

Admission Type: Medical / Surgical

Medical/Patient Risk Factors

High Risk — *Other factors to consider: age >60 years, immobility, obesity, oestrogen therapy, myeloproliferative disorder, acute neurological disease*

- Ischaemic stroke
- History of VTE (DVT/PE)
- Active cancer
- Decompensated heart failure
- Acute on chronic lung disease (unless NO other risk factors)
- Acute inflammatory disease (IBD, SLE)
- Thrombophilia
- Sepsis
- Other:

Low Risk

- No identified risk factors

Surgical Risk Factors

High Risk

- Neurosurgery/spinal procedure
- Orthopaedic surgery (pelvis, THR/hip fracture, TKR, lower limb)
- Major trauma (TBI, long bone #, pelvic injuries)
- Surgery in context cancer
- Any major surgery >45minutes
- Abdominal/urological procedure
- Other:

Low Risk

- Major surgery AND age<40 years without medical/patient risk factors
- Minor surgery AND age<60 years without medical/patient risk factors
- No surgery AND no medical/patient risk factors

VTE Risk Level: High / Low

RECOMMENDATIONS FOR VTE PROPHYLAXIS
HIGH RISK Medical patients - pharmacological prophylaxis recommended unless contraindications identified; use mechanical prophylaxis instead
HIGH RISK Surgical patients - pharmacological and/or mechanical prophylaxis recommended as per guideline unless contraindications identified
LOW RISK patients - no VTE prophylaxis required

Contraindications to Pharmacological Prophylaxis

- Current therapeutic anticoagulation
- Allergy/adverse reaction to heparin (HIT)
- Active bleeding
- High risk bleeding (haemophilia, coagulopathy, ESRF)
- Acute brain/spinal injury or surgery
- Thrombocytopenia (plt<50)
- Other:

Contraindications to Mechanical Prophylaxis

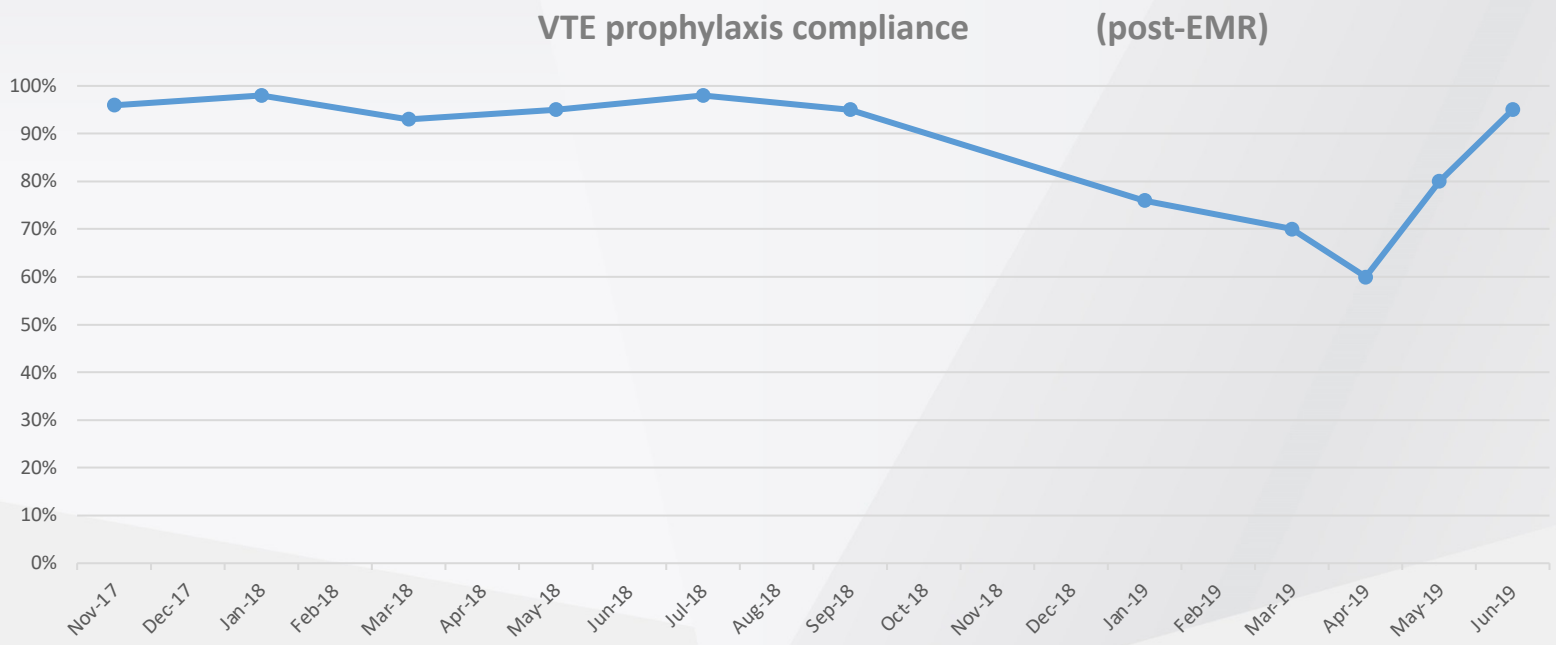
- Severe peripheral arterial disease
- Severe peripheral neuropathy
- Extreme leg deformity/trauma
- Recent skin graft
- Pressure area/ulcer
- Other:

In Progress

→ **Incorporation into relevant e-decision support (*PowerPlan*)**

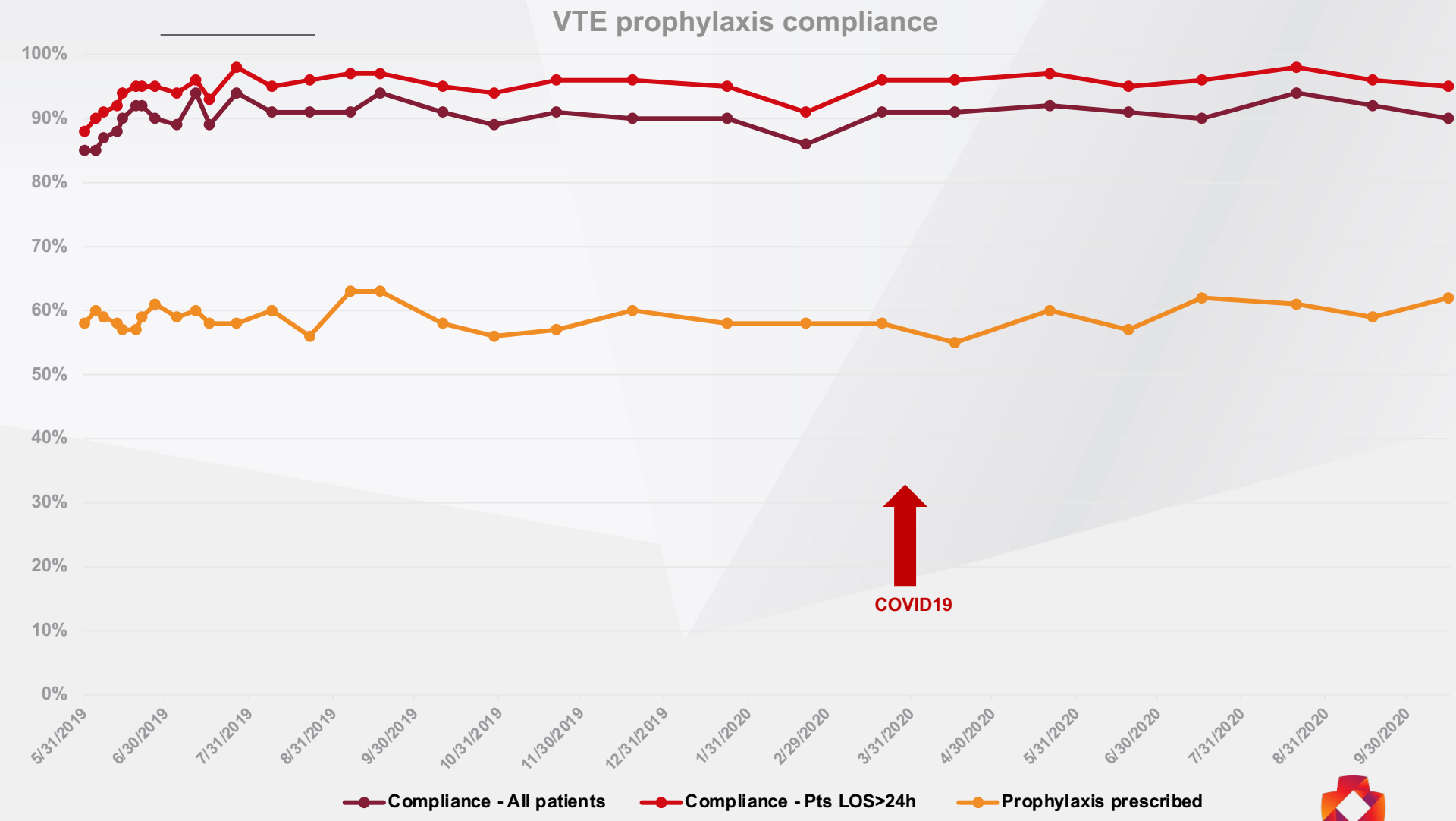
- *In-services to pharmacy and medical teams*
- *Ongoing audit of VTE prophylaxis, with feedback in 'real-time'*

Outcomes



Anticoagulant utilisation: 20% ↑

Re-establishment of VTE prophylaxis >90%



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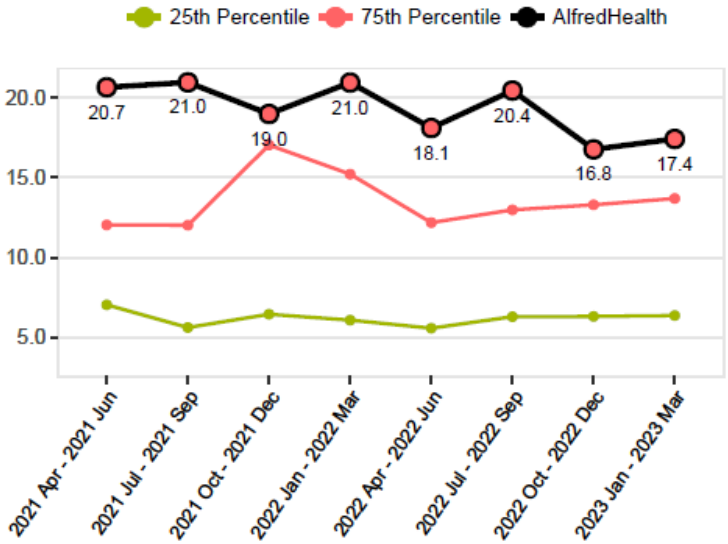
7 - Venous thromboembolism per 10,000 episodes

Peer comparison (2022 Apr - 2023 Mar)

	Numerator	Denominator	
Northern	24	72,207	3.3
Barwon	35	69,730	5.0
RoyalHobart	37	67,434	5.5
FSH_WA	41	71,844	5.7
SunCstUH_QLD	55	92,406	6.0
WesternHealth	65	101,919	6.4
RPH_WA	35	53,335	6.6
Quokka	35	51,106	6.8
Hera	33	46,032	7.2
Box_Hill	41	49,540	8.3
GCUH_QLD	98	108,642	9.0
SCGH_WA	49	50,367	9.7
SALHN	85	79,363	10.7
AucklandNZ	128	118,007	10.8
Melb_Health	102	85,297	12.0
RBWH_QLD	156	120,055	13.0
Austin	133	82,099	16.2
AlfredHealth	179	98,503	**18.2**
RAH_SA	134	71,191	18.8
PAH_QLD	170	80,016	21.2

0.0 5.0 10.0 15.0 20.0

Stubborn Red (last 4 periods)



Formula: [Venous thromboembolism episodes]/[total episodes] *10,000

Source: Casemix

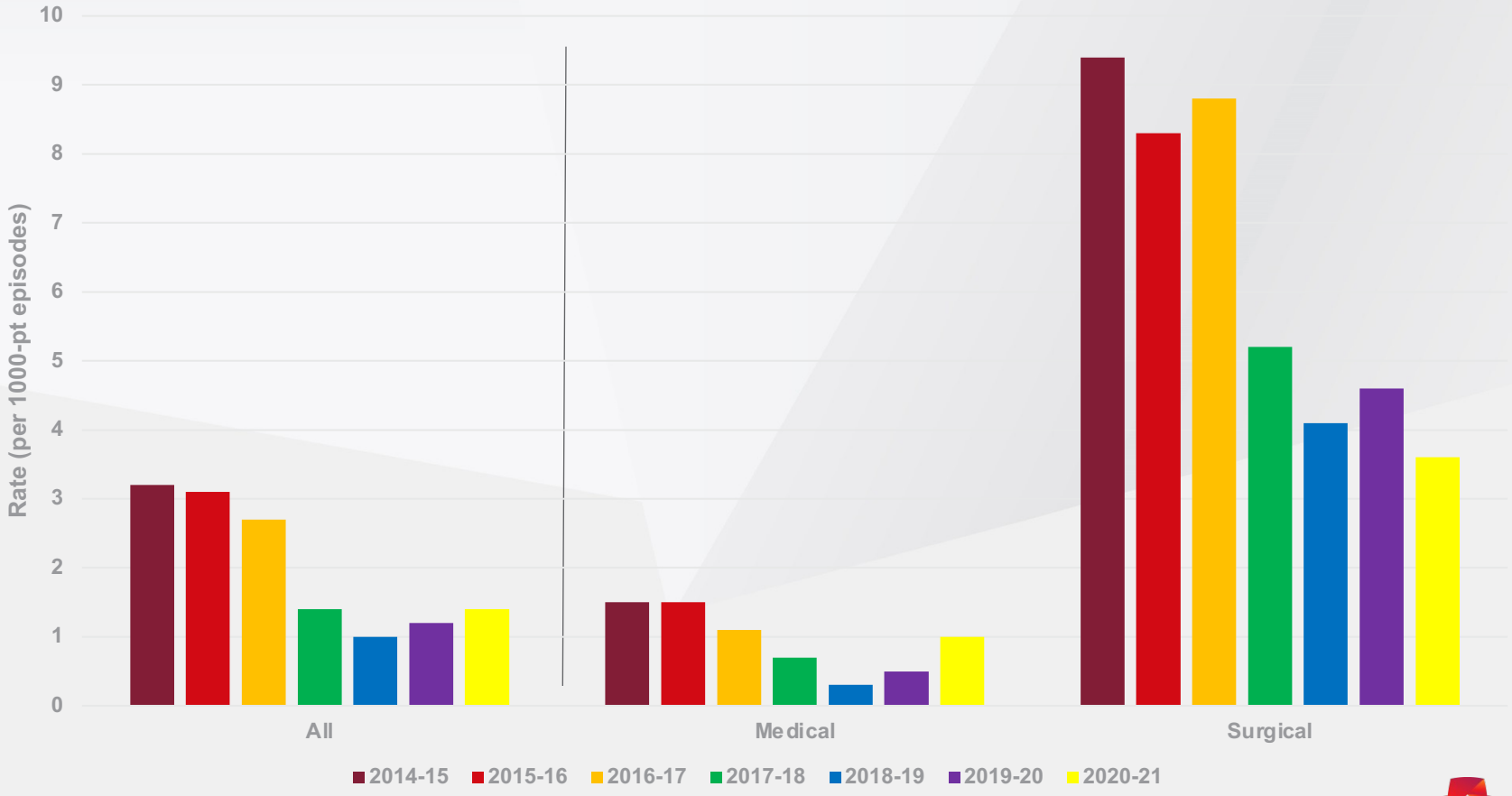
Description: Includes the diagnosis groups: 7.1 Pulmonary embolism, 7.2 Deep vein thrombosis

Denominator: Count of episodes, excluding episodes with ANY of the following conditions: 1.Same-day chemotherapy (DRG V10: R63Z and admission date = separation date) 2.Same-day haemodialysis (DRG V10: L61Z and admission date = separation date) 3.Care type 9: Organ procurement-posthumous or Care type 10: Hospital boarder.

Numerator: Episodes that meet the denominator conditions and have an additional diagnosis ICD code for pulmonary embolism(I260, I269) and deep vein thrombosis(I801, I8020, I8021, I8022, I8023, I8042, I808) with onset in the hospital.

Hospital-acquired PE/DVT

ICD-10 coding



Surgical VTE prophylaxis ‘appropriateness’

- Surgical patients predominantly **high risk (91%)**
- Appropriate thromboprophylaxis prescription **<80%**
- Main reason for guideline deviation was **inadequate Px**

Areas for improvement:

- Mechanical Px for high-risk patients – ensure available/in-situ
- Appropriate VTE Px when no pharmacological C/I
- For low-risk cohort, less ‘excessive’ Px + document reason

GUIDELINE

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Title UNIT SPECIFIC VTE PROPHYLAXIS FOR SURGICAL PATIENTS

Surgical VTE Prophylaxis (Unit-based)

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*Assess patient VTE risk factors to help define overall risk
If patient meets ≥1 criteria, prophylaxis should always be applied as per HIGH risk recommendations
*HIGH-risk factors for VTE include: Age >60, prior VTE, active malignancy, current oestrogen therapy, obesity (BMI>35kg/m²)

BREAST & ENDOCRINE SURGERY (Prof J Serpell)

Elective Procedure	Surgical VTE Risk category*	Recommended prophylaxis			Notes
		Type	Commencement	Duration	
Excision lipomas Lymph node biopsy (sentinel) Wide local excision breast	L	NONE			
Inguinal / Umbilical hernia repair	I	LMWH alone	Intra-op	Hospitalisation	Consider combination with IPC in high-risk patients
Breast lumpectomy / mastectomy (Hemi-)Thyroidectomy / Parathyroidectomy / Removal thyroid cyst	I	IPC alone	Intra-op	Until mobile	

BURNS (Miss H Cleland)

Elective Procedure	Surgical VTE Risk category*	Recommended prophylaxis			Notes
		Type	Commencement	Duration	
Excisional debridement of non-viable tissue Grafting – wound closure procedures Scar excision/revision procedures Skin grafts	H	LMWH alone	Night of surgery	Until mobile	Consider IPC if feasible/no contraindications (i.e. no lower limb burns)

COLORECTAL SURGERY (Mr R Wale)

Elective Procedure	Surgical VTE Risk category*	Recommended prophylaxis			Notes
		Type	Commencement	Duration	
Abscess incision / drainage Anal skin tags Flexible colonoscopy Haemorrhoidectomy Sigmoidoscopy / EUA	L	NONE			
Laparoscopic appendectomy Loop ileostomy closure	I	LMWH alone	6-8 hrs post-op	Hospitalisation	
All major bowel resections Anterior resection rectum +/- stapling Laparotomy Right hemicolectomy	H	IPC & LMWH	IPC: intra-op LMWH: 6-8hrs post-op	IPC: Until mobile LMWH: Hospitalisation	

EAR, NOSE & THROAT (Mr P Thomson/Mr V Cousins)

Elective Procedure	Surgical VTE Risk category*	Recommended prophylaxis			Notes
		Type	Commencement	Duration	
Panendoscopy / biopsy	L	NONE			
FESS / Septoturbinoplasty Myringoplasty Parotidectomy (excision of submandibular gland) Tonsillectomy / Uvulopalatopharyngoplasty Tracheostomy	I	LMWH alone	12hrs post-op	Hospitalisation	
Head / neck dissection Mastoidectomy / Major middle ear surgery	H	IPC & LMWH	IPC: intra-op LMWH: 12hrs post-op	IPC: Until mobile LMWH: Hospitalisation	

Surgical VTE risk category

L = Low

I = Intermediate

H = High

Type of prophylaxis

LMWH: Low molecular weight heparin
(Enoxaparin 40mg daily; 20mg if eGFR<30)

IPC: Intermittent pneumatic compression

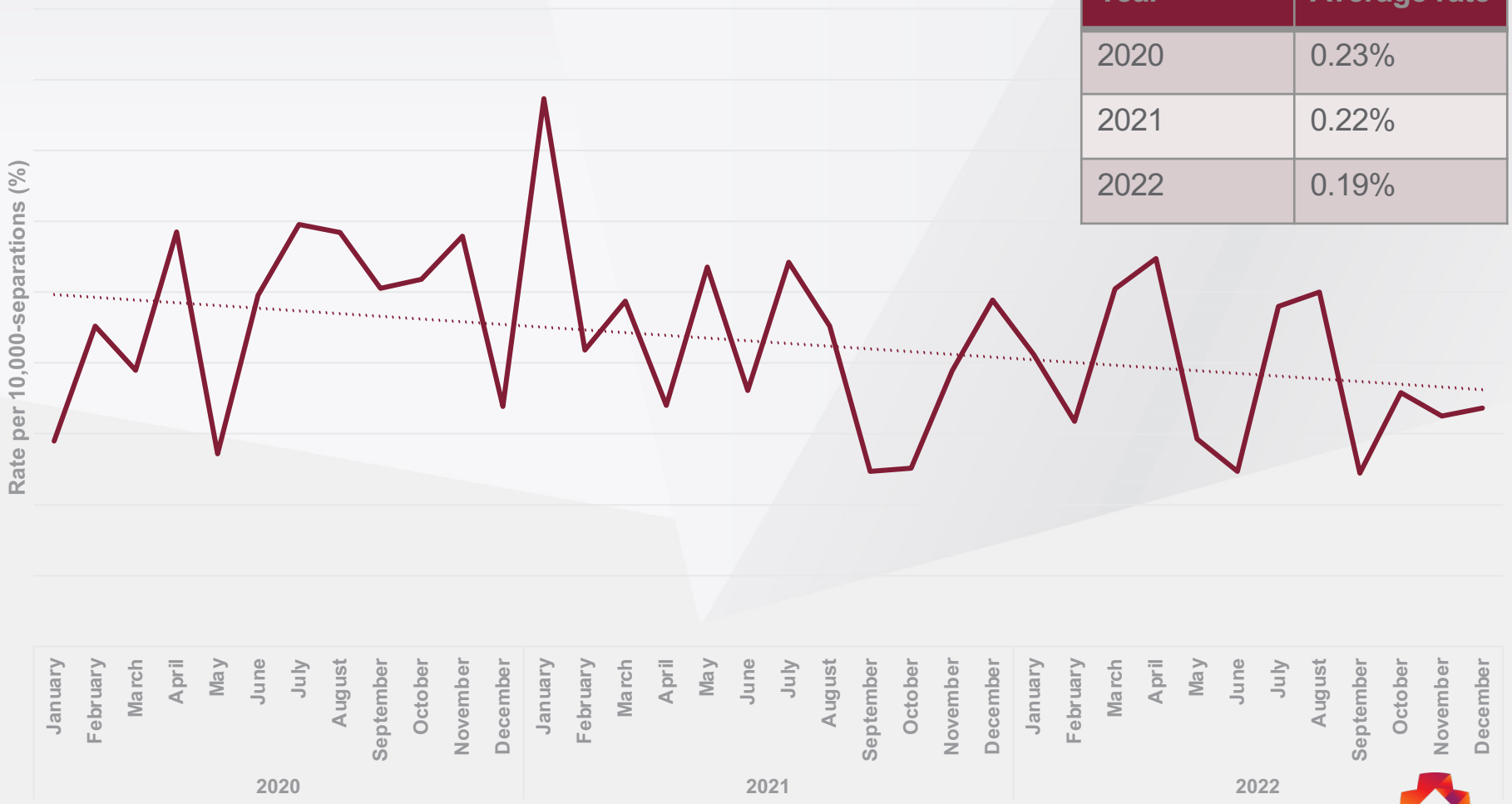
UFH: Unfractionated heparin
(Heparin 5000units TDS; use BD if eGFR<30)

Note: Practice may vary in the setting of individual patient factors and/or clinical decision making.
For full detail, including overview of recommendation and contraindications, please refer to existing institutional guidelines.

July 2018

HAC-VTE dashboard 2020-22 (by month)

Year	Average rate
2020	0.23%
2021	0.22%
2022	0.19%



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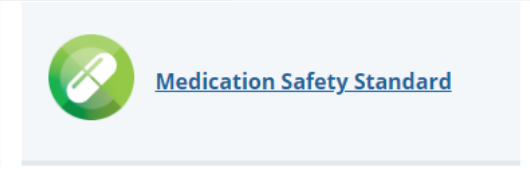
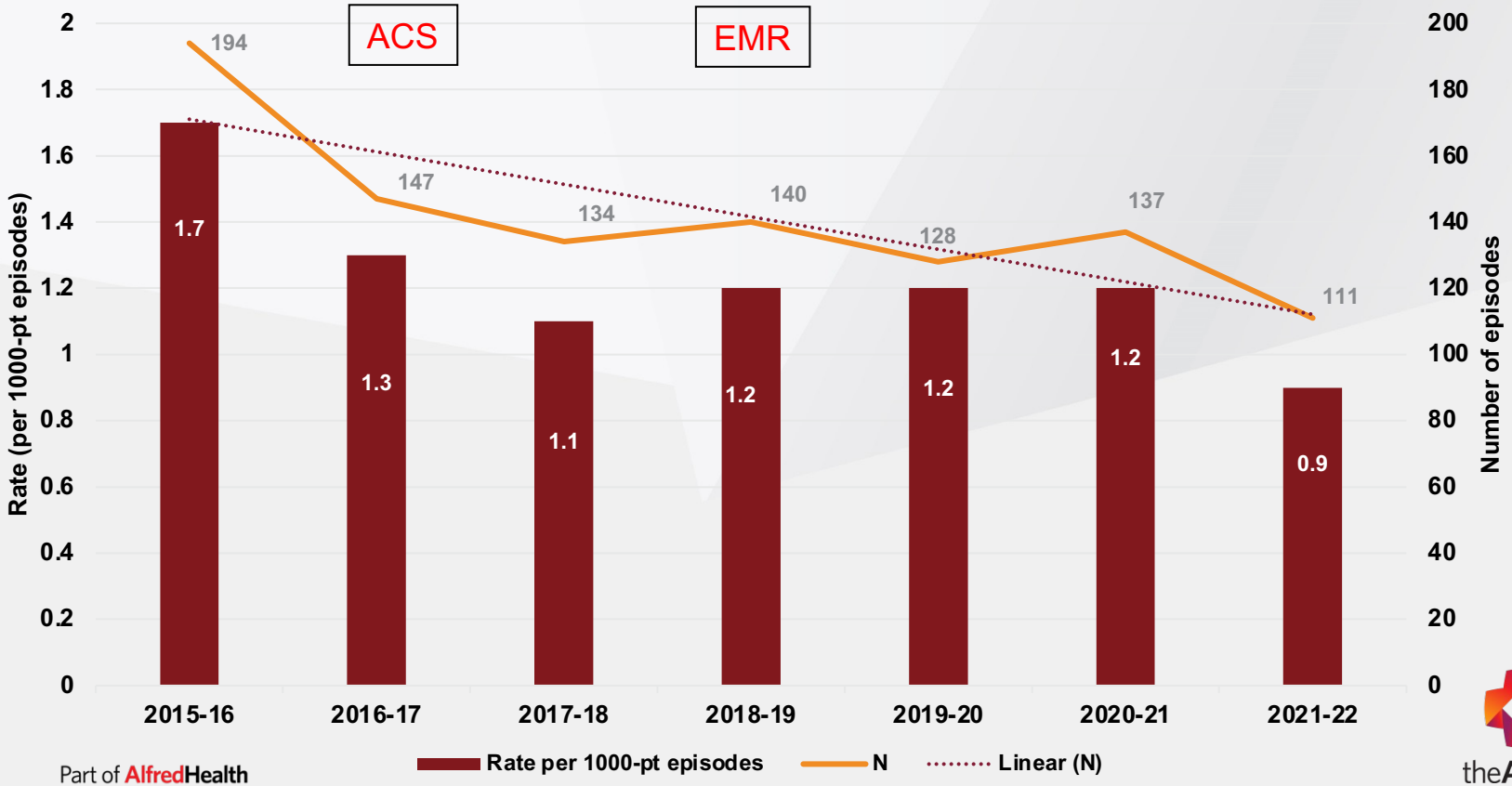
Focus on systemic reduction of hospital acquired VTE

- Optimisation in specialist areas (e.g.orthopaedics, bariatrics)
- Extended thromboprophylaxis
- Dosing in obesity, major burns
- Patients under restraints (physical and/or chemical)
- Ongoing audits, review of appropriateness
- Compliance with COVID-19 protocol
- Investigation of VTE-related mortality

In-hospital anticoagulant bleeding





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What else are we doing?

Maintain suite of relevant anticoagulant policies

- Therapeutic anticoagulation by condition/drug

Utilise electronic dashboard to identify high-risk areas for review

- Bivalirudin in HIT

Quality assurance of anticoagulation guidelines

- Management of distal DVT

Development of internal practice documents

- Consensus based

Formulary submissions

- DOAC use off-label

Next steps: gaps & areas for improvement

- Mechanical prophylaxis
- VTE in Trauma patients
- Risk assessment documentation
- Transition of ongoing care
- Coding system review
- ACS ‘paper’ rounds

Junior, drink your blood before it clots"

Acknowledgements

- Prof Huyen Tran
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