

Digital Order Sets Support Patient Safety by Increasing VTE Prophylaxis

e-Health 2016

Vancouver



About St. Joes

- St. Joseph's Healthcare-Hamilton, Ontario
- Academic and research centre in the St. Joseph's Health System
- Acute, Tertiary, Regional, Ambulatory, Mental Health and Addiction across 3 campuses and satellite locations
- 4,000 staff, 700 physicians and 600 volunteers
- 50,000 ED visits/yr, 700+beds



Charlton
Campus



King Street
Campus



West 5th
Campus

Requirement – Practice Standards

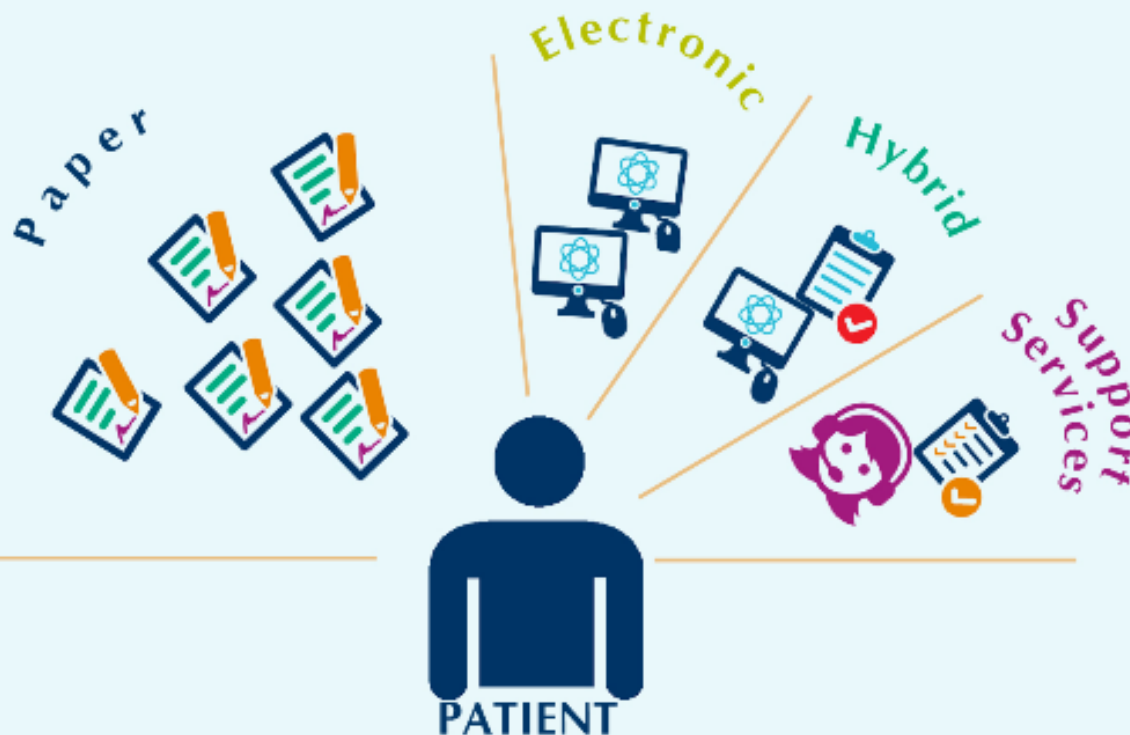


Charlton Campus | King Campus | West 5th Campus

stjoes.ca

Challenge – Paper Chart

TODAY 1 Patient Can have information in up to 20 places



EMRAM Stage 1.7

Solution – Digital Order Sets

ORDERS WITHOUT CLINICAL INFORMATION WILL NOT BE PROCESSED

TIME	PHYSICIAN'S ORDER
00:00	CCM - [REDACTED] - CDD Consult [REDACTED] [REDACTED]
02:25	SulMedal 40, Vagah → 3.804 all done? On 3.804 Prednisone 50, no day Combivent 4 puffs qd 1 x 4 puffs q Gileadent 125 4 puffs bid C ABG - troponin - CK-MB → Schumacher did: STAMMARD SE SUI Tiazac 80, Nedaiv Mitra - 15.000000 5. no dAM

<2014

Digital Order Sets

At the bedside or anywhere on the unit, with each click of the mouse, healthcare professionals are working together to:

- Enhance Patient Safety
- Improve Quality of Care
- Increase Efficiencies

Starting Fall 2014

2014-2018

CPOE

>2018

Accreditation Canada



“Evidence shows that incidence of VTE can be substantially reduced or prevented by identifying clients at risk and providing appropriate, evidence-based thromboprophylaxis interventions” (2015)

Venous Thromboembolism

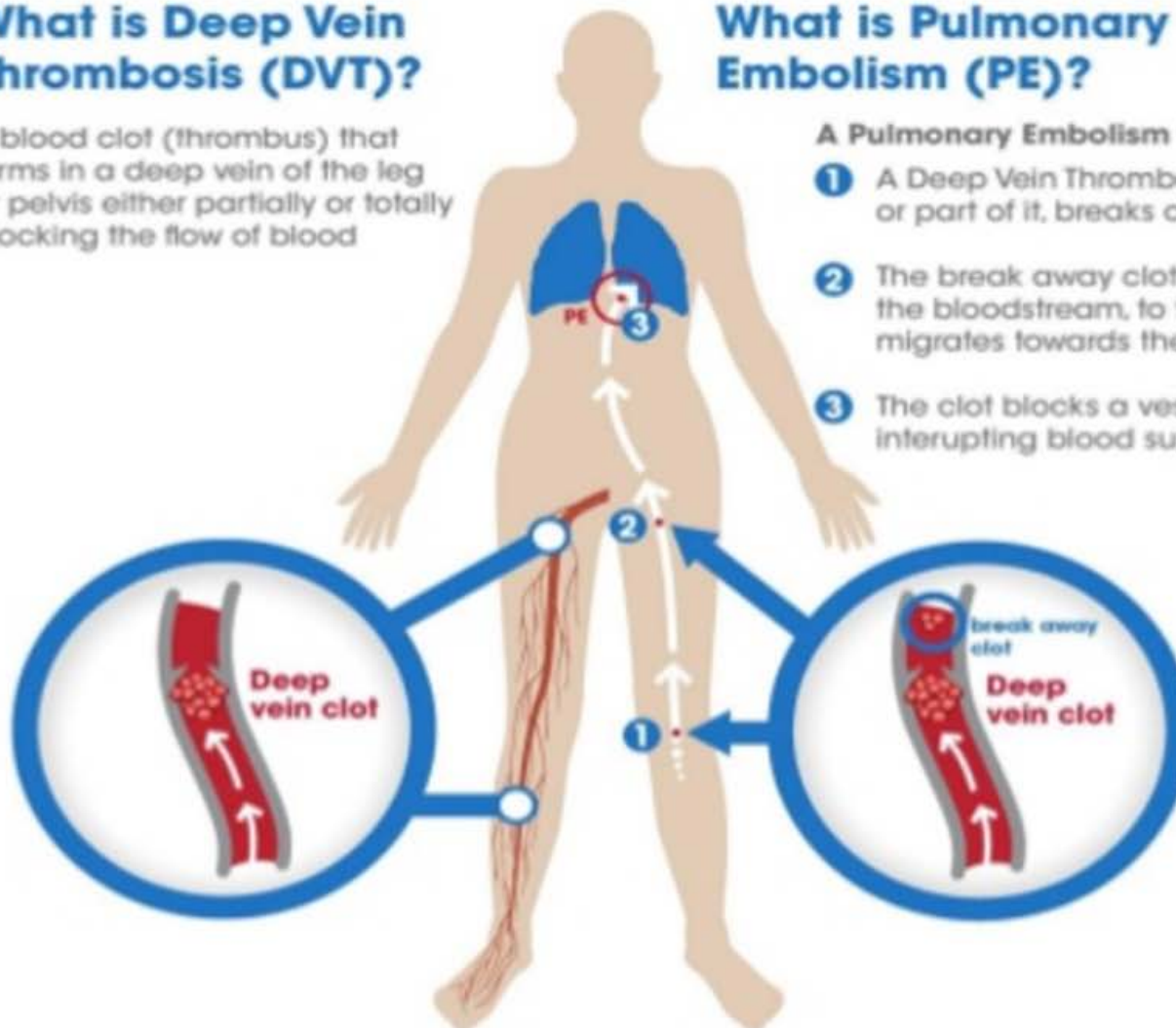
What is Deep Vein Thrombosis (DVT)?

A blood clot (thrombus) that forms in a deep vein of the leg or pelvis either partially or totally blocking the flow of blood

What is Pulmonary Embolism (PE)?

A Pulmonary Embolism is caused when:

- 1 A Deep Vein Thrombosis (blood clot), or part of it, breaks off from the vein
- 2 The break away clot travels through the bloodstream, to the heart and migrates towards the lung
- 3 The clot blocks a vessel in the lung, interrupting blood supply



Required Organizational Practice (ROP)

- Organizational VTE prophylaxis guideline
- Universal patient risk assessment
- Provide evidence based VTE prophylaxis
- Monitor practice and manage improvement

Universal Risk Assessment

High Risk

- Post operative patient having the following surgery: Hip or Knee Replacement
- Hip or Pelvic or Lower Extremity Fracture Heparin Induced Thrombocytopenia
- Any major surgery (post-op)+ previous DVT/PE

Moderate Risk

- Post operative patient having the following surgery: Cancer, Thoracic, Abdominal, Urologic, Gynecologic
- Medical patient with history of DVT/PE
- Major Cardiovascular / Respiratory Disease or Cancer or Infection
- Patients with Immobility

Low Risk

- No High or moderate risk
- Able to ambulate without restriction

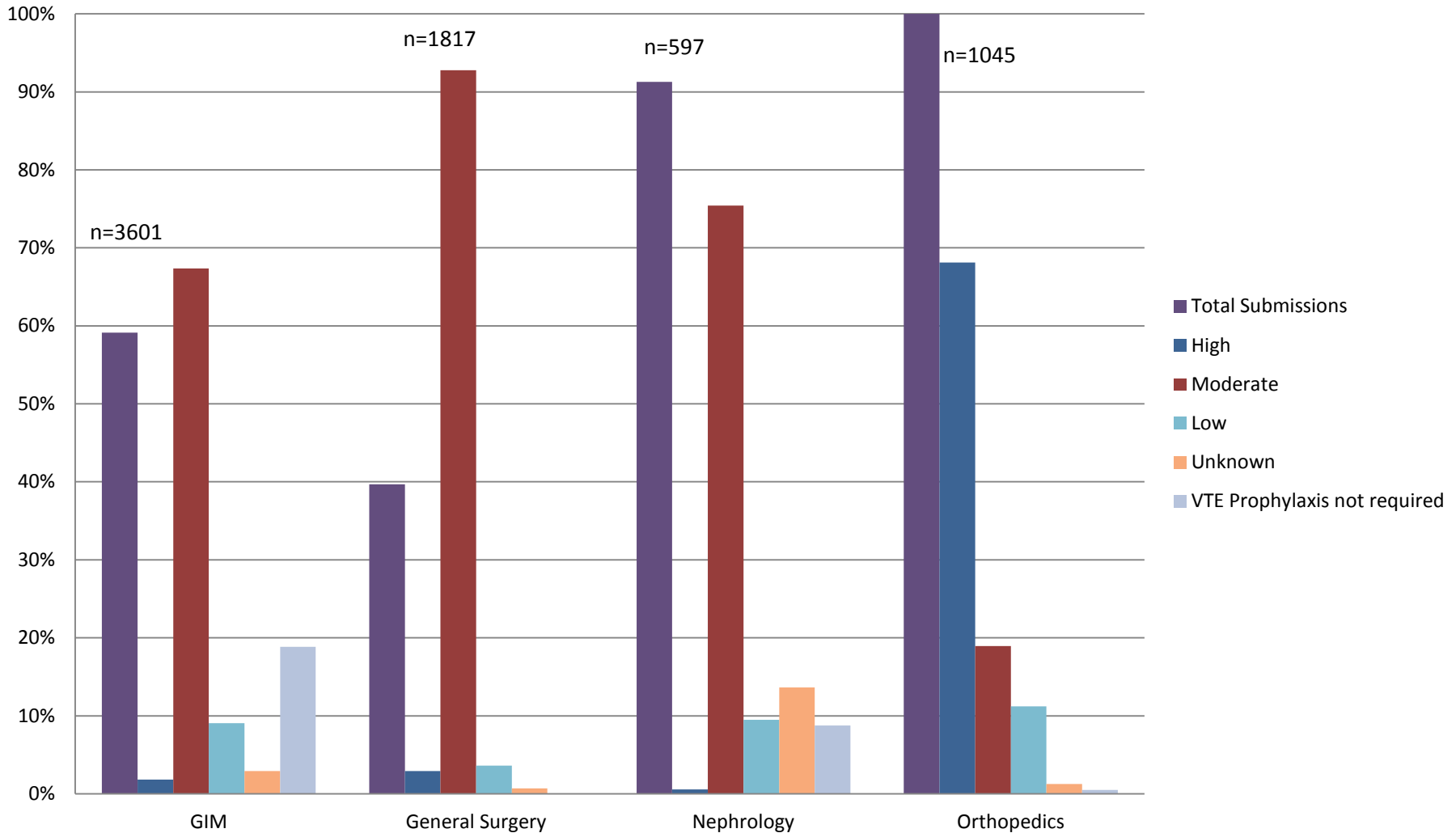


ADT interface
Populates patient information

Allergies: _____	
Venous Thromboembolism (VTE) Prophylaxis Order Set	
Orders Transcribed Date: _____ <small>(yyyy/mm/dd)</small> Time: _____ <small>(hh:mm)</small> _____ <small>PRINT NAME</small> _____ Signature/Discipline _____ Orders Scanned Date: _____ <small>(vvvv/mm/dd)</small>	Venous Thromboembolism (VTE) Prophylaxis Refer to VTE Prophylaxis Associated Document for risk assessment guidelines ***These orders do not apply in the pre-operative setting. If surgery is anticipated in the next 12 – 24 hours consult surgery or anesthesia*** ***Orders do not apply if patient is receiving an anticoagulant at therapeutic dose*** Laboratory Investigations ☑ CBC, INR, aPTT, and serum creatinine (if not done in last 24 hours) Risk Assessment ☑ Risk assessment has been completed (yes/no) _____ <input type="checkbox"/> High risk – recommend referral to Thrombosis Service <input type="checkbox"/> Moderate risk – see below orders <input type="checkbox"/> Low risk – VTE prophylaxis not required, reassess as needed <input type="checkbox"/> VTE prophylaxis not required. Reason: <input type="checkbox"/> Patient on therapeutic anticoagulation <input type="checkbox"/> Other: _____

VTE Risk Assessment Rates

Digital Order Set Submission and VTE Risk Assessment 2015-16 N=7060



ACCP Guidelines

Low-molecular-weight heparin (LMWH), low-dose unfractionated heparin (LDUH), or fondaparinux recommended for patient undergoing major surgery. (Geerts et al., 2008)

VTE Pharmaceutical Prophylaxis

Patient Population	Agent	Dosing
All medical, surgical and critical care patients except: <ul style="list-style-type: none"> • Post op Arthroplasty • Post op Bariatric Procedure • Renal Impairment (+/- Dialysis) • Heparin Induced Thrombocytopenia 	Dalteparin	Dalteparin 5000 units, subcutaneous, once daily**
Lower Limb Arthroplasty Surgery <ul style="list-style-type: none"> • Total Hip replacement or revision • Total Knee replacement • Bilateral Total Knee replacement 	Rivaroxaban	Refer to Thrombosis/Vascular Medicine Team
Post-Operative Bariatric Procedures	Tinzaparin	Dosing is weight Dependant: Less than 110 kg : 4,500 units subcutaneous, once daily x 10 days 110-160kg : 10,000 units subcutaneous, once daily x 10 days Greater than 160 kg: 14,000 units subcutaneous, once daily x 10 days
Renal Impairment <ul style="list-style-type: none"> • CrCl less than 30 ml/min (or) • Dialysis Dependent 	Unfractionated Heparin (UFH)	5000 units, subcutaneous, twice daily
Heparin Induced Thrombocytopenia	Fondaparinux	Refer to Thrombosis/Vascular Medicine Team

Digital Order Set Integration

<p>Date: _____ (yyyy/mm/dd)</p> <p>Time: _____ (hh:mm)</p> <p>PRINT NAME</p> <p>Signature/Discipline</p>	<h3>Risk Assessment</h3> <p><input checked="" type="checkbox"/> Risk assessment has been completed (yes/no) _____</p> <p><input type="checkbox"/> High risk – recommend referral to Thrombosis Service</p> <p><input checked="" type="checkbox"/> Moderate risk – see below orders</p> <p><input type="checkbox"/> Low risk – VTE prophylaxis not required, reassess as needed</p> <p><input type="checkbox"/> VTE prophylaxis not required. Reason: <input type="checkbox"/> Patient on therapeutic anticoagulation <input type="checkbox"/> Other: _____</p> <h3>High Risk</h3> <p><input checked="" type="checkbox"/> Consult Thrombosis Service</p> <p><input type="checkbox"/> Other: _____</p>
<p>Transcription Checked By</p> <p>Date: _____ (yyyy/mm/dd)</p> <p>Time: _____ (hh:mm)</p> <p>PRINT NAME</p> <p>Signature/Discipline</p>	<h3>Moderate Risk</h3> <p><input checked="" type="checkbox"/> heparin 5,000 units subcutaneous first night post-operative x 1 dose</p> <p><input type="checkbox"/> tinzaparin 14,000 units subcutaneous daily starting Post-Op Day #1 if weight is greater than 160 kg</p> <p><input checked="" type="checkbox"/> tinzaparin 10,000 units subcutaneous daily starting Post-Op Day #1 if weight is between 110 - 160 kg</p> <p><input type="checkbox"/> tinzaparin 4,500 units subcutaneous daily starting Post-Op Day #1 if weight is less than 110 kg</p> <p><input type="checkbox"/> Consult Thrombosis Service if seen by Thrombosis Service preoperatively</p> <p>For patients with increased bleeding risk e.g. acute bleeding, thrombocytopenia (platelets less than $75 \times 10^9/L$), coagulopathy (INR greater than 1.5, aPTT greater than 40 seconds):</p> <p><input type="checkbox"/> Intermittent pneumatic compression (Moon Boots) <input type="checkbox"/> Graduated compression stockings</p>

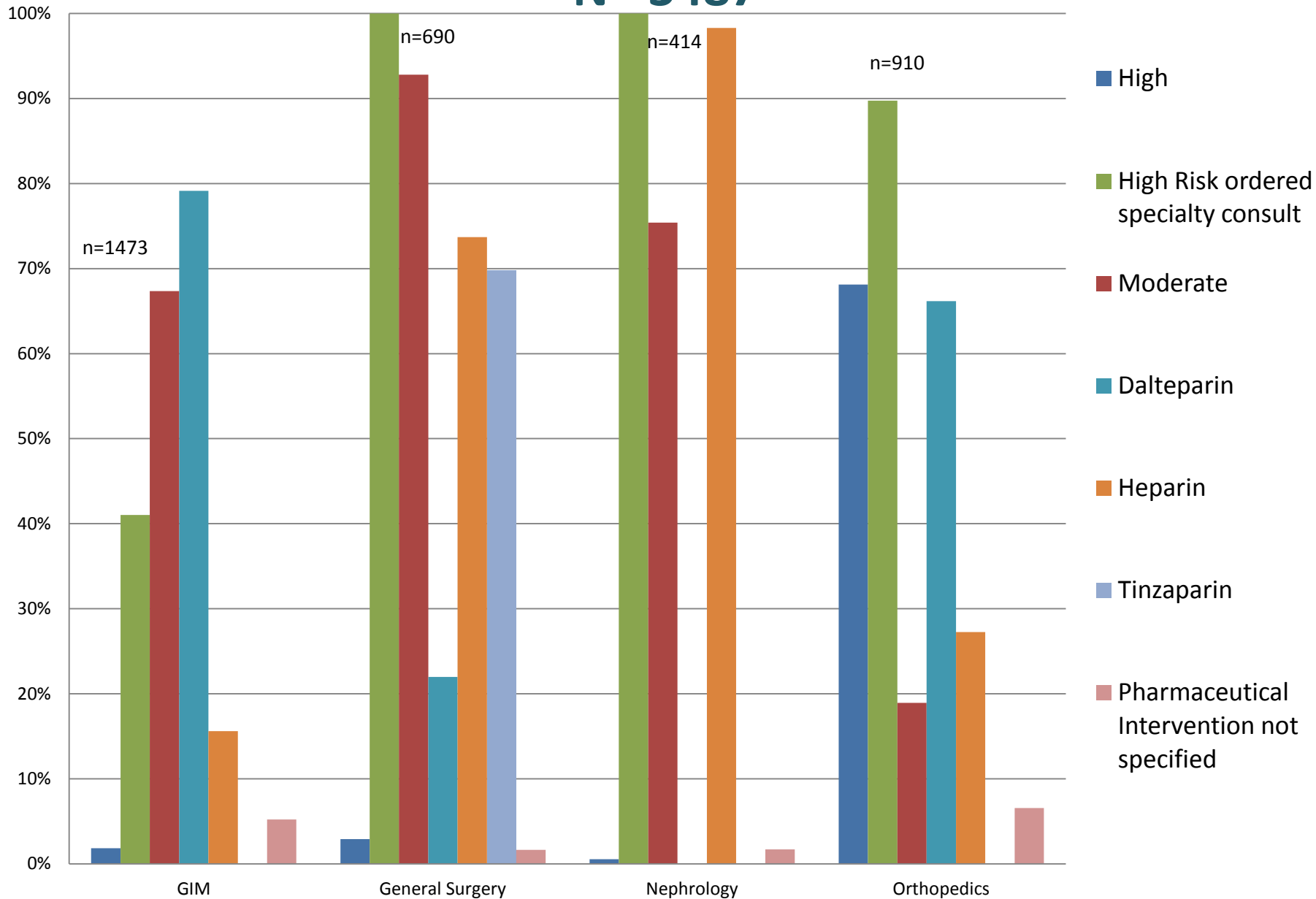
Order Written	Date: _____ (yyyy/mm/dd)	Time: _____ (hh:mm)
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Ordered By:	<input type="checkbox"/> Check if counter signature required
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Print Name	Signature	Counter Signature	Print Name	Pager #	Counter Signature/Discipline
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Pharmaceutical VTE Prophylaxis 2015-16

N= 3487



Additional Benefits

- More legible orders
- Less pharmacist to physician call-backs
- Quicker turnaround time from order to dispensing
- Less variation in practice
- Analytics enable real-time monitoring

BENEFITS



Testimonials



“Digital order sets are easy, safe and effective!”
Angie Sutter, NP



“Digital order sets bring standardization into the electronic environment with easy access to and use of evidence-informed efficient care protocols...”
Dr. Abraham Rudnick,
Chief of Psychiatry



“The Digital Order Sets are very easy to use and user friendly!”
Zainab Samaan, MD

Next Steps

- Medical Advisory Committee and Senior Leadership Team ruled that a standardized Digital Order Set is mandatory for every patient at admission or post operatively
- Implement VTE Scorecard across all services
- Implement Continuous Quality Improvement across all services

Better*Health*
Better*Experience*

Questions?

