VTE Virtual Learning Series #2:

Preventing VTE: Implementation and Auditing Strategies

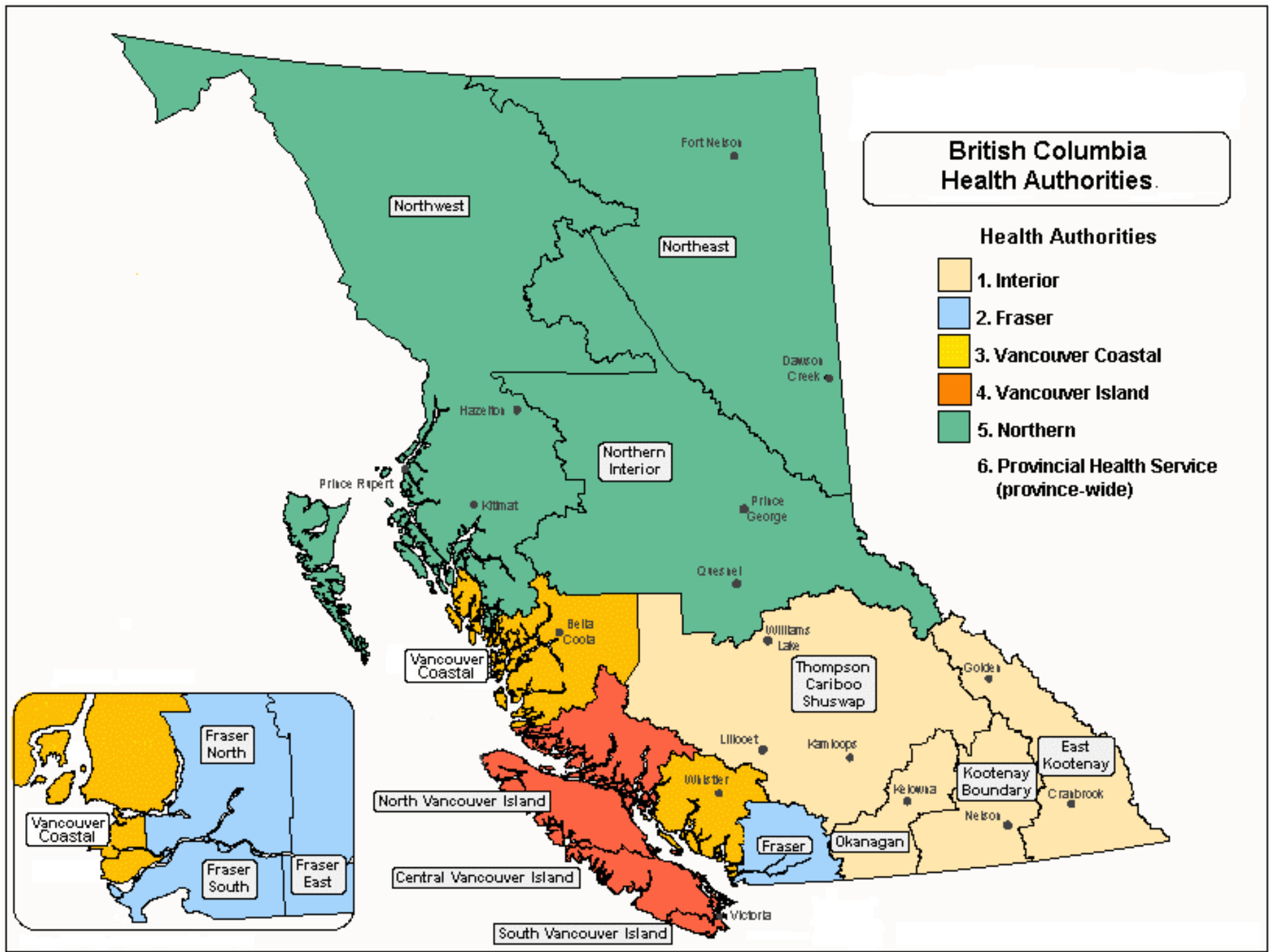
Hosted by:
Shari McKeown, RRT, FCSRT, MA
Quality Leader, BC Patient Safety & Quality Council
smckeown@bcpsqc.ca

Our presenters today:

Dr. Greg Maynard

Dr. David Wilton

clinical care management
Quality Healthcare. Together.


British Columbia
Health Authorities
Health Authorities
1. Interior
2. Fraser
3. Vancouver Coastal
4. Vancouver Island
5. Northern
6. Provincial Health Service
(province-wide)
Northwest
Northeast
Northern
Interior
Vancouver
Coastal
Thompson
Cariboo
Shuswap
Kootenay
Boundary
East
Kootenay
Okanagan
Fraser
North Vancouver Island
Central Vancouver Island
South Vancouver Island
Fort Nelson
Dawson
Creek
Hazelton
Prince Rupert
Kitimat
Prince
George
Quesnel
Bella
Coola
Williams
Lake
Golden
Lillooet
Kamloops
Whistler
Kelowna
Nelson
Cranbrook
Victoria
Fraser
North
Vancouver
Coastal
Fraser
South
Fraser
East

Objectives:

1. Learn techniques for designing and implementing effective VTE prevention protocols.

2. Understand the use of '*measure-vention*' to accelerate improvement efforts.

3. Learn effective auditing techniques for VTE prophylaxis.

clinical care management
Quality Healthcare. Together.

Designing and Implementing Effective VTE Prevention Protocols

British Columbia VTE Prevention Effort

Greg Maynard M.D., Clinical Professor of Medicine
Director, UCSD Center for Innovation and Improvement Science

January 17, 2011

Where discoveries are delivered.℠

UC San Diego
HEALTH SCIENCES

Venous Thromboembolism (VTE):

A Major Source of Mortality and Morbidity

- 350,000 to 650,000 with VTE per year
- 100,000 to > 200,000 deaths per year
- Most are hospital related.
- VTE is primary cause of fatality in half-
  - More than HIV, MVAs, Breast CA *combined*
  - Equals 1 jumbo jet crash / day
- 10% of hospital deaths
  - May be the #1 preventable cause
- Huge costs and morbidity (recurrence, post-thrombotic syndrome, chronic PAH)

UC San Diego
HEALTH SCIENCES

Surgeon General's Call to Action to Prevent DVT and PE 2008 DHHS

Risk Factors for VTE

Stasis
- Age > 40
- Immobility
- CHF
- Stroke
- Paralysis
- Spinal Cord injury
- Hyperviscosity
- Polycythemia
- Severe COPD
- Anesthesia
- Obesity
- Varicose Veins

Hypercoagulability
- Cancer
- High estrogen states
- Inflammatory Bowel
- Nephrotic Syndrome
- Sepsis
- Smoking
- Pregnancy
- Thrombophilia

Endothelial Damage
- Surgery
- Prior VTE
- Central lines
- Trauma

Anderson FA Jr. & Wheeler HB. *Clin Chest Med* 1995;16:235.

UC San Diego Health Sciences

Risk Factors for VTE

Stasis
- Age > 40
- Immobility
- CHF
- Stroke
- Paralysis
- Spinal Cord
- Hyperv
- Polycyt
- Severe C
- Anesthes
- Obesity
- Varicose Veins

Hypercoagul
- Cancer
- High es
- Infl
- ne
- ancy
- hrombophilia

thelial Damage
- Surgery
- Prior VTE
- Central lines
- Trauma

Most hospitalized patients have at least one risk factor for VTE

Anderson FA Jr. & Wheeler HB. *Clin Chest Med* 1995;16:235.
Bick RL & Kaplan H. *Med Clin North Am* 1998;82:409.

UC San Diego Health Sciences

Evidence: Medical Prophylaxis

Trial	Endpoint	Relative Risk Reduction	*P*-value
MEDENOX[1] Enoxaparin 40 mg SC daily vs placebo	Distal and proximal venographic DVT + symptomatic VTE + fatal PE	63%	< 0.001
PREVENT[2] Dalteparin 5,000 units SC daily vs placebo	Compression ultrasonographic proximal DVT + symptomatic VTE + fatal PE	45%	0.002
ARTEMIS[3] Fondaparinux 2.5 mg SC daily vs placebo	Distal and proximal venographic DVT + symptomatic VTE + fatal PE	47%	0.03

1. Samama M, et al. *N Eng J Med*. 1999;341:793-800.
2. Leizorovicz A, et al. *Circulation*. 2004;110:874-879.
3. Cohen AT, et al. *BMJ*. 2006;332:325-329.

UC San Diego Health Sciences

VTE Prophylaxis Meta-Analysis

- 9 studies
- 19,958 medical patients
- Anticoagulant prophylaxis vs no treatment
- Results
  - 57% reduction in RR for symptomatic PE
  - 62% reduction in RR for fatal PE
  - 53% reduction in DVT
  - No significant increase in major bleeding

Dentali F, et al. *Ann Intern Med*. 2007;146:278-288.

UC San Diego
Health Sciences

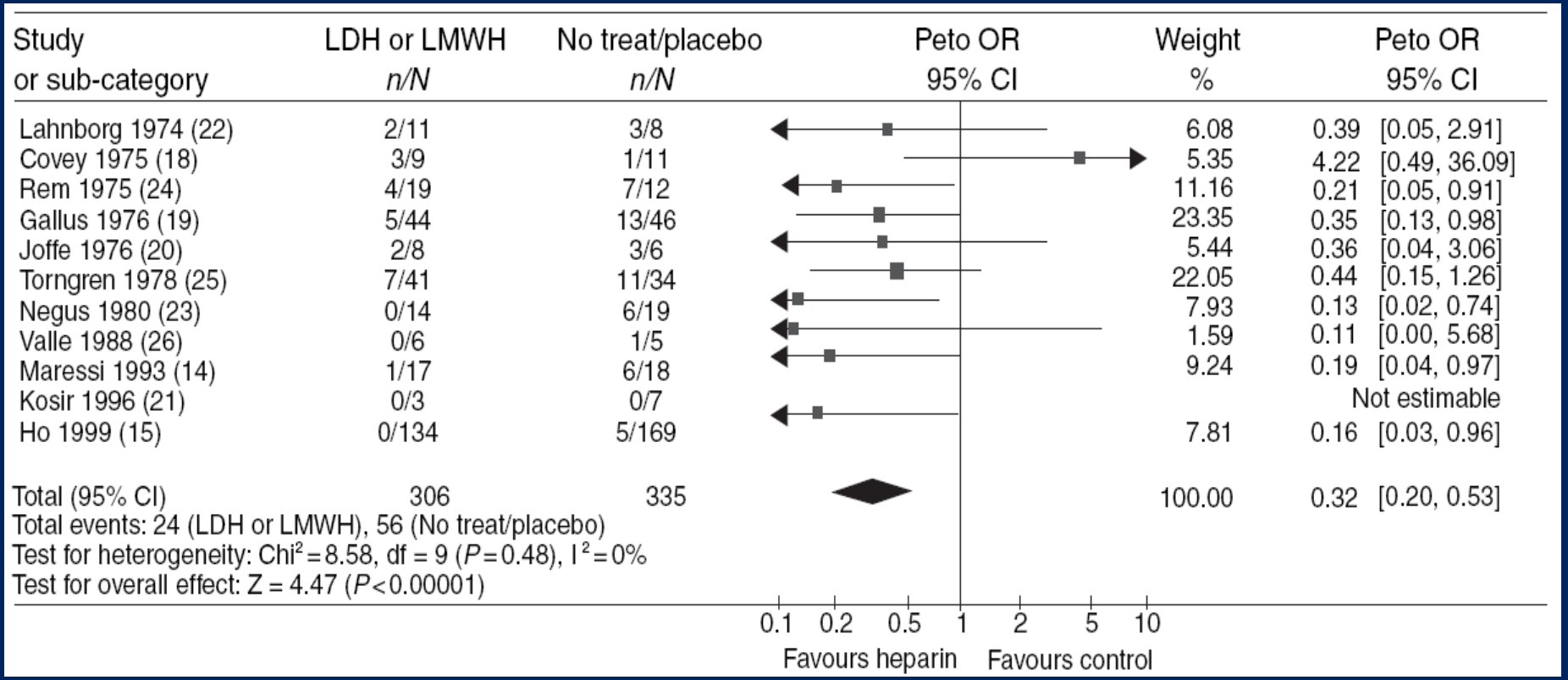
Medical Inpatients – Some growing controversy

- Lederle meta-analyses in recent Annals used same studies, but varied technique
- Findings: Reduced PE, no reduction in DVT, no increase in major bleeds, increase in minor bleeding.
  - Some flaws in Lederle paper, in my opinion
  - Calculated symptomatic DVT rates from screened / treated population.
  - Symptomatic DVT < Symptomatic PE?

- Large RCT in Asian Medical inpatients just published in NEJM- No benefit of LMWH on top of GCS on mortality.
- No increase in major bleed, symptomatic VTE not reported.

UC San Diego
Health Sciences

Pharmacologic Prophylaxis in Colorectal Surgery



Study or sub-category	LDH or LMWH *n/N*	No treat/placebo *n/N*	Peto OR 95% CI	Weight %	Peto OR 95% CI
Lahnborg 1974 (22)	2/11	3/8		6.08	0.39 [0.05, 2.91]
Covey 1975 (18)	3/9	1/11		5.35	4.22 [0.49, 36.09]
Rem 1975 (24)	4/19	7/12		11.16	0.21 [0.05, 0.91]
Gallus 1976 (19)	5/44	13/46		23.35	0.35 [0.13, 0.98]
Joffe 1976 (20)	2/8	3/6		5.44	0.36 [0.04, 3.06]
Torngren 1978 (25)	7/41	11/34		22.05	0.44 [0.15, 1.26]
Negus 1980 (23)	0/14	6/19		7.93	0.13 [0.02, 0.74]
Valle 1988 (26)	0/6	1/5		1.59	0.11 [0.00, 5.68]
Maressi 1993 (14)	1/17	6/18		9.24	0.19 [0.04, 0.97]
Kosir 1996 (21)	0/3	0/7			Not estimable
Ho 1999 (15)	0/134	5/169		7.81	0.16 [0.03, 0.96]
Total (95% CI)	306	335		100.00	0.32 [0.20, 0.53]

Total events: 24 (LDH or LMWH), 56 (No treat/placebo)
Test for heterogeneity: $Chi^2 = 8.58$, df = 9 ($P = 0.48$), $I^2 = 0\%$
Test for overall effect: Z = 4.47 ($P < 0.00001$)

- Heparin is superior to placebo
- UFH and LMWH are equally effective

UC San Diego Health Sciences

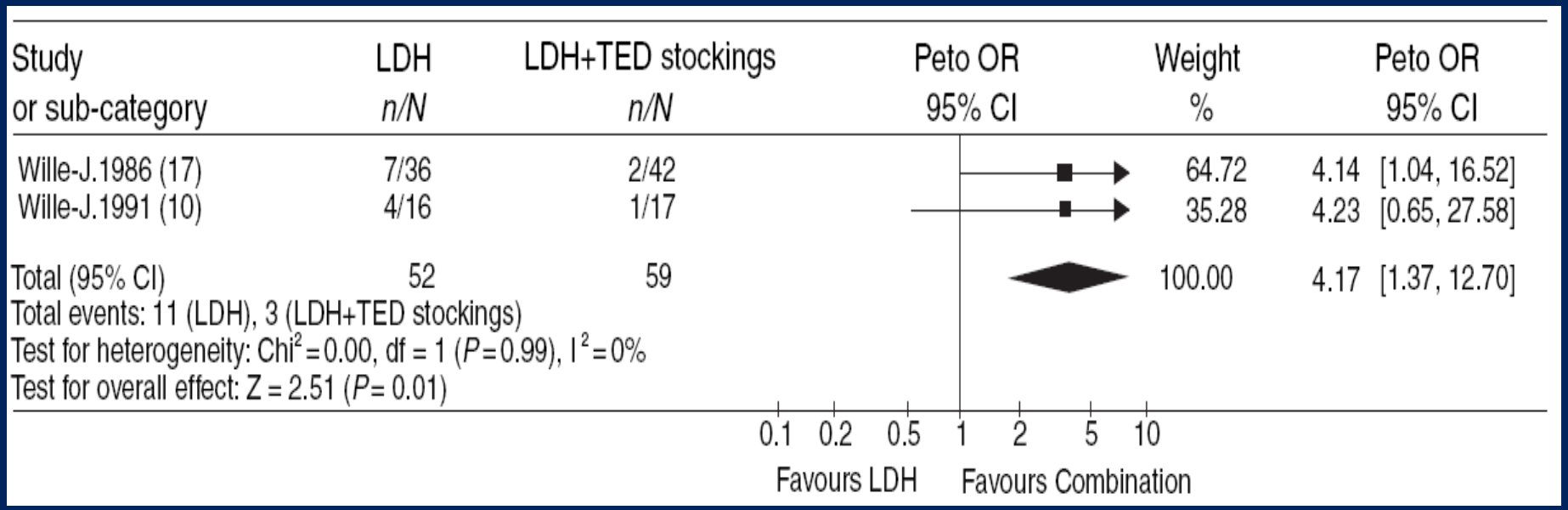
Borly L, et al. *Colorectal Dis.* 2005;7:122-127.

UFH vs LMWH

- Equal in efficacy for VTEP in some settings
- LMWH with slight edge in others
- Better adherence / reliability with LMWH
- Lower HIT incidence with LMWH and heparin avoidance procedures.
- Cost difference now negligible
  - (or favors LMWH in some countries)

UC San Diego
HEALTH SCIENCES

Pharmacologic and Mechanical Prophylaxis in Colorectal Surgery



- Pharmacologic plus mechanical prophylaxis is superior to LDH

UC San Diego Health Sciences

Borly L, et al. *Colorectal Dis.* 2005;7:122-127.

ACCP VTE Prophylaxis Guidelines 8th Edition

1. Every hospital should develop formal strategy to prevent VTE
2. Do not use aspirin alone for prophylaxis
3. Use mechanical prophylaxis primarily for patients at high bleeding risk or as an adjunct to pharmacologic prophylaxis
4. Give thromboprophylaxis for
   - Major trauma
   - Spinal cord injury
   - **Acute medical illness**
   - Most ICU patients
   - Moderate and high risk surgery

Geerts WH, et al. *Chest*. 2008;133:381S-453S.

Endorse Results

- Out of ~70,000 patients in 358 hospitals, appropriate prophylaxis was administered in:
  - 58.5% of surgical patients
  - 39.5% of medical patients

Cohen, Tapson, Bergmann, et al. Venous thromboembolism risk and prophylaxis in the acute hospital care setting (ENDORSE study): a multinational cross-sectional study. Lancet 2008; 371: 387–94.

UC San Diego
Health Sciences

Why don’t we do better?

- Competing Priorities
- National Policies / Incentives / Initiatives / Accreditation not all in place
- Lack of awareness or buy in of guidelines, lack of perfect evidence
- Underestimation of clot risk, overestimation of bleeding risk
- Lack of validated risk assessment model (until recently)
- Measurement Issues
- Translating complicated guidelines into everyday practice is difficult
- Medical training failures (QI and systems re-design)
- Failure to use a good QI framework

UC San Diego
HEALTH SCIENCES

Methods and Approach - UC San Diego

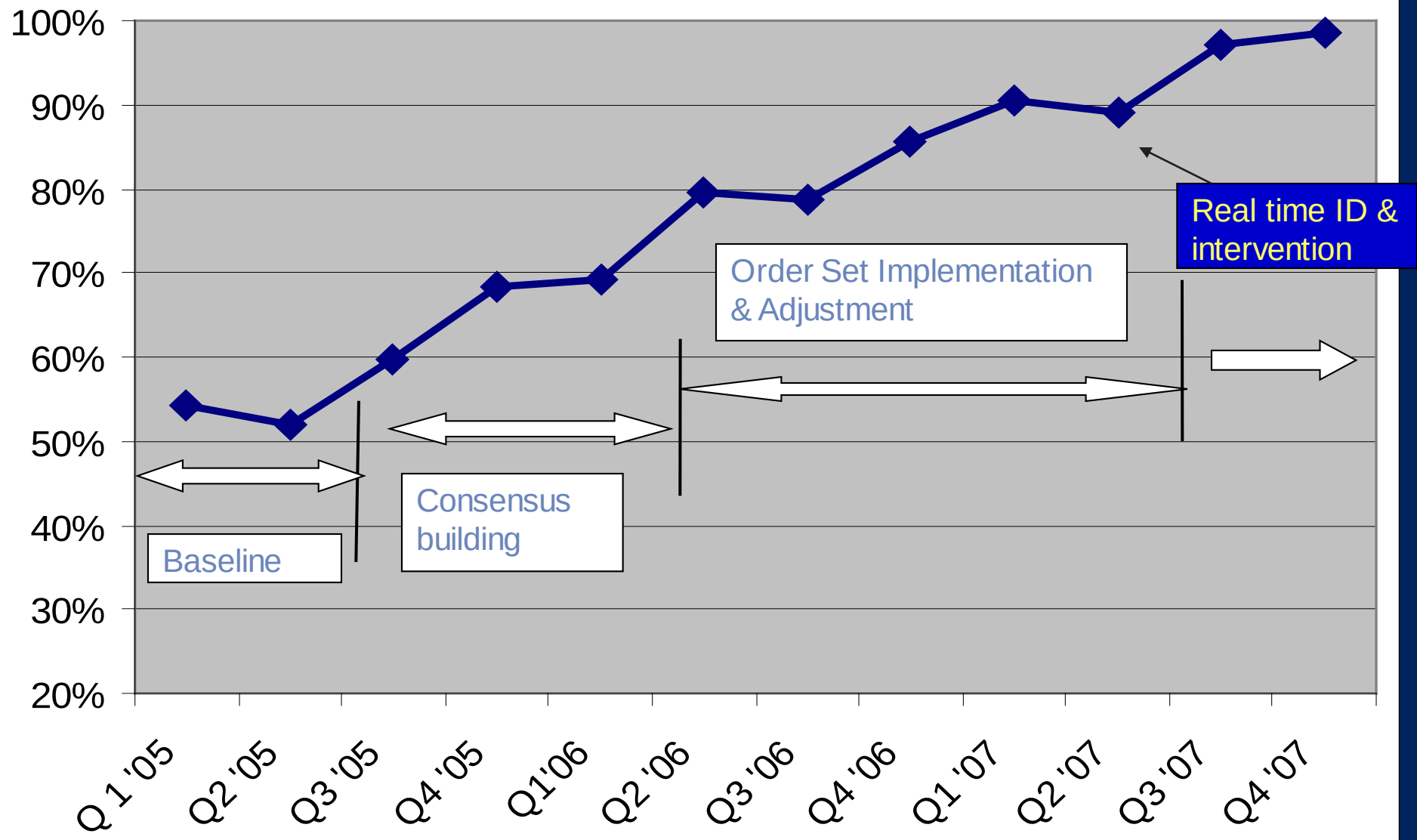
- Multi-disciplinary team
- Targeted population: All adult medical / surgical inpatients
- VTE Risk Assessment Model
  - 3 levels of VTE Risk (Low / Moderate / High)
  - Each level linked to appropriate options for prophylaxis
  - Contraindications and “leeway times” standardized
- Interobserver agreement assessed, model refined
- VTE Risk Assessment integrated into order sets
- Adequacy of VTE Prophylaxis and HA – VTE tracked over time

UC San Diego
HEALTH SCIENCES

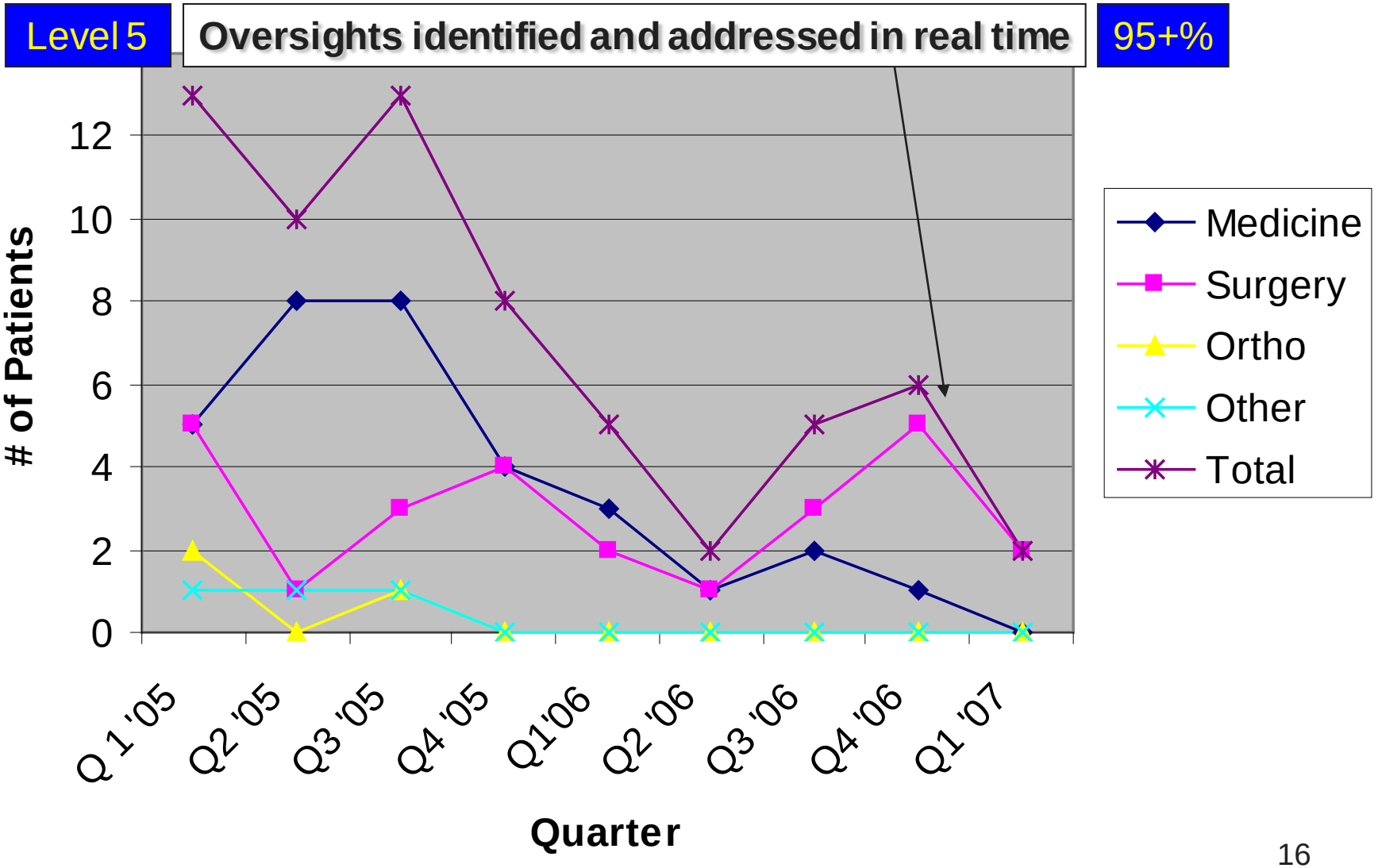
Percent of Randomly Sampled Inpatients with Adequate VTE Prophylaxis

J Hosp Med 2010 Jan:5(1):10-18.

N = 2,944 mean 82 audits / month



UCSD - Decrease in Patients with Preventable HA VTE



Hospital Acquired VTE by Year

	2005	2006	2007	2008
Patients at Risk	9,720	9,923	11,207	
Cases w/ any VTE	131	138	92	80
Risk for HA VTE	1 in 76	1 in 73	1 in 122	
Odds Ratio	1.0	1.03	0.61#	
(95% CI)		(0.81, 1.32)	(0.46, 0.80)	
Cases with PE	21	22	15	12
Risk for PE	1 in 463	1 in 451	1 in 747	
Odds Ratio	1.0	1.02	0.62	
(95% CI)		(0.54, 1.96)	(0.30, 1.26)	
Cases with DVT (and no PE)	110	116	77	68
Risk for DVT	1 in 88	1 in 85	1 in 146	
Odds Ratio	1.0	1.03	0.61*	
(95% CI)		(0.79, 1.96)	(0.45, 0.82)	
Cases w/ Preventable VTE	44	21	7	6
Risk for Preventable VTE	1 in 221	1 in 473	1 in 1,601	
Odds Ratio	1.0	0.47#	0.14*	
(95% CI)		(0.26, 0.80)	(0.05, 0.31)	

# p < 0.01 *p < 0.001

J Hosp Med 2010 Jan:5(1):10-18.

UCSD VTE Protocol Validated

- Easy to use, on direct observation – a few seconds
- Inter-observer agreement –
  - 150 patients, 5 observers- Kappa 0.8 and 0.9
- Predictive of VTE
- Implementation = high levels of VTE prophylaxis
  - From 50% to sustained 98% adequate prophylaxis
  - Rates determined by over 2,900 random sample audits
- Safe – no discernible increase in HIT or bleeding
- Effective – 40% reduction in HA VTE
  - 86% reduction in risk of preventable VTE

UC San Diego Health Sciences

J Hosp Med 2010 Jan:5(1):10-18.

VTE Prevention Guides

Preventing Hospital-Acquired
Venous Thromboembolism

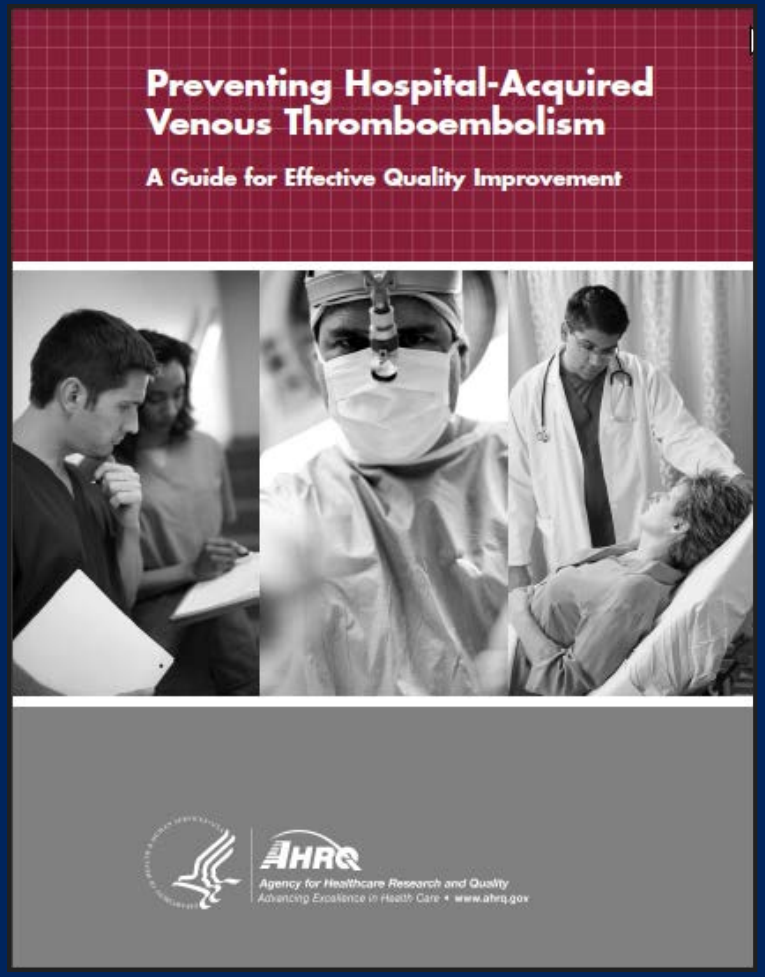
A Guide for Effective Quality Improvement

Version 3.0

Society of Hospital Medicine

Greg Maynard MD, MSc
UCSD

Jason Stein, MD
Emory University Hospitals



UC San Diego
Health Sciences

VTE Prevention Collaboratives Using UCSD Model

Over 250 Hospitals

- Society of Hospital Medicine (SHM)
- AHRQ and Quality Improvement Organizations
- Institute for Healthcare Improvement (IHI) Expedition
- American Society of Healthsystems Pharmacists (ASHP)
- BC Hospitalists

- Awards to UCSD, Emory, UNM, Washington DC VA, Blessing (Quincy IL) and British Columbia based on these strategies (all members of mentored implementation)

- Effective across wide variety of settings
  - Paper and Computerized / Electronic
  - Small and large institutions
  - Academic and community

UC San Diego
HEALTH SCIENCES

Big Picture Strategy –

- Distill evidence into protocol
- Integrate protocol with risk assessment into all admit / transfer orders
- Ongoing monitoring of impact to tweak protocol
- Devise method to detect those without prophylaxis in real time and intervene using multiple methods.

UC San Diego
Health Sciences

The Essential First Intervention

VTE Protocol

1) a standardized VTE risk assessment, linked to…
2) a menu of appropriate prophylaxis options, plus…
3) a list of contraindications to pharmacologic VTE prophylaxis

Challenges:

Make it easy to use ("automatic")

Make sure it captures almost all patients

Trade-off between guidance and ease of use / efficiency

Mistakes in VTE Prevention Orders

- Too Complicated (Point Based models)
- No real guidance (Prompt ≠ Protocol)
- Failure to revise old order sets
- Too many categories of risk
- Allowing mechanical prophylaxis too much
- Failure to pilot, revise, monitor
- Linkage between risk level and prophy choices are separated in time or space

UC San Diego
HEALTH SCIENCES

Too Complicated?

To be completed at admission, post-op, transfer to ICU/CCU and discharge

FAX TO PHARMACY

Step 1: Contraindications to anticoagulants:

Relative: (check if applicable)

- ☐ Cerebral hemorrhage at any time
- ☐ GI, GU bleed or stroke in last 6 months
- ☐ Thrombocytopenia (<100,000)
- ☐ Coagulopathy
- ☐ Active intracranial lesions/neoplasms
- ☐ Proliferative retinopathy
- ☐ Vascular access/biopsy sites inaccessible to hemostatic control
- ☐ Low Molecular Weight Heparin in dialysis patients or those with Creatinine clearance <=30

Absolute: (check if applicable)

- ☐ Active hemorrhage from wounds, drains, lesions
- ☐ Unfractionated or Low Molecular weight Heparin use in Heparin Induced Thrombocytopenia
- ☐ Severe trauma to head, spinal cord, abdomen with spleen or liver laceration or hemorrhage in last 4 weeks
- ☐ Spinal or epidural anesthesia planned or performed, discuss with anesthesiologist
- ☐ Warfarin use in pregnancy

Contraindication(s) to pharmacological prophylaxis with anticoagulants?

Yes: If yes explain _____

and choose non pharmacological method unless also contraindicated (Peripheral vascular disease or wounds)

Step 2: Risk Factors Associated with Clinical Setting:

Choose one with the HIGHEST risk score for the patient

Score 1 point

- ☐ Minor Surgery
- ☐ Trauma
- ☐ Observation
- ☐ Bed rest >12 hours

Score 2 points

- ☐ Major surgery (>45 min)
- ☐ Laparoscopic surgery (>45 min)
- ☐ Patients confined to bed >24 hr
- ☐ Immobilizing plaster cast
- ☐ Central Venous Access

Score 3 points

- ☐ Major surgery with
  - myocardial infarction
  - congestive heart failure
  - severe sepsis/infection
- ☐ Medical patient with additional risk factors (MI, CHF, Sepsis, Immobile)

Score 5 points

- ☐ Elective lower extremity arthroplasty
- ☐ Hip, pelvis or leg fracture
- ☐ Stroke new onset
- ☐ Multiple trauma
- ☐ Acute spinal cord injury (paralysis)

BASELINE RISK SCORE (IF SCORE =5, GO TO STEP4)→☐

STEP 3: Risk Factors Associated with the Patient:

CLINICAL

(1 point each unless otherwise indicated)

- ☐ Age 41 to 60 years
- ☐ Age over 60 years (2 points)
- ☐ History of DVT/PE (3 points)
- ☐ Pregnancy or postpartum <1 month
- ☐ Varicose veins
- ☐ Inflammatory Bowel disease
- ☐ Active Malignancy (2 points)
- ☐ Stroke, history of (5 points)
- ☐ Obesity (BMI>30)
- ☐ Oral contraceptives or hormone replacement
- ☐ Hypercoagulable states (3 points)
- ☐ Current tobacco use

TOTAL ADDITIONAL RISK POINTS→☐

TOTAL ADDITIONAL RISK POINT SCORE (BASELINE + ADDITIONAL)→☐

STEP 4: DVT/PE Prophylaxis Orders

Score of 1 or less
Low Risk

- ☐ Early ambulation

Score of 2
Moderate Risk

- ☐ Sequential compression device and/or
- ☐ Heparin 5000 units q 12 hrs Subcut

Score of 3-4
High Risk

- ☐ Sequential compression device and/or
- ☐ Heparin 5000 units q 8 hrs subcut

Score of 5 or more
Highest Risk

- ☐ Sequential compression device **AND at least one of the following**
- ☐ Heparin 5000 units q 8 hrs subcut
- ☐ Enoxaparin 40 mg subcut daily
- ☐ Enoxaparin 30 mg subcut q 12 hrs
- ☐ **Warfarin daily with goal INR 2-3** (see warfarin orders) along with Heparin or Enoxaparin as above due to concerns for Hypercoagulable states and Warfarin Alone

PHYSICIAN SIGNATURE_____ Date/Time_____

Too Little Guidance
Prompt ≠ Protocol

DVT PROPHYLAXIS ORDERS

- Anti thromboembolism Stockings
- Sequential Compression Devices
- UFH 5000 units SubQ q 12 hours
- UFH 5000 units SubQ q 8 hours
- LMWH (Enoxaparin) 40 mg SubQ q day
- LMWH (Enoxaparin) 30 mg SubQ q 12 hours
- No Prophylaxis, Ambulate

UC San Diego
HEALTH SCIENCES

Questions and Answers

Q. What is the best VTE risk assessment model?

A. Simple, text based model with only 2-3 layers of VTE Risk

Q. Who should do the VTE risk assessment?

A. Doctors (via admit transfer order sets), with back up risk assessment by front line nurses or pharmacists, focusing on those without prophylaxis.

UC San Diego
HEALTH SCIENCES

Complete Assessment at ADMISSION, POST-OP, AND TRANSFER

DVT/ PE RISK LEVEL & PROPHYLAXIS ORDERS

☐ **Low** Risk Observation patients, expected LOS <48 hrs: Minor/ Ambulatory surgery **or** Age< 50 and NO other risk factors , or Already on therapeutic anticoagulation	☐ Early ambulation, education ☐ Education
☐ **Moderate** Risk **Most medical /surgical patients** CHF,pneumonia, active inflammation, advanced age, dehydration, varicose veins, less than fully and independently ambulatory, many other factors. All patients not in the Low or Highest Risk Categories (see reverse for more risk factors)	**CHOOSE ONE** PHARMACOLOGIC option ☐ Enoxaparin 40 mg SC q 24 hrs ☐ Enoxaparin 30 mg SC q 24 hrs (renal insufficiency dosing) ☐ Heparin 5000 units SC q 8 hrs ☐ Heparin 5000 units SC every 12hrs (if weight <50kg or age> 75) **Also (OPTIONAL)** ☐ Sequential compression device
☐ **Highest** Risk Elective hip or knee arthroplasty Acute spinal cord injury with paresis Multiple major trauma Abdominal or pelvic surgery for cancer	**CHOOSE ONE** PHARMACOLOGIC option ☐ Enoxaparin 40 mg SC q day ☐ Enoxaparin 30 mg SC q 24 hrs (for renal insufficiency) ☐ Heparin 5000 units SC q 8 hrs (End stage renal disease only) ☐ Enoxaparin 30 mg SC q 12 hrs (knee replacement) ☐ Fondaparinux 2.5 mg SC q day **AND** ■ Sequential compression device

OR

The risk of adverse effects of pharmacologic prophylaxis outweighs the risk of DVT / PE
Contraindication to pharmacologic prophylaxis (see reverse): _____

☐ Mechanical prophylaxis with sequential compression device OR
☐ Contraindicated (peripheral vascular disease or wounds)

_____ _____

SIGNATURE / PROVIDER ID DATE / TIME

VTE Prophylaxis Audits

Assessing Prevalence of Adequate VTE Prophylaxis

- Order set use
- Detailed audits based on your protocol
- Less detailed audits
  - (Red / Yellow / Green strategy)

Recommended Strategy for Adequacy of VTE Prophylaxis in Multi-site Improvement Efforts
Red / Yellow / Green Strategy

- Data collection relatively easy to do
- Amenable to automation
- Feasibility of including the entire population
- Can spur action (actionable) in real time
- More detail on selected patients on contraindications and VTE risk level can give good estimates of Appropriate / Adequate VTE prophylaxis rates.

Measure-vention

Daily measurement drives concurrent intervention
(i.e. same as Level 5 in Hierarchy of Reliability)

Identify patients not receiving VTE prophylaxis in real time

1. Suitable for reporting progress, tracking trends
2. Spurs intervention by the front line worker

Maynard G, Stein J. Designing and Implementing Effective VTE Prevention Protocols: Lessons from Collaboratives. J Thromb Thrombolysis 2010 Feb:29(2):159-166.

Situational Awareness and Measure-vention: Getting to 95%

- Identify patients on no anticoagulation
- Empower nurses to place mechanical prophylaxis.
- Contact MD if no anticoagulant in place and no obvious contraindication
  - Templated note, text page, etc
- Back up these interventions
  - Docs can not “shoot the messenger”

Maynard G, Stein J. Designing and Implementing Effective VTE Prevention Protocols: Lessons from Collaboratives. J Thromb Thrombolysis 2010 Feb:29(2):159-166.

UC San Diego Health Sciences

28 patients: 20 on anticoagulation

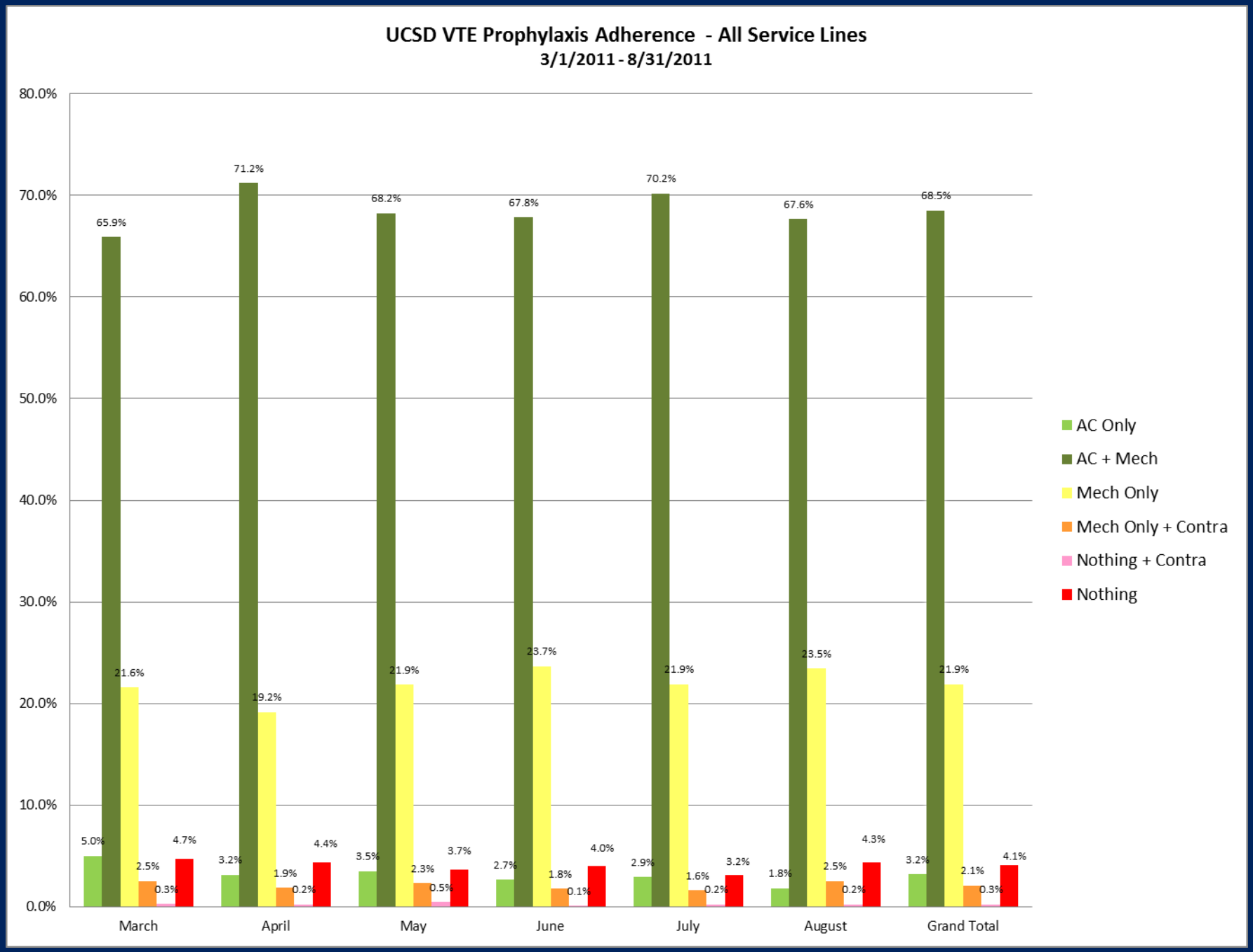
4 on mechanical prophylaxis with lab contraindication

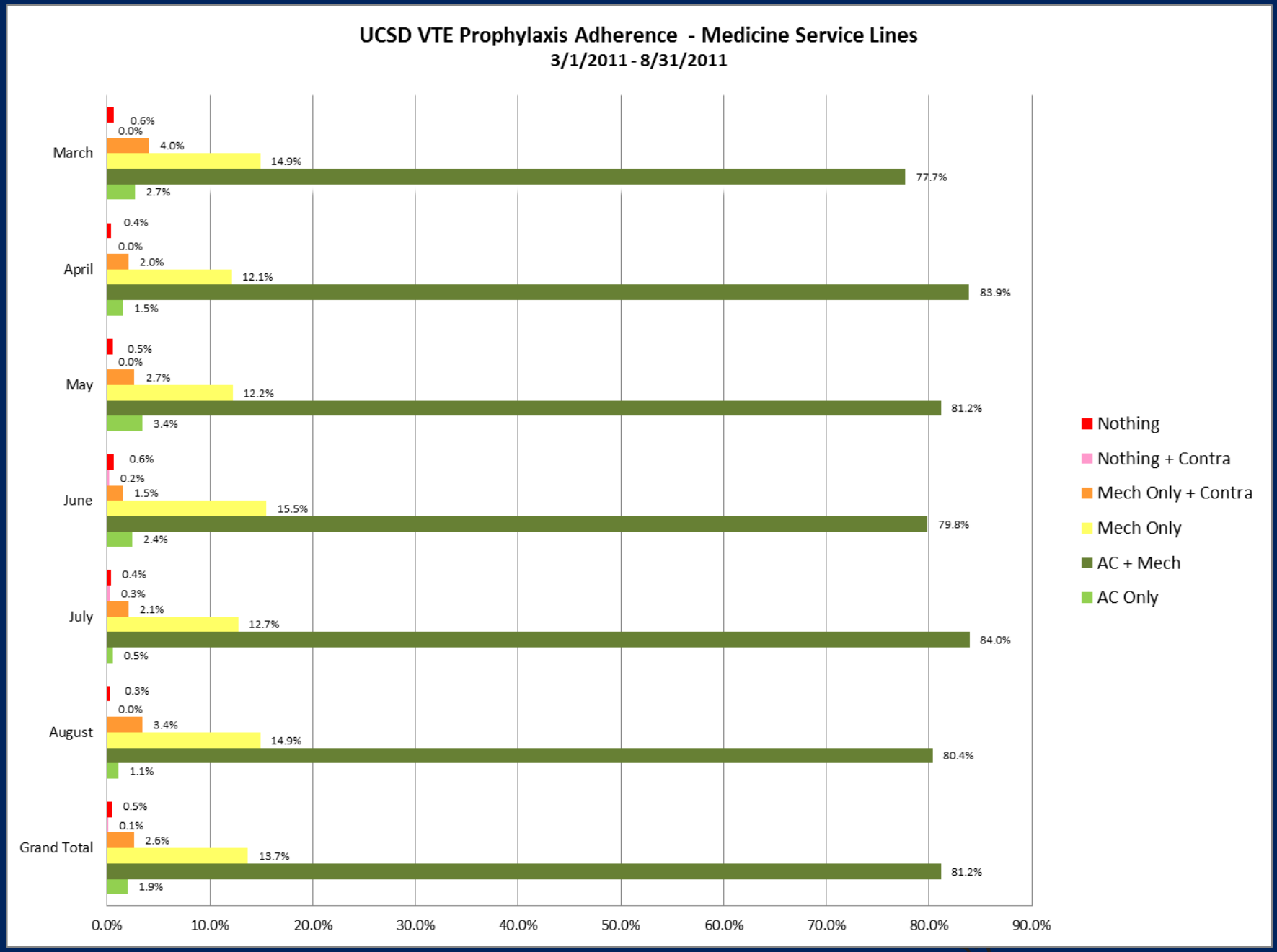
3 on Nothing (RED) 1 mechanical

BED_LABEL	Service	VTE Risk Category	Medication	Dose	SCD	Lab Contra	Orders state contra	Orders state LOW VTE Risk
2250A	Medicine Thornton	LOW	warfarin (COUMADIN) tablet 3 mg	3 mg EVERY EVENING Oral	Y	N	N	Y
2250B	Medicine Thornton	MODERATE	enoxaparin (LOVENOX) injection 30 mg	30 mg DAILY Subcutaneous	Y	N	N	N
2251	Medicine Thornton	MODERATE	heparin injection 5,000 Units	5000 Units EVERY 12 HOURS Su	Y	N	N	N
2252	Cardiothoracic Surgery	MODERATE/HIGH	No Anticoag Med	No Anticoag Dose	Y	Y	N	Y
2253	Medicine Thornton	MODERATE	enoxaparin (LOVENOX) injection 40 mg	40 mg DAILY Subcutaneous	Y	Y	N	N
2254	Medicine Thornton	MODERATE	heparin injection 5,000 Units	5000 Units EVERY 8 HOURS Sub	Y	N	N	N
2255	Medicine Thornton	MODERATE	heparin injection 5,000 Units	5000 Units EVERY 12 HOURS Su	Y	N	N	N
2256A	Medicine Thornton	MODERATE	enoxaparin (LOVENOX) injection 40 mg	40 mg DAILY Subcutaneous	Y	N	N	N
2256B	Pulmonary Vascular Medicine	MODERATE/HIGH	enoxaparin (LOVENOX) injection 50 mg	50 mg EVERY 12 HOURS Subcut	Y	Y	N	N
2257A	Medicine Thornton	MODERATE	enoxaparin (LOVENOX) injection 40 mg	40 mg DAILY Subcutaneous	Y	N	N	N
2257B	Gynecology	MODERATE/HIGH	No Anticoag Med	No Anticoag Dose	Y	Y	N	N
2258	Medicine Thornton	MODERATE	enoxaparin (LOVENOX) injection 30 mg	30 mg DAILY Subcutaneous	Y	N	N	Y
2259	Medicine Thornton	MODERATE	No Anticoag Med	No Anticoag Dose	Y	N	N	N
2260	Pulmonary/Critical Care	LOW	No Anticoag Med	No Anticoag Dose	N	N	N	Y
2261	Medicine Thornton	MODERATE/HIGH	No Anticoag Med	No Anticoag Dose	Y	Y	N	N
2262A	Medicine Thornton	LOW	enoxaparin (LOVENOX) injection 40 mg	40 mg DAILY Subcutaneous	Y	N	N	Y
2262B	Medicine Thornton	MODERATE	enoxaparin (LOVENOX) injection 40 mg	40 mg DAILY Subcutaneous	Y	N	N	N
2263	Medicine Thornton	MODERATE/HIGH	No Anticoag Med	No Anticoag Dose	Y	Y	N	N
2264	Pulmonary Vascular Medicine	MODERATE	warfarin (COUMADIN) tablet 5 mg	5 mg EVERY EVENING Oral	Y	Y	N	Y
2265	Pulmonary Vascular Medicine	LOW	heparin injection 5,000 Units	5000 Units EVERY 8 HOURS Sub	Y	N	N	Y
2265	Pulmonary Vascular Medicine	LOW	warfarin (COUMADIN) tablet 10 mg	10 mg EVERY EVENING Oral	Y	N	N	Y
2266	Medicine Thornton	MODERATE	heparin injection 5,000 Units	5000 Units EVERY 8 HOURS Sub	Y	N	N	N
2267	Pulmonary Vascular Medicine	HIGH	enoxaparin (LOVENOX) injection 100 mg	100 mg EVERY 12 HOURS Subcu	Y	Y	N	Y
2268	Cardiothoracic Surgery	LOW	enoxaparin (LOVENOX) injection 40 mg	40 mg DAILY Subcutaneous	Y	N	N	Y
2269	Cardiothoracic Surgery	No Risk Category	No Anticoag Med	No Anticoag Dose	N	N	N	N
2270	Cardiothoracic Surgery	No Risk Category	No Anticoag Med	No Anticoag Dose	N	N	N	N
2271	Medicine Thornton	MODERATE	heparin injection 5,000 Units	5000 Units EVERY 12 HOURS Su	Y	N	N	N
2272	Pulmonary Vascular Medicine	HIGH	fondaparinux (ARIXTRA) injection 7.5 mg	7.5 mg DAILY Subcutaneous	Y	Y	N	Y

AC + Mech	186
AC + Mech %	54.2%
AC Only	2
AC Only %	0.6%
Mech Only + Contra	30
Mech Only + Contra %	8.7%
Mech Only	113
Mech Only %	32.9%
Nothing + Contra	0
Nothing + Contra %	0.0%
Nothing	12
Nothing %	3.5%
Contra	30
Contra %	8.7%
Non-Compliant + INR >= 2.0	12
Non-Compliant + INR >= 2.0 %	7.7%
Non-Compliant + Plt Count < 50,000	18
Non-Compliant + Plt Count < 50,000 %	11.6%
Non-Compliant + HgB < 8.0	2
Non-Compliant + HgB < 8.0 %	1.3%
Low	53
Low %	15.5%
Moderate	275
Moderate %	80.2%
High	11
High %	3.2%
No Risk Category	4
No Risk Category %	1.2%
Denominator	343

Summary Report from one day


UCSD VTE Prophylaxis Adherence - All Service Lines
3/1/2011 - 8/31/2011
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
65.9%
71.2%
68.2%
67.8%
70.2%
67.6%
68.5%
21.6%
19.2%
21.9%
23.7%
21.9%
23.5%
21.9%
5.0%
2.5%
0.3%
4.7%
3.2%
1.9%
0.2%
4.4%
3.5%
2.3%
0.5%
3.7%
2.7%
1.8%
0.1%
4.0%
2.9%
1.6%
0.2%
3.2%
1.8%
2.5%
0.2%
4.3%
3.2%
2.1%
0.3%
4.1%
March
April
May
June
July
August
Grand Total
AC Only
AC + Mech
Mech Only
Mech Only + Contra
Nothing + Contra
Nothing


UCSD VTE Prophylaxis Adherence - Medicine Service Lines
3/1/2011 - 8/31/2011
March
0.6%
0.0%
4.0%
14.9%
77.7%
2.7%
April
0.4%
0.0%
2.0%
12.1%
83.9%
1.5%
May
0.5%
0.0%
2.7%
12.2%
81.2%
3.4%
June
0.6%
0.2%
1.5%
15.5%
79.8%
2.4%
July
0.4%
0.3%
2.1%
12.7%
84.0%
0.5%
August
0.3%
0.0%
3.4%
14.9%
80.4%
1.1%
Grand Total
0.5%
0.1%
2.6%
13.7%
81.2%
1.9%
0.0%
10.0%
20.0%
30.0%
40.0%
50.0%
60.0%
70.0%
80.0%
90.0%
Nothing
Nothing + Contra
Mech Only + Contra
Mech Only
AC + Mech
AC Only

Digging Deeper on "Yellow" Patients

Is patient low risk?

- Ambulating Independently with 0-1 VTE Risk Factors
- Expected LOS <48 hours
- Minor Surgery with NO VTE Risk Factors

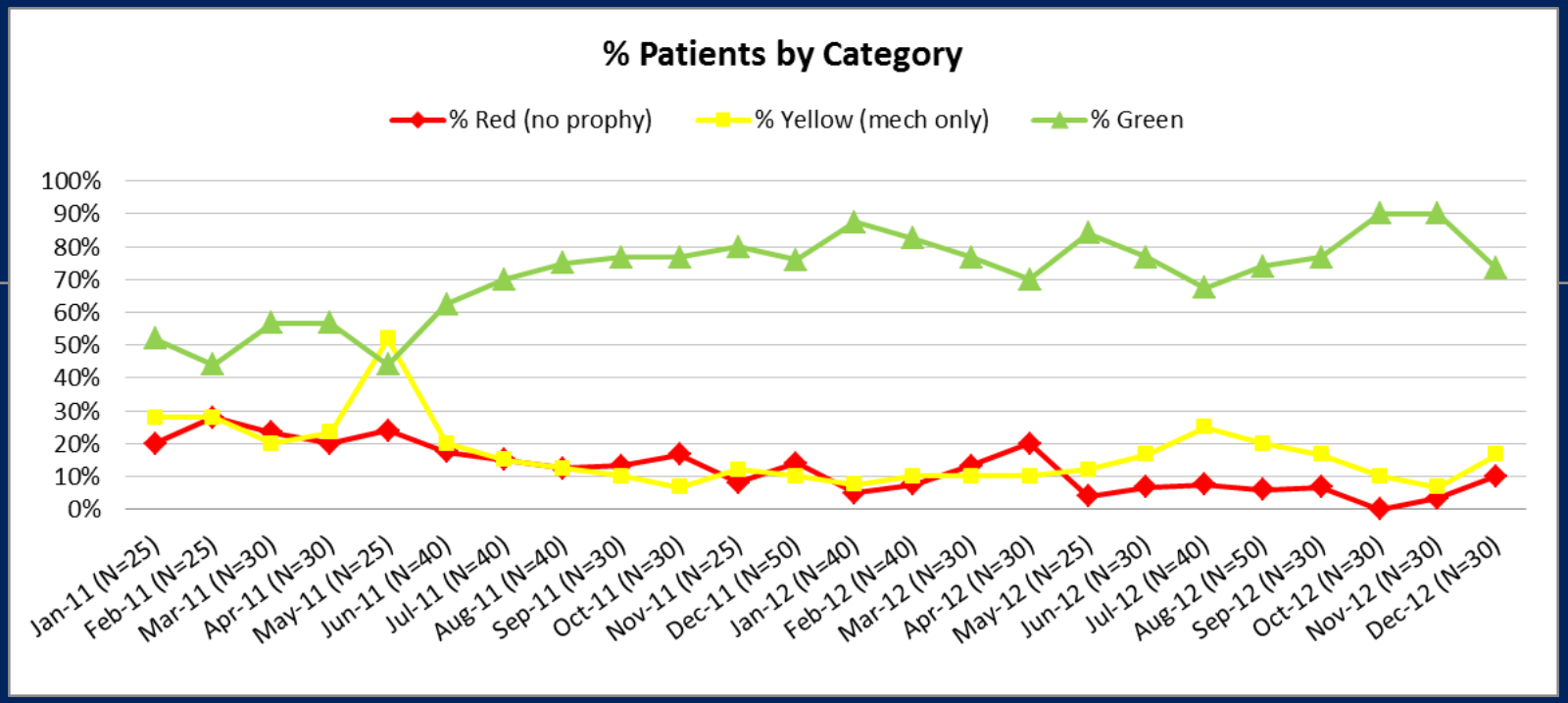
✓ *If yes, prophylaxis adequate, if no…..*

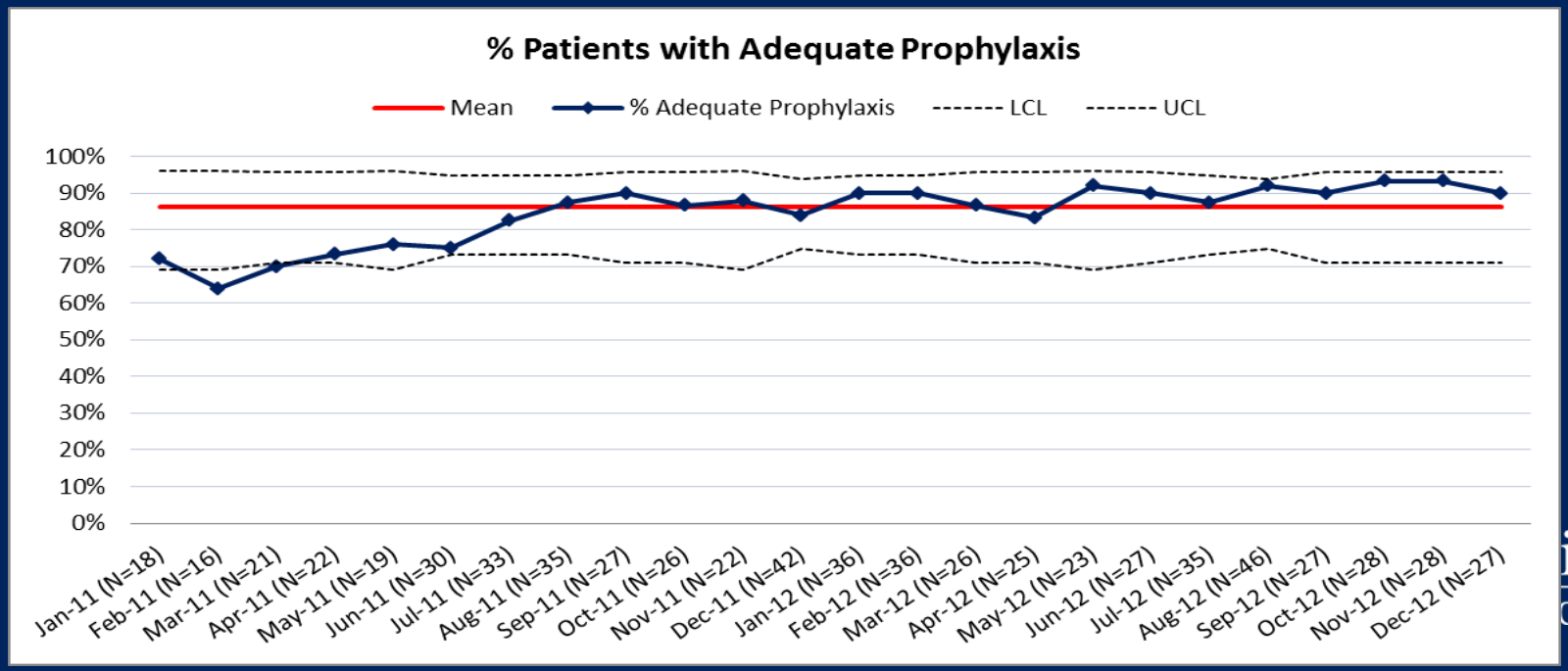
Obvious contraindication to pharmacologic prophylaxis?

- Active hemorrhage now or within last 3 days
- Post operative bleeding concerns
- Platelet count < 50,000 Units
- INR > 1.8
- Known bleeding disorder, post op bleeding high risk
- Hgb < 8.0 g/dL
- Concern over CNS bleeding (brain or spinal cord surgery in last week, recent intracranial hemorrhage, proximity in time to epidural insertion or removal, for example)
- Hypertensive urgency / emergency
- Comfort care only patient

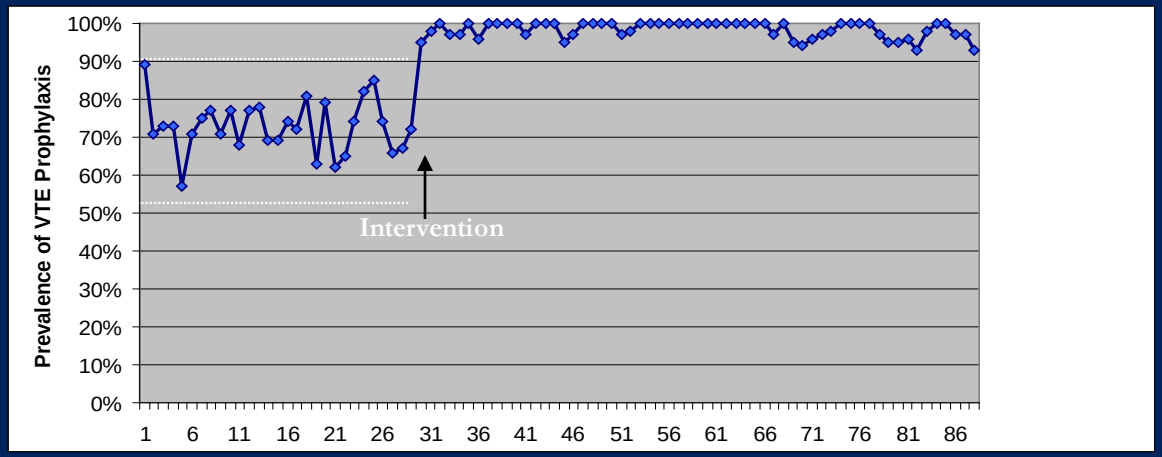
✓ *If yes, mechanical prophylaxis alone adequate, if no, prophylaxis inadequate*

UC San Diego
HEALTH SCIENCES


% Patients by Category
% Red (no prophy)
% Yellow (mech only)
% Green
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-11 (N=25)
Feb-11 (N=25)
Mar-11 (N=30)
Apr-11 (N=30)
May-11 (N=25)
Jun-11 (N=40)
Jul-11 (N=40)
Aug-11 (N=40)
Sep-11 (N=30)
Oct-11 (N=30)
Nov-11 (N=25)
Dec-11 (N=50)
Jan-12 (N=40)
Feb-12 (N=40)
Mar-12 (N=30)
Apr-12 (N=30)
May-12 (N=25)
Jun-12 (N=30)
Jul-12 (N=40)
Aug-12 (N=50)
Sep-12 (N=30)
Oct-12 (N=30)
Nov-12 (N=30)
Dec-12 (N=30)

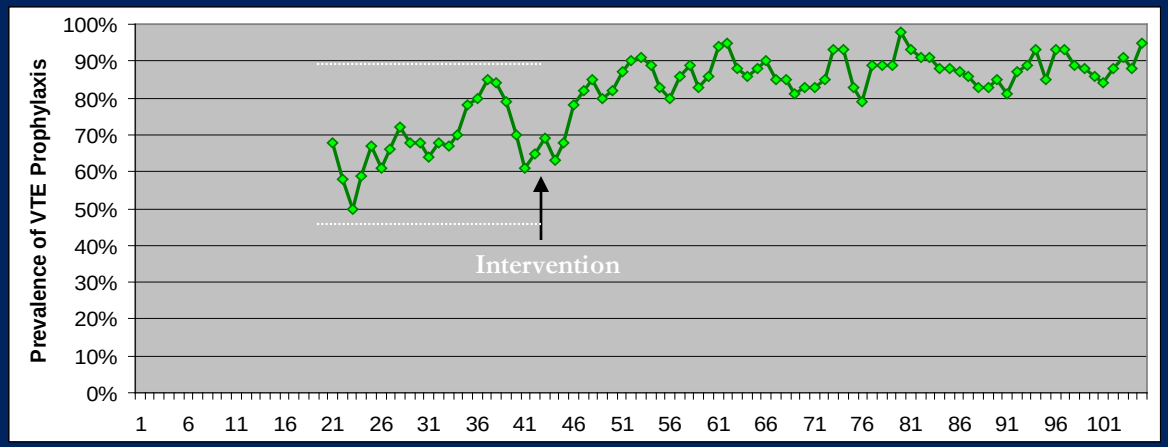

% Patients with Adequate Prophylaxis
Mean
% Adequate Prophylaxis
LCL
UCL
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-11 (N=18)
Feb-11 (N=16)
Mar-11 (N=21)
Apr-11 (N=22)
May-11 (N=19)
Jun-11 (N=30)
Jul-11 (N=33)
Aug-11 (N=35)
Sep-11 (N=27)
Oct-11 (N=26)
Nov-11 (N=22)
Dec-11 (N=42)
Jan-12 (N=36)
Feb-12 (N=36)
Mar-12 (N=26)
Apr-12 (N=25)
May-12 (N=23)
Jun-12 (N=27)
Jul-12 (N=35)
Aug-12 (N=46)
Sep-12 (N=27)
Oct-12 (N=28)
Nov-12 (N=28)
Dec-12 (N=27)

Effect of Situational Awareness on Prevalence of VTE Prophylaxis by Nursing Unit



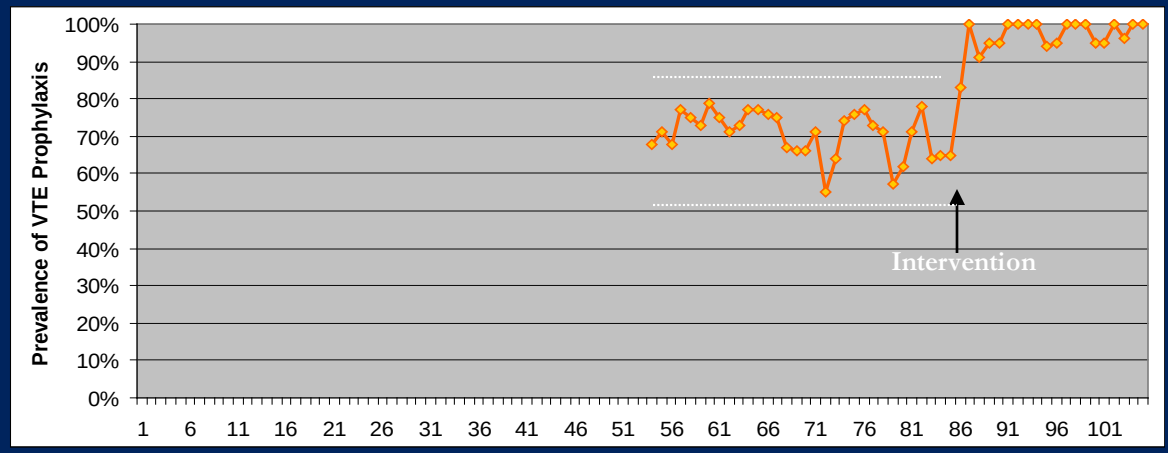
Hospital A, 1st Nursing Unit

	Baseline	Post-Intervention	
UCL:	93%	104%	
Mean:	**73%**	**99%**	**(p < 0.01)**
LCL:	53%	93%	



Hospital A, 2nd Nursing Unit

	Baseline	Post-Intervention	
UCL:	90%	102%	
Mean:	**68%**	**87%**	**(p < 0.01)**
LCL:	46%	72%	



Hospital B, 1st Nursing Unit

	Baseline	Post-Intervention	
UCL:	89%	108%	
Mean:	**71%**	**98%**	**(p < 0.01)**
LCL:	53%	88%	

UCL = Upper Control Limit
LCL = Lower Control Limit

Key Points - Recommendations

- VTE protocols embedded in order sets
- Simple risk stratification schema, based on VTE-risk groups (2-3 levels of risk should do it)
- Institution-wide if possible (a few carve outs ok)
- Local modification is OK
  - Details in gray areas not that important
- Simple measures for adequate VTE prophylaxis
  - More detail on selected patients
- Use measure-vention to accelerate improvement
- Join a collaborative effort

Maynard G, Stein J. Designing and Implementing Effective VTE Prevention Protocols: Lessons from Collaboratives. J Thromb Thrombolysis 2010 Feb:29(2):159-166.

Preventing VTE: Implementation and Auditing Strategies

Dr. David Wilton Md. MSc. CCFP, FHM
VTE Prevention Clinical Lead, BCPSQC

January 17, 2012

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together Accelerating Improvement

Key Steps in VTE Implementation

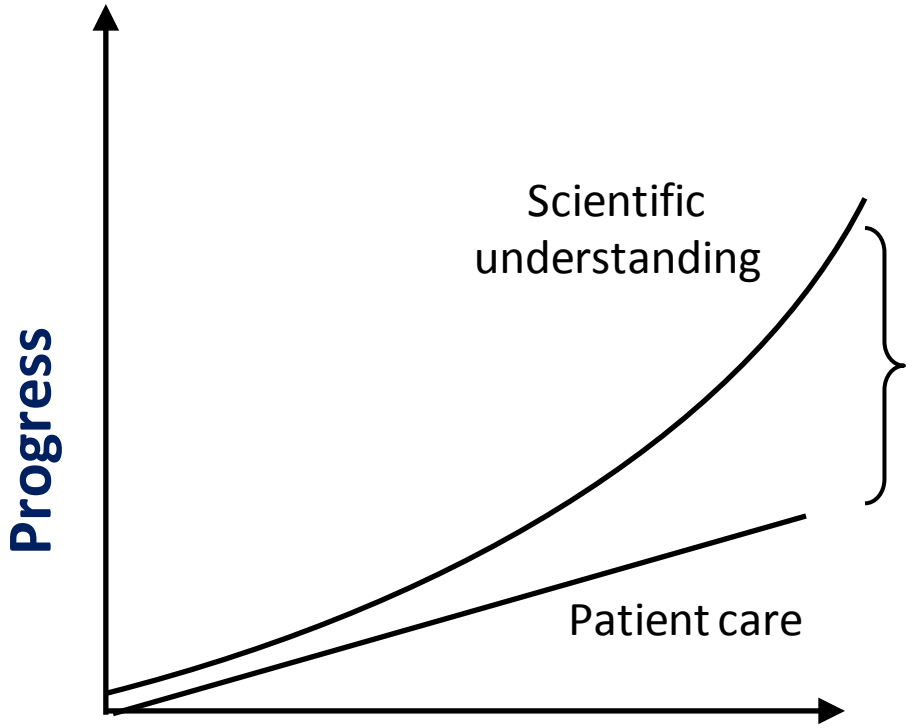
1) **Define the problem**
2) Assemble a team
3) Identify key stakeholders
4) Set goals and timeline
5) Define the standard of care – regional policy
6) **QI intervention - VTE protocol**
7) **Performance tracking**
8) **Continue to improve**

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Define the problem

- Hospital Acquired VTE is relatively common (2700/yr BC)
- The clinical consequence of HA VTE is severe
- Safe and cost effective means to prevent HA VTE exist
- Despite this, there is a significant gap between clinical and best practice

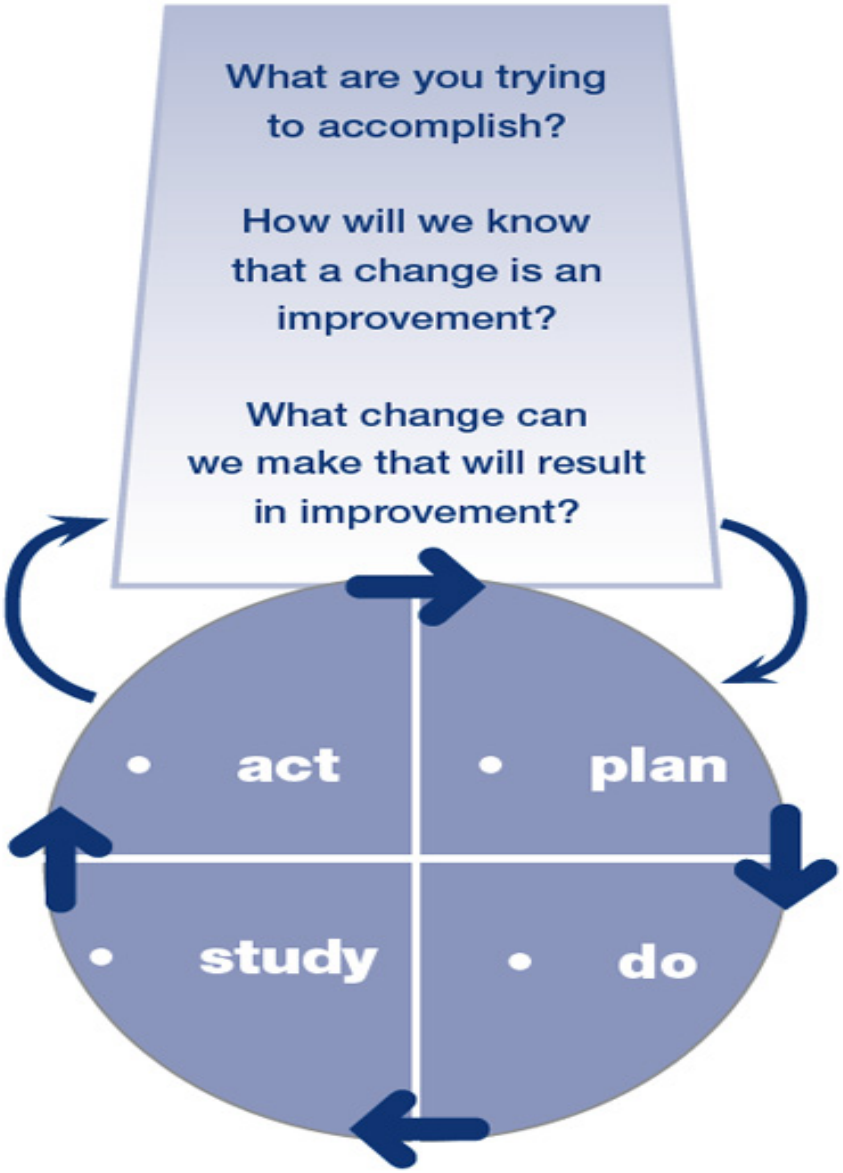
BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.



Implementation Gap

Quality Improvement Initiatives help close the implementation gap.

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.



IHI Model For Improvement

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

6) QI intervention - VTE Protocol in PPO's

- Decision support at the point of care
- Standardized VTE risk assessment
- Linked menu of appropriate prophylaxis options
- Contraindications to pharmacologic prophylaxis
    - Listed with check box for ease of auditing
- Embedded (preferred) in work flow or Stand Alone PPO

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Patient Weight: _____ kg Platelet count: _____ x 10^9/L on (Date): _____

Refer to VTE Risk Assessment and Thromboprophylaxis Recommendations on reverse

RISK ASSESSMENT:

- ☐ Low risk: Early ambulation; no anticoagulant or mechanical prophylaxis
- ☐ Moderate or High risk: Order anticoagulant prophylaxis unless contraindicated

CONTRAINDICATION(S) TO ANTICOAGULANT PROPHYLAXIS (check all that apply):

- ☐ Active bleeding of clinical significance requiring intervention
- ☐ High risk of serious bleeding or bleeding into a critical site (e.g. intracranial, intraspinal, pericardial, intraocular, retroperitoneal, intra-articular)
- ☐ Known major bleeding disorder or acquired coagulopathy (consider Hematology consult)
- ☐ Platelet count less than 50 x 10^9/L (consider Hematology consult)
- ☐ History of heparin-induced thrombocytopenia (HIT) see Footnotes and Precaution 7 on reverse
- ☐ Patient already receiving therapeutic anticoagulation

Other contraindication (specify): _____

Reassess daily to start anticoagulant prophylaxis when contraindication resolves

ANTICOAGULANT PROPHYLAXIS: see Footnotes and Precautions 6 to 9 on reverse

- ☐ dalteparin 5000 units subcutaneous daily at 18:00 until discharge ***OR***
- ☐ for patients with severe renal impairment, heparin 5000 units subcutaneous Q12H until discharge ***OR***

Other: _____

Reason: _____

MECHANICAL PROPHYLAXIS: (only when anticoagulant prophylaxis contraindicated)

- ☐ Calf-length graduated compression stockings (GCS)
- ☐ Sequential compression device (SCD)
- ☐ Mechanical prophylaxis contraindicated (see back for list of contraindications)

Apply to lower limb(s) continuously until anticoagulant prophylaxis starts or discharge

Interrupt for skin care, assessments, toileting and ambulation only

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

VTE RISK ASSESSMENT AND THROMBOPROPHYLAXIS RECOMMENDATION

Patient Risk Groups (satisfaction of any one or more of the listed criteria)	Thromboprophylaxis Recommended
Low Risk Group • Day surgery[1] without any VTE risk factors (see below) • No reduction in mobility compared to usual state • Surgical procedure with a total anesthetic and surgical time of less than 60 minutes with no risk factors for VTE (see below)	Early ambulation
Moderate or High Risk Group • Any medical or surgical patient having had or are expected to have significantly reduced mobility for 3 days or more[2,3] • Medical patients with ongoing reduced mobility (compared to their usual state) AND have one or more risk factors for VTE (see below)[2,3] • Surgical procedure with a total anesthetic and surgical time of 60 minutes or longer[3-6] • Acute surgical admission with an inflammatory or intra-abdominal condition[3-6] • Surgical patients with one or more risk factors for VTE (see below)[3-6]	LMWH (heparin if eGFR less than 10 mL/min)[4-9]

Obstetrical Patients with Increased Risk
• Having one or more risk factors for VTE (see below)
• Pregnancy-related risk factors:
  • Ovarian hyperstimulation
  • Hyperemesis gravidarum
  • Multiple pregnancy
  • Preeclampsia
  • Emergency caesarean section
	Consider LMWH
	(heparin if eGFR less than 10 mL/min)[4-9]

RISK FACTORS FOR VTE

- Age 60 years or over
- Active cancer and cancer treatment
- Previous VTE
- Critical Care admission
- Obesity (BMI over 30 kg/m^2)
- Known thrombophilia
- First degree relative with VTE
- Varicose veins with phlebitis
- Estrogen-containing oral contraception
- Hormone replacement therapy

One or more significant medical conditions:

- Sepsis or severe acute infection
- Heart disease
- Respiratory pathology
- Inflammatory condition
- Rheumatological disease
- Nephrotic syndrome
- Antiphospholipid syndrome

CONTRAINDICATIONS FOR MECHANICAL PROPHYLAXIS

- Acute stroke with immobility (unable to walk independently to the toilet)
- Peripheral vascular disease with absent pedal pulses
- Severe peripheral neuropathy
- Skin breakdown, ulcers, gangrene, cellulitis, or dermatitis
- Skin grafting within last 3 months
- Allergy to stocking or compression cuff materials
- Unable to size or apply properly due to deformity, recent surgery or trauma

❑Low Risk (Must be independently ambulatory outside of room 3 times daily) Observation patients, expected LOS less than 48 hrs: Minor/Ambulatory surgery or Age less than 50 and NO other risk factors, or already on therapeutic anticoagulation	❑Early ambulation, education
❑Moderate to High Risk Most medical or surgical patients CHF, pneumonia, active inflammation, advanced age, dehydration, varicose veins, less than fully and independently ambulatory, and other risk factors. All patients not in the Low or Highest Risk Categories	CHOOSE ONE pharmacologic option: ❑ DALTEPARIN 5000 units SC q24h until discharge ∗OR∗ If weight less than 40 kg (except patients with active cancer or previous thromboembolic event): ❑ DALTEPARIN 2500 units SC q24h) until discharge ∗OR∗ **If GFR Less than 10ml/min** ❑HEPARIN 5000 units subcutaneous q12h until discharge
❑Contraindication to Pharmacologic Prophylaxis ❑ Active bleeding of clinical significance ❑ High risk of serious bleeding into a critical site (intracranial, spinal, pericardial, intraocular, retroperitoneal, intra-articular) ❑ Known major bleeding disorder or a coagulopathy ❑ Platelet count less than 50 X 109/L ❑ History of Heparin Induced Thrombocytopenia ❑ Already on Therapeutic Anticoagulation ❑ Other(specify)_____	❑Mechanical prophylaxis with sequential compression device. Interrupt for skin care, assessments, toileting and ambulation only ∗OR∗ ❑Contraindicated (peripheral vascular disease or wounds) Reassess daily to start pharmacologic prophylaxis when contraindication resolves ∗OR∗ ❑No further intervention indicated. Reassess daily to start pharmacologic prophylaxis when contraindication resolves

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Protocol Implementation

- Engage physician services, program by program
- Ideally protocol is embedded in MD service PPO
- In some cases a regional stand alone PPO can be helpful
- Start with high volume and high risk populations

- PPO can streamline their work and improve the quality of care they provide.

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

7) Performance tracking

"You need to know where you are in order to know where you are going"

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Why Audit ?

- Identify gaps between evidence and practice
- Provide data to analyze and improve care process
- Provide feedback to front line care providers
- **Drive change in practice**

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Typical VTE Measures

- Process
  - PPO Use
  - Mechanical prophylaxis use
  - **Appropriate VTE Prophylaxis**
- Outcome
  - Hospital Acquired VTE
  - Potentially Preventable VTE
  - Mortality
- Balance
  - Clinically relevant bleeding

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

CCM process measure

% of adult patients receiving appropriate VTE prophylaxis

- 'Appropriate' as defined by 2008 ACCP Guidelines
- Process measure that is the sum result of multiple care processes
- Improvement linked to better patient outcomes

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Audit Methodology – CCM report

Prospective chart review (patient still on unit)

- Advantages:
  - Snapshot in time capturing composite of all care processes
  - Ability to see rapid results for QI efforts – PDSA cycles
  - Engages and motivates staff
  - Allows for rapid patient intervention (measurevention)
  - Associated with increasing prophylaxis rates to 98%[1]

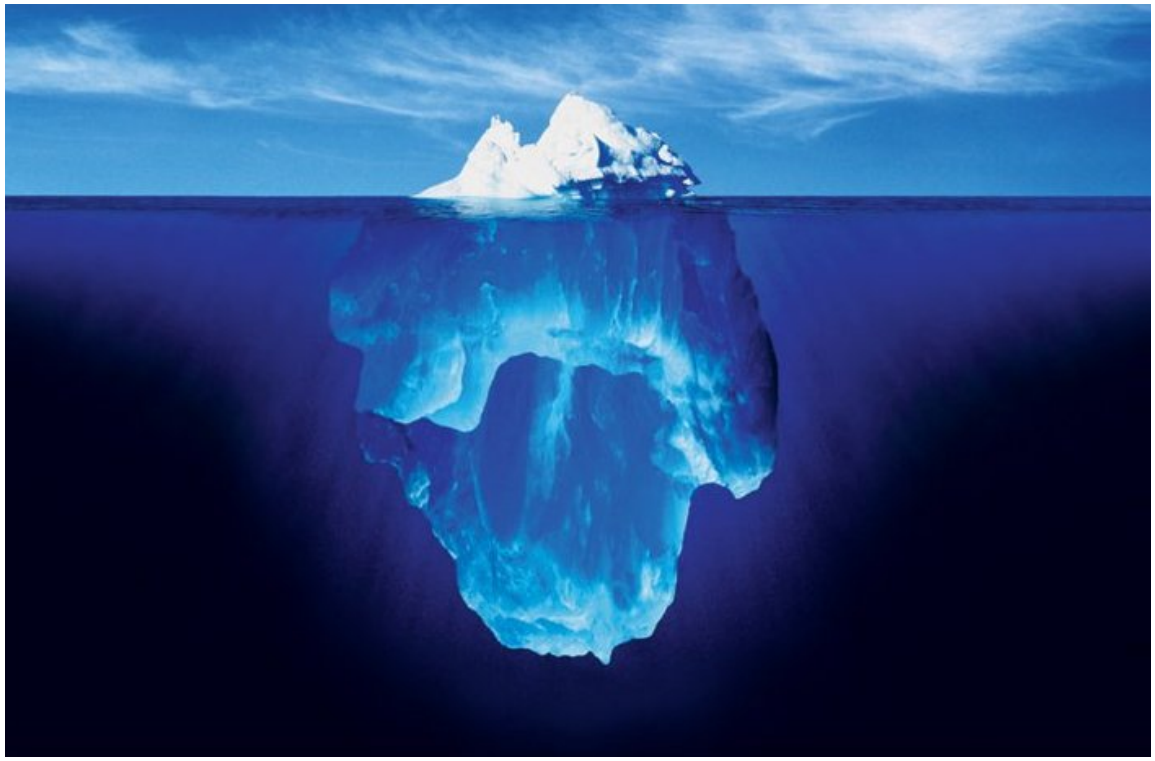
1. Maynard GA, Morris TA, Jenkins IH, Stone S, et al. Optimizing prevention of hospital-acquired venous thromboembolim (VTE): Prospective validation of a VTE risk assessment model. J Hosp Med 2010;5:10-18.

Sampling strategy – ccm report

- Less than 100 bed hospitals – 100%/period
- Greater than 100 bed hospitals – 100 charts/period
- Stratified by
  - Medical, surgical, critical care patients
  - proportionate distribution – try to remain consistent period to period
- Exclusions:
  - < 17 years, length of stay < 2 days, patients on ‘comfort care’, obstetrical, long-term care beds

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

The CCM report is only a small part of a successful improvement strategy



BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Who can do the audit ?

- Nurses, pharmacists, pharmacy students, physicians, medical students, research or QI personnel, other health workers

- **Engage front line it can be instructive, motivational and sustainable**

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Audit tool

- Mirror VTE protocol
- Provides decision support
- Consistent with regional policy or evidence based guidelines

Audit Outline

- Does the patient meet exclusion criteria?
- Is the patient low risk for VTE?
- Does the patient have a contraindication to pharmacologic prophylaxis?
- Does the patient meet exclusion criteria for mechanical prophylaxis ?
- Is the patient on appropriate pharmacologic prophylaxis or is mechanical prophylaxis being used properly ?

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

❑Low Risk (Must be independently ambulatory outside of room 3 times daily) Observation patients, expected LOS less than 48 hrs: Minor/Ambulatory surgery or Age less than 50 and NO other risk factors, or already on therapeutic anticoagulation	❑Early ambulation, education
❑Moderate to High Risk Most medical or surgical patients CHF, pneumonia, active inflammation, advanced age, dehydration, varicose veins, less than fully and independently ambulatory, and other risk factors. All patients not in the Low or Highest Risk Categories ❑Add Serial Compression Device for Highest Risk Patients Elective hip or knee arthroplasty, Multiple Trauma, Abdominal or Pelvic surgery for cancer, Acute spinal cord injury)	CHOOSE ONE pharmacologic option: ❑ LMH (DALTEPARIN 5000 units OR ENOXAPARIN 40MG SC q24h) until discharge ∗OR∗ If weight less than 40 kg (except patients with active cancer or previous thromboembolic event): ❑LMWH (DALTEPARIN 2500 units SC OR ENOXAPARIN 30 mg q24h) until discharge ❑∗OR∗ **If GFR Less than 10ml/min** ❑HEPARIN 5000 units subcutaneous q12h until discharge
❑Contraindication to Pharmacologic Prophylaxis ❑ Active bleeding of clinical significance ❑ High risk of serious bleeding into a critical site (intracranial, intraspinal, pericardial, intraocular, retroperitoneal, intra-articular) ❑ Known major bleeding disorder or a coagulopathy ❑ Platelet count less than 50 X 109/L ❑ History of Heparin Induced Thrombocytopenia ❑ Already on Therapeutic Anticoagulation ❑ Other (specify)_____	❑Mechanical prophylaxis with sequential compression device. Interrupt for skin care, assessments, toileting and ambulation only Reassess daily to start pharmacologic prophylaxis when contraindication resolves ∗OR∗ ❑Contraindicated (peripheral vascular disease or wounds) Reassess daily to start pharmacologic prophylaxis when contraindication resolves ∗OR∗ ❑No further intervention indicated

Pre-printed Admission Order Set Used	Y	N
Pharmacologic Prophylaxis Currently Ordered	Y	N
Mechanical Prophylaxis Ordered	Y	N
Mechanical Prophylaxis in Use at Time of Audit	Y	N
Current Prophylaxis is Appropriate (as per risk assessment tool)	**Y**	**N**

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

VTE Prophylaxis Audit Data Collection Form

Site: _____
Unit: _____
Unit Description: _____
Primary Unit: _____
Month/Year of Audit: _____

*We recommend **NOT** using actual Patient ID numbers. Please review explanations and definitions on reverse of form*

			Please answer 1 and 2 if no Mechanical prophylaxis; Please answer 1-3 if no Pharmacologic or Mechanical prophylaxis				
Patient ID	**Pharmacologic Prophylaxis?**	**Mechanical Prophylaxis?**	**1. Low Risk?**	**2. Pharmacologic Contraindication?**	**3. Mechanical Contraindication?**	**Category**	**Adequate Prophylaxis?**
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Definitions & Explanations

Categories:

Green = on pharmacologic alone or with mechanical

Yellow = on Mechanical only

Red = on nothing

Low risk:

Is the patient low risk?

- Ambulating Independently with 0-1 Risk Factors
- Expected LOS <48 hours
- Minor Surgery with NO Risk Factors

Pharmacologic Contraindicated:

Does patient have any obvious contraindication to pharmacologic prophylaxis?

• Does patient have any obvious contraindication to pharmacologic prophylaxis?

Active hemorrhage now or within last 3 days

Post operative bleeding concerns (within 24 hours for most surgeries: within 48 hours of transplant surgery or major trauma)

Platelet count under 50,000: INR > 1.8 : Known bleeding disorder: Hgb < 8.0

Concern over CNS bleeding (brain or spinal cord surgery in last week, recent intracranial hemorrhage, proximity in time to epidural insertion or removal, for example)

Hypertensive urgency / emergency

Comfort care only patient

Mechanical Contraindicated:

Does patient have any obvious contraindication to mechanical prophylaxis?

Does patient have any obvious contraindication to mechanical prophylaxis?

Documented refusal

Peripheral arterial disease / ischemia of the lower extremities

Open wounds / ulcerations of both lower extremities

Other

Adequate Prophylaxis:

A patient has "adequate VTE Prophylaxis" if they are:

Green

OR Yellow AND Question 1 response is "yes" OR if Question 1 reply is "no" AND Question 2 is "yes"

OR Red AND Question 1 response is "yes" OR if Question 1 reply is "no" AND BOTH Question 2 and 3 are "yes"

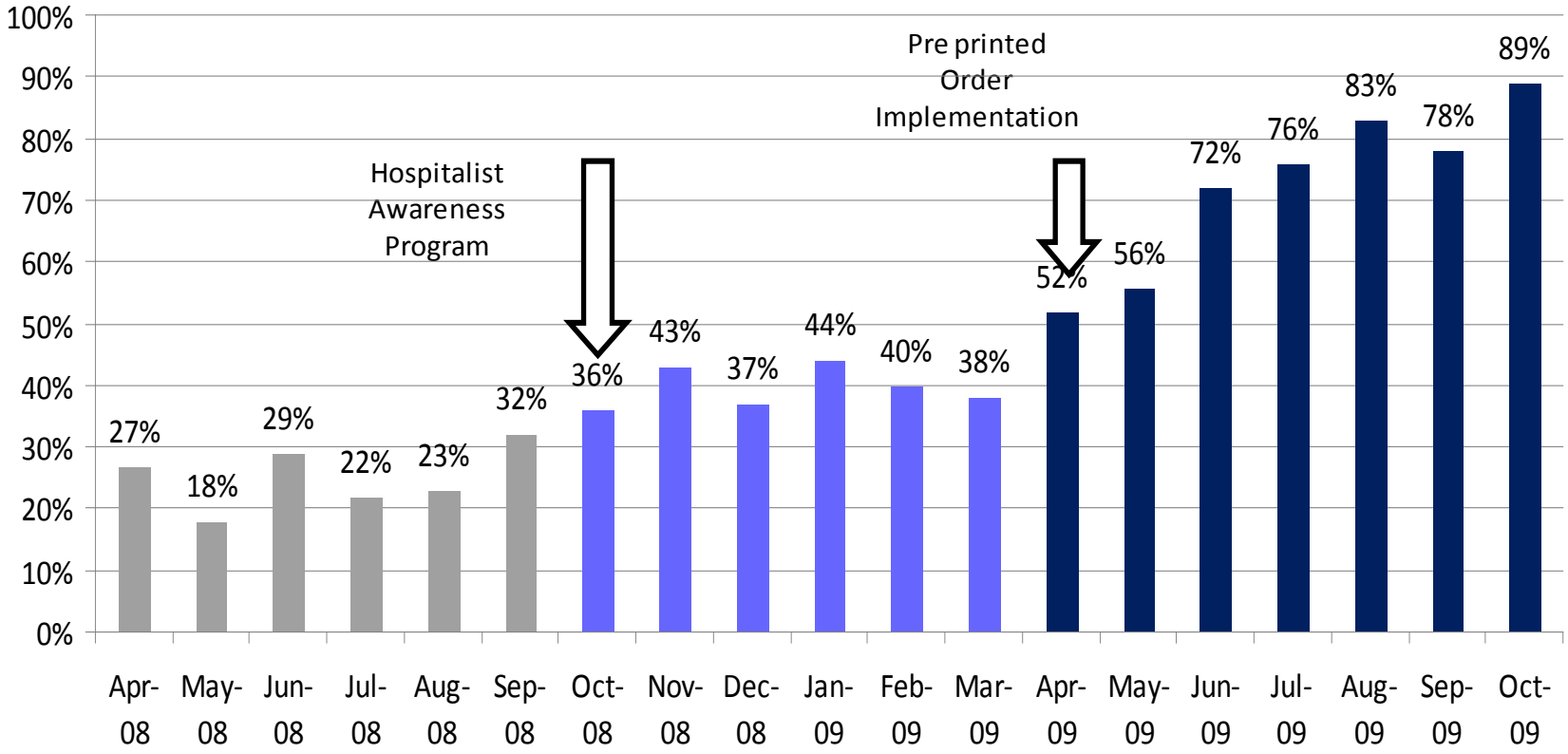
BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

Dissemination

- For audit results to drive change they must be shared with stakeholders
  - Break data down by hospital, service, ward
  - Discuss results with medical directors, front line nursing, hospital administration…draw conclusions and target your message.
  - Consider posting results on the wards, web site, newsletter
  - Use run charts to show historical performance and incremental improvement

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

VTE Prophylaxis Compliance %



Compliance rate increased from a baseline of 27% to 89%

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

…..but timely mentoring can make the real life experience go a lot more smoothly.

BC PATIENT SAFETY & QUALITY COUNCIL
Working Together. Accelerating Improvement.

VTE Virtual Learning Series:

Dec 1 10-11am:	**Preventing VTE: Evidence and Execution**
Jan 17 2-3pm:	**Preventing VTE: Implementation and Auditing Strategies**
Feb 14 1:30-2:30pm:	**ROPs for VTE: Educating Nurses and Caregivers**

Quality Improvement Resources:

http://www.impactbc.ca/

clinical care management
Quality Healthcare. Together.

clinical care management
Quality Healthcare. Together.

www.clinicalcaremanagement.ca