

Optimal Prevention of Hospital Acquired VTE

Validation of a VTE Risk Assessment Model

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Services



- 2005 – AHRQ grant to:
 - Design and implement VTE prevention protocol
 - Monitor impact on VTE prophylaxis and HA VTE
 - Validate a VTE risk assessment model / protocol

Attempt to use portable methodology, build toolkit to
allow others to accomplish the same thing



UCSD VTE Prevention Project

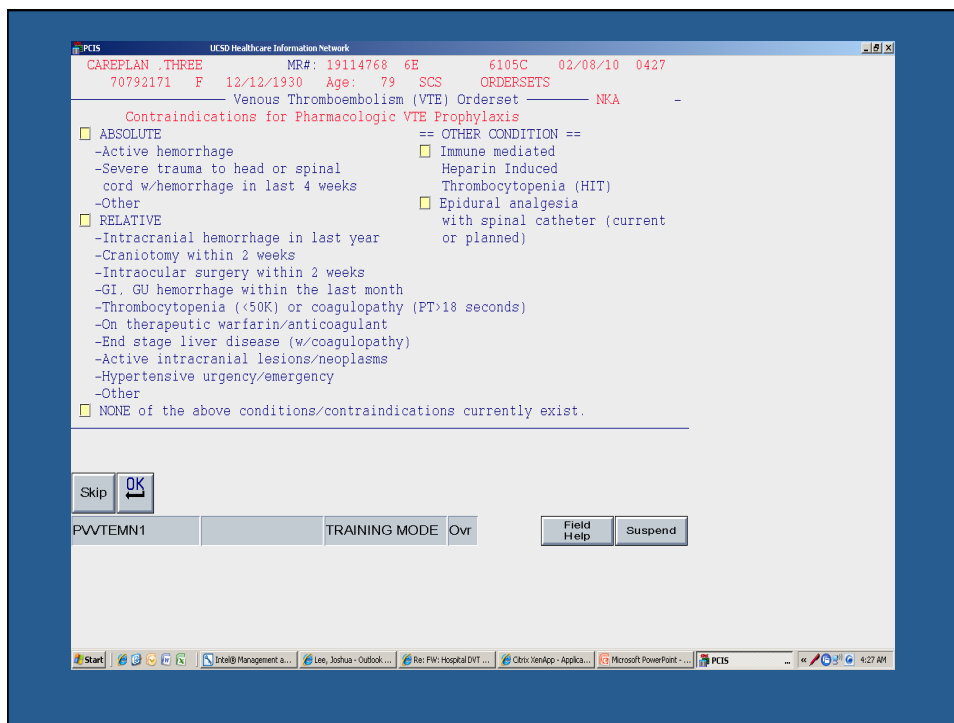
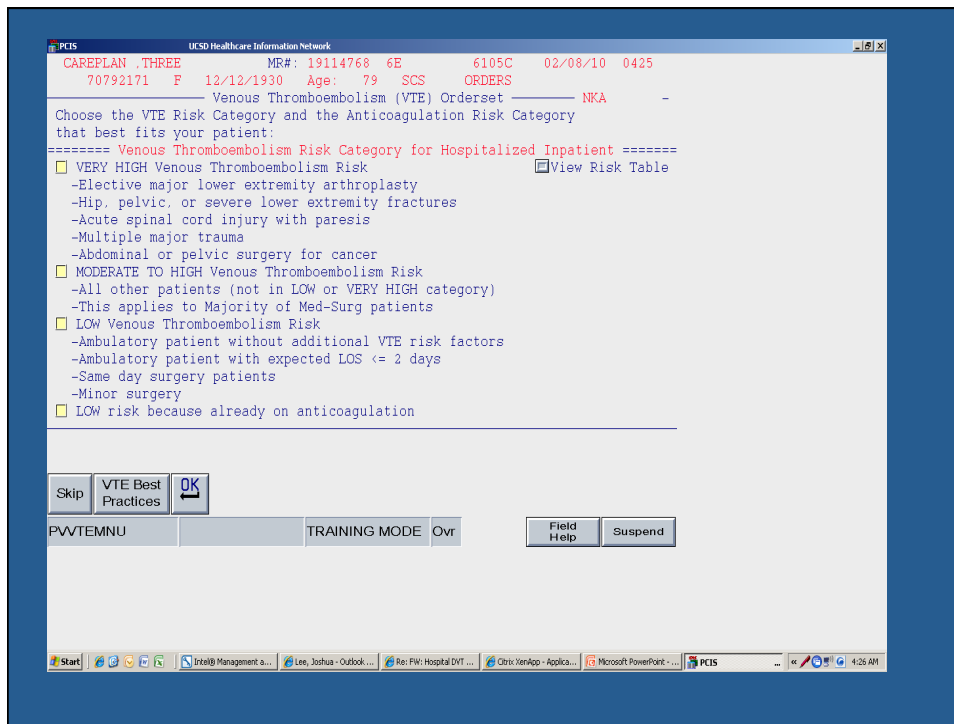
Scope - All adult med / surg inpatients

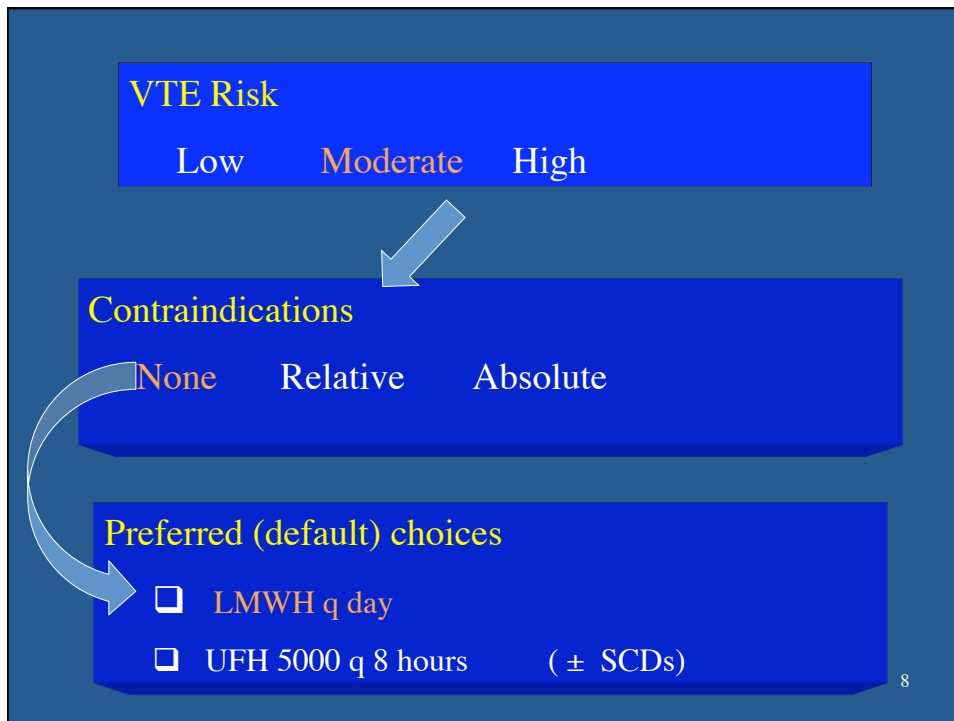
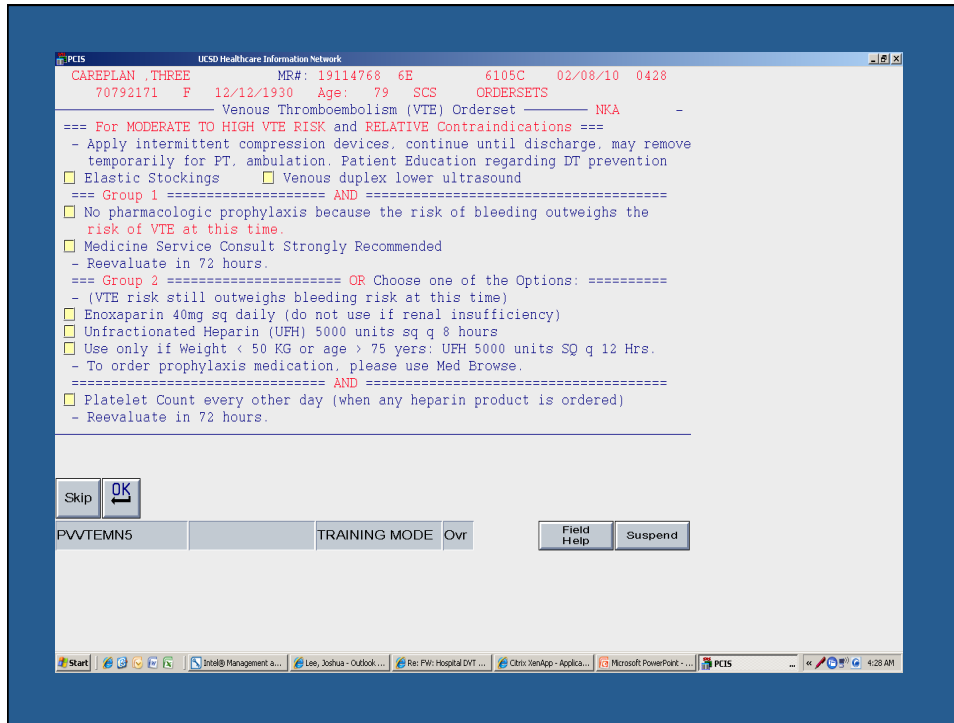
Impact of Improvement Efforts on:

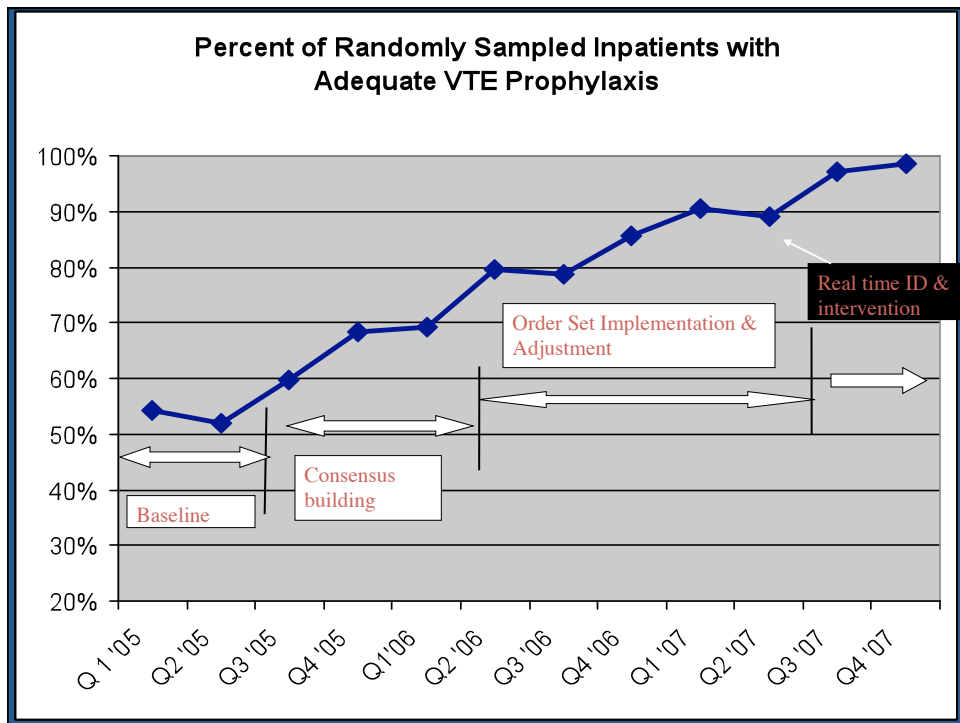
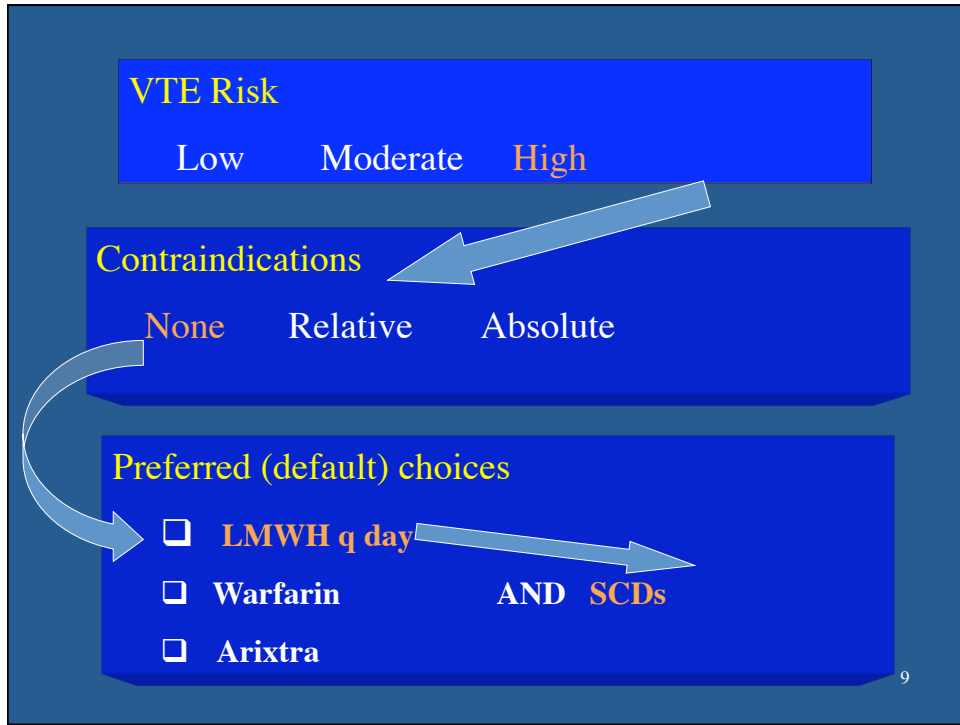
- % on adequate prophylaxis per protocol, assessed by longitudinal evaluation of randomly sampled inpatients
- Hospital acquired VTE, concurrently discovered
- HIT and bleeding due to pharm prophylaxis

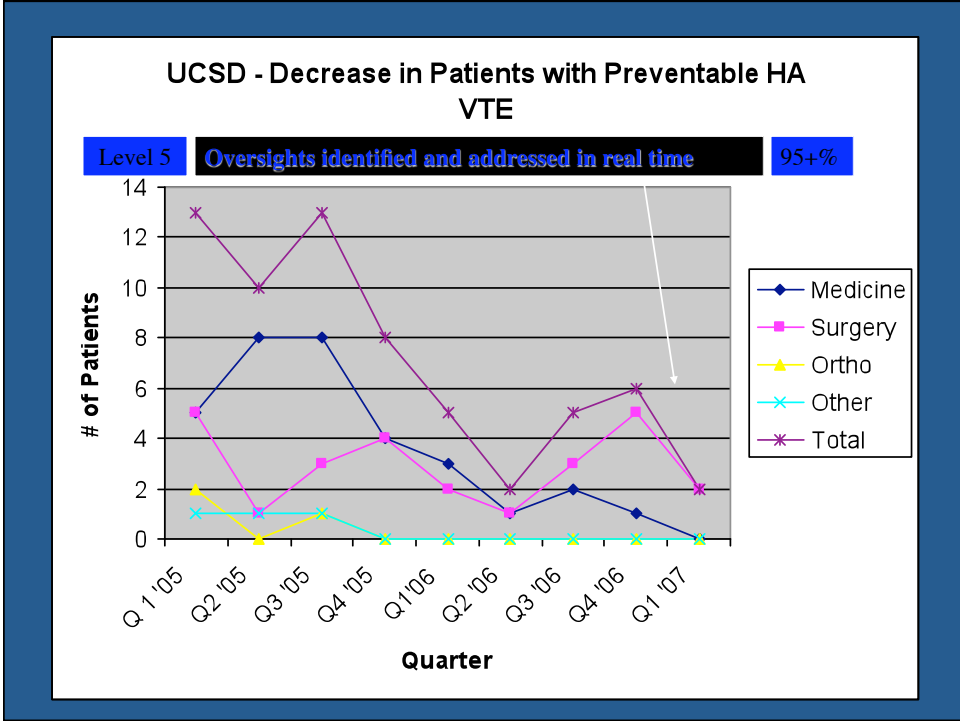
Key Strategies

- Standardized VTE prevention protocol
- Insert VTE risk assessment and protocol informed decision support into all admission and transfer orders (Forcing Function)
- Keep VTE risk assessment simple
- Monitor use and adjust as needed
- Real time identification of non-adherents to protocol, coupled with simple interventions









Hospital Acquired VTE by Year				
	2005	2006	2007	
Patients at Risk	9,720	9,923	11,207	2008
Cases w/ any VTE	131	138	92	80
Risk for HA VTE	1 in 76	1 in 73	1 in 122	
Unadjusted RR (95% CI)	1.0	1.03 (0.81-1.31)	0.61# (0.47- 0.79)	
Cases with PE	21	22	15	12
Risk for PE	1 in 463	1 in 451	1 in 747	
Unadjusted RR (95% CI)	1.0	1.02 (0.54-1.86)	0.62 (0.32-1.20)	
Cases with DVT (and no PE)	110	116	77	68
Risk for DVT	1 in 88	1 in 85	1 in 146	
Unadjusted RR (95% CI)	1.0	1.03 (0.80-1.33)	0.61* (0.45-0.81)	
Cases w/ Preventable VTE	44	21	7	6
Risk for Preventable VTE	1 in 221	1 in 473	1 in 1,601	
Unadjusted RR (95% CI)	1.0	0.47# (0.28-0.79)	0.14* (0.06-0.31)	

p < 0.01 *p < 0.001

Maynard GA, et al. *J Hosp Med.* 2009; in press.

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
- 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% risk reduction of preventable VTE



Collaborative Efforts

- SHM VTE Prevention Collaborative I - 25 sites
- SHM / VA Pilot Group - 6 sites
 - (including the Washington DC VA!!! Congrats!)
- SHM / Cerner Pilot Group – 6 sites
- AHRQ / QIO (NY, IL, IA) - 45 sites
- IHI VTE Expedition - 50 sites
- Other SHM and AHRQ collaboratives planned
- Effective across wide variety of settings
 - Paper and Computerized / Electronic
 - Small and large institutions
 - Academic and community



Q and A

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.

Q. What are the features of successful efforts?

Implementing an Effective VTE Prevention Protocol

- Examine existing admit, transfer, periop order sets with reference to VTE prophylaxis.
- Design a protocol-driven DVT prophylaxis order set (w/ integrated risk assessment model [RAM])
- Pilot – PDSA
- Educate / consensus building
- Place new standardized DVT order set 'module' into all pertinent admit, transfer, periop order sets.

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

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Example from UCSD Keep it Simple – A “3 bucket” model

Low	Medium	High
Ambulatory with no other risk factors. Same day or minor surgery	CHF COPD / Pneumonia Most Medical Patients Most Gen Surg Patients <i>Everybody Else</i>	Elective LE arthroplasty Hip/pelvic fx Acute SCI w/ paresis Multiple major trauma Abd / pelvic CA surgery
Early ambulation	UFH 5000 units q 8 h (5000 units q 12 h if > 75 or weight <50 kg) LMWH Enox 40 mg q day Other LMWH	Enox 30 mg q 12 h or Enox 40 q day or Other LMWH or Fondaparinux 2.5 mg q day or Warfarin INR 2-3 AND MUST HAVE IPC

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Measure-vention

A strategy to achieve 95+ % prophylaxis

- Use MAR or Automated Reports to Classify all patients on the Unit as being in one of three zones:

GREEN ZONE - on anticoagulation

YELLOW ZONE - on mechanical prophylaxis only

RED ZONE – on no prophylaxis

Act to move patients out of the RED!