Using Technology to Improve Empirical Outcomes Across the Continuum
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The VA, as the nation's largest healthcare organization, has the potential to be the leader in defining 21st century evidence-based quality nursing care.

Evidence-Based Practice (EBP) is a national nursing strategic goal, which will help to ensure that patients have the best possible outcomes and that resources are allocated appropriately. The Office of Nursing Services (ONS) and the National Nurse Executive Council (NNEC) selected a program team to develop the VA Nursing Outcomes Database — VANOD.
VA Nursing Outcomes Database (VANOD)

Through VANOD, the VA tracks real time outcome data on the following:

• Nurse staffing levels
• Patient care interventions
• Identification of best practices
• Intra– and inter–facility comparisons
• Health policy decisions
• VANOD data provides leadership with opportunities to transform the way nurses do work and has become the largest repository of nursing outcomes data in the nation!!!
VA Nursing Outcomes Database (VANOD)

VANOD Goals:

• Creation of a national database of clinically relevant, nursing-sensitive quality indicators to identify trends and areas for improvement in order to: Improve the quality and safety of healthcare for Veterans
• Support strategic decision-making through benchmarking
• Support data driven decisions for clinical practice and staffing methodology
• Evaluate relationships between nursing-sensitive indicators and patient and staff outcomes
VANOD Current Clinical Indicators:

- Nursing-sensitive clinical indicators include: Process indicators which measure aspects of nursing care such as assessment and intervention.
- Patient outcomes indicators which are determined to be nursing sensitive because it is expected that they will improve if there is a greater quantity or quality of nursing care (e.g., pressure ulcers, falls, and intravenous infiltrations).
- Two examples of current clinical indicators captured by VANOD include 1) Patient Falls and 2) Pressure Ulcers.
- Patient falls & Patient pressure ulcers are captured in “real-time.”
- Skin Assessment tracking also includes real-time data capture of Braden Scale Scores!
Albany VAMC: Use of Nursing Informatics

✓ Intravascular catheters are indispensable in modern-day medical practice in the care of the Veteran population.

✓ Although such catheters provide vascular access for life sustaining therapies, their usage puts the patient at risk for local and systemic infectious complications including local site infection, CRBSI’s (Catheter Related Blood Stream Infections), septic thrombophlebitis, endocarditis, and possibly death.

✓ Approximately 80,000 CRBSI’s occur in hospitals (private and federal combined) each year in the U.S.

✓ The annual cost of caring for patients with CRBSI’s range from $296 million to $2.3 billion.

✓ Many institutions do not involve the key stakeholder in device selection: The Veteran & their family/friends, & the RN/provider using the line omitting the “Patient-Centered Care Paradigm!”

✓ New CMS guidelines: Vascular catheter-associated blood stream infection (CRBSI) -> Reduced payment for hospitals relying on Medicare reimbursement!
Goal of the Initiative:

The goal of the VIR NP initiative was to implement best industry practice standards (AVA, INS, AACN, ONS, SIR) in the care of patients undergoing central line placement in VIR & hospital wide; early aggressive evidence-based treatment with Catfhlo™ for those central lines with “sluggish blood return, or absent blood return,” & to standardize the approach with a VIR nurse practitioner/CNL solely dedicated to this vital service with the expected result being ZERO catheter related blood stream infections (CRBSI’s) in catheters placed by this dedicated provider.

Leadership support of the NP/CNL role was crucial to the success of this endeavor!
The Need for Change:

- Historically, the rate of **VIR provider placed PICC catheter related blood stream infections ranged from six to nine PICC BSI’s annually between 1999-2003 costing the medical center annually $315,000 total for 9 PICC Line related Blood Stream Infections per year! (MMWR Guidelines).**

- Hospital Leadership investment in the initial training, and yearly refresher course (based on the CDC’s recommendation) of a dedicated vascular access NP/CNL in placement of PICC lines via use of real-time ultrasound guidance with internationally known vascular access experts between 2000-present.

- **The Vascular Access “Secret Shopper”**: Random invitation throughout 2007/2008/2009/2010 by the vascular access NP/CNL to the Infection Prevention Specialist for observation of all facets of patient care of PICC line insertion in order to identify potential areas for improvement and reduction of CRBSI’s ➔ the goal being ZERO: From initial consult, insertion technique and suggested improvements in, monitoring/care of the inserted PICC line, nursing education, bedside dressing changes, **early declotting for suspected fibrin tail/sheath**, and ultimate discontinuation of the PICC line with data tracking. Recommendations were then implemented into all facets of VIR-patient-centered care. **All data was captured electronically!!!**

- Implementation of best practice recommendations: **INS, ONS, AACN, AVA, SIR!!!!**
RESULTS:

Main Outcome:
The rate of PICC catheter related bloodstream infections (CRBSI’s) in catheters placed by an in house vascular access NP/CNL has dropped to ZERO PICC CRBSI’s in 2007-present thus far, saving patient lives (IHI’s 5 MILLION LIVES/CENTRAL LINE BUNDLE), decreased patient morbidity and mortality associated with PICC line placement, decreased LOS, and $$\textit{COST AVOIDANCE OF } $1,260,000 \textit{ to the medical center from 2007-2010}$$
Comparison of PICC Line Blood Stream Infection Rates Before & After Development of an In-House Nurse Practitioner Run Central Venous Access Service

Number of PICC Blood Stream Infections

Years

2000 2001 2002 2003 2005 2007

Comparison of PICC Line Blood Stream Infection Rates Before & After Development of an In-House Nurse Practitioner Run Central Venous Access Service

Results!!!

ZERO CRBSI’s for 4+ years: IHI’s Central Line Bundle, 5 Million Lives!!!!
Electronic DVT Risk Assessment Tool

• For over 8 years, our VA Medical Center has promoted Deep Vein Thrombosis (DVT) prophylaxis using an electronic menu selected whenever a patient is admitted OR transferred.
• In 2010 the algorithm was revised to mirror Chest 2008 recommendations.
• Key considerations were identification of levels of risk and recommended therapies at each level.
• The therapeutic options were developed based on a multidisciplinary approach to venous thromboembolic disease (VTE) prevention.
Electronic DVT
Risk Assessment Tool: Outcomes

• Albany rates of VTE assessment: **100%!!!.**

• Our primary focus was to increase awareness and the need for VTE prophylaxis!

• The use of electronic order alerts through nursing informatics lead to increased provider awareness & decreased clinical complications.
Additional CNL Outcomes:

V2 DVT ASSESS STATS
Primary Surgical DVT Prophylaxis Menu

Choose the appropriate DVT Field to receive prompts for at-risk pt.

Risk factors include but are not limited to the following:
Age greater than 60 years / bed rest / immobility / history of DVT/PE/TIA/stroke AFib/AFlutter or hypercoaguable state / malignancy /
CHF / severe COPD / extremity paresis / chronic central venous access /
superficial venous thrombosis / active inflammatory bowel disease /
obesity / major trauma or spinal cord injury!

0 Mechanical DVT Prophylaxis Only
Not recommended as sole method of prophylaxis!

Uses include:
Patients at high risk for bleed / Patients with active bleed
Adjunct to pharmaceutical prophylaxis

Initiation of DVT Prophylaxis: On hospitalization or transfer
a higher level of care!

SURGERY DVT PROPHYLAXIS
5 Surgical Admission/Transfer Orders
10 Neurosurgical Admission/Transfer Orders
15 Orthopedic Admission/Transfer Orders

***************HINT**************
(IF YOU DON'T WISH TO ORDER ANY PARTICULAR ORDER IN THE ORDER SET'S SIMPLE CLICK ON THE CANCEL BUTTON)
NO DVT RISK
1  No DVT Risk Order Set

LOW DVT RISK
5  Low Risk DVT Prophylaxis Order.

MODERATE DVT RISK
Minor procedure in patients less than 60 years of age
with additional risk factors
40 to 60 years of age with no risk factors
Major surgery in patients less than 40 years of age
with no additional risk factors
***Prophylaxis should continue until hospital discharge***

10  Moderate Risk DVT Prophylaxis orders.

HIGH DVT RISK
Minor procedure in patients greater than 60 years of age
OR with additional risk factors
Major surgery in patients greater than 40 years of age
OR with additional risk factors
***Prophylaxis should continue until hospital discharge***
***Prophylaxis should include heparin and mechanical intervention***

15  High Risk DVT Prophylaxis orders

HIGHEST DVT RISK
Major surgery in patients greater than 40 years of age
PLUS prior VTE  cancer  or  hypercoagulable state
Major trauma or spinal cord injury
Immobility greater than 6 days
CHF or COPD
***Prophylaxis should continue until hospital discharge***

20  Highest Risk DVT Prophylaxis Orders
Highest risk Patients should be considered for either LMWH or SC Heparin or Weight Based Heparin for acute tx. Warfarin should be considered for long term prophylaxis.

HIGHEST DVT RISK PATIENTS
*Major surgery in patient >40 PLUS prior VTE
*current cancer or hypercoagulable state (Chest 2008)
*Major trauma or spinal cord injury (Chest 2008)
*Ischemic Stroke (Act Neur Scan 2002) where LMWH may provide better outcomes compared to SC UFH

Patients with CHF or COPD are to be considered at High Risk for DVT
Immobility >6 days

Order only ONE anticoagulant

Enoxaparin 40mg sc daily for CrCl>30ml/min

Enoxaparin 30mg DAILY for CrCl<30ml/min
Heparin 5000iu SQ q8h

For patients with diagnosed or suspected HIT use Argatroban
**Summary:**

Our group remains committed to providing the highest level of patient care with respect to alerting providers, recommending selection of appropriate interventions and following clinical data meant to optimize care through nursing informatics and robust technology available in our system!