

Anticoagulation
FORUM

Webinar ►
Lunch & Learn

Evidence-Based Best Practices for Outpatient Management of Warfarin

Wednesday, December 5, 2018, 12:00PM ET

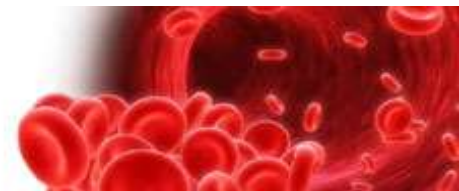
Guest Author: Adam J. Rose, MD, MSc

Presenter: Sara R. Vazquez, PharmD

Moderators: Tracy Minichiello, MD; Diane Wirth, ANP-BC



Anticoagulation
FORUM



Presenters

Adam J. Rose, MD, MSc

Rand Corporation
Boston University School of Medicine
Boston, MA

Sara Vazquez, PharmD

Clinical Pharmacist
University of Utah Health
Salt Lake City, UT

Tracy Minichiello, MD

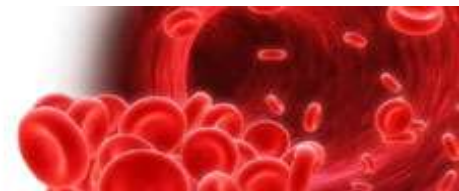
Professor of Medicine
Chief Anticoagulation & Thrombosis Service
UCSF/San Francisco VA Medical Center
San Francisco, CA

Diane Wirth, ANP, CACP

Manager Heart Failure Program
Grady Memorial Hospital
Atlanta, GA

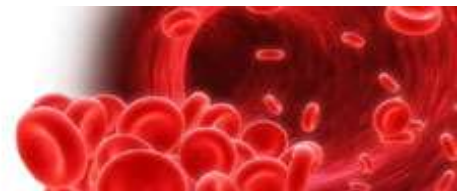


Anticoagulation
FORUM



Disclosures for Sara Vazquez

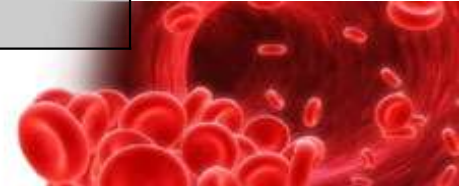
- Editorial consultant for UptoDate, Inc.



Why quality improvement for warfarin management?

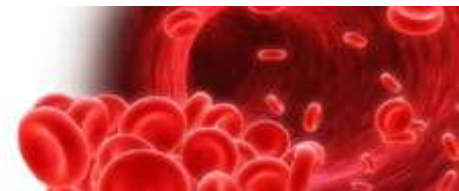
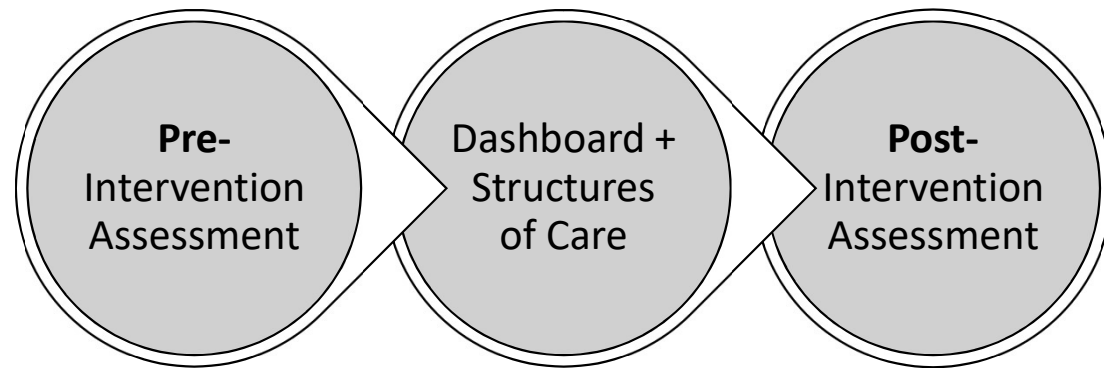
- It's our job to keep patients safe!
- Evidence shows that
better warfarin management = better outcomes for patients
- How much does it really count?
 - In a VA study of 67,077 AF patients, with a 2-year time horizon:

Improving TTR by 5%	Improving TTR by 10%
Prevented 1114 adverse events including 663 deaths	Prevented 2087 adverse events including 1233 deaths
Gained 863 quality-adjusted life-years	Gained 1606 quality-adjusted life-years
Saved \$15.9 million	Saved \$29.7 million

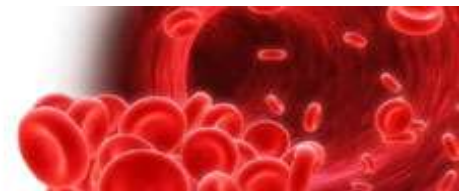
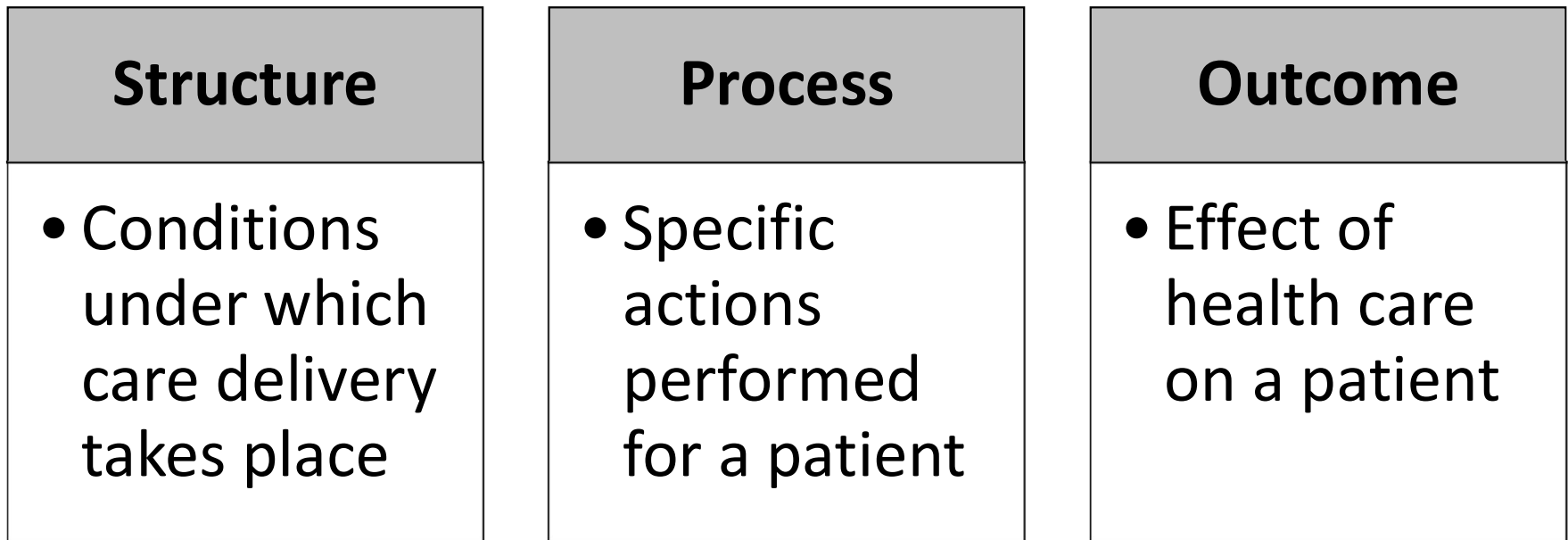


Design, Setting, Sponsorship

- Quality Improvement Study
- Veterans Affairs (VA) health systems across the United States
- Study funded by the RAND Corporation and the VA Health Services Research and Development Service



Donabedian Structure-Process-Outcome Model



Outcomes

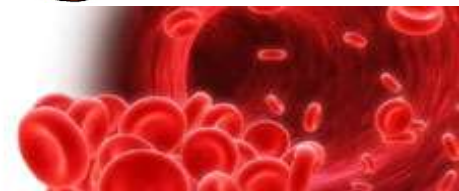
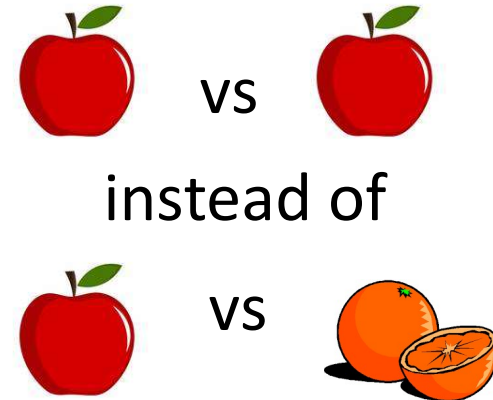
Definitive Outcome

- **Directly** affects the patient
- **Thrombosis, bleeding, death**

Intermediate Outcome

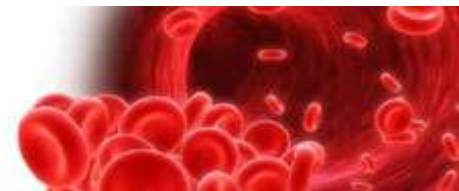
- Does not directly affect the patient but has been **linked to definitive outcomes**
- **Time in Therapeutic Range (TTR)**

- Outcomes require **risk adjustment**
 - Accounts for differences in clinical complexity



Establishing the Baseline of the Quality of Anticoagulation Control within the VA

- Developed a **risk adjustment model** for anticoagulation control
- Profiled 100 VA centers using TTR as an intermediate outcome
- Average TTR of VA patients on warfarin for ≥ 6 months = 58%
- Centers varied from $< 50\%$ TTR to $\sim 70\%$ TTR

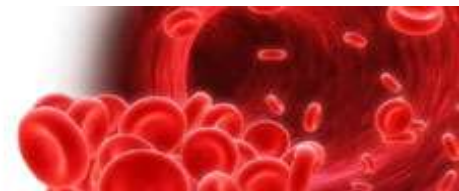


Process Measures-1

1. Time Until Next INR After a VERY LOW INR (≤ 1.5) or VERY HIGH INR (≥ 4.0)

- What is the optimal INR recheck interval following an extreme INR?
- VA: mean 6-18 day recheck interval after a VERY HIGH INR
- VA: mean 10-24 day recheck interval after a VERY LOW INR
- **For every additional day in the follow-up interval after a high or low INR, the site mean risk-adjusted TTR was 1.1 percentage points lower**

GOAL: follow-up interval of 7 days or less after extreme INR in at least 80%, stretch 90% of patients



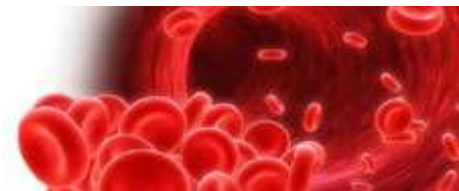
Process Measures-2 and 3

2. Rate of Loss to Follow-Up While Receiving Warfarin

- Does a longer gap between monitoring predict poor TTR?
- How many gaps of > 56 days between INR tests?
- VA: 0.19 to 1.78 gaps per patient-year
- **For each additional 0.1 gaps per patient-year, site mean risk-adjusted TTR was 0.9 percentage points lower**

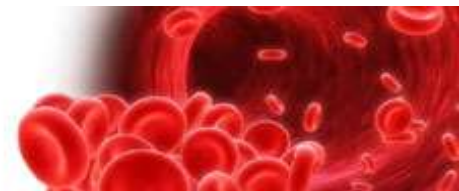
3. Mean Site INR

- Proportion of patients at a site with INR between 2.3-2.7 (who, per guidelines, should have an INR goal of 2-3)
- VA: 30-64%
- **For every additional 10% of patients in this range, site mean risk-adjusted TTR was 3.8 percentage points higher**



Summary of Process Measures

Process Measure	Pre-Intervention Assessment Outcome in the VA
Time until next INR after a Low INR ≤ 1.5 or a High INR ≥ 4.0 Goal should be $\geq 80\%$ of patients having at least 7-day follow-up after low or high INR	For every additional day in the follow-up interval after a high or low INR, the site mean risk-adjusted TTR was 1.1 percentage points lower
Rate of Loss to Follow-Up While Receiving Warfarin Goal should be to minimize gaps of > 56 days between INR tests	For each additional 0.1 gaps per patient-year, site mean risk-adjusted TTR was 0.9 percentage points lower
Mean Site INR Proportion of patients at a site with INR between 2.3-2.7 (who, per guidelines, should have an INR goal of 2-3) Goal should be to achieve the highest percentage of patients possible meeting this criterion	For every additional 10% of patients in this range, site mean risk-adjusted TTR was 3.8 percentage points higher



Qualitative Assessment

- Site visits
- Staff interviews
- Observations of care delivery

- 3 VA sites among the **best** risk-adjusted TTRs
- 3 VA sites among the **worst** risk-adjusted TTRs



6 Key Structures of Care Associated with High Anticoagulation Clinic Performance

Adequate levels of staffing, including both pharmacists and pharmacy technicians in a supporting role

Deliberate efforts to standardize clinical practice around **evidence-based guidelines**

The presence of a **quality champion** for the anticoagulation clinic

Higher staff qualifications (use of residency-trained pharmacists, as opposed to pharmacists without such training)

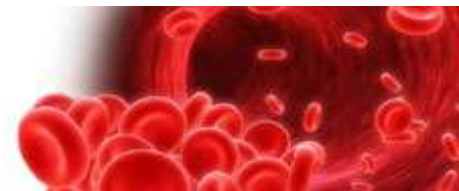
A climate of **ongoing group learning**, with frequent informal consultation among colleagues

Internal efforts to measure performance, whether through TTR or a less-sophisticated measure such as proportion of values in range each month



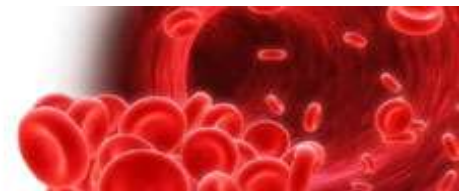
The Intervention: Dashboard

- 4-year intervention, piloted in VISN 1 of the VA (New England)
- Dashboard Measures (site-level and patient-level):
 1. TTR
 2. Time to next INR after low INR
 3. Time to next INR after high INR
 4. Gaps in monitoring
 5. Mean INR values
- Used to assess site-level improvement, compare among other VISN 1 sites
- Real-time patient-level assessment to target patients for intervention
- In addition to using the dashboard, sites were encouraged to implement the features characterizing high-performing sites



Post-Intervention Outcomes

- **VISN 1 improved TTR by 2.8% vs 0.5% in other VA sites not in the pilot ($p < 0.001$)**
- VISN 1 sites that improved more on process measures improved more on TTR
- In 2017 the dashboard was implemented by the VA nationwide



Application Beyond the VA

- Measure your own performance
- Have a working registry
- Try to emulate the aspects of structure of care associated with higher TTR

6 Key Structures of Care Associated with High Anticoagulation Clinic Performance

Adequate levels of staffing, including both pharmacists and pharmacy technicians in a supporting role

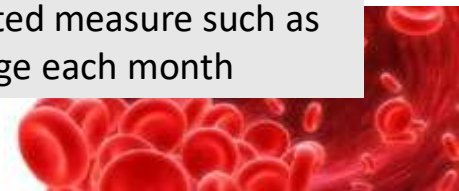
Deliberate efforts to standardize clinical practice around **evidence-based guidelines**

The presence of a **quality champion** for the anticoagulation clinic

Higher staff qualifications (use of residency-trained pharmacists, as opposed to pharmacists without such training)

A climate of **ongoing group learning**, with frequent informal consultation among colleagues

Internal efforts to measure performance, whether through TTR or a less-sophisticated measure such as proportion of values in range each month



Questions for Discussion

- Role of extended-interval monitoring (i.e., up to 12 weeks between INR checks)
- Describe “adequate levels of staffing”
- Applications to non-pharmacist based AC clinics?
- Describe some examples of efforts to apply evidence-based guidelines
- Elaborate on the rationale for higher staff qualifications-was residency the only component assessed or others? i.e., board-certification or CACP?
- Were there barriers to implementation of the dashboard?
- Is the amount of effort and funding required to implement these measures justified for only a 2.8% improvement in TTR?
- Comment on potential quality improvement measures for DOACs?

