

HQIC Patient Safety:

Welcome!

- All lines are muted, so please ask your questions in the Chat panel.
- For technical issues, chat to “All Panelists.”
- Please actively participate in polling questions that pop up on the lower right-hand side of your screen near the end of the presentation.

We will get started shortly!

The Anticoagulation Forum



Jennifer Massey, PharmD
Alliant Health Solutions

Carol Snowden, RN, BSN
Alabama Hospital Association

March 22, 2022

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Hospital Quality Improvement Contractors
CENTERS FOR MEDICARE & MEDICAID SERVICES
EQUALITY IMPROVEMENT & INNOVATION GROUP

Making Health Care Better *Together*

COLLABORATORS:

Alabama Hospital Association
Alliant Health Solutions
Comagine Health
Georgia Hospital Association
KFMC Health Improvement Partners
Konza

Hospital Quality Improvement

Welcome from all of us!



Adverse Drug Event Co-Leads



Carol Snowden, RN, BSN

Carol has over 20 years of experience in clinical nursing and quality improvement. She joined the Alabama Hospital Association as the quality director in March 2021.

Contact: csnowden@alaha.org



Jennifer Massey, PharmD

Jennifer has 15 years of health care experience, including clinical pharmacy in the acute care hospital setting and various roles at Alliant Health Solutions working on the CMS contract for the Quality Innovation Network-Quality Improvement Organization (QIN-QIO). She currently serves as the SME for Opioids and Adverse Drug Events for HQIC.

Contact: Jennifer.Massey@allianthealth.org

Darren Triller, PharmD



Darren Triller, PharmD, is director of strategic initiatives at the Anticoagulation Forum. He is a clinical pharmacist with over 30 years of experience in drug safety and quality improvement. Prior to joining Anticoagulation Forum, he spent 10 years as a senior program director for IPRO, the CMS-designated QIN-QIO for New York State. In that capacity, he created and led the New York State Anticoagulation Coalition, a multi-disciplinary collaborative of over 150 anticoagulation service providers, government agencies and professional organizations. Through the coalition, he conceptualized and led the publication of a pivotal paper, *Features of electronic health records necessary for the delivery of optimized anticoagulant therapy: consensus of the EHR Task Force of the New York State Anticoagulation Coalition* (Annals of Pharmacotherapy, 2015). He also led the design and dissemination of the Management of Anticoagulation in the Peri-Procedural Period app (MAPPP), currently available on both Apple and Android smartphone platforms.



Anticoagulation
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Celebrating 30 Years

Always Learning. Forever Leading.

Anticoagulation Forum

Resources to Advance the Safety and Quality of Anticoagulant-Related Care

March 2022



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Agenda

- Welcome & Introductions
- Perspective on anticoagulation-related harms
- About the Anticoagulation Forum
- Review of available resources
- Opportunities for engagement
- Q&A

Perspective on Anticoagulation-Related Harms

- Class of drugs most frequently associated with adverse drug events (ADEs) prompting emergency department visits and hospitalization
- Errors and avoidable harms are common in acute and residential facilities
- Care transitions are risk-prone
- Quality measures and administrative oversight requirements are suboptimal
- Use of anticoagulants and complexity of regimens is increasing
- Organized services improve care, but are not widespread

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

Emergency Hospitalizations for Adverse Drug Events in Older Americans

Daniel S. Budnitz, M.D., M.P.H., Maribeth C. Lovegrove, M.P.H.,
Nadine Shehab, Pharm.D., M.P.H., and Chesley L. Richards, M.D., M.P.H.

Four medications or medication classes were implicated alone or in combination in 67.0% (95% CI, 60.0 to 74.1) of hospitalizations: warfarin (33.3%), insulins (13.9%), oral antiplatelet agents (13.3%), and oral hypoglycemic agents (10.7%).



NEJM 2011

Table 4. National Estimates of Medications Commonly Implicated in Emergency Hospitalizations for Adverse Drug Events in Older U.S. Adults, 2007–2009.*

Medication	Annual National Estimate of Hospitalizations (N = 99,628)		Proportion of Emergency Department Visits Resulting in Hospitalization
	no.	% (95% CI)	%
Most commonly implicated medications†			
Warfarin	33,171	33.3 (28.0–38.5)	46.2
Insulins	13,854	13.9 (9.8–18.0)	40.6
Oral antiplatelet agents	13,263‡	13.3 (7.5–19.1)	41.5
Oral hypoglycemic agents	10,656	10.7 (8.1–13.3)	51.8
Opioid analgesics	4,778	4.8 (3.5–6.1)	32.4
Antibiotics	4,205	4.2 (2.9–5.5)	18.3



Original Investigation

October 5, 2021

US Emergency Department Visits Attributed to Medication Harms, 2017-2019

Daniel S. Budnitz, MD, MPH¹; Nadine Shehab, PharmD, MPH^{1,2}; Maribeth C. Lovegrove, MPH¹; [et al](#)

In this cross-sectional nationally representative sample that included 60 US EDs between 2017 and 2019, annual estimates of the most frequent medication types and intents of use associated with ED visits attributed to medication harms (adverse events) were therapeutic use of anticoagulants (4.5/1000 population) and diabetes agents (1.8/1000 population) for patients aged 65 years or older; therapeutic use of anticoagulants (0.6/1000 population) and diabetes agents (0.8/1000 population) for patients aged 45 to 64 years; nontherapeutic use of benzodiazepines (1.0/1000 population) and prescription opioids (0.7/1000 population) for patients aged 25 to 44 years; and unsupervised medication exposures (2.2/1000 population) and therapeutic use of antibiotics (1.4/1000 population) for children younger than 5 years.



JAMA 2021

Drug product ^b	ED visits for medication harms overall		Proportion of ED visits for medication harms attributed to therapeutic use, nationally weighted, % (95% CI) ^{c,e}	ED visits for medication harms overall, estimated annual ED visits per 1000 individuals (95% CI) ^{c,f}
	No. of cases ^a	Nationally weighted, % (95% CI) ^{c,d}		
Patients aged ≥65 y				
Warfarin	5706	20.7 (17.9-23.5)	99.8 (99.7-100.0)	2.5 (1.4-3.6)
Insulin	3146	11.1 (9.0-13.2)	99.3 (98.9-99.7)	1.3 (1.0-1.7)
Clopidogrel	3057	10.9 (7.8-14.0)	99.8 (99.6-100.0)	1.3 (0.5-2.2) ^g
Apixaban	2507	8 (6.0-10.1)	99.8 (99.6-100.0)	1.0 (0.4-1.6)
Rivaroxaban	1764	6.3 (5.0-7.5)	99.9 (99.8-100.0)	0.8 (0.4-1.2)
Metformin	729	3.0 (2.4-3.6)	98.8 (97.6-100.0)	0.4 (0.2-0.5)
Aspirin	621	2.6 (0.6-4.6) ^g	97.8 (96.4-99.2)	0.3 (0.1-0.5) ^g
Lisinopril	639	2.4 (1.8-3.1)	96.7 (94.9-98.6)	0.3 (0.2-0.4)
Glipizide	445	1.7 (1.3-2.1)	99.9 (99.7-100.0)	0.2 (0.1-0.3)
Oxycodone	370	1.4 (1.0-1.7)	69.2 (62.6-75.8)	0.2 (0.1-0.2)



Perspective on Anticoagulation-Related Harms
















- Class of drugs most frequently associated with adverse drug events (ADEs) prompting emergency department visits and hospitalization
- Errors and avoidable harms are common in acute and residential facilities
- Care transitions are risk-prone
- Quality measures and administrative oversight requirements are suboptimal
- Use of anticoagulants and complexity of regimens is increasing
- Organized services improve care, but are not widespread

Increasing Complexity

- Four unique DOACs
- Expanding indications for AC use (e.g., PAD)
- Expanding use of implanted devices (valves, LVAD, LAAODs)
- Complex patient characteristics (obesity, dialysis, etc.)
- Multiple reversal agents, strategies
- COVID
- Exploding and evolving medical evidence/guidance

ANTICOAGULATION STEWARDSHIP: EVIDENCE OF IMPACT

Anticoagulants are essential yet high-risk medications. Anticoagulation-related errors and inappropriate use result in devastating bleeding and thrombotic events. Dedicated anticoagulation management programs have been shown to improve the quality and safety of anticoagulant use and improve clinical outcomes. (All findings presented are statistically significant).

<h3>Inappropriate DOAC Dosing:</h3> <table border="0"> <tr> <th>Quality Gap</th> <th>Stewardship Impact</th> </tr> <tr> <td> <ul style="list-style-type: none"> • 1 in 3 DOAC doses inappropriate¹⁻³ • Under-dosing <ul style="list-style-type: none"> • ↑ risk CV hospitalization (26%)⁴ • ↑ stroke / systemic embolism (22%)⁴ • ↑ death (24%)⁵ • No reduction in bleeding⁵ • Over-dosing <ul style="list-style-type: none"> • 2X mortality⁴ • ↑ stroke (26%)⁵ • ↑ major bleeding (30-100%)⁵ </td> <td> <ul style="list-style-type: none"> • 93% of DOAC doses appropriate in outpatients⁶ • 44%-58% improvement in hospital dosing errors^{7,8} • 43% ↓ in major bleeding⁹ • 53% ↓ in death⁹ </td> </tr> </table>	Quality Gap	Stewardship Impact	<ul style="list-style-type: none"> • 1 in 3 DOAC doses inappropriate¹⁻³ • Under-dosing <ul style="list-style-type: none"> • ↑ risk CV hospitalization (26%)⁴ • ↑ stroke / systemic embolism (22%)⁴ • ↑ death (24%)⁵ • No reduction in bleeding⁵ • Over-dosing <ul style="list-style-type: none"> • 2X mortality⁴ • ↑ stroke (26%)⁵ • ↑ major bleeding (30-100%)⁵ 	<ul style="list-style-type: none"> • 93% of DOAC doses appropriate in outpatients⁶ • 44%-58% improvement in hospital dosing errors^{7,8} • 43% ↓ in major bleeding⁹ • 53% ↓ in death⁹ 	<h3>Suboptimal DOAC Adherence:</h3> <table border="0"> <tr> <th>Quality Gap</th> <th>Stewardship Impact</th> </tr> <tr> <td> <ul style="list-style-type: none"> • 33% of patients on DOACs for atrial fibrillation are non-adherent resulting in a 40% ↑ rate of strokes¹⁰  </td> <td> <ul style="list-style-type: none"> • 91%-97% adherence rates achieved^{11,12}  </td> </tr> </table>	Quality Gap	Stewardship Impact	<ul style="list-style-type: none"> • 33% of patients on DOACs for atrial fibrillation are non-adherent resulting in a 40% ↑ rate of strokes¹⁰ 	<ul style="list-style-type: none"> • 91%-97% adherence rates achieved^{11,12} 	<h3>Inappropriate Aspirin – Anticoagulant Combination:</h3> <table border="0"> <tr> <th>Quality Gap</th> <th>Stewardship Impact</th> </tr> <tr> <td> <ul style="list-style-type: none"> • 34%-50% of patients on anticoagulant therapy use aspirin without a clear indication^{13,14} • Inappropriate aspirin users had: <ul style="list-style-type: none"> • 2x as many cardiac events¹⁴ • 56% ↑ bleeding-related ED visits¹⁵ • 70% ↑ major bleeding events¹⁶ • No reduction in thrombosis through addition of aspirin¹³⁻¹⁷ </td> <td> <ul style="list-style-type: none"> • 34%-87% ↓ in inappropriate aspirin use among anticoagulated patients^{18,19}  </td> </tr> </table>	Quality Gap	Stewardship Impact	<ul style="list-style-type: none"> • 34%-50% of patients on anticoagulant therapy use aspirin without a clear indication^{13,14} • Inappropriate aspirin users had: <ul style="list-style-type: none"> • 2x as many cardiac events¹⁴ • 56% ↑ bleeding-related ED visits¹⁵ • 70% ↑ major bleeding events¹⁶ • No reduction in thrombosis through addition of aspirin¹³⁻¹⁷ 	<ul style="list-style-type: none"> • 34%-87% ↓ in inappropriate aspirin use among anticoagulated patients^{18,19} 
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The Joint Commission National Patient Safety Goal for Anticoagulation

R³ Report | Requirement, Rationale, Reference

A complimentary publication of The Joint Commission

Issue 19, Dec. 7, 2018

Published for Joint Commission-accredited organizations and interested health care professionals, *R3 Report* provides the rationale and references that The Joint Commission employs in the development of new requirements. While the standards manuals also may provide a rationale, *R3 Report* goes into more depth, providing a rationale statement for each element of performance (EP). The references provide the evidence that supports the requirement. *R3 Report* may be reproduced if credited to The Joint Commission. Sign up for [email](#) delivery.

National Patient Safety Goal for anticoagulant therapy

Effective July 1, 2019, eight new elements of performance will be applicable to all Joint Commission-accredited hospitals, critical access hospitals, nursing care centers, and medical centers (accredited under the ambulatory health care program). These new requirements are at NPSG.03.05.01 in the “National Patient Safety Goals” chapter.

For years, this NPSG has played an important role in improving the safety of patients receiving anticoagulation therapy. However, there has been a rise in adverse drug events associated with direct oral anticoagulants (DOACs), and The Joint Commission believes that relevant updates to this NPSG to address DOACs may help reverse that trend.



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About the Anticoagulation Forum

- Largest nonprofit organization of anticoagulation specialists in North America
- Mission
 - Improve the quality of care for patients on antithrombotic medications
 - Educate and empower current healthcare providers
 - Advance the training of future experts
 - Advocate for clinical best practices
 - Promote Inclusion, Diversity, Equity and Allyship ([IDEA](#))

Unique Organizational Design

- Multidisciplinary by design—physicians, pharmacists, nurses
- Active board of nationally recognized experts
- Free membership
- Free continuing education credits
- All resources free of charge except the conference and bootcamp events

Available Resources

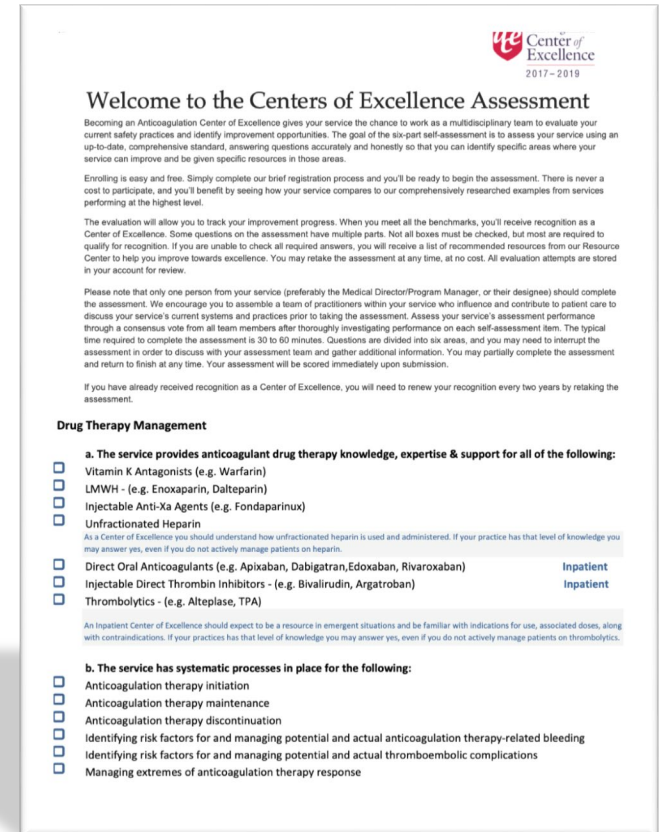
- Website and membership
- Anticoagulation Centers of Excellence
- Anticoagulation Stewardship

Website and Membership

- [Expert guidance documents](#)
- [Order sets](#)
- Live and enduring [webinars](#)/educational [programs](#) (with free CE)
- [Searchable Resource Center](#) and topical [Rapid Resources](#)
- Dynamic [literature website](#) and [Rapid Recaps](#)
- [Newsletter](#)

Anticoagulation Centers of Excellence (ACE)

- Free self-assessment measuring excellence in anticoagulation practices
- Pass the assessment and become a “Center of Excellence” with three-year recognition
- Free to enroll & assessment serves as a roadmap to implementing best practices
- Over 150 practices have been recognized as a “Center of Excellence”
- Once you become an ACE practice, you’re invited to join the “Innovation Circle” every-other-month discussion group & list-serve tackling cutting-edge topics, sharing resources & engaging in QI projects



The screenshot shows the 'Welcome to the Centers of Excellence Assessment' document. It includes the logo for the Center of Excellence (2017-2019) and a detailed introduction to the assessment process. The document is divided into sections, with 'Drug Therapy Management' being the first. Under this section, there are two main parts: 'a. The service provides anticoagulant drug therapy knowledge, expertise & support for all of the following:' and 'b. The service has systematic processes in place for the following:'. Part 'a' lists several categories of anticoagulants with checkboxes for each: Vitamin K Antagonists (e.g. Warfarin), LMWH - (e.g. Enoxaparin, Dalteparin), Injectable Anti-Xa Agents (e.g. Fondaparinux), and Unfractionated Heparin. Under 'Unfractionated Heparin', there are checkboxes for 'Direct Oral Anticoagulants (e.g. Apixaban, Dabigatran, Edoxaban, Rivaroxaban)' and 'Injectable Direct Thrombin Inhibitors - (e.g. Bivalirudin, Argatroban)'. Part 'b' lists systematic processes with checkboxes: 'Anticoagulation therapy initiation', 'Anticoagulation therapy maintenance', 'Anticoagulation therapy discontinuation', 'Identifying risk factors for and managing potential and actual anticoagulation therapy-related bleeding', 'Identifying risk factors for and managing potential and actual thromboembolic complications', and 'Managing extremes of anticoagulation therapy response'.

[Download a PDF of assessment](#)

Anticoagulation Stewardship



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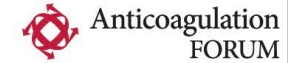


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ANTICOAGULATION STEWARDSHIP: A NATIONAL MOVEMENT



HHS has called for Anticoagulation Stewardship Model Advancement

The US Department of Health and Human Services' National Action Plan for Adverse Drug Event Prevention identified anticoagulants as a drug class warranting systematic improvements to prevent drug-related harm, stating:

“Federal partners should lead efforts to promote the concept of ‘anticoagulation stewardship’ to reduce anticoagulant ADE burden.”¹

Other agencies and organizations have also prioritized anticoagulation safety and quality

The Centers for Disease Control and Prevention have Identified Anticoagulants as the Most Frequent Contributors to Emergency Department Visits and Hospitalization

Studies by the CDC have shown anticoagulants to be the drug class most frequently associated with adverse drug events causing ED visits and hospitalizations, particularly among the elderly, and many are considered preventable.²⁻⁵

The Food and Drug Administration has Funded the Development of Anticoagulation Stewardship Model

The FDA contracted with the Anticoagulation Forum to develop the Core Elements of Anticoagulation Stewardship Programs Guide.⁶

The Veterans Health Administration has Implemented National Standards for Anticoagulation Management

“It is VHA policy that every VA medical facility must maintain a centralized evidence-based anticoagulation management program. The program must provide coordinated processes and procedures ensuring Veterans are appropriately treated and monitored, to ensure safety of anticoagulation therapy through transitions of care.”^{7,8}

The Joint Commission has Expanded the National Patient Safety Goals for Anticoagulation Management

National Patient Safety Goal 03.05.01 was updated in 2018 to reduce avoidable patient harms related to suboptimal anticoagulant use, including care transitions, peri-procedural management, bleeding management, and other key aspects of patient care.⁹

The National Quality Forum is Developing a Playbook to Guide Stewardship Implementation

NQF has partnered with Anticoagulation Forum to develop a comprehensive guide on implementation of Anticoagulation Stewardship in hospitals.

The Anticoagulation Forum welcomes your support in advancing Anticoagulation Stewardship across care settings.



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Anticoagulation Stewardship

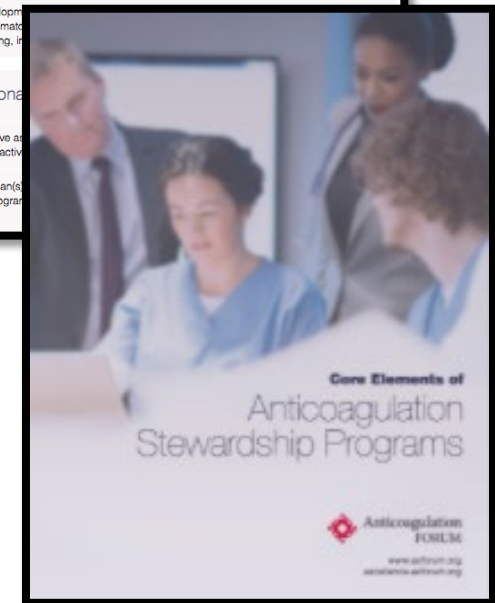
- Strategic initiative to "move the needle"
- Goal to improve the safety and quality of patient care and reduce adverse drug events associated with anticoagulants
- One-year project funded by FDA
- Developed:
 - Core Elements of Anticoagulation Stewardship Programs Guide
 - Checklist for hospitals to assess level of stewardship implementation
 - Administrative Oversight Gap Analysis

Access at: <https://acforum.org/web/education-stewardship.php>

Scoring: Evaluate your organization's current state and provide a score for each item using the following scale.

0 = Not yet addressed
1 = Partially implemented
2 = Fully implemented
NA = Not applicable to organization

Item	Score
1. Secure administrative leadership commitment	
A. Provides visible endorsement of stewardship efforts by incorporating anticoagulation-related priorities into organizational strategic plans or quality improvement action plans, reviews performance annually and holds itself accountable for stewardship goals	<input type="checkbox"/>
B. Budgets resources for development of stewardship activities that are appropriately matched to the organization's needs (e.g. dedicated positions, training, etc.)	
2. Establish professional leadership	
A. Identifies a champion to serve as the primary point of contact for anticoagulation stewardship activities	
B. Identifies one or more clinician(s) to provide clinical management to support the program of stewardship activities	



Anticoagulation Stewardship Checklist

- Used to systematically assess key elements and actions that are integral to successful stewardship efforts & high-quality patient care
- Guide to determine if essential support, resources, and initiatives are in place for optimal management of patients on anticoagulant medications

Checklist for Core Elements of Anticoagulation Stewardship Programs

The following checklist supports the *Core Elements of Anticoagulation Stewardship Programs*. This checklist should be used to systematically assess key elements and actions that are integral to successful anticoagulation stewardship efforts and high-quality patient care.

Healthcare organization administrators should work in tandem with healthcare staff knowledgeable in anticoagulation therapy, using this checklist as a guide to determine if essential support, resources, and initiatives are in place for optimal management of patients on anticoagulation medications.

As each healthcare setting is unique, it is recognized that no single anticoagulation stewardship program model will fit all facilities. As such, implementation of checklist elements may need to be customized, based on infrastructure and access to resources.

Scoring: Evaluate your organization's current state and provide a score for each item using the following scale.

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1. Secure administrative leadership commitment Score

A. Provides visible endorsement of stewardship efforts by incorporating anticoagulation-related priorities into organizational strategic plans or quality improvement action plans, reviews performance annually and holds itself accountable for stewardship goals

B. Budgets resources for development and ongoing support of anticoagulation stewardship activities that are appropriately matched to size, function and needs of the organization (e.g. dedicated positions, training, information technology support, etc.)

2. Establish professional accountability and expertise Score

A. Identifies a champion to serve as the program leader who is responsible for oversight of anticoagulation stewardship activities and achievement of related goals

B. Identifies one or more clinician(s) with advanced training and expertise in anticoagulation management to support the program leader in development, implementation and evaluation of stewardship activities

CORE ELEMENTS OF ANTICOAGULATION STEWARDSHIP

Secure administrative leadership commitment: Dedicating necessary human, financial, and technology resources

Establish professional accountability and expertise: Appointing a single leader responsible for program outcomes, supported by at least one clinician with expertise in anticoagulation management

Engage multidisciplinary support: Involving key specialists and disciplines to obtain perspective from all domains of the care delivery system

Perform data collection, tracking, and analysis: Defining the population, objectively evaluating performance, and guiding decision-making

Implement systematic care: Implementing sustainable, efficient, evidence-based action(s) at the system level to assure the safety and quality of anticoagulation management

Facilitate transitions of care: Creating systems to optimize communication and ensure safe transitions between care settings

Advance education, comprehension, and competency: Assuring that clinicians, patients, and others have the knowledge and skills necessary to optimize outcomes



The MIDAS Program

- Mentored Implementation & Dissemination of Anticoagulation Stewardship (MIDAS)
- Demonstrate feasibility of Core Elements of Anticoagulation Stewardship Programs
- Two-year project funded by FDA
 - Year 1 – Mentorship program at five hospitals
 - Year 2 – Develop and disseminate Implementation Playbook
- Implementation Playbook will provide guidance and resources for hospitals to independently establish a stewardship program



Project Leadership



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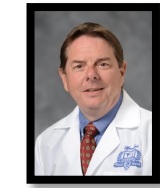
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Hospital Sites



The Brooklyn
Hospital Center

*The Brooklyn Hospital Center
Brooklyn, NY*



*CHRISTUS ST. VINCENT
Regional Medical Center
Santa Fe, NM*

UAB MEDICINE

The University of Alabama at Birmingham

*University of Alabama
at Birmingham
Birmingham, AL*



*Ochsner Medical Center
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Anticoagulation
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QUALITY IMPROVEMENT & INNOVATION GROUP

Implementation Playbook

- Under development by the National Quality Forum (available Sept 2022)
- Leverages familiar and successful antimicrobial stewardship model
- Provides guidance and resources for hospitals to institute an anticoagulation stewardship program, without individual mentorship
- Developed by a large team of multidisciplinary subject matter experts
- Disseminated through AC Forum's 12,000+ members and partner organizations upon completion

Opportunities for Engagement

- Membership and newsletter
- Live and recorded webinars as source of CE for clinicians
- Send staff to boot camp and conferences
- Pursue Center of Excellence Status
- Initiate stewardship program
- Share new ideas for collaboration

Ask and Offer

- Ask: A single high-level clinician to join the AC Forum from each hospital.
- Offer: AC Forum will do a presentation on a topic of PSO interest in the future.

Thank you for Your Valuable Input


For more information on resources and opportunities to improve the quality and safety of anticoagulation management, contact Darren Triller: dtriller@acforum.org

Questions?



Email us at HospitalQuality@allianthealth.org or call us at 678-527-3681.

HQIC Goals



Behavioral Health Outcomes & Opioid Misuse

- ✓ Promote opioid best practices
- ✓ Decrease high dose opioid prescribing and opioid adverse events in all settings
- ✓ Increase access to behavioral health services



Patient Safety

- ✓ Reduce risky medication combinations
- ✓ Reduce adverse drug events
- ✓ Reduce *C. diff* in all settings



Quality of Care Transitions

- ✓ Convene community coalitions
- ✓ Identify and promote optical care for super utilizers
- ✓ Reduce community-based adverse drug events

Making Health Care Better *Together*

COLLABORATORS:

Alabama Hospital Association
Alliant Health Solutions
Comagine Health
Georgia Hospital Association
KFMC Health Improvement Partners
Konza

Hospital Quality Improvement



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Thank you for joining us!
How did we do today?

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