5-2021

Pharmacists' role in the management of patients receiving dual or triple antithrombotic therapy

Laura Neubauer
Baptist Hospital of Miami, LauraNeu@baptisthealth.net

Radhan Gopalani
Baptist Hospital of Miami, radhang@baptisthealth.net

Kristen de Almeida
Baptist Hospital of Miami, KristenDe@baptisthealth.net

Pharmacists' Role in the Management of Patients Receiving Dual or Triple Antithrombotic Therapy

Laura Provost, PharmD, BCPS
PGY2 Cardiology Pharmacy Resident | Baptist Hospital of Miami
LauraNeu@baptisthealth.net

Disclosures

The authors for this project have nothing to disclose regarding any financial or nonfinancial relationships with the products described, reviewed, or evaluated in this presentation

Abbreviations

- ACC — American College of Cardiology
- ACS — Acute Coronary Syndrome
- ADR — Adverse Drug Reaction
- APT — Antiplatelet
- ASA — Aspirin
- BHM — Baptist Hospital of Miami
- CAD — Coronary Artery Disease
- COVID — Coronavirus Disease
- DAT — Dual Antithrombotic Therapy
- DAPT — Dual Antiplatelet Therapy
- DOAC — Direct Oral Anticoagulant
- DVT — Deep Vein Thrombosis
- MVR — Mitral Valve Repair
- NVAF — Nonvalvular Atrial Fibrillation
- PAD — Peripheral Artery Disease
- PE — Pulmonary Embolism
- OAC — Oral Anticoagulant
- TAT — Triple Antithrombotic Therapy
- TAVR — Transcatheter Aortic Valve Replacement

Objectives

1

Summarize the most recent literature describing optimal antithrombotic therapy management in patients with an indication for both APT and OAC therapies

2

Review reported DAT / TAT-related ADRs at BHM during the year 2019

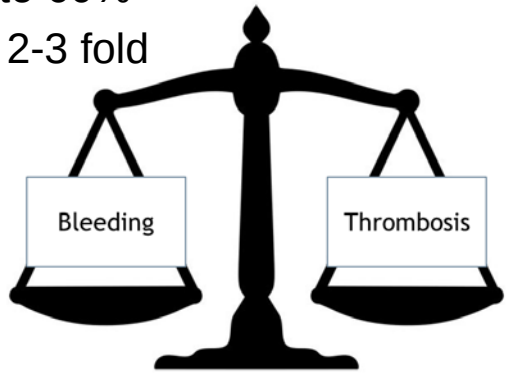
3

Discuss the clinical impact of pharmacist interventions in optimizing antithrombotic therapy in patients at BHM

Background

Background

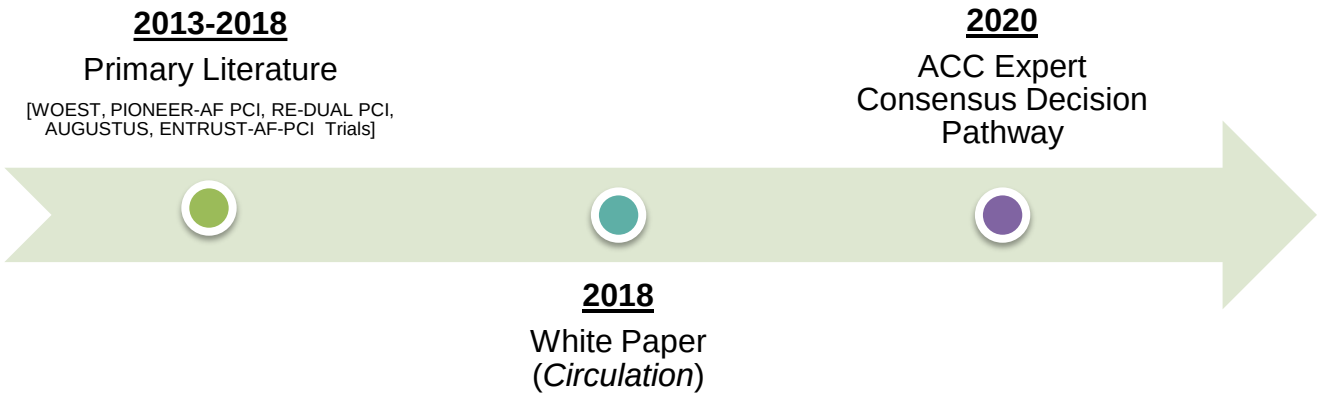
- Patients requiring concomitant APT and AC therapy have ↑ risk of both thrombotic and bleeding events
- Major bleeding is associated with 5x ↑ risk of death after ACS
  - Addition of single APT to OAC ↑ bleed risk up to 60%
  - Addition of dual APT to OAC further ↑ this risk 2-3 fold
- Goal: Mitigate bleed risk while maintaining antithrombotic efficacy



Kumbhani DJ, et al. *J Am Coll Cardiol.* 2021;77(5):629-658.

Summary of Literature

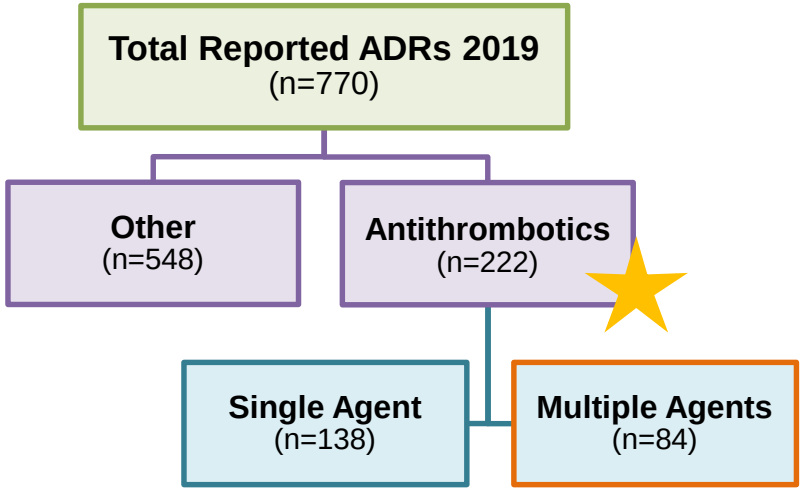
- Management of combination antithrombotic therapy is driven by:
  - Patient parameters, medication factors, guideline recommendations, indication, etc.
- Evolution of Triple Antithrombotic Therapy (TAT)



Most recent recommendations state that TAT be used for shortest duration possible (most often limited to duration of hospitalization)

Antithrombotic-related ADRs at BHM

- Antithrombotics were #1 medication class associated with ADRs in 2019 (~29%)
- 28% of these ADRs included DAT or TAT regimens (≥1 APT + IV/PO AC)



Antithrombotic regimens including multiple agents	n=84
DAT or TAT Regimens	62
• APT + IV AC	4
• APT + OAC	40
• 2 APT + OAC	6
• 2 APT + IV AC	12
DAPT	16
AC + AC (Bridge therapy)	6

>75% of ADRs were community-acquired

DAT=Dual Antithrombotic Therapy; TAT=Triple Antithrombotic Therapy

Research Purpose

To evaluate pharmacists' role in the optimization of antithrombotic therapy in patients with concomitant indications for APT and OAC agents

Methods

Study Design

Single center

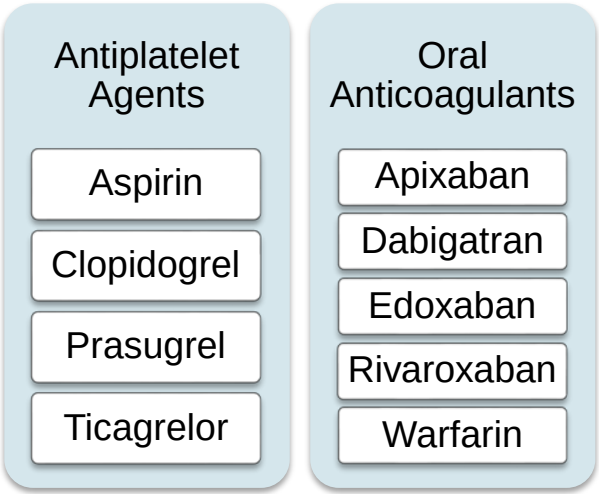
Quality Improvement

Prospective

January – March 31st 2021

Eligibility Criteria

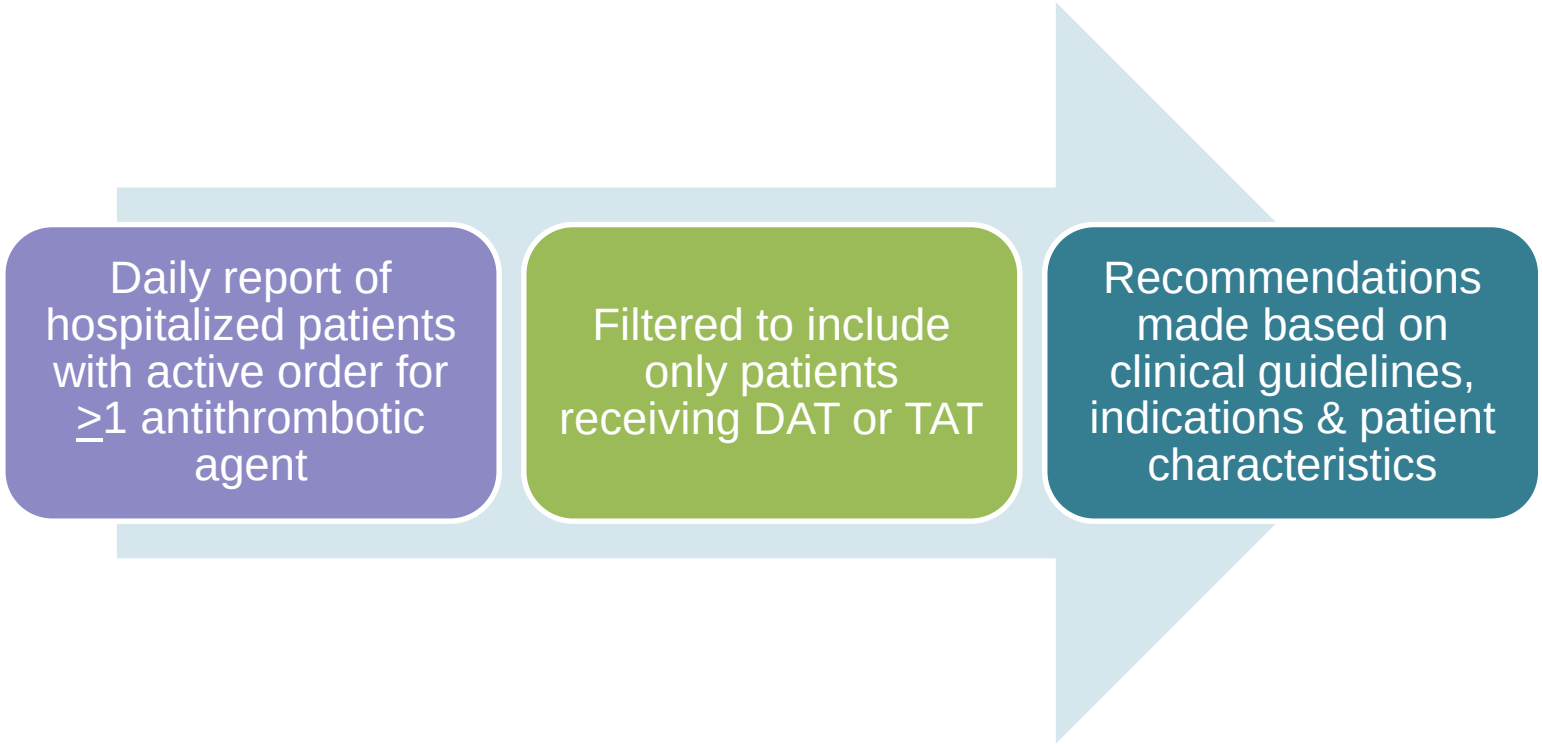
Hospitalized adult patients at Baptist Hospital receiving both an APT agent and OAC



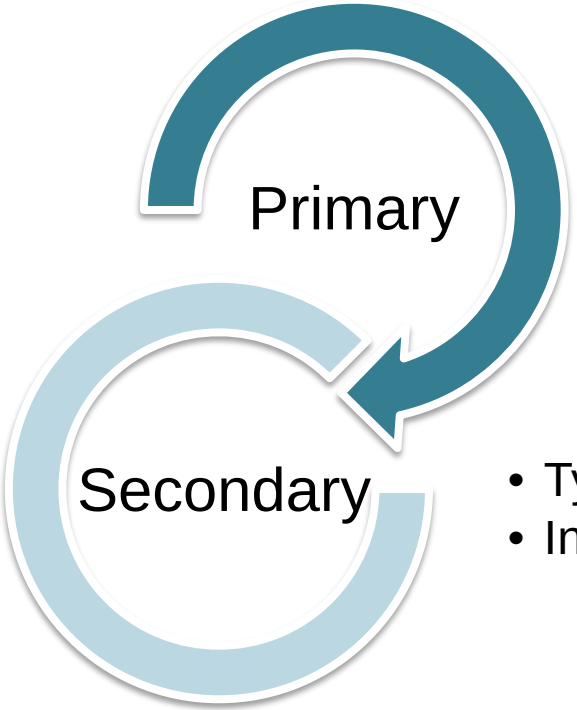
Dual Antithrombotic Therapy (DAT): 1 APT + OAC

Triple Antithrombotic Therapy (TAT): 2 APT + OAC

Data Collection



Study Outcomes



- Appropriateness of AC and APT regimens based on specific indications

- Type of pharmacist intervention
- Intervention acceptance rate

Results

Baseline Demographics

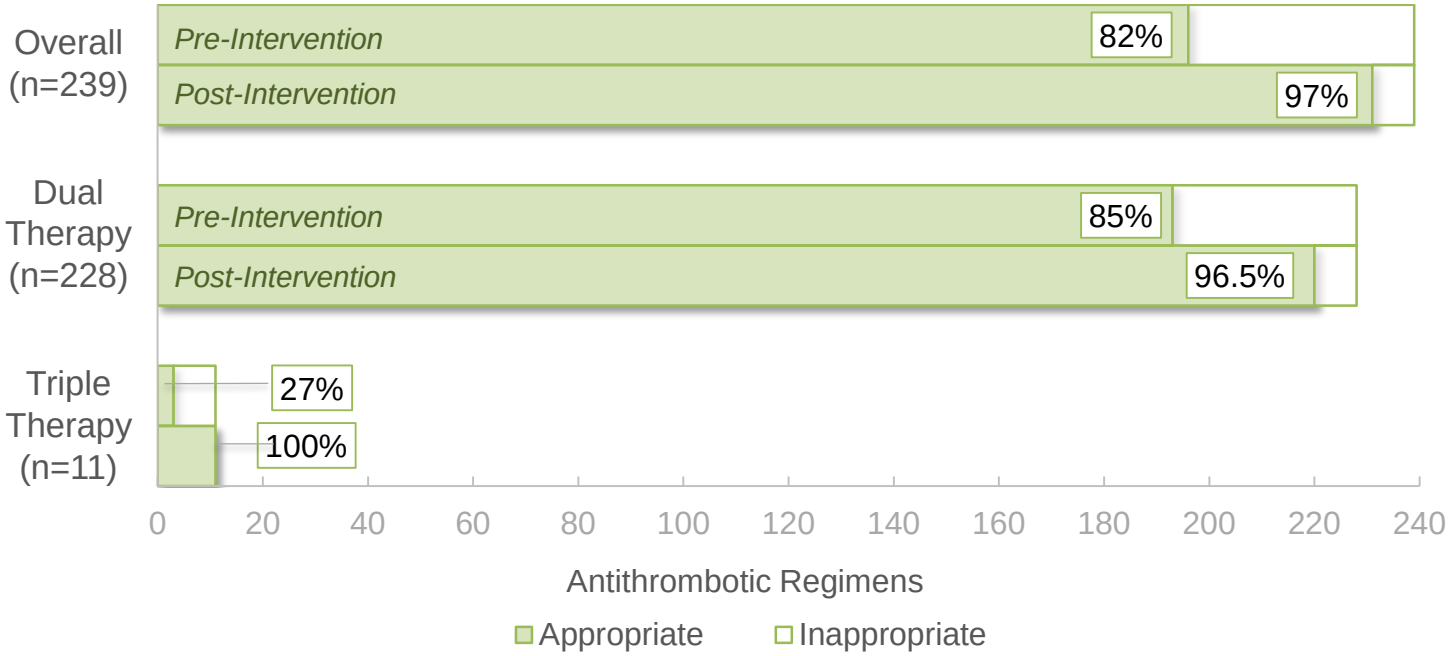
	n= 239
Mean age, years (SD)	74.3 ± 12.1
Gender – male, n (%)	136 (56.9)
Regimen – n (%)	
• Dual Therapy	228 (95.4)
• Triple Therapy	11 (4.6)
APT Indication – n (%)	
• CAD	130 (54.4)
• COVID	28 (11.7)
• CVA	22 (9.2)
• ACS	19 (7.9)
• S/p Valve surgery	16 (6.7)
• PAD	11 (4.6)
• Not documented	7 (2.9)
• 1^0 prev. / ↑ ASCVD risk	6 (2.5)
OAC Indication – n (%)	
• Atrial Fibrillation	172 (71.9)
• DVT/PE treatment	41 (17.2)
• DVT/PE secondary ppx	15 (6.3)
• Other*	11 (4.6)

Antithrombotic Agents	n= 239
Antiplatelet Agents	
• ASA	196
• Clopidogrel	49
• Ticagrelor	5
**11 patients were receiving 2 APT agents (TAT)*	
Oral Anticoagulants	
• Apixaban	184
• Rivaroxaban	36
• Warfarin	12
• Dabigatran	7

*Intracardiac thrombus, valve surgery, PAD, portal vein thrombosis, s/p hip/knee replacement

Primary Outcome

Regimen Appropriateness



Secondary Outcomes

Pharmacist Interventions

	Interventions Recommended	Interventions Accepted
Discontinue Agent	19	18
• APT	16	15
• OAC	3	3
Increase OAC Dose	14	11
• Apixaban	11	9
• Rivaroxaban	2	2
• Dabigatran	1	0
Decrease OAC Dose	10	6
• Apixaban	5	2
• Rivaroxaban	5	4
Alternative Agent Recommended	4	4
Total	**47**	**39 (83.0%)**

Secondary Outcomes

Pharmacist Interventions

	Interventions Recommended	Interventions Accepted
Discontinue Agent	19	18
• APT	16	15
• OAC	3	3
Increase OAC Dose	14	11
• Apixaban	11	9
• Rivaroxaban	2	2
• Dabigatran	1	0
Decrease OAC Dose	10	6
• Apixaban	5	2
• Rivaroxaban	5	4
Alternative Agent Recommended	4	4
Total	**47**	**39 (83.0%)**

Secondary Outcomes

Pharmacist Interventions

	Interventions Recommended	Interventions Accepted
Discontinue Agent	19	18
• APT	16	15
• OAC	3	3
Increase OAC Dose	14	11
• Apixaban	11	9
• Rivaroxaban	2	2
• Dabigatran	1	0
Decrease OAC Dose	10	6
• Apixaban	5	2
• Rivaroxaban	5	4
Alternative Agent Recommended	4	4
Total	**47**	**39 (83.0%)**

Secondary Outcomes

Pharmacist Interventions

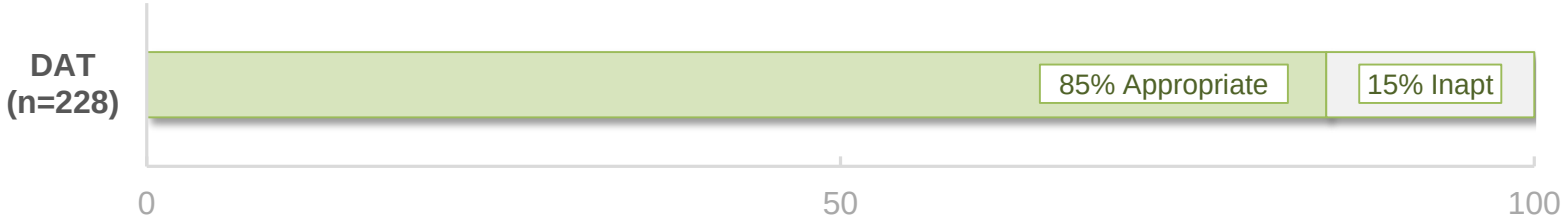
	Interventions Recommended	Interventions Accepted
Discontinue Agent	19	18
• APT	16	15
• OAC	3	3
Increase OAC Dose	14	11
• Apixaban	11	9
• Rivaroxaban	2	2
• Dabigatran	1	0
Decrease OAC Dose	10	6
• Apixaban	5	2
• Rivaroxaban	5	4
Alternative Agent Recommended	4	4
Total	**47**	**39 (83.0%)**

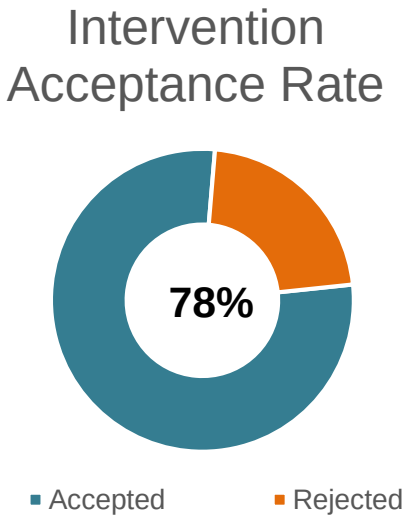
Secondary Outcomes

Pharmacist Interventions

	Interventions Recommended	Interventions Accepted
Discontinue Agent	19	18
• APT	16	15
• OAC	3	3
Increase OAC Dose	14	11
• Apixaban	11	9
• Rivaroxaban	2	2
• Dabigatran	1	0
Decrease OAC Dose	10	6
• Apixaban	5	2
• Rivaroxaban	5	4
Alternative Agent Recommended	4	4
Total	**47**	**39 (83.0%)**

Dual Antithrombotic Regimens

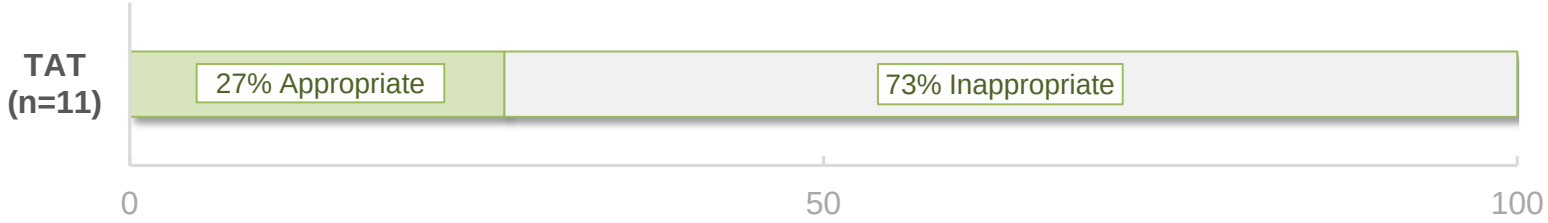


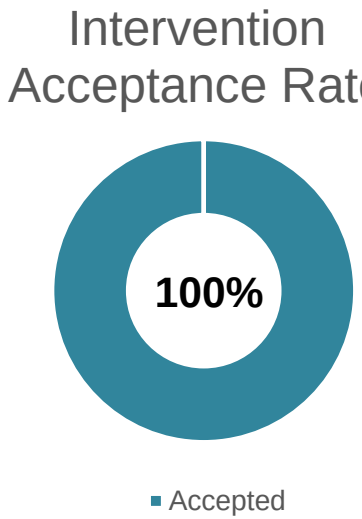


	Interventions Rec'd / Accepted
Increase OAC	12 / 9
Decrease OAC	9 / 5
Discontinue Agent • APT • OAC	 9 / 8 3 / 3
Alternative Agent Rec'd	3 / 3
Total*	**36 / 28**

*35 unique regimens with 36 interventions

Triple Antithrombotic Therapy



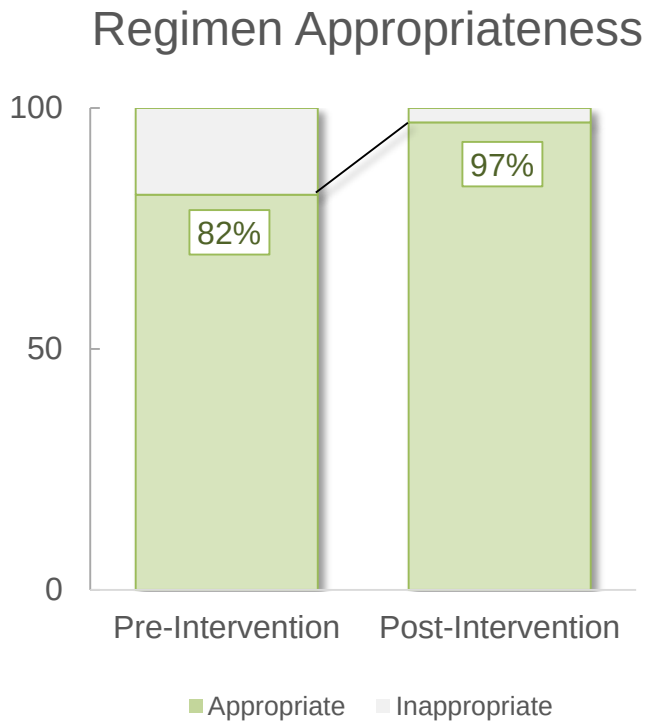


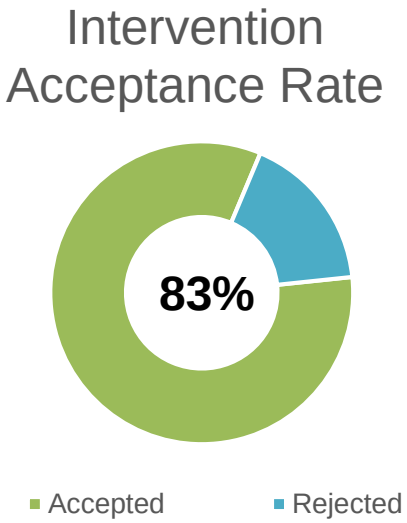
	Interventions Rec'd / Accepted
Discontinue APT	7 / 7
Increase OAC	2 / 2
Decrease OAC	1 / 1
Alternative Agent Rec'd	1 / 1
Total*	**11 / 11**

*8 unique regimens with 11 interventions

Laura Provost, Baptist Hospital of Miami

Impact of Pharmacist Intervention





Laura Provost, Baptist Hospital of Miami

Discussion

- Dual antithrombotic therapy (APT + OAC) accounted for 95% of all regimens reviewed
- Triple antithrombotic therapies had the greatest opportunity for optimization
  - 73% inappropriate pre-intervention, 100% of interventions accepted
- Type of pharmacist intervention
  - Most common: APT discontinuation
  - Most clinically significant: OAC discontinuation

Limitations

- Short study duration (10 weeks)
- Warfarin pharmacy consult and pre-approved automatic dose adjustment protocol in place to facilitate OAC dose optimization
- Patients assessed for therapy optimization only once
- Unable to assess long-term impact of RPh intervention on adverse outcomes

Conclusion

Pharmacist intervention resulted in optimization of dual / triple antithrombotic therapies by 15%, with greatest impact seen with triple antithrombotic therapy

- Next steps:
  - Implement an automated alert that requires providers to acknowledge the use of triple therapy as well as intended duration
  - Pharmacist re-education regarding indication-specific dosing of OACs and indicated duration of therapy

Acknowledgements

- Radhan Gopalani, PharmD, BCPS, BCCP
- Kristen de Almeida, PharmD, BCCP
- Ian Del Conde-Pozzi, MD

Self Assessment Question

When indicated, what is the most appropriate duration of triple antithrombotic therapy for most patients?

A. Until hospital discharge
B. Indefinitely
C. 1 year
D. Triple therapy is never appropriate

References

- Angiolillo DJ, Goodman SG, Eikelboom JW, et al. Antithrombotic Therapy in Patients with Atrial Fibrillation With Oral Anticoagulation Undergoing Percutaneous Coronary Intervention. *Circulation.* 2018;138:527-536.

- Kumbhani DJ, Cannon CP, Beavers CJ, et al. 2020 ACC Expert Consensus Decision Pathway for Anticoagulant and Antiplatelet Therapy in Patients with Atrial Fibrillation or Venous Thromboembolism Undergoing Percutaneous Coronary Intervention or With Atherosclerotic Cardiovascular Disease. *J Am Coll Cardiol.* 2021;77(5):629-658.

- So CH, Eckman MH. Combined Aspirin and Anticoagulant Therapy in Patients with Atrial Fibrillation. *J Thromb Thrombolysis.* 2017;43(1):7-17.

- Yao X, Shah ND, Sangaralingham LR, et al. Non-Vitamin K Antagonist Oral Anticoagulant Dosing in Patients with Atrial Fibrillation and Renal Dysfunction. *J Am Coll Cardiol.* 2017;69(23):2779-90.

Pharmacists' Role in the Management of Patients Receiving Dual or Triple Antithrombotic Therapy

Laura Provost, PharmD, BCPS
PGY2 Cardiology Pharmacy Resident | Baptist Hospital of Miami
LauraNeu@baptisthealth.net