



PATIENT SAFETY

Boro Park Center for Rehabilitation and Healthcare, Brooklyn, NY

In recognition of success and innovation with implementing an intervention using electronic health record data.



Anticoagulation Quality Improvement Project - Direct Acting Oral Anticoagulant Renal Dosing Assessment

BACKGROUND

Boro Park Center for Rehabilitation and Healthcare is part of Centers Health Care, a network of skilled nursing rehabilitation and senior care services with locations in New York and New Jersey.

Anticoagulants are considered the primary therapy for the prevention and treatment of various thromboembolic disorders. Bleeding is the primary adverse drug event of concern with the use of anticoagulants, including the Direct Acting Oral Anticoagulants (DOAC). Patient-centered care requires consideration of the pharmacokinetic properties of the DOAC and how these relate to each individual patient/resident. An accurate and appropriate estimation of renal function using the Cockcroft-Gault formula using actual body weight is required to correctly dose DOACs.

The goal was to complete a quality improvement project to determine the presence of recent renal function assessment in residents receiving a DOAC and to review the adherence to dosing recommendations according to the product label. The assessments will be completed for a group of facilities across the region served by Centers Health Care. This poster presents the data from the original facility assessment.

APPROACH

Nursing Education Program

IPRO collaborated with Corporate Centers Health Care to create an educational slide deck summarizing the mechanism of action, indications, and recommended renal dosing modifications for the targeted DOAC medications.

Virtual education was provided by the Centers Corporate education team to nurses and facility leadership across the corporate facilities as the first intervention of the project.

Point Click Care (PCC) Data Report

A PCC analyst created a list of de-identified residents on DOAC medications including Apixaban, Rivaroxaban, Edoxaban, and Dabigatran. Automating this process allowed data collection to occur with no burden on the providers.

The following data were collected for each resident record:

- Medication data including start date, dose and interval, frequency, and indication
- Serum creatinine (Scr) value and test date
- eGFR value and test date
- Gender and age

DOAC medication orders were reviewed for dosing adherence per product labels.

RESULTS

Nursing Education- A total of 37 nurses and facility leaders attended the DOAC dosing review on December 13, 2023.

Educational content included:

- Apixaban (Eliquis) dosing in renal impairment
- Common signs and symptoms of bleeding
- Renal function measurements

Boro Park Center DOAC Renal Function/Dosing Assessment Completed 1-2024

Electronic Health Record Measure	Result
Total Number of NH Residents on DOAC Medications (%)	137/510 (27%)
Renal Function Assessed eGFR	137/137 (100%)
Renal Function Assessed Serum Creatinine (Scr)	115/137 (84%)
Renal Function Assessed within 3 Months (before or after) DOAC Medication Order Date	128/137 (93%)
Residents with DOAC Dosing Adjusted for Renal Function per Product Label	117/137 (85%)

CONCLUSIONS

- 84-100% of residents on a DOAC had an assessment of renal function in their medical record.
- 93% of renal function assessments were recent in relation to the medication order date.
- 89% of DOAC dosing was adherent to the product label recommendations.
- Dosing not adherent to the product label was provided to the medical director for review.
- Suggested dosing modifications were presented to the medical director and resultant changes made as appropriate.
- Project has been replicated at two other Centers facilities with plans to add three more in the near future.

REFERENCES

Hindley et al. Pharmacokinetics and pharmacodynamics of direct oral anticoagulants. Expert Opinion on Drug Metabolism and Toxicology. 2023; 19: 911-923.

National Action Plan for Adverse Drug Prevention. U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. Washington DC. 2014

Rose et al. Guideline discordant dosing of DOAC in VA Health Administration. BMC Health Services Research 2021; 21: 1351.

Resident Number	Apixaban Eliquis	Dabigatran Pradaxa	Rivaroxaban Xarelto	Edoxaban Savaysa	DX	Med Order Date	Lab Test Date	Lab test	Lab Test Result	Lab Test Date	Lab Test	Lab Test	weight Lbs	Age	Discharged Resident	Dosage Appropriate for Renal Function? Y, N, or NR
1	5mg po Q12				A-fib	1/13/2024	1/22/2024	Serum Creatinine	1.09	1/27/2024	eGFR	65	206.4	76	Y	
2	5mg po Q12				PE	1/14/2024				11/29/2023	eGFR	79	133	80	Y	
3	5mg po Q12				A-fib	1/10/2024				12/19/2023	eGFR	93	131.6	77	Y	
4	5mg po Q12				clotting prevention	1/12/2024	1/22/2024	Serum Creatinine	2.33	1/27/2024	eGFR	36	210	75	X	Y
5	5mg po Q12				CVA	1/14/2024	12/27/2023	Serum Creatinine	0.84	1/27/2024	eGFR	96	190.2	67	X	Y
6	5mg po Q12				H/O PE	1/18/2024	12/28/2023	Serum Creatinine	1.18	12/28/2023	eGFR	50	111.4	67	Y	
7	5mg po Q12				clotting prevention	1/9/2024	1/14/2024	Serum Creatinine	1.26	1/13/2024	eGFR	52	210	97	Y	
8	5mg po Q12				A-fib	1/17/2024	1/19/2024	Serum Creatinine	1.72	1/29/2024	eGFR	30	158.5	63	X	Y
9	5mg per G-tube Q12				A-fib	1/16/2024	1/18/2024	Serum Creatinine	0.43	1/28/2024	eGFR	85	143	93	X	Y
10	5mg po Q12				clotting prevention	1/18/2024	1/19/2024	Serum Creatinine	2.32	2/2/2024	eGFR	32	153.2	87		N
11	5mg po Q12				A-fib	1/18/2024	1/22/2024	Serum Creatinine	1.05	1/29/2024	eGFR	72	165.2	66	Y	
12			20mg po QHS		CVA	1/1/2024				9/19/2023	eGFR	98	135.8	66		Y
13	2.5mg po QD				DVT	1/13/2024	12/18/2023	Serum Creatinine	WNL (NYU)	12/18/2023	eGFR	WNL (NYU)	121.8	77	X	N- no data on
14	2.5mg po QD				A-fib	1/9/2024				12/13/2023	eGFR	29	123	90	NR	
15	2.5mg po QD						1/4/2024	Serum Creatinine	2.42	2/2/2024	eGFR	25	92.2	97	X	NR

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