Pharmacist Led Anticoagulation Clinics: Examining Current Practice in the Saskatchewan Health Authority

Darcy Lamb BSP ACPR MSc, Jade Weimer PharmD(c), Shannan Neubauer BSP ACPR PharmD FCSHP, Dave Sereda BSP ACPR, Linda Gross BSP, Angela Andrus BSP, Idunnu Omisore BSc MSc, Lori Albers BSP ACPR MHA(c)

Background

Five pharmacist led anticoagulation clinics within the SHA provide care for patients receiving anticoagulation. An understanding of current practice is required to identify areas of strength, service excellence, and opportunities for improvement and to align practice provincially.

Purpose

To describe and compare the patient characteristics, operational and clinical care processes of SHA pharmacist led anticoagulation clinics to facilitate quality improvement.

Methods

All SHA sites with an active outpatient pharmacist led anticoagulation management service were eligible for inclusion. Retrospective, observational data was collected in REDCap by a student investigator for all patients 16 years of age or older receiving anticoagulation management at the time of local service area data collection. Clinic specific information was collected through a survey completed by local site investigators. Interviews with local site investigators occurred following completion of the clinic specific survey.

Results

Five clinics participated in the study with 880 patient charts audited. Main reasons for referral, indication for anticoagulation, and monitoring of LMWH & DOACs varied between sites (Table 1). Number of active clients, INRs per day, and TIR calculation differed between sites (Table 2.) Notable differences were found to exist between clinics in regards to use of technology, workspace, use of technicians, and after hours management of INRs (Table 3). Two clinics have a medical director and formal patient care quality assurance processes. One clinic has defined a competency assessment process for pharmacists.

Table 1. Patient Characteristics	Combined Results (n=880)	Regina (n=144)	Saskatoon (n=102)	Moose Jaw (n=462)	Yorkton/ Canora (n=151)	Nipawin (n=21)
Average Age	69.99	57.74	57.67	74.14	76.87	73.14
Male sex - # (%)	484 (55.0)	83 (57.6)	45 (44.1)	248 (53.7)	97 (64.2)	11(52.4)
Average duration of time managed by clinic (months)	74	35	27	104	49	76
Referral Reason - # (%) **						
New warfarin start	509 (57.8)	108 (75.0)	37 (36.3)	310 (67.1)	48 (31.8)	6 (28.6)
Labile/hard to control INRs	39 (4.4)	10 (6.9)	27 (26.5)	0 (0)	0 (0)	2 (9.5)
Change in health	28 (3.2)	6 (4.2)	11 (10.8)	4 (0.9)	4 (2.6)	3 (14.3)
Complicated/high risk patient	13 (1.5)	1 (0.7)	9 (8.8)	1 (0.2)	2 (1.3)	0 (0)
Family Physician prefers AMS to manage	554/880	24 (16.7)	16 (15.7)	363 (78.8)	135 (89.4)	15 (71.4)
Unknown/Not documented/Other	22 (2.5)	4 (2.8)	15 (14.7)	3 (0.6)	0 (0%)	0 (0)
Referred from hospital setting - # (%)	362 (41.1)	99(68.8)	62 (60.8)	169 (36.6)	27 (17.9)	5 (23.8)
Vitamin K Antagonist as primary anticoagulant - # (%)	862 (98.0)	140 (96.5)	89 (87.3)	461 (99.8)	151 (100)	21 (100)
Documentation of assessment for switch to a DOAC # (%)	292 (33.2)	41 (28.5)	77 (75.5)	105 (22.7)	55 (36.4)	14 (66.7)
Antiplatelet use - number (%)	185 (21.0)	63 (43.8)	23 (22.5)	88 (19.0)	10 (6.6)	1 (4.8)
Indication for Anticoagulation Therapy - # (%) **						
Atrial Fibrillation or flutter	442 (50.2)	37 (25.7)	20 (19.6)	267 (57.8)	106 (70.2)	12 (57.1)
VTE	231 (26.3)	45 (31.3)	28 (27.5)	109 (23.6)	43 (28.5)	6 (28.6)
Mechanical Heart Valve	199 (22.6)	79 (54.9)	36 (35.3)	66 (14.3)	15 (9.9)	3 (14.3)
Clotting Disorder	60 (6.8)	13 (9.0)	10 (9.8)	28 (6.1)	4 (2.6)	5 (23.8)
Stroke	62 (7.0)	14 (9.7)	9 (8.8)	34 (7.4)	5 (3.3)	0 (0)
Other	144 (16.4)	26 (18.1)	33 (32.4)	72 (15.6)	11 (7.3)	2 (9.5)

** These questions were "select all that apply", therefore, the percentages will not equal to 100%

Table 2. Quality and Workload Indicators January 1, 2021 to July 1, 2021	Regina	Saskatoon	Moose Jaw	Yorkton / Canora	Nipawin
Average TIR (Rosendaal)	67.6%	71.3%	N/A	69.7%	Unknown
Average TIR	N/A	N/A	63.1%	N/A	Unknown
Number of INRs above 5	13	11	Unknown	6	Unknown
Clinic Definition of 'critical INR'	6 or greater	5 or greater	4.5 or greater	6 or greater	4 or greater
Total # active patients	167	183	600	214	21
Average # of INRs/day	14	30	14	6	Unknown
Total number of INRs	1684	1741	2265	1022	Unknown
New referrals (#)	39	73	unknown	5	unknown
Overtime hours (#) for AMS staff	n/a	11.5	n/a	n/a	n/a

Table 3. Comparison of Clinics and Opportunities for Improvement	Regina	Saskatoon	Moose Jaw	Yorkton / Canora	Nipawin
Adequate space/equipment is available for all professional, administrative and direct patient care functions	No	Yes	Yes	No	Yes
Technology is leveraged to allow pharmacists to efficiently provide care to patients	Yes	No	No	Yes	No
Documention of Patient Care	Dawn AC	Paper, Posologic	Paper, Posologic	DAWN AC	Paper, EMR
Clinic provides services for non-AMS patients	No	Yes	Yes	Yes	Yes
Manage or monitor patients on DOACs	Yes	Yes	No	No	No
Pharmacists (#) scheduled to provide coverage each shift	1	1	1	1	1
Pharmacists (#) trained to provide coverage	6	5	6	3	2
Technicians (#) scheduled in the clinic each shift	0	0	1	1	0
Technicians (#) trained to provide coverage	0	0	8 or more	8 or more	0
The clinic has a medical director	Yes	Yes	No	No	No
Is the clinic open on weekends and statutory holidays?	No	No	Yes	Yes	No
AMS clinic staff cover on-call/after hours	No	No	Yes	Yes	No
Pharmacist interventions are tracked	Yes	No	No	No	No

Discussion

SHA AMS clinics excel at warfarin management. Opportunities exist to improve workload, standardize and align procedures and quality assurance processes to optimize patient care.

Saskatchewan Health Authority