



# Privileging Process for Anticoagulation Pharmacists for the prescription of Warfarin



## SINGAPORE GENERAL HOSPITAL ALLIED HEALTH DIVISION

Jeremy Koh, Kong Ming Chai, Dr. Camilla Wong

### BACKGROUND

There are a total of 152 pharmacists trained in Anticoagulation Management in the past 12 years with 34 Anticoagulation Pharmacists currently running the Anticoagulation Clinic (ACC) at Singapore General Hospital (SGH). The ACC is now in it's 13<sup>th</sup> year and has seen its patient visits increase from 499 (19%) in 2001, to 2357 (100%) patient visits in 2012. This is an average of 200 patients per month, with ACC pharmacists playing a critical role in their treatment and care.

Warfarin is an anticoagulant that helps “thin” the blood to prevent clotting, and the prescription of warfarin is complex and risky, with many drug-drug interactions and other variables that interfere with patient safety. Patients who use the medication must keep a close watch on their diet and lifestyle to avoid the serious side effects that can occur when the potent drug interacts with some foods or medication.

The ACC was mainly staffed by doctors when it opened in 1986. But as the number of patients on warfarin increased, pharmacists joined the team in 2001. They took on the work of reviewing patients with stable conditions, enabling the doctors – haematologists or blood specialists – to focus on new cases, or on patients with more complex conditions.

### AIMS

To ensure ACC pharmacists are competent and trained, a rigorous and standardised privileging process is implemented. The privileging of ACC pharmacists in the prescription of Warfarin aims to provide a rigorous method to verify that ACC pharmacists possess the requisite skills and expertise to perform optimal anticoagulation pharmacotherapy, achieving improved anticoagulation control and ensuring maximal safety, consistency and efficiency in patient care.

The privileging process also aims to ensure ACC pharmacists are trained to educate patients regarding their drug therapy and to motivate them to follow their pharmacotherapy regimens and monitoring plans.

### METHODS

Training and annual competency assessment is required for all new and existing ACC Pharmacists to earn their privileges. The Head of Department or his/her designate ensures that the staff receives proper training and conducts competency assessment before having the staff do actual work with minimal supervision.

### RESULT

ACC tracks the following key performance indicators (KPIs): Percent time in therapeutic international normalized ratio (INR) range, total hospitalization rate, percentage of cases of major bleeding, minor bleeding and thrombosis. Analysis of KPI data indicate a marked improvement in performance, with 3 of 5 targets met in 2013.

### CONCLUSION

The current privileging process does indicate a positive result in terms of improved safety, skill and efficiency. KPIs related to safety collected from 2012 to 2013 have improved significantly. Total hospitalization rates have reduced, down from 9% in 2000 to 4% of total patients. Efficacy data for time within therapeutic INR range has improved as well, with patients within the target therapeutic range 67.5% of the time, up from 46.6% in 2000. These results provide evidence for the benefits of implementing this privileging process for ACC Pharmacists.

#### Existing ACC Pharmacists

Must complete a minimum of 30 hours within a year at ACC.

Attendance of ACC Continue Education (with minimum 70% attendance rate).

Undergo a peer review twice a year.

#### New ACC Pharmacist trainees

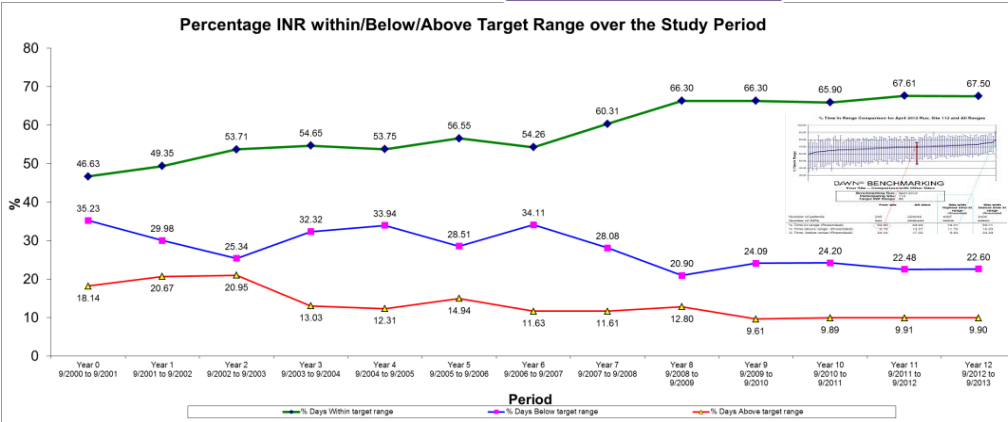
Must complete a didactic module with a minimum 70% passing mark

Clock a minimum of 30 hours of ACC attachment

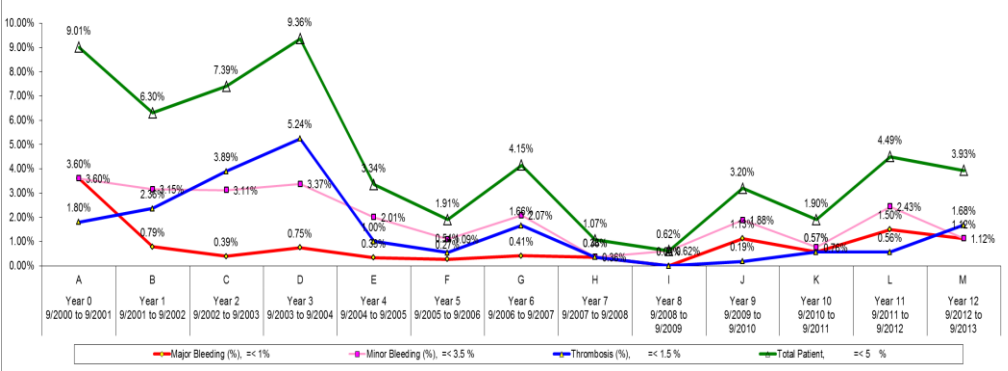
Pass a peer review with 10 patients

Complete 10 case write-ups (5 supra-therapeutic and 5 sub-therapeutic)

Pass an ACC exam with a minimum 70% passing mark



#### Percentage Time Within / Below / Above Target INR Range



#### Rate of Hospitalization for ACC Managed patient

Patient Satisfaction Questions (5-point Likert scale)	Year 5	Year 6	Year 10
1. I know why I am taking warfarin.	4.70	4.78	4.26
2. I know my warfarin dose.	4.90	4.95	4.66
3. I know how and when to take warfarin everyday.	4.80	4.91	4.75
4. I understand what INR means.	3.10	4.19	3.05
5. I know my target INR.	3.30	4.19	3.73
6. I know the importance of taking warfarin everyday and keeping to the prescribed dosing.	4.40	4.69	4.73
7. I know what I should do if I miss a dose.	4.10	4.41	3.48
8. I am familiar with the side effects of warfarin.	4.10	4.63	3.19
9. I am aware of the bleeding signs and symptoms	-	4.68	3.62
10. I know what to do when I have bleeding symptoms	-	4.66	3.96
11. I know warfarin may interact with certain medications and food.	4.10	4.65	4.11
12. I know I must discuss with my doctor/pharmacist if I want to start taking new medications or herbal medicines	4.50	4.66	4.67
13. If I have any questions about warfarin, the pharmacist could always provide me with an answer.	4.70	4.77	4.29
14. The pharmacist gives me clear instructions and answers.	4.70	4.91	4.49
15. My waiting time in ACC is short.	2.00	3.27	3.23
16. The pharmacist is always punctual for our sessions.	3.80	4.02	-
17. The pharmacist is friendly and caring.	4.60	4.76	4.18
18. I am given enough time to discuss with my pharmacist during my ACC sessions.	4.60	4.85	4.18
19. Ever since I attended the ACC sessions, my warfarin results (INR) are better controlled	3.90	4.11	3.72
20. The fees to ACC service are affordable.	3.50	4.26	3.90
21. I like to go to ACC in SGH as compared to ACC in other institutions.	4.10	3.63	3.92
22. Overall, I am satisfied with the service and counselling provided in ACC in SGH.	4.20	4.27	4.15
23. My quality of life has improved since I started taking warfarin.	-	-	3.45
24. I am satisfied with the frequency of appointments and visits I have to make to SGH for my warfarin treatment.	-	-	3.69