

A Nurse-run, Community-based Anticoagulation Clinic

2007 Northern Health Research Conference,
Sault Ste. Marie, ON

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About The Group Health Centre



The Group Health Centre is an interdisciplinary, community-based health service organization serving more than 62 000 people in Sault Ste. Marie, Ontario.

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History of the Anticoagulation Clinic (ACC)

- Established in May 2000
- Staffed by three ACC nurses who:
 1. Educate patients.
 2. Monitor their INR values.
 3. Adjust warfarin dosages as required, according to a warfarin medical directive.

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ACC Objectives

1. To provide the right service at the right time by the most appropriate professional.
2. To provide safe, effective and efficient anticoagulation to patients maintained on oral anticoagulation utilizing a clinic coordinated by specialized anticoagulation nurses (ACN). The nurses work under the direction of a referring physician, following established protocols.

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ACC Objectives (continued)

Included in this directive:

- Patient eligibility criteria
- Physician notification
- Hours of operation
- RN responsibility
- Quality assurance

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ACC Medical Directive

Patient Eligibility

1. Patient is referred by their family physician to the clinic by sending a referral to the Anticoagulation Clinic Nurse (ACN).
2. The patient must be maintained and stabilized on oral anticoagulation.
3. The referral must include:
 - the indication for the anticoagulation,
 - the goal INR of either 2-3 or 2.5-3.5, and
 - the strength of warfarin tablets ordered.

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ACC Medical Directive (continued)

Clinic Protocol

1. ACN will monitor the anticoagulation.
2. Problems occurring after clinic hours, or if the INR is outside the protocol, are the responsibility of the referring physician or designate.
3. The prescribing of warfarin is the responsibility of the referring physician.

ACC Medical Directive (continued)

Referring Physician Notification

Referring physicians are notified to obtain a patient's specific order if the following contraindications for patient monitoring occur:

- Non-compliance with INR testing parameters as determined by AC Clinic protocol;
- INR value consistently outside of therapeutic range;
- > 2 doses of vitamin K within 12 months due to INR range;
- Another physician/specialist interrupts anticoagulation therapy.

ACC Medical Directive (continued)

Responsibilities of Anticoagulation Nurses

- Obtain clinical details on referred patients and maintain records;
- Order INRs through the clinic with the referring physician listed on the order;
- Adjust the Warfarin dose based on the INR utilizing established protocols.

ACC Medical Directive (continued)

Responsibility of Anticoagulation Nurses (continued)

- Assess for major and minor bleeding/bruising episodes, or any thromboembolic events;
- Follow up on patients who do not return for scheduled INRs;
- Contact referring physician for any problems falling outside the protocol;
- Liaise with referring physician.

ACC Medical Directive (continued)

Patient Guidelines for Dental Appointments

- Patients should not discontinue warfarin on the direction of a dentist;
- Only a physician or the AC Clinic may discontinue or change a patient's warfarin;
- For dental procedures it is recommended to have an INR one week and one day before the procedure. The dentist's office can then be notified of the most recent INR result before the procedure.

ACC Medical Directive (continued)

Quality Assurance

The Anticoagulation Clinic provides quarterly statistics about:

- proportion of INRs in therapeutic range;
- rates of minor and major bleeding; and
- rates of thromboembolic events.

Initiation into the ACC Program

Initiation Process:

1. Primary Care Provider refers patient to ACC.
2. Medical Directive is signed.
3. Patient (and caregiver) attend a group teaching session (a new session is held every 2 weeks).
4. Telephone follow-up calls are made to ensure that:
 - a) lab tests are done on time, and
 - b) all adverse events are reported.

ACC Program (continued)

Topics discussed with patient during information session:

- Role of the ACC registered nurse;
- Reasons for anticoagulation therapy;
- Medication appearance, dose, drug interactions and potential side effects, dietary implications; and
- The monitoring process.

ACC Program (continued)

Patients are given an information package containing the following:

- Information on warfarin
- List of Vitamin K-rich foods
- Calendar to keep track of scheduled lab tests
- Medical Alert card
- AC nurse contact card
- Medication information
- Anticoagulation Clinic information (e.g. hours of operation)

Quality Assurance Report and Patient Compliance

GHC AC Clinic Results	Jan-Dec 2004 (N = 438)	Jan-Dec 2005 (N = 568)	Jan-Dec 2006 (N = 589)
Total INRs performed	11 202	12 958	14 242
In range, no lab variance, n (%)	317 (72.4)	401 (70.7)	428 (72.7)
In range, +/- 0.2 lab variance, n (%)	373 (85.2)	474 (83.5)	507 (86.0)

Monitoring AC Outcomes

OUTCOME	Anticoagulation Clinic* (n = 123)	Usual Care* (n = 102)
Significant warfarin-related bleeding events, n (%)	10 (8.1)	36 (35.3)
Thromboembolic events, n (%)	4 (3.3)	12 (11.8)
Major to fatal bleeding events, n (%)	2 (1.6)	4 (3.9)
Warfarin-related hospitalizations, n (%)	6 (4.9)	19 (18.6)

*Chiquette E, et al. *Arch Intern Med.* 1998;158:1641-7.

GHC AC Clinic Outcomes

OUTCOME	2004 (n = 438)	2005 (n = 568)	2006 (n = 589)
Major hemorrhagic events, n (%)	5 (1.1)	12 (2.1)	10 (1.7)
Minor hemorrhagic events, n (%)	11 (2.5)	7 (1.2)	9 (1.5)
Thromboembolic events, n (%)	4 (0.9)	2 (0.4)	3 (0.5)
Fatalities, n	0	1	1
Hospital admissions, n (%)	8 (1.8)	13 (2.3)	11 (1.9)

Anticoagulation Clinic Outcome Benefits

- Safe, effective and efficient
- Major bleeding rates rarely over 2%
- INR values consistently within range
- High patient and physician/NP satisfaction

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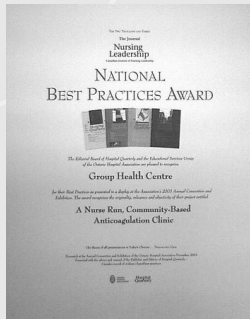
Suggestions

The following are key to a successfully run Anticoagulation Clinic:

- Communication
- Documenting the process
- Support staff training and development
- Providing regular feedback

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National Recognition



In 2003, GHC's Anticoagulation Clinic won a National Best Practices Award, which recognizes originality, relevance, and objectivity as a national leader in evidence-based interventions.

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Anticoagulation Nursing Team



From left to right:
Karen Linley, Lianne Sirie, Norma-Jean Hayes-Sheen

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Questions???

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