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## Toolkit Resources

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUI</td>
<td>Guidelines for Interaction Between Primary and Post-primary Care Physicians</td>
</tr>
<tr>
<td>DVT</td>
<td>DVT Process</td>
</tr>
<tr>
<td>CDD</td>
<td>Clostridium difficile Process</td>
</tr>
<tr>
<td>CEL</td>
<td>Cellulitis Process</td>
</tr>
<tr>
<td>APB</td>
<td>Antibiotic Prophylaxis of Bite Wounds</td>
</tr>
<tr>
<td>INR</td>
<td>INR Process</td>
</tr>
<tr>
<td>IWK</td>
<td>IWK Health Centre, Women’s/Maternity Site Guidelines for Division of Gynaecology</td>
</tr>
<tr>
<td>RES</td>
<td>Physicians Resources</td>
</tr>
<tr>
<td>TRC</td>
<td>Travel Clinics</td>
</tr>
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### Contact
Primary/Secondary Care Quality Initiative, Capital Health, Nova Scotia
Tel (902) 473-7664; Fax (902) 473-6153; mike.macdonald@cdha.nshealth.ca
Guidelines for Interaction Between Primary and Post-primary Care Physicians

1.1 Background

2.1 Guidelines for Interaction Between Primary and Post-primary Care Physicians

---

**Development Team / Advisors**
Susan Anderson, Sam Campbell, Brendan Carr, Kathy Gallagher, Charlie Lo, Peter MacAulay, Mike MacDonald, Heather MacPherson, Beth Mann, Victoria Mitchell, John Nicholson, Stephen O'Keefe, Wayne Sullivan, Alison Wiebe, DMAC, DMAC Quality Committee, Medical Staff Association

**Contact**
Primary/Secondary Care Quality Initiative, Capital Health, Nova Scotia
Tel (902) 473-7664; Fax (902) 473-6153; mike.macdonald@cdha.nshealth.ca
A working group set up to address issues concerning the interface between family physicians and a referral centre has, as part of its activities, tried to identify what can be done to improve the referral and communication process with Capital Health.

The group, consisting of family physicians and consultant representatives, has reviewed existing literature on the subject and drawn up the “wish list” on the following pages that it believes would improve the process. This is not a “binding agreement” but rather a starting point to help guide stakeholders in the referral process to make things clearer, easier, and ultimately better for patients.

These guidelines are offered as a work in progress, subject to review as necessary.
These guidelines are intended to achieve optimal process interaction between physicians within Capital Health. They outline ideal roles, responsibilities, and expectations of referring and consulting physicians with the intent that clarity will support their shared goal of quality patient care and improved access to the health care system. The creation of these guidelines carries the expectation that all parties will act with professionalism and is grounded in the values of Capital Health, which guide our decisions and behaviour.

<table>
<thead>
<tr>
<th>Our Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration:</strong> We work together to improve services and achieve healthier people and communities.</td>
</tr>
<tr>
<td><strong>Accountability:</strong> We are responsible for services that are patient/client-centred and responsive to our communities, and for effective management of resources. We are open and honest in what we do.</td>
</tr>
<tr>
<td><strong>Respect:</strong> Our decisions, services, and relationships reflect compassion, caring and understanding.</td>
</tr>
<tr>
<td><strong>Excellence:</strong> We strive for high performance through leadership, competence, a spirit of inquiry and innovation.</td>
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</tbody>
</table>

This document was developed by a team of health care professionals – family physicians, consultants and health care administrators – focused on improving patient transitions and professional interactions between primary and post-primary care, in reaction to reports of poor understanding of optimal referral processes between the two arenas. The guidelines were based on consultation with both family medicine and consultant groups, on currently available literature on the topic\(^1\), and the existing rules and regulations of medical staff in Capital Health. This initiative was funded by Health Canada’s Primary Health Care Transition Fund.

**The Referring Physician**

A referring physician may include a family practitioner or a consulting physician (consultant) referring to another consulting physician.

1. The referring physician will ensure referrals are made solely for the patient’s benefit. An appropriate patient assessment will be done prior to referral.
2. The referring physician will involve the patient in the referral decision. S/he will provide a clear explanation to the patient as to the referring physician’s expected goals of the consultation, likely time period involved, and patient responsibilities.
3. The referring physician will provide a legible written communication of referral to the consultant. The written referral will include the perceived urgency of the consultation, details of the relevant history and physical findings, current and previous relevant medications, recent laboratory findings, and the purpose of the consultation.
4. The referring physician will NOT be responsible for obtaining consent for consultant services, or for gathering administrative data over and above that needed for the consultation.
5. Unless otherwise agreed upon, the referring physician will resume care of the patient after the consultation process has been completed.
6. In the case of an urgent referral, the referring physician will speak directly with the consultant on call for the appropriate service.

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\(^1\) For a complete list of references, please contact Mike MacDonald, Primary/Secondary Care Quality Initiative, at (902) 473-7664.
INFORMATION FOR FAMILY PHYSICIAN

Guidelines for Interaction Between Primary and Post-primary Care Physicians

7. Accountability for co-ordination of care must be clearly defined. The referring physician will co-ordinate patient care where more than one consultant is involved, unless a particular consultant agrees to assume this function.

The Consulting Physician

A consulting physician, or consultant, includes those to whom patients are referred for specialized assessment and/or care. (In some instances, a physician’s staff may equally meet the responsibility outlined.)

1. The consultant will acknowledge referral letters within 14 days of receipt to the referring physician with an estimated or exact date of an appointment. At this time, additional tests required to expedite the consultation can be requested by the consultant.

2. The consultant will notify the patient and referring physician of the time and circumstances of the appointment.

3. The consultant discharging a patient from hospital will ensure that patients discharged from hospital leave with an appointment date for specialist followup, if the discharging physician* deems it necessary, or instructions on when to follow up with his/her family physician.

4. Trainees do not have the authority to refuse consults. The consultant will personally communicate refusals and suggest alternative plans to the referring physician.

5. The consultant will order any indicated tests at the time of the consultation. The physician (or on-call physician for a clinic) ordering tests will be responsible for acting on the test results. Laboratory or DI forms should specify the ordering, and thus responsible, physician.

6. The consultant will communicate clearly in writing the results of the consultation to the referring physician, including ongoing plans or suggestions, within 14 days of the consultation.

7. The consultant will communicate findings of the consultation to the patient where it is in the patient’s best interests.

* “Discharging physician” refers to the physician making the discharge decision, or his delegate.

Drafted by Primary/Secondary Quality Care Working Group, September 12, 2006.
To comment or provide feedback, contact Sam Campbell or Mike MacDonald, Primary/Secondary Care Quality Initiative, at (902) 473-7664.
Deep Vein Thrombosis Process

1.1 New Primary Care Pathway
   Deep Vein Thrombosis (DVT) Workup

1.2 New Primary Care Pathway
   Deep Vein Thrombosis (DVT) Workup (Algorithm)

2.1 Scoring Guide and Referral Form (MASTER)

3.1 Information for Patients (MASTER)

4.1 ACP Responsibilities for DVT Process (Omitted from FP copy)

5.1 Radiologist Tasks for the DVT Care Plan (Omitted from FP copy)

6.1 EP Tasks for the DVT Care Plan (Omitted from FP copy)

7.1 Duplicate Copies

Development Team / Advisors
David Anderson, Sam Campbell, David Gass,
Mike MacDonald, Susan Malloy, Valerie Ross, Susan Cairns

Contact
Primary/Secondary Care Quality Initiative, Capital Health, Nova Scotia
Tel (902) 473-7664; Fax (902) 473-6153; mike.macdonald@cdha.nshealth.ca
New Primary Care Pathway
Deep Vein Thrombosis (DVT) Workup

New investigation and management options for patients suspected of having deep vein thrombosis (DVT) have brought the treatment of this disease into the field of family practice. Although most family physicians within Capital Health district have adopted these options for their patients, there remains limited access to the tools necessary to manage suspected DVT, especially after hours.

This new process will facilitate the primary care management of DVT in an effort to:

- standardize approach to DVT management in Capital Health
- make the process simpler and more “user-friendly” for family physicians
- enhance convenience for patients (less waiting time, fewer steps in the process)
- ensure that patient management is safe, efficient and cost effective

The process centres on the following evidence-based assumptions:

1. The likelihood of DVT in a patient can be objectively quantified into “likely” and “unlikely” categories, according to a scoring system.
2. Patients in the “unlikely” category can have the diagnosis effectively ruled out by a negative d-dimer.
3. A negative d-dimer is not sensitive enough to rule out DVT in patients in the “likely” category. These patients will need a compression ultrasound (CUS).
4. A positive d-dimer (>200iu) is not specific enough to make a diagnosis of DVT. It can only identify patients in the “unlikely” category who need a CUS.
5. Inpatients who need a CUS but are unable to get one until the next day should receive empiric low molecular weight heparin (LMWH).
6. The majority of patients with DVT can be managed as outpatients.

Family physicians can access the Primary Care DVT Pathway by referring their patients to the Halifax Infirmary, with the attached DVT referral form (page DVT 2.1).

Patients so identified at triage will have d-dimer drawn or CUS arranged as indicated by the patient’s risk category. During hours without CUS availability, LMWH will be given and a CUS arranged for the following day. In cases where the diagnosis of DVT is confirmed by CUS, the initial dose of LMWH will be given and referral to the anticoagulation clinic will be made, with communication back to the family physician. All patients will be called within 3 months as part of the evaluation of the process.

This process is not intended to proscribe family physicians from ordering d-dimer testing or CUS directly during regular office hours. Patients may be entered into the above process at any stage in the proceedings. (For example, a patient may have a positive d-dimer, yet it is too late for the family physician to arrange a CUS that day. Or a patient with a positive CUS may need LMWH given before the definitive anticoagulation process can be arranged.)

Any questions regarding the process can be directed to Sam Campbell or Mike MacDonald at: (902) 473-3871, 830-2571 or 473-7664.
New Primary Care Pathway
Deep Vein Thrombosis (DVT) Workup

**DVT Probability Score Using Wells Criteria**

<table>
<thead>
<tr>
<th>Clinical Characteristic</th>
<th>Present</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active cancer (patient receiving treatment for cancer within the previous 6 months or currently receiving palliative treatment)</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Previous deep vein thrombosis</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Pitting edema confined to the symptomatic leg</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Localized tenderness along the distribution of the deep venous system</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Extending edema</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Cell swelling at least 3 cm larger than that on the asymptomatic side (measured 10 cm below tibial tuberosity)</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Edema visible confined to the symptomatic leg</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Collateral superficial veins (nonvaricose)</td>
<td>yes</td>
<td>1</td>
</tr>
<tr>
<td>Partially documented deep vein thrombosis</td>
<td>yes</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Score**

- If score is less than 2, patient is in the 'unlikely' category.
- If score is 2 or more, patient is in the 'likely' category.

**DVT Diagnosis Process Flow**

1. **Suspected DVT**
2. **Determine DVT Probability Score Using Wells Criteria**
   - Unlikely (< 2)
   - Likely (≥ 2)
3. **D-dimer**
   - Positive
   - Negative
4. **CUS**
   - Positive
   - Negative
5. **Review Well’s Score**
   - Likely
   - Unlikely
6. **Review D-dimer**
   - Positive
   - Negative
7. **DVT Diagnosed**
8. **Repeat CUS in 1 Week**
9. **DVT Ruled Out**

This algorithm can be followed by the FP or the patient may be referred to the ED DVT process at the QEII after any of these steps.
**WELLS CRITERIA**: Clinical Model for Predicting the Pretest Probability of Deep-Vein Thrombosis

<table>
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<th>Present</th>
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<tr>
<td></td>
<td>Paralysis, paresis, or recent plaster immobilization of the lower extremities</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Recently bedridden for 3 days or more, or major surgery within the previous 12 wk requiring general or regional anesthesia</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Localized tenderness along the distribution of the deep venous system</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Entire leg swollen</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Calf swelling at least 3 cm larger than that on the asymptomatic side (measured 10 cm below tibial tuberosity)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pitting edema confined to the symptomatic leg</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Collateral superficial veins (nonvaricose)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Previously documented deep-vein thrombosis</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Alternative diagnosis at least as likely as deep-vein thrombosis*</td>
<td>-2</td>
</tr>
</tbody>
</table>

*Please specify alternate diagnosis:

**TOTAL SCORE**

If score is **less than 2**, patient is in the ‘unlikely’ category.
If score is **2 or more**, patient is in the ‘likely’ category.

<table>
<thead>
<tr>
<th>DVT Score</th>
<th>Phone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score:</td>
<td></td>
</tr>
<tr>
<td>‘Likely’ (≥2) Needs CUS</td>
<td><strong>Ultrasound Radiologist QEII</strong> 473-1640</td>
</tr>
<tr>
<td>‘Unlikely’ (&lt;2) Needs d-dimer</td>
<td><strong>Emergency DVT</strong> 473-2222 *ask them to page 1170</td>
</tr>
<tr>
<td></td>
<td><strong>Emergency Department</strong> 473-4444</td>
</tr>
<tr>
<td></td>
<td><strong>473-4969</strong></td>
</tr>
</tbody>
</table>

For instructions, see reverse side of this sheet

---

2 In patients with symptoms in both legs, the more symptomatic leg is used.
Instructions

1. Complete scoring system (overleaf) and order investigation as per algorithm.
2. Patients with a score of <2 are in the “unlikely” category and need a d-dimer test.
   A  If the d-dimer is negative, DVT has effectively been ruled out.
   B  If the d-dimer is positive, they will need a compression ultrasound (CUS).

The d-dimer test may be ordered by the family physician, or by referring the patient to the DVT pathway at the QE II ED by calling (902) 473-4444 or 473-2222 (ask for pager 1170) with the patient’s particulars. Ask for the DVT process to be initiated. This call can be made by your assistant or secretary; please ask them to quote the probability score.

3. Patients whose score is ≥ 2 are in the “likely” category and will need a compression ultrasound (CUS). To arrange this:

   A  If between 0800-1300 hrs weekdays:
      Call 473-1640 to order ultrasound directly from a radiologist.
      *Please quote the probability score.*

   B  At all other times, or if CUS will be delayed until the next day:
      Call 473-4444 or 473-2222 (ask for pager 1170) with the patient’s particulars.
      Ask for the DVT process to be initiated.
      This call can be made by your assistant or secretary
      Please ask them to quote the probability score.

4. **At all times**, sign this form and give it, along with the patient DVT handout (pages DVT 3.1 and 3.2), to the patient. Please instruct the patient to proceed – with the form – directly to the ultrasound department, 3rd floor Halifax Infirmary (if an ultrasound has been organized) or to the emergency department after hours or weekends.

If a DVT is diagnosed, the patient will be referred directly to the hematology/anticoagulation clinic.

Patients in whom DVT is “ruled out” will be asked to return to your office for re-evaluation within 2 days (unless you have instructed them otherwise).
INFORMATION FOR PATIENTS

When your doctor is concerned that you may have a deep vein thrombosis (DVT)

What is a deep vein thrombosis?
A deep vein thrombosis (DVT) is a blood clot that forms in a deep leg vein. These leg veins are blood vessels that go through the muscles (they are not the veins that you can see just below the skin). A calf vein is the common site for a DVT. A thigh vein is less commonly affected.

![Deep vein thrombosis diagram]

Deep vein thrombosis (DVT) is a serious blood clot in a leg vein.
A complication may occur if a piece of the blood clot breaks off and travels to the lung (pulmonary embolus). This is usually prevented if you are given anticoagulation treatment.

Why do blood clots form in leg veins?
Blood normally flows quickly through veins and does not usually clot. Sometimes a DVT occurs for no apparent reason. However, the following increase the risk:

- Prolonged inactivity. This causes blood flow in the veins to be slow and more likely to clot than normal flowing blood. (For example, after a long operation, a prolonged period from illness or injury, a long journey, or immobilization in a cast.
- Faulty blood clotting is an uncommon but possible cause. If present, it is usually the result of inherited condition that causes the blood to clot more easily. It can also be caused by birth-control pills or hormone replacement therapy.
- Damage to the inside lining of the vein, from an injury or an earlier DVT.
- Older or obese people, pregnant women, and those with a serious illness such as cancer.

What are the symptoms of a deep vein thrombosis?
The usual symptoms are pain, tenderness, and swelling of the calf. Blood that would normally go through the blocked vein is diverted to outer veins. The calf may then become warm and red. Sometimes there are no symptoms, and a DVT is only diagnosed if a complication occurs.
INFORMATION FOR PATIENTS

When your doctor is concerned that you may have a deep vein thrombosis (DVT)

How do we find out if you have a deep vein thrombosis or not?

Sometimes it is difficult for a doctor to be sure of the diagnosis, as there are other causes of a painful and swollen calf, such as a muscle strain or infection. Specialists at Capital Health have developed the following strategy based on the latest medical evidence:

Your family doctor will ask you questions about your symptoms and will examine the leg. Using this information, and a scoring system, the doctor will calculate your likelihood of having a DVT.

If the scoring system suggests that the likelihood of a DVT is low, your doctor will order a blood test called a d-dimer. You may need to go to an emergency department to have this test done.

- If the test is negative, it means that the chances of you having a DVT are so low that no further investigation is needed.
- If the test is positive, it does not mean that you have a DVT. Many other things can cause the test to be positive. It just means that you will need a test called a compression ultrasound to confirm the diagnosis. In this test, the deep veins of your leg are compressed. If they are not seen to collapse with compression on the ultrasound, you will be diagnosed with DVT.

If the scoring system suggests that it is likely you have a DVT, you will be given a compression ultrasound – a d-dimer blood test will not be used.

If your ultrasound is likely to be delayed, you will receive an injection of low-molecular weight heparin. This medicine slows down the clotting of your blood. This will stop any clot from growing while you are waiting for the ultrasound. Low molecular weight heparin is very safe and is unlikely to harm you if you do not have a DVT.

Following your doctor’s instructions, you may be referred to the emergency department of the Halifax Infirmary where the process will be facilitated by an advanced care paramedic.

If you are diagnosed with a DVT, you will be referred to the hematology clinic at the Victoria General site, 4th floor, to start your treatment.

If your tests do not show a DVT, it is important that you follow up with your family doctor to see whether any other conditions might still need to be considered or treated. Your family doctor may ask you to have the ultrasound repeated after one week.
1. On receiving referral from Family Physician (FP) or Emergency Physician (EP): Remind FP about the scoring system and patient handout form. (Offer to fax to him/her if necessary).

2. Instruct triage to call you at 4969 on the arrival of the patient. (Check periodically in case this has been missed).

3. Review referral form/checklist from FP. Inform EP if you have a candidate eligible for the care plan. With his consent, initiate plan as below. If not, patient to wait in triage lineup.

4. Draw blood for d-dimer, plus extra tubes for CBC, BUN, creatinine and INR.

5. If ‘unlikely’:
   A. Ask patient to wait in the waiting room for d-dimer result.
   B. If d-dimer negative, (DVT ruled out) discuss with patient, inform EP, and with his consent, discharge to FP follow-up.
   C. If d-dimer positive, inform EP, and with his consent arrange CUS for earliest appointment within 24 hours. See below for instructions to order CUS.
   D. If CUS is to be delayed until the next day, give fragmin 200 u/kg subcutaneous (No Maximum dose) and give patient requisition for CUS at Dickson centre at 0800 (if next day is weekend, return to QEII for CUS).
   E. Review ACP checklist to ensure patient is stable for discharge.
   F. Fax emerg sheet to 6418 for the hematology nurse to follow up (phone 7985 with details).

6. If ‘likely’:
   A. Inform EP to get his signed order. Facilitate ‘quick EP consultation’ if necessary.
   B. Order CUS for earliest appointment within 24 hours. See below for instructions to order CUS.
   C. If CUS is to be delayed until the next day, give fragmin 200 u/kg subcutaneous and give patient requisition for CUS at Dickson centre at 0800 (if next day is weekend, return to QEII for CUS).
   D. Review ACP checklist to ensure patient is stable for discharge.
   E. Fax emerg sheet to 6418 for the hematology nurse to follow up (phone 7985 with details).

7. On receipt of a CUS report (Triage will inform ACP if patients return with CUS result).
   A. If negative:
      i. Patients with initial score of ‘unlikely’, but positive d-dimer, have had DVT ruled out. Patient may be discharged to FP follow-up with EP’s consent.
      ii. In the case of negative CUS in patients with ‘likely’ score AND positive d-dimer, a repeat CUS in a week is indicated. This will be organized by the hematology clinic. Fax emerg sheet, d-dimer and ultrasound wet report to 6418. Inform the patient to call 473-7985 if they have not been contacted in 5 days.
   B. If CUS positive:
      i. Inform EP, and with his consent, give fragmin 200 u/kg subcutaneous, as per protocol.
         (If not already given within 24 hours).
      ii. Call 7985 with patient name, diagnosis and HUN number.
      iii. Prior to 1300 HRS page 1212 and discuss with the hematology nurse.
      iv. After 1300, discharge patient with instructions to return to hematology clinic at 1000 HRS the following day.
      v. If the next day is Saturday, call 8577 to inform MDU to expect the patient. Tell the patient to go to MDU at 1000 HRS.
      vi. Fax ED chart, DVT form, blood results and CUS report to 6418. (any day of week)

8. On days that are not followed by a clinic day, (Saturdays or Sunday before a public holiday), the EP must page the hematologist on call to arrange outpatient follow-up at MDU the next day. Call MDU at 8577 as in 7 B(v), and fax information as in 7 B(vi).

9. NB – Please obtain signed consent from the patient for a 3 month follow-up phone call, and obtain the charge physician’s signature before the patient is discharged.

**TO ORDER A CUS**: Before 1500 HRS, EP will usually call radiology for ‘same-day’ CUS. After 1500 HRS, give patient US requisition and ask them to go to the 3rd floor Dickson Centre at 0800 HRS the next day.

*If patient already on warfarin, check INR. Fragmin is still indicated in most cases
**ACP DVT CARE PLAN CHECKLIST**

<table>
<thead>
<tr>
<th>Patient Name:</th>
<th>Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUN Number:</td>
<td>Pulse</td>
</tr>
<tr>
<td>Health Card Number:</td>
<td>BP</td>
</tr>
<tr>
<td>Brief History:</td>
<td>RR</td>
</tr>
<tr>
<td></td>
<td>SaO₂</td>
</tr>
</tbody>
</table>

Date: ____________________ Time: ____________________

DVT form filled out prior to arrival? Yes No
Patient sent to ED by? Family physician Emerg. physician Walk-in Other _______________

⚠️ Inform the charge physician if the patient has any vital sign abnormality, shortness of breath, chest pain, or if the patient looks acutely unwell.

**WELLS CRITERIA**: Clinical Model for Predicting the Pretest Probability of Deep-Vein Thrombosis

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<td></td>
<td>Paralysis, paresis, or recent plaster immobilization of the lower extremities</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Recently bedridden for 3 days or more, or major surgery within the previous 12 wk requiring general or regional anesthesia</td>
<td>1</td>
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<tr>
<td></td>
<td>Localized tenderness along the distribution of the deep venous system</td>
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<td>Calf swelling at least 3 cm larger than that on the asymptomatic side (measured 10 cm below tibial tuberosity)</td>
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<td></td>
<td>Alternative diagnosis at least as likely as deep-vein thrombosis*</td>
<td>-2</td>
</tr>
</tbody>
</table>

*Please specify alternate diagnosis:

**TOTAL SCORE**

If score is **less than 2**, patient is in the ‘unlikely’ category.
If score is **2 or more**, patient is in the ‘likely’ category.

**Discharge checklist:**
If any of these are present, inform EP before discharge.

- Temp > 38°C shortness of breath
- HR > 100 chest pain
- Syst.BP < 95 patient looks acutely unwell
- RR > 20
- SaO₂ < 95%

ACP’s signature: ____________________
ACP’s name: ____________________
Charge Physician’s signature: ____________________
Charge Physician’s name: ____________________

⚠️ 3 month follow-up consent form signed?

---

2 In patients with symptoms in both legs, the more symptomatic leg is used.
INFORMATION FOR RADIOLOGIST

Radiologist Tasks for the DVT Care Plan

Care plan for patients referred to the QEII Health Sciences Centre, Halifax, for investigation of DVT.

On receipt of request for CUS to investigate DVT:

A  Ask for DVT likelihood category.
   ⇒ If ‘unlikely’ ask for d-dimer result.
   ⇒ If no d-dimer result, request it before sanctioning the test.
   ⇒ If ‘likely’ or ‘unlikely’ and d-dimer positive – CUS is indicated.

B  If CUS is to be delayed until the next day, suggest family physician refers the patient to emergency department for low molecular weight heparin according to the DVT pathway. (The current pilot DVT pathway suggests to the family physician that same-day ultrasound referrals will usually not be accommodated after 1300 hrs).

CUS result

<table>
<thead>
<tr>
<th>If Negative</th>
<th>If Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>If direct referral from family physician (FP),</td>
<td>Call FP with result. FP may ask you to send the patient to the</td>
</tr>
<tr>
<td>discharge to FP for followup.</td>
<td>hematology clinic (7985, or page hematology nurse at 1212) or to refer to</td>
</tr>
<tr>
<td></td>
<td>the ED (call 4960).</td>
</tr>
<tr>
<td>If emergency department (ED) referral, refer</td>
<td>If unable to contact FP or hematology nurse, refer to ED.</td>
</tr>
<tr>
<td>patient back to ED (call 4960).</td>
<td></td>
</tr>
</tbody>
</table>

It is anticipated that the demand for emergency CUS will decrease by 40-60% by following this protocol.

For any concerns or questions with this process, please call Sam Campbell or Mike MacDonald at 830-2571, 473-3871, or 473-7664.
Radiologist Tasks for the DVT Care Plan

INFORMATION FOR RADIOLOGIST

Determine DVT Probability Score Using Wells Criteria
- Blood is drawn for d-dimer, plus extra tubes for CBC, BUN, creatinine and INR.
- Review ((Well's Score

Patient referred to you for CUS
- Ask for DVT likelihood category (plus d-dimer result if 'unlikely')
- Choices: 'same-day' CUS – tell FP/EP to send patient to US dept; next day CUS, refer patient to ED patient for fragmin 200 u/kg s/c and referral to 3rd Floor Dickson Centre at 0:800 the next day; Send the well report to FP/EP

Repeat CUS in 1 Week

DVT Diagnosed
- Call FP with result; if unable to contact FP, refer to ED

DVT Ruled Out

Positive

Review D-dimer Result

Negative

Review Well's Score

Positive

Likely

Unlikely

D-dimer

Contact Numbers
- Emergency Department Charge EP – 4960
- Emergency Department Paramedic – 4969
- Hematology Clinic/Nurse - 7985, (page – 12112)
- Other enquiries about this process - 7664

Options:
- 'unlikely'
- Ask for DVT likelihood category (plus d-dimer result if 'same-day' CUS – tell FP/EP to send patient to US dept; next day CUS, refer patient to ED patient for fragmin 200 u/kg s/c and referral to 3rd Floor Dickson Centre at 0:800 the next day; Send the well report to FP/EP

Negative

Refer patient back to ED/FP

Likely

Unlikely

Positive
The use of this care plan by emergency physicians is optional.

On receipt of request from a family doctor for DVT care plan

- collect FP and patient’s name
- Inform ward clerk +/- ACP
  - Let the ACP know if you wish to see the patient before d-dimer test

Otherwise, patient will be referred to you before testing only if:
A. Patient has abnormal vital signs or complains of shortness of breath, chest pain, or if the patient looks acutely unwell.
B. Other concerns of the paramedic.

In all other cases the department ACP will arrange d-dimer testing and/or CUS, and referral to hematology day clinic (if DVT is diagnosed). The ACP will review the patient with you and facilitate a “quick-look” consultation as required. If patient needs a full evaluation (or if you are uncomfortable with this process), they will return to their place in the triage lineup.

On days that are not followed by a clinic day (Saturday mornings or Sunday before a public holiday), the hematologist on call should be paged to arrange outpatient followup for patients diagnosed with DVT.

Patients presenting to the emergency department with leg pain who have not been screened by the family physician will not be placed on this pathway. However, if after your initial assessment you wish to have a “DVT workup” performed on the patient, the ACP will facilitate this for you.

This care plan is essentially similar to the liaison nurse function. Patients with suspected DVTs referred by their FP will have investigation initiated while they wait to see you, as opposed to after they see you. These patients often do not need a bed and can pass through the emergency department with minimum hassle.

Any vital sign abnormality or chest symptom will result in patients being taken off this pathway at once.

The ACP will obtain informed consent from the patient for a 3-month follow-up call.

---

1 Family physicians are being encouraged to perform this process themselves during office hours, and can be told this when they call in before 1330 hrs. We will develop a process whereby they can have a copy of the care plan and scoring system faxed to them on request.
## Clostridium difficile Process

<table>
<thead>
<tr>
<th>1.1</th>
<th>Clostridium difficile Associated Diarrhea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>Treatment of Clostridium difficile Associated Diarrhea (Algorithm)</td>
</tr>
</tbody>
</table>

---

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Antibiotic use can alter the normal bowel flora and allow *C. difficile* to become the predominant intestinal organism. Toxins produced by *C. difficile* are responsible for illness that ranges from self-limiting diarrhea to life-threatening enterocolitis.

The algorithm overleaf is designed to help family physicians decide on treatment and/or referral options for patients suspected to have *C. difficile* Associated Diarrhea (CDAD).

**Keep in mind:**

- Inflammatory bowel disease can also predispose a patient to *C. difficile*.
- Most commonly implicated antimicrobial agents are:
  1. Quinolones
  2. Clindamycin
  3. Second- and third-generation cephalosporins

However, almost every antibacterial in use has been implicated in the occurrence of CDAD, *including those used to treat it*.

- CDAD can occur 1-2 days after initiation of antibiotic therapy and for up to 10 weeks after therapy has been stopped.
- Patients with mild CDAD may not require antibiotic therapy. Symptoms may resolve by stopping the offending antibiotic.
- Oral (rather than intravenous) antimicrobial therapy is optimal for CDAD.
- Cholestyramine has a role to play in patients with multiple relapses. Avoid initially – lack of evidence for use in initial presentation and may bind oral vancomycin and metronidazole.
- Return to normal bowel habit may lag behind resolution of CDAD.
- Avoid antiperistaltic agents in patients with CDAD as they cause toxin retention and are a risk factor for developing complications of CDAD.
- Treatment of asymptomatic carrier is unnecessary and will not eradicate carriage.
**INFORMATION FOR FAMILY PHYSICIAN**

**Treatment of Clostridium difficile Associated Diarrhea**

**Diarrhea**
- History of prior (10 weeks) or concurrent exposure to: antimicrobials or Inflammatory Bowel Disease (IBD).
  - Yes: Order assay for C difficile toxir
  - No: Look for other cause

**Is diarrhea moderate or severe?**
- Yes: Patient able to tolerate po meds and fluids? - preferred
  - Yes: Is patient allergic to / or unable to tolerate metronidazole?
    - Yes: Vancomycin 125mg p.o qid x 10-14 days Cost = $$$
    - No: Metronidazole 250mg p.o qid or 500mg po tid x 10-14 days Cost = $ Monitor INR if patient on Warfarin
  - No: Refer to Emergency

**Is patient elderly or debilitated?**
- Yes: Monitor patient for 48 hrs
- No: Consider resolution Persistent diarrhhea

**No further studies**

**Patient responds**
- Yes: No response within 48 hrs or condition worsens
- No relapse: Relapse after therapy (5-30%)
- No further studies

**Relapse**
- Yes: Reconfirm diagnosis with C difficile cytotoxin test
  - Positive: Further work-up
  - Negative: Manage without further antibiotic therapy

**Is CDAD moderate or severe?**
- Yes: Repeat initial course of antibiotic therapy (resistance to antimicrobials is exceedingly rare)
  - Patient responds: No relapse
  - No response within 48 hrs or condition worsens: Contact ID
- No: No further studies

**Vancomycin 50mg QID x 10 days + S Boulardi#*500mg po BID**
- (beginning on day 7 of vancomycin therapy) x 4wks
  
  Clinic Infect Dis 2000,31:1012-17

  *Caution: in immune compromised patients it can cause fungemia

**Week Vancomycin Taper**
- 1: 125mg QID
- 2: 125mg BID
- 3: 125mg MC
- 4: 125mg OD
- 5E: 125mg x 5-7 days
  
  Am J Gastroenterol 1985, 80:867-86

**Sequential Taper**
- Vancc 125mg od x 7-10 days
- Vancc 125mg c12hrs +
  
  cholosteryamine 4g c 12hrs x 5-7 days
- Vancc 125mg MC + cholosteryamine 4g c12h x 5-7 days

**Metronidazole or Vancomycin pc x 14 days followed by**
- cholesteryamine 4g tid x 2-4 days
  
  Am J Gastroenterol 1997 92: 735-50

  *cholesteryamine should be spaced from all medications by at least 2 hours

The above are therapeutic choices for resistant or recurrent CDAD usually ordered by GI or ID
Cellulitis Process

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Nova Scotia Adult Cellulitis Guidelines for Family Physicians (Grading Scale)</td>
</tr>
<tr>
<td>1.2</td>
<td>Nova Scotia Adult Cellulitis Guidelines for Family Physicians (Algorithm)</td>
</tr>
<tr>
<td>2.1</td>
<td>Drugs for Injuries Sustained in Natural Water or From Bites</td>
</tr>
<tr>
<td>3.1</td>
<td>Cellulitis Reference Notes</td>
</tr>
<tr>
<td>4.1</td>
<td>Information for Patients (MASTER)</td>
</tr>
<tr>
<td>5.1</td>
<td>Duplicate Copies</td>
</tr>
</tbody>
</table>

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**Definition**

Acute spreading inflammation involving the soft tissue, excluding muscle, characterized by recent onset soft-tissue erythema, warmth, swelling and tenderness, considered to be of infective origin and acquired in the community.  
*This does not include infected surgical wounds or previously treated (< 3 months) deep diabetic infections.*

**Grading Scale**

**Grade I**
- Symptoms/signs restricted to superficial swelling, erythema, warmth, mild lymphadenopathy, and mild pain; absence of systemic symptoms in patients without risk factors for poor outcome.

**Grade II**
- Dominant systemic signs – fever, chills, lymphangitis and/or rapidly advancing edge.
- Mild cellulitis (as defined in Grade I) in high-risk\(^2\), non-neutropenic, splenic patients.

**Grade III**
- Severe facial, perineal or extensive skin involvement (i.e., if any dimension of the area of skin involved is greater than the distance between the patient’s median wrist crease and the point of the elbow).
- Failure to respond to >48 hrs of adequate oral Rx.
- A history of episodes of cellulitis requiring prolonged intravenous therapy.

**Grade IV**
- Deep perineal, orbital, joint, or deep hand involvement.
- Cellulitis in neutropenic or asplenic patients.
- Suspicion of necrotizing, deep-seated infection or severe sepsis\(^3\).

---

\(^1\) Age > 16 years.  
\(^2\) High-risk patients = Neutropenia, asplenia, active cancer, SLE, transplant, prosthetic joint or valve, HIV with CD4 count < 200, or chronic venous insufficiency, chronic lymphedema, post mastectomy, axillary node dissection or radical pelvic surgery affecting the infected body part.  
\(^3\) Severe sepsis = Systemic signs/symptoms with evidence of end organ dysfunction or hypoperfusion.
This algorithm can be followed by the FP or the patient may be referred to the ED DVT process at the QEII after any of these steps.

**Diagnosis of Cellulitis**

- Infected bite or infected natural water injury?
- Use the same grading system for disposition, but use Table I (see page CEL 2.1) for antibiotic choice.

**Grade I**

- Cephalexin 500 mg QID po x 7 days or Cloxacillin 500mg QID po x 7 days or Clarithromycin 500 mg BID po x 7 days.
- Followup in 48-72 hrs.

**Grade II**

- These patients may benefit from an initial dose of IV antibiotics. If this is your opinion, refer to the nearest emergency department.
- In most cases, they will receive an initial dose of Probenecid 1-2g po and Cefazolin 1-2g IV.
- They will be discharged from Emergency with one of: Cephalexin 500 mg QID po x 7-10 days or Cloxacillin 500mg QID po x 7-10 days or Clarithromycin 500 mg BID po x 7-10 days.

**Grade III**

- These patients usually benefit from a course of IV antibiotics. If this is your opinion, refer to the nearest emergency department.
- After an initial dose of IV antibiotics, the patient will be assessed for home or in-hospital treatment.
- Closely supervised home therapy. Probenecid 1-2gm po & Cefazolin 1gm IV q24 hrs. Change to P.O. regimen as for Grade I, if Grade I features obtained for >24 hrs.
- Reassessment by family physician in 5 days.

**Grade IV**

- IMMEDIATE REFERRAL to emergency department – please call ahead.
- Admission to hospital

**IMMEDIATE CONSULTS:**
- All patients – Infectious Diseases
- Necrotizing infection – Surgery
- Deep hand infection – Plastic Surgery
- Orbital cellulitis – Ophthalmology

**Blood Cultures** – only in complex infections, immunocompromised or sepsis

**CBC & 'Lytes** – only if indicated for reasons other than cellulitis

**Chem-strips (not lab glucose)** – to screen for diabetes mellitus

Fluoroquinolones are not considered appropriate first-line agents for treating uncomplicated cellulitis, although they may be appropriate to avoid intravenous therapy in select cases after consultation with an appropriate specialist.

1 Age > 16 years.
2 See definition on page CEL 1.1.
3 Antibiotic treatment must be initiated as soon as possible upon suspicion of cellulitis of Grades II to IV. Use Probenecid with caution in chronic renal failure or acute gout.
4 Consults to several different disciplines may need to be made simultaneously.
TABLE 1
Infections of injuries sustained in natural water or as a result of bite wounds

<table>
<thead>
<tr>
<th>CIRCUMSTANCE OF ORIGINAL INJURY</th>
<th>Mammal Bite</th>
<th>Salt Water</th>
<th>Fresh Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade I</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammal Bite</td>
<td>Amox/Clav² 875 mg po BID x 7-10 days</td>
<td>Doxycycline 200 mg po OD or Ciprofloxacin 500 mg po BID x 7-10 days</td>
<td>TMP-Sulpha³ DS x 1 tab po BID or Ciprofloxacin 500 mg po BID x 7-10 days</td>
</tr>
<tr>
<td></td>
<td>If penicillin allergy: Moxifloxacin 400 mg OD or Ciprofloxacin 500 mg po BID plus Clindamycin 300 mg QID, x 7 days.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grade II</strong></td>
<td>Ceftriaxone 1g IV, then po regimen as in I, above.</td>
<td>Ciprofloxacin 400 mg IV, then po as above.</td>
<td></td>
</tr>
<tr>
<td>(refer to ED)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grade III</strong></td>
<td>Ceftriaxone 1-2 g IV OD plus Metronidazole 500 mg po BID x 7-10 days.</td>
<td>Ciprofloxacin 400 mg mg IV BID x 7-10 days (step down to po when Grade 1 criteria for 24 hours)</td>
<td></td>
</tr>
<tr>
<td>(refer to ED)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grade IV</strong></td>
<td>Refer to hospital as per algorithm (CEL 1.2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Consult an Infectious Diseases specialist if patient is pregnant and has a penicillin allergy - 473 2222 and ask for “ID Staff”
² Amoxicillin/Clavulanate
³ Trimethoprim-sulfamethoxazole
⁴ If no signs of improvement in 48hrs, consult an Infectious Diseases specialist as above.
Necrotizing Soft Tissue Infections

Although uncommon in healthy adults, necrotizing infections should be considered in all cases.

Necrotizing soft tissue infections can involve the skin (necrotizing cellulitis), subcutaneous fat (panniculitis), fascia (fasciitis), or muscle (myonecrosis). The infections progress rapidly and are always more complicated and serious than superficial cellulitis. Tissue necrosis and lack of response to antimicrobial Rx differentiate it from cellulitis. As necrosis extends beyond the cutaneous layers, nerves are damaged and an initially painful area may become numb. Necrotizing infections are rare in healthy individuals and are more likely in diabetics, malnourished, and burn patients. However, previous good health does not rule out this diagnosis.

Clinical features of necrotizing soft tissue infections include:

- Patients acutely ill and toxic with painful erythema containing scattered patchy gangrenous or necrotic skin changes or anesthesia
- Severe systemic symptoms or pain, out of proportion to skin findings (skin findings may be absent initially)
- Edema or pain out of proportion to erythema
- Subcutaneous gas or skin vesicles
- No response to antibiotics
- “Dishwater pus” from vesicles or bullae
- Lymphangitis and lymphadenitis, commonly associated with non-necrotizing cellulitis, are usually absent
- Early necrotizing infections may masquerade as simple cellulitis, so a high index of suspicion and precise patient instructions are always appropriate

Orbital cellulitis
Proptosis, orbital pain and restricted eye movements – this is an ocular emergency mandating immediate initiation of treatment and referral.

Septic arthritis
Consider the diagnosis in any patient with cellulitis in proximity to a joint.
Underlying predisposition
Always evaluate the patient for underlying predisposition to cellulitis (or recurrence) that may need to be investigated/treated:

- Removal of a saphenous vein for CABG
- Lymphatic anomalies/chronic edema
- Diabetes mellitus
- Peripheral vascular disease
- Ingrown nails
- Psoriasis
- Tinea infections
- Intravenous drug user – consider bacterial endocarditis
- Very dry, cracked skin

Failure to respond to adequate therapy
- Cellulitis may not appear to respond for the first two days of treatment and may in fact worsen somewhat in appearance. Consider consultation and/or a change in management if no evidence of improvement in systemic symptoms, or significant deterioration, at followup visit.

- Persistent signs/symptoms in spite of evidence of improvement are common at the end of the course of therapy and do not need additional antimicrobial treatment.

- Always consider an alternative diagnosis, such as deep vein thrombosis (DVT) if in the limbs, dependent rubor of an ischemic limb, or lymphatic obstruction from other causes.

- Consider an infective complication – e.g., abscess, septic arthritis, necrotizing infection.
### Antibiotic Costs

<table>
<thead>
<tr>
<th>Oral antimicrobial regimen</th>
<th>Approx. cost for 7 days in community¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin/Clavulanate 875mg po BID</td>
<td>$32.22</td>
</tr>
<tr>
<td>Cephalexin 500mg po QID</td>
<td>$18.74</td>
</tr>
<tr>
<td>Ciprofloxacin 500mg po BID</td>
<td>$40.89</td>
</tr>
<tr>
<td>Ciprofloxacin 750mg po BID</td>
<td>$68.21</td>
</tr>
<tr>
<td>Clindamycin 300mg po QID</td>
<td>$44.44</td>
</tr>
<tr>
<td>Clindamycin 450mg po QID</td>
<td>$61.63</td>
</tr>
<tr>
<td>Clarithromycin 500 mg po BID</td>
<td>$56.91</td>
</tr>
<tr>
<td>Clarithromycin XL 1 gm po OD</td>
<td>$48.67</td>
</tr>
<tr>
<td>Levofloxacin 500 mg OD</td>
<td>$36.34²</td>
</tr>
<tr>
<td>Moxifloxacin 400 mg OD</td>
<td>$54.83</td>
</tr>
<tr>
<td>Cloxacillin 500mg po QID</td>
<td>$15.72</td>
</tr>
<tr>
<td>Doxycycline 100mg po BID</td>
<td>$20.36</td>
</tr>
<tr>
<td>Metronidazole 500mg po BID</td>
<td>$12.06</td>
</tr>
<tr>
<td>Septra DS 1 tab po BID</td>
<td>$11.83</td>
</tr>
</tbody>
</table>

¹ Prices include $9 dispensing fee (Shoppers Drug Mart, Dec. 2004)
² Price of generic Jan. 2005
What is cellulitis?
Cellulitis is an infection of the skin and the tissues just below the skin surface. A course of antibiotics will usually clear the infection.

What causes cellulitis?
The skin is usually a good barrier against infection. However, a break in the skin is a way in which bacteria (germs) can get into and under the skin. A cut, skin ulcer, injection, athlete’s foot, badly scratched eczema are some of the ways a break in the skin can occur. A tiny cut is all that is needed to allow bacteria in. The bacteria may then multiply and spread along under the skin surface to form an infection. Although a cut or graze is found in many cases to be the main cause, sometimes the infection occurs for no apparent reason with no break in the skin found. A variety of bacteria can cause cellulitis.

Who gets cellulitis?
Cellulitis can affect anyone. You are more prone to cellulitis if you have:
• athlete’s foot (a fungal infection between your toes)
• swollen legs (for various reasons) or are overweight or obese
• previously had an episode of cellulitis
• a poor immune system - for example, if you take steroids or have HIV/AIDS
• poorly controlled diabetes

What are the symptoms of cellulitis?
The affected skin feels warm, may be swollen, and looks red and inflamed. The infected area may spread and is usually tender. The nearest glands may swell and become tender. This is because they are fighting off the infection to stop it from spreading to other parts of the body. For example, the glands in the groin may swell during a cellulitis of the leg. You may feel generally unwell and have a fever. Indeed, the first symptoms are often to feel feverish and shivery for up to 24 hours before any changes to the skin appear.

Is cellulitis serious?
Cellulitis can range from mild to serious, depending on the depth and size of infection and speed at which it progresses. Treatment is usually advised as soon as cellulitis is diagnosed to make sure it does not spread and become serious. Cellulitis around the eye (periorbital cellulitis) needs urgent treatment. This mainly affects young children and at first causes redness and swelling of the eyelids.
INFORMATION FOR PATIENTS

Cellulitis

Possible complications of cellulitis are:
• septicaemia (blood poisoning), which can be life-threatening
• an abscess forming (a ball of pus in the infected area)
• muscle or bone infections, which can be serious
• a cellulitis around an eye can spread to infect the brain
• bacteria that get into the bloodstream and can cause a serious infection of the heart valves

With treatment, most people with cellulitis do not have complications and make a full recovery.

What is the treatment for cellulitis?
A course of antibiotic tablets will usually clear cellulitis. Symptoms should soon ease once you start antibiotic tablets. However, there may be an initial increase in redness when treatment is started before it starts to fade.

Tell a doctor if the area of infection continues to spread or if you become worse after you start antibiotics. People with severe cellulitis or those not improving with antibiotic tablets may need to be treated with antibiotics given straight into a vein.

Other things that may help include:
• Painkillers such as acetaminophen or ibuprofen can ease pain and reduce a fever.
• Keep the infected area raised as high as possible. This helps to prevent excess swelling, which may also ease pain. If you have a cellulitis of the leg, keep your foot higher than your hip so gravity helps to reduce the swelling; lie on a sofa with your leg up on a cushion, for instance. When in bed, put your foot on a pillow so that it is slightly higher than your hip. If the cellulitis is in the forearm or hand, a high sling can help to raise the affected area.
• Treat athlete’s foot if it is present.
• Use a moisturizing cream on the affected area of skin until it heals. This prevents the skin from becoming dry and helps to prevent damage to the skin.
Duplicate Copies
Antibiotic Prophylaxis of Bite Wounds

1.1 Recommendations for Antibiotic Prophylaxis of Bite Wounds (Algorithm)

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Use of this algorithm presumes appropriate irrigation and debridement of the wound. If this cannot be achieved in your clinic, consider referral to hospital emergency department.

1 If concerned about rabies exposure, contact Medical Officer of Health.
2 High-risk patients = Frank immunocompromise (neutropenia, asplenia, chemotherapy, SLE, transplant, HIV with CD4 count < 200) or chronic venous insufficiency and/or lymphedema in the affected limb.
3 Consults to several different disciplines may need to be made simultaneously.
INR* Process

1.1 Managing Oral Anticoagulation
2.1 Managing Elevated INRs
3.1 Drug and Food Interactions
4.1 Patient Risk of Thromboembolism

* International normalized ratio

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Managing Oral Anticoagulation

The information on this page is based on Evidence-Based Guidelines of the Seventh American College of Chest Physicians Conference on Antithrombotic and Thrombolytic Therapy, published in Chest in 2004. (Chest. 2004;126:204S-233S.) For details, physicians are referred to the full article.

• Warfarin reaches maximal blood concentrations about 90 minutes after oral administration and has a half-life of 36 to 42 hours. An initial effect on the patient usually occurs within the first 2 or 3 days of starting treatment.
• An INR of between 2.0 and 3.0 is effective for most indications, although in certain instances higher or lower levels may be appropriate.
• Warfarin dose requirements to achieve a therapeutic INR vary considerably between people.
• Environmental factors such as drugs, diet, and various disease states can alter the pharmacokinetics of warfarin, so measure the INR more frequently than the usual 4-week interval when virtually any drug or herbal medicine is added or withdrawn from the regimen of a patient treated with warfarin. (See page INR 3.1).

Starting warfarin therapy
For most patients, start at a daily (evening) dose of 5 to 10 mg for the first 1 or 2 days, and measure the INR on the third day.
In the elderly and in other patient subgroups with an elevated bleeding risk, start at ≤5 mg.
Base subsequent doses after the initial 2 or 3 doses on the results of INR monitoring. Measure the INR every 2 to 4 days until stable, slowly tapering to every 4 weeks if stability continues. Elderly patients or those with an underlying condition that may impact coagulation state (malignancy, clotting disorder, use of medications that can influence warfarin effect) should be monitored more frequently.

What to do around surgery
In patients with a low risk of thromboembolism, stop warfarin therapy approximately 4 days before they undergo surgery.
For patients with a high risk of thromboembolism (See page INR 4.1), stop warfarin therapy approximately 4 days before surgery and begin therapy with full-dose unfractionated heparin or full-dose low-molecular-weight heparin as the INR falls (refer to anticoagulation clinic on the following page).
In patients undergoing dental procedures, in most cases no change in the intensity of anticoagulation therapy is needed. If there is a concern for local bleeding, tranexamic acid mouthwash or epsilon amino caproic acid mouthwash without interrupting anticoagulant therapy can be used.

What to do when the INR comes back high
Most cases where there is no active bleeding can be managed by missing a dose or two and watching carefully.
In cases where bleeding may be a concern, the anticoagulant effect of warfarin can be overcome by low doses (1.0 to 2.5 mg) of vitamin K1 (phytonadione).
Note: Patients treated with large doses of vitamin K1 can become resistant to warfarin for up to 1 week or more because of vitamin K1 accumulation in the liver.
## Recommendations for Managing Elevated INRs or Bleeding in Patients Receiving Warfarin

<table>
<thead>
<tr>
<th>INR LEVEL</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>INR above therapeutic range but &lt; 5.0; no significant bleeding</td>
<td>Lower dose or omit dose, monitor more frequently, and resume at lower dose when INR therapeutic; if only minimally above therapeutic range, no dose reduction may be required</td>
</tr>
<tr>
<td>INR ≥5.0 but &lt; 9.0; no significant bleeding</td>
<td>Omit next one or two doses, monitor more frequently and resume at lower dose when INR in therapeutic range. Alternatively, omit dose and give vitamin K1* (≤ 5 mg orally), particularly if at increased risk of bleeding. If more rapid reversal is required because the patient requires urgent surgery, vitamin K1 (2 to 4 mg orally) can be given with the expectation that a reduction of the INR will occur in 24 hrs. If the INR is still high, additional vitamin K1 (1 to 2 mg orally) can be given.</td>
</tr>
<tr>
<td>INR ≥9.0; no significant bleeding</td>
<td>Hold warfarin therapy and give higher dose of vitamin K1 (5–10 mg orally) with the expectation that the INR will be reduced substantially in 24-48 hrs. Monitor more frequently and use additional vitamin K1 if necessary. Resume therapy at lower dose when INR therapeutic.</td>
</tr>
<tr>
<td>Serious or life-threatening bleeding at any elevation of INR</td>
<td>Refer to emergency as soon as possible. Call (902) 473-4444 for the Halifax Infirmary site.</td>
</tr>
</tbody>
</table>

If continuing warfarin therapy is indicated after high doses of vitamin K1, then heparin or LMWH can be given until the effects of vitamin K1 have been reversed and the patient becomes responsive to warfarin therapy. It should be noted that INR values > 4.5 are less reliable than values in or near the therapeutic range. Thus, these guidelines represent an approximate guide for high INRs.

### Contact Numbers:

For any queries concerning patients in whom anticoagulation is proving difficult, call the anticoagulation clinic in Halifax at (902) **473-6600**, Mondays, Tuesdays or Thursdays between 7:30 a.m. and 3:30 p.m.

For urgent queries, call (902) **472-2222** and ask to page the hematologist on call. For any patient with active, serious or life-threatening bleeding at any elevation of INR, please refer to the nearest emergency department.

For referrals to the anticoagulation clinic, fax referral to (902) **473-6812**. The patient will be contacted as soon as possible (within 2 to 3 days). Please specify “urgent” (i.e., needs to be seen within 3 days), or “routine” (patient will be seen within 7 days).

---

* Not all community pharmacies stock vitamin K; a telephone call to verify availability may be indicated. At the time of writing, stores in the Halifax area stocking vitamin K include the Shoppers Drug Mart outlets on Spring Garden Road and Quinpool Road and in Spryfield.
Drug and Food Interactions with Warfarin by Level of Supporting Evidence and Direction of Interaction

<table>
<thead>
<tr>
<th>LEVEL OF EVIDENCE</th>
<th>POTENTIATION</th>
<th>INHIBITION</th>
<th>NO EFFECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Alcohol (if concomitant liver disease) amiodarone anabolic steroids, cimetidine, clofibrate, cotrimoxazole erythromycin, fluconazole, isoniazid (600 mg daily), metronidazole, miconazole, omeprazole, phenylbutazone, piroxicam, propafenone, propranolol, sulfisopyrazone (biphasic with later inhibition)</td>
<td>Barbiturates, carbamazepine, clordiazepoxide, cholestyramine, griseofulvin, nafcillin, rifampin, succralfate, high vitamin K content foods/enteral feeds, large amounts of avocado</td>
<td>Alcohol, antacids, atenolol, bumatidine, enoxacin, famotidine, fluoxetine, ketorolac, metoprolol, naproxen, nizatidine, psyllium, ranitidine</td>
</tr>
<tr>
<td>II</td>
<td>Acetaminophen, chloral hydrate, ciprofloxacin, dextropropoxyphene, disulfiram, itraconazole, quinidine, phenytoin (biphasic with later inhibition), tamoxifen, tetracycline, flu vaccine</td>
<td>Dicloxacillin</td>
<td>Ibuprofen, ketoconazole</td>
</tr>
<tr>
<td>III</td>
<td>Acetylsalicylic acid, disopyramide, fluorouracil, ifosfamide, ketoprofen, lovastatin, metotazolone, moricizine, nalidixic acid, norfloxacin, ofloxacin, propoxyphene, sulindac, tolmetin, topical salicylates</td>
<td>Azathioprine, cyclosporine, etretinate, trazodone</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Cefamandole, cefazolin, gemfibrozil, heparin, indomethacin, sulfisoxazole</td>
<td>Diltiazem tobacco vancomycin</td>
<td></td>
</tr>
</tbody>
</table>
Patient Risk of Thromboembolism

1. **Low** (annual risk <4% thromboembolic stroke without anticoagulation)
   - Non-valvular atrial fibrillation without thromboembolic stroke or intermediate factors (listed below)
   - DVT ≥ 3 months without high-risk features (recurrent thromboembolism, malignancy, hypercoaguable states, extremity paresis)
   - Cardiomyopathy without atrial fibrillation

2. **Intermediate** (annual risk 4-7% thromboembolic stroke without anticoagulation)
   - Mechanical aortic valves in sinus rhythm
   - Atrial fibrillation with the following risks: age >65 years old without high-risk features or <65 years old with DM, CAD, HTN, PVD
   - DVT ≤ 3 months without high-risk features
   - Mitral stenosis, CAD, LV aneurysm, CHF with LV dilation

3. **High** (annual risk >7% thromboembolic stroke without anticoagulation)
   - Mechanical mitral valves
   - Aortic mechanical heart valve with prior thromboembolism, atrial fibrillation, heart failure
   - DVT >3 months with high-risk features
   - Atrial fibrillation with the following risks: history of thromboembolic stroke/TIA, heart failure, LV dysfunction, mitral stenosis, prosthetic heart valves, thyroid disease, >75 years old with DM, HTN,9
   - Hypercoaguable states

4. **Very high**
   - Multiple heart valves, bileaflet mitral heart valve with atrial fibrillation, heart failure, or prior embolus
   - DVT within 1 month with high-risk features

Note: The highest risk of recurrence for DVT is within the first 1 to 3 months after the acute episode.

Further resources:
- [www.chestjournal.org/cgi/content/full/126/3_suppl/204S](http://www.chestjournal.org/cgi/content/full/126/3_suppl/204S)
- [depts.washington.edu/gim/clinical/MCSSyllabus/Anticoagulation.pdf](http://depts.washington.edu/gim/clinical/MCSSyllabus/Anticoagulation.pdf)

IWK Health Centre, Women’s/Maternity Site

Guidelines for Division of Gynaecology

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Definitions of Levels of Care / Guidelines for Levels of Care</td>
</tr>
<tr>
<td>2.1</td>
<td>Physician Contact Information and Areas of Specialty</td>
</tr>
<tr>
<td>3.1</td>
<td>Clinics</td>
</tr>
</tbody>
</table>

Development Team / Advisors
Alfred Bent, Sam Campbell, Mike MacDonald

Contact
Primary Secondary Care Quality Initiative, Capital Health, Nova Scotia
Tel (902) 473-7664; Fax (902) 473-6153; mike.macdonald@cdha.nshealth.ca
Definitions of Levels of Care

Emergency (Level 1 or 2)
- Unstable patients and those requiring immediate care for life-threatening conditions (e.g., heavy bleeding, shock, unresponsive).

Urgent same-day (Emergency Levels 3 and 4)
- Stable patients with potentially serious conditions requiring same-day care (e.g., early pregnancy complication such as bleeding, incomplete abortion, possible ectopic pregnancy, severe pelvic infection, infected abortion, Bartholin abscess, very heavy menstrual flow, ovarian cyst with severe pain, adnexal torsion, postoperative complication of gynaecologic surgery).

Urgent
- Patients with conditions requiring care within 24 to 48 hours.

Semi-urgent
- Patients with conditions requiring care within the week.

Elective
- Patients requiring evaluation without urgency.

Guidelines for Levels of Care

Emergency (Level 1 or 2)
- All unstable patients should be sent directly to the QEII Emergency, Halifax Infirmary site. The Emergency Department physician should be notified. Phone (902) 473-2043.
- The Dartmouth General Hospital switchboard is (902) 465-8300 and Emergency Department (902) 465-8338.

Urgent same-day (Emergency Levels 3 and 4)
- Patients should have been seen and assessed by the referring physician. The gynaecology resident should be contacted, the case reviewed and a determination made about the best location for evaluation by gynaecology. If the resident is not available, the gynaecologist on call should be contacted. Phone (902) 470-8888.

Semi-urgent
1. Early Pregnancy Complications Clinic
- Semi-urgent pregnancy complications (not threatened abortion) should be sent to this unit by referral. Send information by fax at (902) 470-7056 (completed referral form with demographic data, contact number for patient, reason for referral, and any ultrasound results and blood work; see page IWK 3.2 for form). Contact the resident on call at (902) 470-8888 if there are questions on patient suitability for the clinic.
- Location: Gynaecology Clinic, Unit 6A, 5980 University Avenue, IWK Health Centre, Women’s and Maternity Site. Hours: 8:30 a.m. – 10 a.m., Monday to Friday
2. Post-operative Gynaecologic Problems
- Post-operative gynaecologic patients with problems should be referred to the gynaecologist who performed their surgery. If this physician is not available, the gynaecology resident or gynaecologist on call should be contacted at (902) 470-8888.
- Location: Gynaecology treatment room, Unit 6B, 5980 University Avenue, IWK Health Centre, Women’s and Maternity Site.

3. Gynaecologic Problems
- Semi-urgent gynaecologic problems can be seen at the Ambulatory gynaecology clinic by referral. Contact the resident on-call at (902) 470-8888.
- Location: Ambulatory clinic, 6th floor, 5980 University Avenue, IWK Health Centre, Women’s and Maternity Site.

Patient instructions for semi-urgent appointments
- Patients will be contacted with an appointment time and should report to the Admitting Department, main floor of the Women’s and Maternity Site, 5980 University Avenue, before going to the 6th floor. They will be sent to 6A Gynaecology Clinic for registration. They should plan to spend several hours to allow time for investigations (e.g., blood work, US).

Elective
- Refer patient directly to a physician. See attached list of physicians and their practice information.
- Complete a referral form and fax to the number listed or call the specific physician. When completing the referral form, indicate if you would like to have the first available appointment with another physician if the wait time for the requested physician is more than four weeks. You do not have to specify a particular physician.
<table>
<thead>
<tr>
<th>PHYSICIAN</th>
<th>PHONE*</th>
<th>FAX*</th>
<th>CATEGORY OF CARE</th>
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</thead>
<tbody>
<tr>
<td>Dr. T. Baskett</td>
<td>470-6788</td>
<td>470-8640</td>
<td>General</td>
</tr>
<tr>
<td>Dr. A. Bent</td>
<td>470-6460</td>
<td>425-1125</td>
<td>Urogynecology, general</td>
</tr>
<tr>
<td>Dr. J. Bentley</td>
<td>473-2366</td>
<td>473-7765</td>
<td>Gynecologic oncology</td>
</tr>
<tr>
<td>Dr. R. Bouzayen</td>
<td>470-3491</td>
<td>425-1125</td>
<td>IVF, general, infertility</td>
</tr>
<tr>
<td>Dr. T. Corkum</td>
<td>457-3703</td>
<td>457-3707</td>
<td>General</td>
</tr>
<tr>
<td>Dr. C. Craig</td>
<td>461-2246</td>
<td>461-2746</td>
<td>General</td>
</tr>
<tr>
<td>Dr. I. Delisle</td>
<td>461-2246</td>
<td>461-2746</td>
<td>General</td>
</tr>
<tr>
<td>Dr. J. Dempster</td>
<td>470-6721</td>
<td>425-1125</td>
<td>General, sexual medicine</td>
</tr>
<tr>
<td>Dr. B. Dunphy</td>
<td>404-8600</td>
<td>404-8601</td>
<td>IVF, infertility, endocrine</td>
</tr>
<tr>
<td>Dr. N. Van Eyk</td>
<td>470-7491</td>
<td>425-1125</td>
<td>Paediatric, general</td>
</tr>
<tr>
<td>Dr. S. Farrell</td>
<td>470-6788</td>
<td>470-8640</td>
<td>Urogynecology</td>
</tr>
<tr>
<td>Dr. D. Gilmour</td>
<td>470-7098</td>
<td>425-1125</td>
<td>Urogynecology</td>
</tr>
<tr>
<td>Dr. G. Graves</td>
<td>470-6781</td>
<td>425-1125</td>
<td>Endocrine, infertility, general, menopause</td>
</tr>
<tr>
<td>Dr. R. Grimshaw</td>
<td>473-4029</td>
<td>473-7765</td>
<td>Gynecologic oncology</td>
</tr>
<tr>
<td>Dr. L. Hamilton</td>
<td>404-8600</td>
<td>404-8601</td>
<td>IVF, infertility, general</td>
</tr>
<tr>
<td>Dr. K Kieser</td>
<td>473-4029</td>
<td>473-7765</td>
<td>Gynecologic oncology</td>
</tr>
<tr>
<td>Dr. W. Lee</td>
<td>435-2040</td>
<td>434-4837</td>
<td>General – Dartmouth</td>
</tr>
<tr>
<td>Dr. S. Mawdsley</td>
<td>463-1244</td>
<td>466-4585</td>
<td>General – Dartmouth</td>
</tr>
<tr>
<td>Dr. B. Parish</td>
<td>423-4901</td>
<td>423-2475</td>
<td>General</td>
</tr>
<tr>
<td>Dr. D. Rittenberg</td>
<td>470-6788</td>
<td>470-8640</td>
<td>General, urogynecology</td>
</tr>
<tr>
<td>Dr. J. Wenning</td>
<td>470-6782</td>
<td>425-1125</td>
<td>Paediatric, general</td>
</tr>
<tr>
<td>Dr. A. W. Zilbert</td>
<td>465-8700</td>
<td>465-2279</td>
<td>General, urogynecology, colposcopy</td>
</tr>
</tbody>
</table>

* Area code 902
INFORMATION FOR FAMILY PHYSICIAN

Clinics

Gynecologic Oncology

Urgent/semi-urgent
- Call QE2 switchboard 473-2222 to speak to Gyn Oncologist on call.

Non-urgent referrals
- Fax completed referral form, with appropriate history, lab and imaging reports, to (902) 473-7765.

Physicians
- Drs. R. Grimshaw, J. Bentley, P. Rittenberg, K. Kieser

Colposcopy Clinic

Physicians
- Drs. T. Baskett, J. Bentley, C. Craig, I. Delilse, J. Dempster, R. Grimshaw, K. Kieser, B. Parish
- Fax completed referral form and last two cytology results, and other reports, to (902) 473-4001.
- Referral forms and other information can be obtained by calling (902) 473-4180.

Endocrine/Infertility

Assisted Reproductive Therapies

Physicians
- Drs. B. Dunphy, R. Bouzayen, L. Hamilton – Suite 213, 1535 Dresden Row, Halifax, NS B3J 3T1
- Fax referral to (902) 404-8601.
- With questions or for phone appointments, call (902) 404-8600.

General Infertility/Reproductive Endocrine
- Fax referral to IWK Health Centre at (902) 470-7056.

Vulvar Clinic

Physicians
- Drs. I. Delilse and J. Dempster
- For patients with vulvar pain/vulvitis, dysparunia, vestibulitis, non-neoplastic vulvar dystrophies and other vulvar problems.
- Fax referral and appropriate lab and cytology reports to (90) 473-4001.
Early Pregnancy Complications Clinic
6th Floor Gynaecology Clinic, IWK Health Centre, Women’s and Maternity Site, 5980 University Ave., Halifax
Open Monday to Friday, 8:30 –10 a.m. (except statutory and hospital holidays)

Access
• Referral required by fax; please include demographic data, reason for referral, any ultrasound results, blood
type if known, whether the patient has received Rh immune globulin.
• It will not be necessary to speak to the gynaecology resident on call about the referral unless it is necessary
to ascertain whether it is appropriate for the patient to be seen in this clinic.
• If the woman’s blood type is not known, please send her for this prior to her appointment.

Patient Population
• Missed abortions that have already been diagnosed by ultrasound.
• Incomplete abortions. The patient must be completely stable and appropriate to wait up to 24-48 hours for
care.
• Patients requiring followup to ascertain if complete abortion has occurred (from Emergency Department
only).
• Patients requiring followup for possible ectopic pregnancy who are completely stable and appropriate to
wait up to 24 to 48 hours for care, generally just requiring followup βHCG. These patients must be
discussed with the resident or gynaecologist on call prior to referral.
• Patients with viable gestations or threatened abortions are NOT appropriate for this clinic.

Patient Instructions
Patients with missed abortions: These women can be instructed that they will receive a call by the morning
after the fax is received scheduling them for a specific day to present to the clinic. Be sure their contact number
is on this referral.

Patients with incomplete or possible ectopic pregnancy: Instruct the patient to report to the admitting desk
on the main floor of the Women’s Site, IWK Health Centre, at 8:15 a.m. She will then be sent to the 6th floor
gynaecology clinic for registration. There are no scheduled appointment times; patients will be seen on a first-
come, first-served basis as long as the referring fax has been received. The visit could take most of the morning,
depending on what investigations are required.

A. Date: ___________________ Please see: ___________________________________________ regarding
her pregnancy complication of

Missed Incomplete ?Complete ?Ectopic (circle one) pregnancy and advise / plan further
management.

Sincerely,

Referring Physician Name ______________________________________________________

B. Patient Contact Number: ___________________ DOB: ___________ HCN: ___________

Ultrasound report Blood type Previous βHCG

This form can be used for faxing the referral.  FAX (902) 470-7056.
Physicians Resources

<table>
<thead>
<tr>
<th></th>
<th>Booking for General Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>(Physician Name, Phone, Fax, and Areas of Practice)</td>
</tr>
<tr>
<td>2.1</td>
<td>Booking for Surgery</td>
</tr>
<tr>
<td></td>
<td>(Physician Name, Phone, Fax, and Areas of Practice)</td>
</tr>
</tbody>
</table>

Development Team / Advisors
Sam Campbell, Geoff Porter

Contact
Primary/Secondary Care Quality Initiative, Capital Health, Nova Scotia
Tel: (902) 473-7664; Fax (902) 473-6153; mike.macdonald@cdha.nshealth.ca
# INFORMATION FOR FAMILY PHYSICIAN

## Booking for General Surgery

<table>
<thead>
<tr>
<th>SURGEON</th>
<th>PHONE</th>
<th>FAX</th>
<th>TYPE OF SURGERY</th>
<th>BOOKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Jaap Bonjer</td>
<td>473-8337</td>
<td>473-5152</td>
<td>Adrenal, Cholecystectomy, Hernia, Nissen, Parathyroid, Spleen, Thyroid, Bariatric</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
<td></td>
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</tr>
<tr>
<td>Dr. Virginia Calverley</td>
<td>435-6312</td>
<td>434-7920</td>
<td>Breast, Cholecystectomy, Hernia, Gastroscopy, Colonoscopy/sigmoidoscopy</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Dartmouth)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dr. Francis Crawley</td>
<td>798-4709</td>
<td>798-0530</td>
<td>Carpal tunnel, Hernias, tubal ligations, Cholecystectomy, Breast, Gastroscopy Colonoscopy/sigmoidoscopy</td>
<td>Fax/mail/phone referral to office for consultations.</td>
</tr>
<tr>
<td>(Windsor)</td>
<td></td>
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</tr>
<tr>
<td>Dr. Carman Giacomantonio</td>
<td>473-6177</td>
<td>473-6178</td>
<td>Breast, Melanoma, Recurrent, colorectal ca, Gastric cancers, Sarcoma</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
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<td></td>
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</tr>
<tr>
<td>Dr. Gayle Higgins</td>
<td>473-5133</td>
<td>473-3637</td>
<td>Breast, Head and neck</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
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</tr>
<tr>
<td>Dr. Christopher Jamieson</td>
<td>473-5144</td>
<td>473-5147</td>
<td>Colorectal</td>
<td>Fax referral to office for consultations.</td>
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<tr>
<td>(Halifax)</td>
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<tr>
<td>Dr. Paul Johnson</td>
<td>473-2851</td>
<td>473-1018</td>
<td>Colorectal</td>
<td>Fax referral to office for consultations.</td>
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<tr>
<td>Dr. Dennis Klassen</td>
<td>473-5574</td>
<td>473-2828</td>
<td>Splenectomy, Hernia, Nissen, Port-a-cath, Cholecystectomy Minor procedures</td>
<td>Fax referral to office for consultations.</td>
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<td>(Halifax)</td>
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</tr>
<tr>
<td>Dr. Bernie McIntyre</td>
<td>473-3757</td>
<td>473-2939</td>
<td>Colorectal</td>
<td>Fax referral and follow up with a phone call to book with secretary.</td>
</tr>
<tr>
<td>(Halifax)</td>
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</tr>
<tr>
<td>Dr. Michele Molinari</td>
<td>473-7624</td>
<td>473-7639</td>
<td>Hepatobiliary Pancreatic (benign &amp; malignant) Renal transplant Liver transplant Cholangiocarcinoma Access surgery</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
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<tr>
<td>(Halifax)</td>
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</tr>
<tr>
<td>Dr. Geoff Porter</td>
<td>473-6499</td>
<td>473-6496</td>
<td>Surgical oncology, Gastric, Hepatobiliary, Sarcoma Melanoma</td>
<td>Fax referral and follow up with a phone call to book with secretary.</td>
</tr>
<tr>
<td>(Halifax)</td>
<td></td>
<td></td>
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<td></td>
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* Area code 902
<table>
<thead>
<tr>
<th>SURGEON</th>
<th>PHONE*</th>
<th>FAX*</th>
<th>TYPE OF SURGERY</th>
<th>PROCEDURE FOR BOOKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Trevor Topp</td>
<td>473-5131</td>
<td>473-2299</td>
<td>Breast, Cholecystectomy, Port-a-cath, Minor procedures</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Brock Vair</td>
<td>473-3242</td>
<td>473-5939</td>
<td>Biliary and pancreatic, Hernia, Cholecystectomy Minor procedures</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dr. Mark Walsh</td>
<td>473-5296</td>
<td>473-5297</td>
<td>Hepatobiliary Pancreatic (benign &amp; malignant) Renal transplant Liver transplant Cholangiocarcinoma Access surgery Minor procedures</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hernia Clinic</td>
<td>473-8337</td>
<td>473-5152</td>
<td></td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Halifax)</td>
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</tr>
<tr>
<td>Weight Loss program</td>
<td>473-8337</td>
<td>473-5152</td>
<td></td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Formerly Bariatric Clinic) (Halifax)</td>
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</tr>
<tr>
<td>Dr. Virginia Calverley</td>
<td>435-6312</td>
<td>434-7920</td>
<td>Breast surgery Cholecystectomy Colonoscopy Gastroscopy</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Dartmouth)</td>
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</tr>
<tr>
<td>Dr. John Murdoch</td>
<td>435-6312</td>
<td>434-7920</td>
<td>Cholecystectomy Hernia Colorectal GI endoscopy</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Dartmouth)</td>
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</tr>
<tr>
<td>Dr. Laura Nuth</td>
<td>435-2040</td>
<td>434-4837</td>
<td>Cholecystectomy Hernia Colorectal GI endoscopy Breast</td>
<td>Fax referral to office for consultations.</td>
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<td>(Dartmouth)</td>
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<tr>
<td>Dr. Warren Shih</td>
<td>465-4549</td>
<td>461-9967</td>
<td>Cholecystectomy Hernia Colorectal GI endoscopy Open splenectomy Port-a-cath</td>
<td>Phone office for referrals.</td>
</tr>
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<td>(Dartmouth)</td>
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<tr>
<td>Dr. L. Wasilewski</td>
<td>435-6312</td>
<td>434-7920</td>
<td>Endoscopy Minor procedures Plastic surgery</td>
<td>Fax referral to office for consultations.</td>
</tr>
<tr>
<td>(Dartmouth)</td>
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* Area code 902
### Cardiac Surgery

<table>
<thead>
<tr>
<th>Doctor</th>
<th>Phone*</th>
<th>Fax*</th>
<th>Preferred Practice</th>
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<tbody>
<tr>
<td>Dr. Idris Ali</td>
<td>473-3808</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair</td>
</tr>
<tr>
<td>Dr. Imtiaz Ali</td>
<td>473-3808</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, transplantation, heart failure</td>
</tr>
<tr>
<td>Dr. Roger Baskett</td>
<td>473-3808</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair, transplantation, a-fib ablation, heart failure, ventricular assist device</td>
</tr>
<tr>
<td>Dr. Camille Hancock Friesen</td>
<td>473-7597</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair, transplantation, a-fib ablation, heart failure, ventricular assist device</td>
</tr>
<tr>
<td>Dr. Gregory Hirsch</td>
<td>473-7890</td>
<td>473-7149</td>
<td>Coronary artery disease, valve replacement, valve repair, transplantation, heart failure</td>
</tr>
<tr>
<td>Dr. Jean Francoise Legare</td>
<td>473-3808</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair, transplantation, thoracic aortic thoracoabdominal aneurysm, a-fib ablation, heart failure, ventricular assist device</td>
</tr>
<tr>
<td>Dr. Stacy O’Blenes</td>
<td>473-3808</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair</td>
</tr>
<tr>
<td>Dr. Keir Stewart</td>
<td>473-3808</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair, thoracic aortic thoracoabdominal aneurysm, a-fib ablation, heart failure</td>
</tr>
<tr>
<td>Dr. John Sullivan</td>
<td>473-7597</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair, transplantation, thoracic aortic thoracoabdominal aneurysm, a-fib ablation, heart failure, ventricular assist device</td>
</tr>
<tr>
<td>Dr. Jeremy Wood</td>
<td>473-7597</td>
<td>473-4448</td>
<td>Coronary artery disease, valve replacement, valve repair, transplantation, thoracic aortic thoracoabdominal aneurysm, a-fib ablation</td>
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### Neurosurgery

<table>
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<tr>
<th>Doctor</th>
<th>Phone*</th>
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<th>Preferred Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Robert Brownstone</td>
<td>473-6850</td>
<td>473-6852</td>
<td>Functional neurosurgery, movement disorders, complex pain syndromes, epilepsy surgery, intrinsic brain tumors</td>
</tr>
<tr>
<td>Dr. Sean Christie</td>
<td>473-2096</td>
<td>473-8912</td>
<td>Minimally invasive spinal surgery, complex spinal surgery, neurotrauma, sport-related neurological injuries</td>
</tr>
<tr>
<td>Dr. David Clarke</td>
<td>473-7214</td>
<td>473-8917</td>
<td>Epilepsy surgery, pituitary surgery, neurotrauma and injury prevention, vascular neurosurgery</td>
</tr>
<tr>
<td>Dr. Ian Fleetwood</td>
<td>473-2710</td>
<td>473-2801</td>
<td>Vascular neurosurgery, radiosurgery</td>
</tr>
<tr>
<td>Dr. Renn Holness</td>
<td>473-2098</td>
<td>473-2097</td>
<td>Surgical education and methods of evaluation, international neurosurgical education, vascular neurosurgery</td>
</tr>
<tr>
<td>Dr. William Howes</td>
<td>473-8901</td>
<td>473-8905</td>
<td>Pediatric neurosurgery, epilepsy surgery, vascular and skull base surgery</td>
</tr>
<tr>
<td>Dr. Herman Hugenholtz</td>
<td>473-2096</td>
<td>473-8912</td>
<td>Spinal surgery, ethics</td>
</tr>
<tr>
<td>Dr. Daniel McNeely</td>
<td>473-6544</td>
<td>473-6393</td>
<td>Pediatric neurosurgery, pediatric epilepsy, spinal dysraphism, spasticity</td>
</tr>
<tr>
<td>Dr. Ivar Mendez</td>
<td>473-7046</td>
<td>473-3343</td>
<td>Functional neurosurgery, neural transplantation, pain, robotics in neurosurgery</td>
</tr>
<tr>
<td>Dr. Simon Walling</td>
<td>473-8453</td>
<td>473-8458</td>
<td>Neurotrauma, neurooncology, pediatric neurosurgery, injury prevention, surgical education</td>
</tr>
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* Area code 902
## INFORMATION FOR FAMILY PHYSICIAN

### Booking for Surgery

<table>
<thead>
<tr>
<th>ORTHOPAEDICS</th>
<th>PHONE*</th>
<th>FAX*</th>
<th>PREFERRED PRACTICE</th>
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<tbody>
<tr>
<td>Dr. David Alexander</td>
<td>473-4092</td>
<td>473-2054</td>
<td>Spinal surgery, trauma</td>
</tr>
<tr>
<td>Dr. David Amirault</td>
<td>473-7105</td>
<td>473-4580</td>
<td>General practice, hip and knee arthroplasty, fractures (excluding spine and pelvis)</td>
</tr>
<tr>
<td>Dr Bill Beveridge</td>
<td>678-6878</td>
<td>678-6884</td>
<td>General orthopedics, shoulder arthroscopy, knees, hips. (Kentville)</td>
</tr>
<tr>
<td>Dr. Catherine Coady</td>
<td>473-2575</td>
<td>473-1582</td>
<td>Knee – soft tissue injuries</td>
</tr>
<tr>
<td>Dr. Chad Coles</td>
<td>473-5599</td>
<td>473-5569</td>
<td>Trauma – complex procedures involving the pelvis and reconstruction after trauma</td>
</tr>
<tr>
<td>Dr. Alan Connelly</td>
<td>678-2423</td>
<td>679-6401</td>
<td>General orthopedics (Kentville)</td>
</tr>
<tr>
<td>Dr Greg Clarke</td>
<td>678-7707</td>
<td>678-1177</td>
<td>General orthopedics, ACL repair (Kentville)</td>
</tr>
<tr>
<td>Dr. Michael Dunbar</td>
<td>473-7337</td>
<td>473-7370</td>
<td>Arthroplasty, revision arthroplasty surgery</td>
</tr>
<tr>
<td>Dr. Mark Glazebrook</td>
<td>473-7137</td>
<td>473-7201</td>
<td>Foot and ankle injuries, trauma</td>
</tr>
<tr>
<td>Dr. Michael Gross</td>
<td>473-6811</td>
<td>473-2042</td>
<td>Arthroplasty, revision arthroplasty surgery, orthopaedic tumor surgery</td>
</tr>
<tr>
<td>Dr Ed Hewins</td>
<td>679-3349</td>
<td>679-3350</td>
<td>General orthopedics, Upper limb, no backs. (Kentville)</td>
</tr>
<tr>
<td>Dr. Eric Howatt</td>
<td>678-4404</td>
<td>678 1177</td>
<td>General orthopedics, Hips &amp; Knees. (Kentville)</td>
</tr>
<tr>
<td>Dr. David Johnston</td>
<td>473-2085</td>
<td>473-7239</td>
<td>Upper extremity, trauma (excluding fractures of the spine and pelvis)</td>
</tr>
<tr>
<td>Dr. Douglas LeGay</td>
<td>466-2555</td>
<td>469-4753</td>
<td>General orthopedics, sports medicine, shoulders.</td>
</tr>
<tr>
<td>Dr. Ross Leighton</td>
<td>473-4035</td>
<td>473-4490</td>
<td>Joint arthroplasty, trauma</td>
</tr>
<tr>
<td>Dr. William Oxner</td>
<td>473-3717</td>
<td>473-4364</td>
<td>Spinal surgery, trauma</td>
</tr>
<tr>
<td>Dr. Gerald Reardon</td>
<td>473-5626</td>
<td>473-5625</td>
<td>General practice, hip and knee arthroplasty, fractures (excluding spine and pelvis), disorders of the shoulder, foot and ankle</td>
</tr>
<tr>
<td>Dr. William Stanish</td>
<td>473-7525</td>
<td>429-7138</td>
<td>Knee – soft tissue injuries, total knee arthroplasty</td>
</tr>
<tr>
<td>Dr. James Taylor</td>
<td>427-0550</td>
<td>Stadacona</td>
<td>Military Orthopedics only</td>
</tr>
<tr>
<td>Dr Vikram Venugopal</td>
<td>469-9667</td>
<td>469-4753</td>
<td>General orthopedics</td>
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<th>OTOLARYNGOLOGY</th>
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<th>PREFERRED PRACTICE</th>
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<tbody>
<tr>
<td>Dr. Elhamy Attia</td>
<td>473-2914</td>
<td>473-4304</td>
<td>Dysphagia, voice, swallowing, head and neck oncology, general otolaryngology</td>
</tr>
<tr>
<td>Dr. Manohar Bance</td>
<td>473-5975</td>
<td>473-4345</td>
<td>Otology, neurotology</td>
</tr>
<tr>
<td>Dr. Gerard Corsten</td>
<td>470-8041</td>
<td>470-8929</td>
<td>Pediatric otolaryngology, airway surgery</td>
</tr>
<tr>
<td>Dr. Charles Cron</td>
<td>422-9616</td>
<td>422-9617</td>
<td>General otolaryngology</td>
</tr>
<tr>
<td>Dr. Ian Dempsey</td>
<td>435-8585</td>
<td>435-1169</td>
<td>General otolaryngology</td>
</tr>
<tr>
<td>Dr Rob Hart</td>
<td>473-7002</td>
<td>473-5667</td>
<td>Head &amp; Neck cancer, thyroid</td>
</tr>
<tr>
<td>Dr. Liane Johnson</td>
<td>470-8041</td>
<td>470-8929</td>
<td>General otolaryngology</td>
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* Area code 902
INFORMATION FOR FAMILY PHYSICIAN

Booking for Surgery

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<thead>
<tr>
<th>Name</th>
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<th>Phone 2</th>
<th>Specialties</th>
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<tbody>
<tr>
<td>Dr. David Kirkpatrick</td>
<td>473-2670</td>
<td>473-3418</td>
<td>Rhinology, otology, general otolaryngology</td>
</tr>
<tr>
<td>Dr. Robin Leblanc</td>
<td>435-8585</td>
<td>435-1169</td>
<td>General otolaryngology, sleep medicine</td>
</tr>
<tr>
<td>Dr. Emad Massoud</td>
<td>473-3905</td>
<td>473-3854</td>
<td>Rhinology, otology, balance disorders, general otolaryngology</td>
</tr>
<tr>
<td>Dr. David Morris</td>
<td>473-1986</td>
<td>473-1260</td>
<td>Otology, neurotology</td>
</tr>
<tr>
<td>Dr. Joseph Nasser</td>
<td>473-4323</td>
<td>473-3879</td>
<td>Otolaryngology, head and neck surgery, oral and maxiofacial surgery, cosmetic facial surgery</td>
</tr>
<tr>
<td>Dr. Mark Taylor</td>
<td>473-5752</td>
<td>473-4016</td>
<td>Head and neck surgery, facial, plastic and reconstructive surgery, oncology</td>
</tr>
<tr>
<td>Dr. Jonathan Trits</td>
<td>473-3784</td>
<td>473-3816</td>
<td>Head and neck oncology, reconstructive surgery</td>
</tr>
<tr>
<td>Dr. Mohammed Wali</td>
<td>473-4333</td>
<td></td>
<td>Retired – no longer practicing</td>
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**PLASTICS**

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<tbody>
<tr>
<td>Dr. Richard Bendor-Samuel</td>
<td>473-6626</td>
<td>473-6294</td>
<td>Cosmetic surgery</td>
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<tr>
<td>Dr. Craig Hurst</td>
<td>473-6626</td>
<td>473-6294</td>
<td>Craniofacial surgery, pediatric craniofacial surgery, pediatric surgery, general plastic surgery</td>
</tr>
<tr>
<td>Dr. George Davis</td>
<td>465-2860</td>
<td>464-3520</td>
<td>General plastic surgery, reconstructive, cosmetic.</td>
</tr>
<tr>
<td>Dr. Steven Morris</td>
<td>473-8773</td>
<td>473-8773</td>
<td>Microsurgery, melanoma and skin cancers, cosmetic surgery, hand surgery, head and neck reconstructive surgery, breast surgery</td>
</tr>
<tr>
<td>Dr. Justin Paletz</td>
<td>473-6300</td>
<td>473-7369</td>
<td>General plastic surgery, reconstructive microsurgery, hand surgery, cosmetic surgery, craniofacial trauma, burn surgery, breast reconstruction</td>
</tr>
<tr>
<td>Dr. Winston Parkhill</td>
<td>473-6315</td>
<td></td>
<td>Retired – no new referrals please.</td>
</tr>
<tr>
<td>Dr. Leif Sigurdson</td>
<td>473-1550</td>
<td>473-2785</td>
<td>Breast reconstruction, reconstructive microsurgery, craniofacial trauma, hand trauma, burn surgery, cosmetic surgery (body only), general plastic surgery</td>
</tr>
<tr>
<td>Dr. Jason Williams</td>
<td>473-6315</td>
<td>473-6296</td>
<td>General plastic surgery, Breast reconstruction, hand surgery.</td>
</tr>
<tr>
<td>Dr. Ken Wilson</td>
<td>470-8168</td>
<td>470-7939</td>
<td>Pediatric plastic surgery, reconstructive microsurgery, burn surgery</td>
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**THORACIC**

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Dr. Drew Bethune</td>
<td>473-6692</td>
<td>473-6144</td>
<td>General thoracic and esophageal surgery</td>
</tr>
<tr>
<td>Dr. Alan Casson</td>
<td>473-2281</td>
<td>473-4426</td>
<td>General thoracic and esophageal surgery</td>
</tr>
<tr>
<td>Dr. Harry Henteleff</td>
<td>473-5686</td>
<td>473-5851</td>
<td>General thoracic and esophageal surgery</td>
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**VASCULAR**

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<th>Name</th>
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<tbody>
<tr>
<td>Dr. Patrick Casey</td>
<td>473-2829</td>
<td>473-2841</td>
<td>All vascular surgery except varicose veins.</td>
</tr>
<tr>
<td>Dr. Gerald MacKean</td>
<td>473-8506</td>
<td>473-8507</td>
<td>AAA, Carotid surgery, PVD and Varicose veins.</td>
</tr>
<tr>
<td>Dr. Choong You</td>
<td>473-8512</td>
<td>473-8513</td>
<td>AAA (abdominal aortic aneurysm) and PVD (claudication, limb ischemia, gangrene) (Does not see patients with varicose veins or carotid artery stenosis/occlusion.)</td>
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* Area code 902
## INFORMATION FOR FAMILY PHYSICIAN

### Booking for Surgery

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<tbody>
<tr>
<td>Dr. Michael Giacomantonio</td>
<td>470-8114</td>
<td>470-7360</td>
<td>Newborns, infants and children with lesions requiring general or thoracic surgery; i.e., surgery of the abdominal wall, chest wall, groin, gastrointestinal tract, non-cardiac thoracic surgery, as well as endocrine surgery, pediatric oncology and pediatric trauma</td>
</tr>
<tr>
<td>Dr. Guy Brisseau</td>
<td>470-8114</td>
<td>470-7360</td>
<td>Newborns, infants and children with lesions requiring general or thoracic surgery; i.e., surgery of the abdominal wall, chest wall, groin, gastrointestinal tract, non-cardiac thoracic surgery, as well as endocrine surgery, pediatric oncology and pediatric trauma</td>
</tr>
<tr>
<td>Dr. Natalie Yanchar</td>
<td>470-8114</td>
<td>470-7360</td>
<td>Newborns, infants and children with lesions requiring general or thoracic surgery; i.e., surgery of the abdominal wall, chest wall, groin, gastrointestinal tract, non-cardiac thoracic surgery, as well as endocrine surgery, pediatric oncology and pediatric trauma</td>
</tr>
</tbody>
</table>

* Area code 902
Travel Clinics

1.1 Travel Clinics in Nova Scotia

Development Team / Advisors
Sam Campbell, Geoff Porter

Contact
Primary/Secondary Care Quality Initiative, Capital Health, Nova Scotia
Tel (902) 473-7664; Fax (902) 473-6153; mike.macdonald@cdha.nshealth.ca
**The International Travel Clinic**
(Yellow Fever Vaccination Centre)

Public Health Services, Capital Health  
201 Brownlow Ave., Unit 4  
Dartmouth, NS  B3B 1W2  
Tel: (902) 481-5900  
Fax: (902) 481-5802

Secretary: Clare Kerr at clare.kerr@cdha.nshealth.ca  
Manager: Juanita MacPhee at (902) 481-5880

The travel clinic does not provide advice over the phone. Clients are required to attend the clinic for one-on-one consultation with experienced travel nurses. The clinic is not publicly funded. Fee for an individual is $45, and for a family, $60.

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**Other travel clinics in Nova Scotia**

- **Public Health Services***  
  708 Reeves Street, Unit 3  
  Port Hawkesbury, NS  B9A 2S1  
  Tel: (902) 625-1693

- **Dr. Paul Doane***  
  6169 Quinpool Road  
  Halifax, NS  B3L 4P8  
  Tel: (902) 497-8535  
  Fax: (902) 420-9432

- **International Travel Medical Clinic**  
  Travel HEALTHSERV Inc.  
  130 Eileen Stubbs Avenue, Suite 5 South  
  Dartmouth, NS  B3B 2C4  
  Tel: (902) 420-4862  
  Fax: (902) 425-0758

- **Public Health Services***  
  235 Townsend Street, 2nd Floor  
  Sydney, NS  B1P 5E7  
  Tel: (902) 563-2400

- **Dr. Lorne Marsh***  
  Gladstone Professional Centre  
  6155 North Street  
  Halifax, NS  B3K 5R3  
  Tel: (902) 453-3511  
  Fax: (902) 454-9010

- **Napier Travel Health**  
  Isobel Napier, RN B.N.6454  
  6454 Quinpool Road, Suite 103  
  Halifax, NS  B3L 1A9  
  Tel: (902) 423-2455  
  Fax: (902) 444-3563

* yellow fever designated clinic