FAMILY MEDICINE
RESIDENT HANDBOOK
2016-2017

Discipline of Family Medicine
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Welcome to Family Medicine

Hi Everyone:

Welcome to Family Medicine at Memorial University! We are really pleased you are here and look forward to working with you.

We are excited you have chosen our Family Medicine residency program! Over the coming two years, you’ll work in communities throughout Newfoundland and Labrador, New Brunswick and Nunavut. All of our sites offer unique learning opportunities and we encourage you to embrace the opportunities that will be at your fingertips. Our dedicated preceptors are committed to providing you with practical, hands-on training to ensure that you are ready to practice in urban, rural and remote locations upon completion of our program.

The Family Medicine Postgraduate Office, headed by Ms. Susan Carter, will be your ‘go to place’ during residency. The office is staffed with personnel who are knowledgeable and extremely helpful. They are all eager to help make your training as positive an experience as possible. If you have any questions, please contact the office at Familymed@med.mun.ca.

This handbook is designed to give you an overview of the program. Please familiarize yourself with the contents as there is a lot of important information for you to be aware of.

Wishing you a great residency! Welcome!

Dr. Danielle O’Keefe
Postgraduate Family Medicine Program Director
Discipline of Family Medicine
Memorial University
Quick Reference

Family Medicine Postgraduate Program

Program Director:
Dr. Danielle O’Keefe
dokeefe@mun.ca

*Dr. Ean Parsons and Dr. Susan Avery are covering as Co-Program Directors from July 2016-April 2017. eparsons@mun.ca and savvy@mun.ca.

Staff in the Postgraduate Office:
Program Coordinator: Ms. Susan Carter, scarter@mun.ca
Program Secretary: Ms. Shenoa White, familymed@med.mun.ca
Curriculum Secretary: Ms. Jacqueline Ryan, fmcurriculum@med.mun.ca
Evaluations/Leaves Secretary: Ms. Amanda Kinsella, fmevals.leaves@med.mun.ca
Receptionist: TBA, Familymed@med.mun.ca

Discipline of Family Medicine ☏ (709)864-6493
Faculty of Medicine, MUN ☏ (709)777-7913
Health Sciences Centre familymed@med.mun.ca
St. John’s, NL A1B 3V6 www.med.mun.ca/familymed

Further contact information is available on the Family Medicine website:
www.med.mun.ca/familymed

On-Line Resources

One45 site:
https://webeval.med.mun.ca/mun/

Desire2Learn site (D2L):
Access through my.mun.ca account using the “memorial@home” link in the “student services” tab. https://login.mun.ca/cas/login?service=https://my.mun.ca/Login

Postgraduate Medical Education Office:
www.med.mun.ca/pgme

EPortfolio
https://www.med.mun.ca/eportfolio/customlogin.aspx
Program Organization

Residency Training Committee
The Residency Training Program is governed by decisions made by the Residency Training Committee (RTC). The RTC is comprised of the Chair, the Program Director, the Assistant Program Director, the Program Coordinator, representatives from the training streams, a representative from the Enhanced Skills Program and the Research Department, an Allied Health Professional and a resident representative.

A number of subcommittees report to the RTC:

Admissions
The Admissions Committee meets at least 4 times a year – primarily in the fall and winter months. This Committee is responsible for the candidate file review forms, the ongoing review of the interview questions, the oversight and management of the clinical skills assessment for International Medical Graduate (IMG) candidates and the final ranking of all applicants. The committee is also responsible for reviewing and interviewing residents who wish to transfer into our program from other specialty programs at Memorial.

Curriculum
The Curriculum Committee meets every 4-6 weeks. This committee is responsible for planning the academic teaching curriculum and for assisting rural sites with curriculum needs. The Committee is also responsible for the ongoing review of the objectives and competencies, as well as, the annual curriculum review.

Assessment, Evaluation and Promotions
The Assessment, Evaluation and Promotions Committee meets every 4 weeks and is responsible for the development of resident assessment tools (E.g. Field Notes), maintenance of ITERs and reviewing and making recommendations about resident progress. This committee is also responsible for resident remediation, resident appeals and program evaluation.

Postgraduate Executive
The PG Executive meets every 2-4 weeks. The PG Executive oversees the day to day administration of the residency program and manages issues that occur between RTC meetings. Resident concerns are brought to this committee for review. The Program Director, the Assistant Program Director, the Administrative Residents and the Program Coordinator comprise this committee.

Resident Committee Involvement
Residents are involved with all of the above committees. Representation is usually by one of the Administrative Residents. Residents are also invited to be a part of Faculty Retreats and Faculty Meetings.
**Streams**

**Eastern**
The Eastern stream offers the opportunity for residents to complete the majority of the residency program in the Eastern region of Newfoundland and Labrador. Candidates matching to the Eastern stream will complete a number of rotations in the urban center of St. John’s, NL while also having training opportunities in Torbay, Paradise, Bay Bulls, Harbour Grace, Upper Island Cove, Clarenville, Port Blandford and Burin. All Obstetrics and Gynecology rotations and all Rural Family Medicine rotations will be conducted in rural sites across NL and/or NB. Two second-year residents will have the opportunity to complete a full year of training in Burin, NL. A select number of residents will have the opportunity to complete the majority of their training in a rural setting that is within 1-3 hours from the urban centre, St. John’s.

**Central**
Residents in the Central Stream receive excellent rural Family Medicine training based out of communities and towns in Central NL over the two years of training. Training sites include Gander, Twillingate, Botwood, Grand Falls-Windsor and Baie Verte. Residents will complete training outside of the Central Stream (elsewhere in NL and/or NB) if the training opportunity is not available locally.

**Western**
A number of rural Family Medicine training opportunities exist on the West Coast of the province. Residents in the Western stream complete training in St. Anthony, Deer Lake, Bonne Bay, Corner Brook and Port aux Basques over their two years of training. Residents will complete training outside of the Western Stream (elsewhere in NL and/or NB) if the training opportunity is not available locally.

**Northern – Goose Bay**
Residents in the Northern stream will complete the majority of their training in Happy Valley-Goose Bay, NL (NorFam). While gaining excellent exposure in rural and remote medicine, residents will have the opportunity to enhance their experiences by completing a number of rotations in NL and/or NB (E.g. Internal Medicine, ICU, Obstetrics and Gynecology).

**Northern – Nunavut**
Residents will have the opportunity to train in the remote location of Iqaluit, Nunavut (NunaFam). This training opportunity will involve first and second year rotations in NL and/or NB with a six-month Rural Family Medicine experience in Nunavut in second year.

Both the NorFam and the NunaFam opportunities offer rural and remote training that includes visits to coastal or satellite communities. Residents in the Northern stream will develop competence in working with aboriginal communities.
Curriculum

Our teaching curriculum focuses on the Triple C Competency-based Curriculum (Triple C). We offer a number of experiences where residents have the opportunity to be centered in a Family Medicine Clinic where they have the opportunity to provide comprehensive care and continuity of care for patients over an extended period of time. While each teaching site has its own unique curriculum based on the local opportunities, all are unified under the overarching Family Medicine Program. Please see the Academic Teaching Sites brochure for detailed information on the various teaching sites. http://www.med.mun.ca/getdoc/766e3377-cc95-4b79-b92a-ca661ab7b79f/FamilyMedicine_SitesBooklet_WEB.aspx

The Triple C Competency-based curriculum provides the relevant learning contexts and strategies to enable residents to integrate competencies, while acquiring evidence to determine that a resident is ready to begin practice in the specialty of Family Medicine.

Triple C ensures all graduates are:
• Competent to provide comprehensive care in any Canadian community
• Prepared for the evolving needs of society
• Educated based upon the best available evidence on patient care and medical education

This curriculum addresses accountability, social responsibility, patient safety, and efficiencies in educational programming.

The curriculum is based on the Four Principles of Family Medicine and the CanMEDS-FM roles. The Four Principles are foundational concepts regarding the nature and practice of family medicine whereas the CanMEDS-FM roles focus on outcomes of care and competencies expected of the practicing physician. The CanMEDS-FM roles retain the Four Principles by integrating them into the appropriate CanMEDS-FM roles. In some cases a principle appears in multiple roles.

<table>
<thead>
<tr>
<th>Four Principles of Family Medicine (Foundational Concepts)</th>
<th>CanMEDS-FM Roles (Expected Competency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Doctor-Patient Relationship is Central to the Role of the Family Physician</td>
<td>Communicator&lt;br&gt;Collaborator&lt;br&gt;Professional</td>
</tr>
<tr>
<td>The Family Physician is a Skilled Clinician</td>
<td>Family Medicine Expert&lt;br&gt;Scholar</td>
</tr>
<tr>
<td>Family Medicine is Community-Based</td>
<td>Collaborator&lt;br&gt;Manager&lt;br&gt;Health Advocate</td>
</tr>
<tr>
<td>The Family Physician is a Resource to a Defined Practice</td>
<td>Collaborator&lt;br&gt;Manager&lt;br&gt;Health Advocate&lt;br&gt;Scholar</td>
</tr>
</tbody>
</table>

Please also see the: 99 Priority Topics, 65 Core Procedures, the Key Features and the Evaluation Objectives on the CFPC Website.
Orientation
All incoming residents complete a mandatory 1.5 - 2 week orientation program prior to the start of residency. During this time, there is orientation to the Family Medicine Residency Training Program, the Postgraduate Medical Education Office and Eastern Health. Incoming residents also complete ACLS, NRP and ALARM during this time. Please note that residents must complete BCLS prior to orientation as this is a prerequisite for ACLS.

Academic Half Day

Eastern, Central, Western, Northern-Nunavut (NunaFam) Stream residents:
All residents attend the weekly Academic Half Day teaching sessions that are held Tuesday afternoon from 1:30 to 5:00 pm. (If there is a University holiday in the week, Academic Half Day is cancelled).

These sessions are held at the Health Sciences Centre and in person attendance is mandatory for all residents completing rotations in the St. John’s area. Residents outside of St. John’s attend via Blackboard Collaborate. Residents who are post call, on electives or on vacation are excused from attendance. Please note that you should communicate your absence to our Family Medicine Postgraduate Office. Presentations are archived on Blackboard Collaborate and can be viewed at a later date.

Residents and Faculty are involved with teaching the Academic Half sessions and content is based on the 99 Priority Topics as defined by the College of Family Physicians of Canada. Please note when you are scheduled to present and ensure that you contact the faculty facilitator at least three weeks prior to your presentation date.

The complete schedule for Academic Half Days and the suggested format for Academic Half Day presentations can be found on One45 https://webeval.med.mun.ca/mun/.

Northern-Goose Bay Stream (NorFam) residents:
Academic Half Day sessions will be delivered locally in Goose Bay. When residents are outside of Goose Bay on rotation it is requested that you attend the central Academic Half Day sessions either in person (when in St. John’s) or via Blackboard Collaborate.

Residents and Faculty are involved with teaching the Academic Half sessions and content is based on the 99 Priority Topics as defined by the College of Family Physicians of Canada. Please note when you are scheduled to present and ensure that you contact the faculty facilitator at least three weeks prior to your presentation date.
**Academic Family Medicine Teaching Sessions**

In specific to the Academic Family Medicine Rotation there is dedicated teaching in Evidence Based Medicine, Behavioral Medicine, and Practice Management. Please note a slight variation in the Academic Family Medicine curriculum based on where you complete your Academic Family Medicine rotation.

**Eastern Stream**

This information pertains to all residents completing their Academic Family Medicine rotations in the Eastern Stream.

**Eastern First Year**

First-year residents are required to do a minimum of seven (7) half-day clinics per week. The remaining time is dedicated for **mandatory** teaching rounds as follows:

a) **Weekend Review**
   - Family Medicine Postgraduate Boardroom (or as otherwise scheduled)
   - Mondays from 8:30 – 9:30 a.m. (*Tuesdays 8:30 – 9:30 a.m. if Monday is a holiday*)
   - There will be a discussion of interesting cases assessed by on-call physicians over the weekend.

b) **Academic Half Day**

All residents attend the weekly Academic Half Day teaching sessions that are held Tuesday afternoon from 1:30 to 5:00 pm. (If there is a University holiday in the week, Academic Half Day is cancelled).

These sessions are held at the Health Sciences Centre and in person attendance is mandatory for all residents completing rotations in the St. John's area. Residents outside of St. John’s attend via Blackboard Collaborate. Residents who are post call, on electives or on vacation are excused from attendance. Please note that you should communicate your absence to our Family Medicine Postgraduate Office. Presentations are archived on Blackboard Collaborate and can be viewed at a later date.

Residents and Faculty are involved with teaching the Academic Half sessions and content is based on the 99 Priority Topics as defined by the College of Family Physicians of Canada. Please note when you are scheduled to present and ensure that you contact the faculty facilitator at least three weeks prior to your presentation date.

The suggested format for Academic Half Day presentations can be found on One45 [https://webeval.med.mun.ca/mun/](https://webeval.med.mun.ca/mun/).

c) **Counselling Centre***
   - Every Wednesday morning from 9:00 a.m. – 12:00 p.m. residents will develop their counselling skills at the Counselling Centre, Room 5000 in the University Centre. Upon the completion of the Counselling Centre curriculum, all residents will be booked in clinic on Wednesday mornings.
Residents need to bring their videotapes and/or encrypted USBs and Behavioural Medicine Reflection cases to each session.

All sessions are facilitated by Clinical Psychologists.

In preparation for the sessions, residents will interview and record an encounter with a Standardized Patient (SP) role-playing a patient with mental health issues on the first day of academic family medicine.

* The Counselling Centre sessions make up a part of the Behavioural Medicine Curriculum. See the Behavioural Medicine Curriculum below for additional information.

d) Team Rounds

- Times vary by site.
- Videotape Reviews, Behavioural Medicine Reflection cases, Quips, Audit and Critiques will be discussed. Simulated Office Orals (SOOs) practice is also offered.

e) Friday Morning Teaching Sessions

- There will be two teaching sessions each Friday. One from 8:30 - 9:30 a.m.; the other from 10:00 a.m. - 12 noon. The calendar of teaching sessions is emailed to residents at the start of the year and at the start of the Academic Family Medicine rotation. The schedule will also be posted in the Postgraduate Office.
- Sessions include Office Procedures, Behavioural Medicine, and Evidence Based Medicine (EBM - Audit and Critique).

Office Procedures

Topics covered include Foreign Body Removal, Gynecology Procedures, Intramuscular Injections, Suturing, Splints, Toenail Excision, Practice Based Small Group Learning Cases (PBSG), Breast Cysts, Epistaxis Procedures, Slit Lamp Examinations, Skin Dermatologic Procedures.

Evidence Based Medicine (EBM)

The EBM teaching curriculum consists of 3 components: 1) Critical appraisal of evidence, 2) Clinical practice audit and 3) The resident scholarly project. Critical appraisal and clinical practice audit will be taught (alternating with behavioral medicine teaching) in small group sessions during the 10-12 am timeslot Friday mornings during first year academic family medicine rotations. Each resident will be expected to complete 2 critical appraisal assignments and present them during these sessions (a schedule will be circulated via email early in the rotation).

Residents are required to conduct a resident scholarly project and present it at the Resident Forum in the fall of second year. Introductory information for the resident project is provided at an academic ½ day early in the year. Residents are reminded that some projects require Ethics Approval which can take a considerable amount of time and must be received before data collection can begin. For further details please see: www.hrea.ca/home.aspx.

Please see the information under the curriculum section in this handbook for further details then talk to your faculty advisor or Dr. Kris Aubrey-Bassler.
– **Behavioral Medicine (BM)**
   The Behavioral Medicine curriculum encompasses Friday morning teaching sessions, the Counselling Centre session, Psychiatric Emergency and Crisis Intervention (PEACI) sessions during Core Content, the Urgent Mental Health Care Experience and the completion of two Behavioral Medicine Reflections (BMRs). Please see the Behavioral Medicine Online Manual (Desire2Learn (D2L)) for further details.

   Friday morning teaching sessions – These sessions are taught on Friday mornings during the Academic Family Medicine (AFM) rotation. Each session consists of one behavioral medicine topic and one BMR reflection. Both are taught by the residents. The topics and teaching schedule are listed in the Behavioral Medicine section on D2L. A Family Medicine and a Psychiatry preceptor are in attendance to help facilitate the discussion.

f) **Urgent Mental Health Care Experience**
   The Urgent Mental Health Care experience is available to all first year residents during the four-month academic family medicine rotation. The experience consists of two days at the Psychiatric Assessment Unit (PAU) at the Emergency Department of the Waterford Hospital and one day at the Short Term Assessment Referral and Treatment (START) Clinic at the third floor of St. Clare’s Hospital.

   **Psychiatric Assessment Unit (PAU)**
   All psychiatric emergency consults are seen in the PAU at the Waterford Hospital. The service is staffed 24 hours a day by an interdisciplinary team comprised of LPN’s, RN’s and family doctors. Psychiatric “consultation” is provided by clinical clerks, residents and psychiatrists assigned to the call system. From Monday to Thursday there is a staff psychiatrist who provides regular emergency-focused care.

   You will spend two shifts in the PAU. On the assigned Monday and Thursday, you will see urgent care/emergency cases from 4 pm until 12 midnight.

   The clinical demand in PAU can vary from day-to-day and even hourly. The afternoons and evenings in the PAU often become quite busy with emergency presentations that are triaged, seen by a family doctor and referred to psychiatry. If the psychiatric consultation aspect of the service is not busy during your particular shift, you may choose to work with the family physician whose primary area of practice is in psychiatric assessment and/or addictions.

   **Housekeeping Issues:**
   - Please park in the parking lot next to “Evergreen Parking”
   - One the first day of your PAU experience, please introduce yourself to the supervising physician. You will then be orientated to the service and there will be a discussion on the safety issues relevant to emergency psychiatry.
   - Residents will be provided with a key to access staff washrooms for the duration of your rotation.
Short Term Assessment Referral and Treatment (START) Clinic

The START Clinic is on the third floor (3 West) at St. Clare’s Mercy Hospital. Clinic hours for this experience are from 8:30 AM to 4:00 PM on Wednesday.

The START Clinic operates as an interdisciplinary outpatient mental health service with a mandate of providing rapid intervention and treatment to adults with mental health issues. Participating disciplines include nursing, psychiatry, psychology, social work, occupational therapy and spiritual-pastoral counseling. Referrals are accepted from a number of community and hospital-based services and all initial intakes are screened by nursing staff. When referral to a psychiatrist is indicated, the patient is referred to one of the psychiatrists (Drs. Adey, Callanan, MacLaughlin or Radu) on staff for assessment and/or ongoing intervention.

During the START Clinic day, you will have the opportunity to assess and treat individuals with psychiatric disorders normally seen in the outpatient psychiatric setting. You will see one to two new assessments and one to two follow-ups during your assigned day. The experience will vary depending on the type of patients to be seen, the number of psychiatry residents or other learners also present and the number of the psychiatrists supervising the resident for the day. Overall, you should learn the role of the START clinic in the community and the mechanism and criteria for patient referral. You should also learn how to consult and collaborate with psychiatric health care professionals.

The diagnostic interview will be conducted by the resident and supervised by the attending psychiatrist or will be an opportunity for the resident to observe the psychiatrist interviewing the patient. Residents will be responsible for dictation of a detailed initial psychiatric assessment. In addition, the resident will document follow-up visits in the patient’s chart.

For further information on the PAU or the START Clinic, please contact Dr. Stephen Lee or Dr. Gary Tarrant.

g) Behavioral Medicine Reflections (BMRs)

The BMRs are two reflective exercises that first year residents complete during the Academic Family Medicine rotation. The BMRs provide an opportunity to document cases with a behavioral medicine aspect and to further explore and reflect on the behavioral component of such encounters. The examples that you use in your BMR entries are not necessarily limited to your Academic Family Medicine rotation. There will be opportunities to discuss these entries during your Academic Family Medicine rotation during the Friday morning Behavioral Medicine teaching sessions or during teaching rounds. Each case needs to be printed off as a hard copy and “signed off” by a faculty member. It is the resident’s responsibility to deliver the completed, signed off BMRs to the Postgraduate Office.
h) **Videotape Review (VTR)/Direct Observation of patient encounters**
All residents are to record patient encounters to be observed directly during training. This will take place during the AFM rotation. The VTRs are reviewed at the Counselling Centre and/or during Academic Family Medicine teaching rounds.

i) **Family Medicine Obstetrical Experience**
Residents will gain experience in Family Medicine Obstetrics during their Academic Family Medicine rotation. As part of this experience, residents will work with the team during Tuesday evening clinics and during Friday afternoon coverage of the Case Room. In addition, residents will participate in the Family Medicine/Obstetrics call rota.

**Eastern Second Year**
Second-year residents are required to do a minimum of seven (7) clinics per week. The remaining time during the week will be available for the pursuit of the following activities:

a) **Weekend Review**
- Family Medicine Postgraduate Boardroom (or as otherwise scheduled)
- Mondays from 8:30 – 9:30 a.m. *(Tuesday 8:30 – 9:30 a.m. if Monday is a holiday)*
- There will be a discussion of interesting cases assessed by on-call physicians over the weekend.

  - Second year residents who are rotating through the Family Practice Unit, Shea Heights, Ross Centre, or Torbay Road sites are required to attend these sessions.

b) **Academic Half Day**
- All residents attend the weekly Academic Half Day teaching sessions that are held Tuesday afternoon from 1:30 to 5:00 pm. (If there is a University holiday in the week, Academic Half Day is cancelled).

  - These sessions are held at the Health Sciences Centre and in person attendance is mandatory for all residents completing rotations in the St. John's area. Residents outside of St. John's attend via Blackboard Collaborate. Residents who are post call, on electives or on vacation are excused from attendance. Please note that you should communicate your absence to our Family Medicine Postgraduate Office. Presentations are archived on Blackboard Collaborate and can be viewed at a later date.

  - Residents and Faculty are involved with teaching the Academic Half sessions and content is based on the 99 Priority Topics as defined by the College of Family Physicians of Canada. Please note when you are scheduled to present and ensure that you contact the faculty facilitator at least three weeks prior to your presentation date.

  - The suggested format for Academic Half Day presentations can be found on One45 [https://webeval.med.mun.ca/mun/](https://webeval.med.mun.ca/mun/).
c) Team Rounds
   - Times vary by site.
   - Videotape Reviews, Behavioural Medicine Reflection cases, Quips, Audit and Critiques will be discussed. Simulated Office Orals (SOOs) practice is also offered.

d) Friday Morning Teaching Sessions
   - There will be two teaching sessions each Friday. One from 8:30 - 9:30 a.m.; the other from 10:00 a.m. - 12 noon. The calendar of teaching sessions is emailed to residents at the start of the year and at the start of the Academic Family Medicine rotation. The schedule will also be posted in the Postgraduate Office.
   - Sessions include Office Procedures, Behavioural Medicine, and Evidence Based Medicine (EBM - Audit and Critique).

   - **Office Procedures**
     Topics covered include Foreign Body Removal, Gynecology Procedures, Intramuscular Injections, Suturing, Splints, Toenail Excision, Practice Based Small Group Learning Cases (PBSG), Breast Cysts, Epistaxis Procedures, Slit Lamp Examinations, Skin Dermatologic Procedures.

   - **Evidence Based Medicine (EBM)**
     The EBM teaching curriculum consists of 3 components: 1) Critical appraisal of evidence, 2) Clinical practice audit and 3) The resident scholarly project. Critical appraisal and clinical practice audit will be taught (alternating with behavioral medicine teaching) in small group sessions during the 10-12 am timeslot Friday mornings during first year academic family medicine rotations. Each resident will be expected to complete 2 critical appraisal assignments and present them during these sessions (a schedule will be circulated via email early in the rotation). Residents are required to conduct a resident scholarly project and present it at the Resident Forum in the fall of second year. Introductory information for the resident project is provided at an academic ½ day early in the year. Residents are reminded that some projects require Ethics Approval which can take a considerable amount of time and must be received before data collection can begin. For further details please see: [www.hrea.ca/home.aspx](http://www.hrea.ca/home.aspx).

     *Please see the information under the curriculum section in this handbook for further details then talk to your faculty advisor or Dr. Kris Aubrey-Bassler.*

   - **Behavioral Medicine (BM)**
     The Behavioral Medicine curriculum encompasses Friday morning teaching sessions, the Counselling Centre session, Psychiatric Emergency and Crisis Intervention (PEACI) sessions during Core Content, the Urgent Mental Health Care Experience and the completion of two Behavioral Medicine Reflections (BMRs). Please see the Behavioral Medicine Online Manual (Desire2Learn (D2L)) for further details.

     Friday morning teaching sessions – These sessions are taught on Friday mornings during the Academic Family Medicine (AFM) rotation. Each session consists of one behavioral medicine topic and one BMR reflection. Both are taught by the residents.
The topics and teaching schedule are listed in the Behavioral Medicine section on D2L. A Family Medicine and a Psychiatry preceptor are in attendance to help facilitate the discussion.

- In second year, residents complete sessions in Behavioural Medicine (as above) and in Practice Management.

e) Practice Management
   - Residents will receive additional Practice Management teaching during their second year Academic Family Medicine rotation.

f) Videotape review (VTR)/Direct Observation of patient encounters.
   - all residents are to record patient encounters to be observed directly during training.

g) Resident Forum Preparation and/or Study Time
   - One half day per week will be protected for residents to pursue their Resident Scholarly Project (max of one half-day/week x 16). This half-day will need to be re-negotiated (for study time) with your preceptor after you have presented your projects at the Residents’ Forum should you have any remaining half days to use.

h) On Call/Evening and/or Weekend Clinic Responsibilities
   - Please review these responsibilities with your primary preceptor. Responsibilities will vary by site.
Central, Western & Northern - Nunavut Stream
This information pertains to all residents completing their Academic Family Medicine rotations in the Central, Western and Northern-Nunavut Streams.

Central, Western & Northern-Nunavut First Year
First-year residents are required to do a minimum of seven (7) half-day clinics per week. The remaining time is dedicated for mandatory teaching rounds as planned at the site.

a) Academic Half Day
   – All residents attend the weekly Academic Half Day teaching sessions that are held Tuesday afternoon from 1:30 to 5:00 pm. (If there is a University holiday in the week, Academic Half Day is cancelled).
   
   – These sessions are held at the Health Sciences Centre and in person attendance is mandatory for all residents completing rotations in the St. John's area. Residents outside of St. John's attend via Blackboard Collaborate. Residents who are post call, on electives or on vacation are excused from attendance. Please note that you should communicate your absence to our Family Medicine Postgraduate Office. Presentations are archived on Blackboard Collaborate and can be viewed at a later date.
   
   – Residents and Faculty are involved with teaching the Academic Half sessions and content is based on the 99 Priority Topics as defined by the College of Family Physicians of Canada. Please note when you are scheduled to present and ensure that you contact the faculty facilitator at least three weeks prior to your presentation date.
   
   – The complete schedule for Academic Half Days and the suggested format for Academic Half Day presentations can be found on One45 https://webeval.med.mun.ca/mun/.

b) Team Rounds
   – Videotape Reviews, Behavioural Medicine Reflection cases, Quips, Audit and Critiques will be discussed during Team Rounds. Simulated Office Orals (SOOs) practice is also offered. Please see the local teaching schedule at your site.

c) Counselling Centre Curriculum
   – Residents completing their rotation within the Central and Western Streams will gain exposure to the counselling centre curriculum via a variety of teaching sessions and Emergency Room presentations. Please see your local preceptor for further details.

d) Friday Morning Teaching Sessions
   – Most residents will participate in the Friday morning Behavioural Medicine and Evidence Based Medicine teaching sessions via Blackboard Collaborate.
   
   – The teaching sessions are offered from 10:00 a.m. - 12 noon. The calendar of teaching sessions is emailed to residents at the start of the year and at the start of
the Academic Family Medicine rotation. The schedule will also be posted in the Postgraduate Office.
- Residents will gain exposure to hands on Office Procedure teaching as cases arise in their clinics/local hospital.

- **Evidence Based Medicine (EBM)**
The EBM teaching curriculum consists of 3 components: 1) Critical appraisal of evidence, 2) Clinical practice audit and 3) The resident scholarly project. Critical appraisal and clinical practice audit will be taught (alternating with behavioral medicine teaching) in small group sessions during the 10-12 am timeslot Friday mornings during first year academic family medicine rotations. Each resident will be expected to complete 2 critical appraisal assignments and present them during these sessions (a schedule will be circulated via email early in the rotation). Residents are required to conduct a resident scholarly project and present it at the Resident Forum in the fall of second year. Introductory information for the resident project is provided at an academic ½ day early in the year. Residents are reminded that some projects require Ethics Approval which can take a considerable amount of time and must be received before data collection can begin. For further details please see: [www.hrea.ca/home.aspx](http://www.hrea.ca/home.aspx).

*Please see the information under the curriculum section in this handbook for further details then talk to your faculty advisor or Dr. Kris Aubrey-Bassler.*

- **Behavioral Medicine (BM)**
The Behavioral Medicine curriculum encompasses Friday morning teaching sessions, the Counselling Centre session, Psychiatric Emergency and Crisis Intervention (PEACI) sessions during Core Content, the Urgent Mental Health Care Experience and the completion of two Behavioral Medicine Reflections (BMRs). Please see the Behavioral Medicine Online Manual (Desire2Learn (D2L)) for further details.

Friday morning teaching sessions – These sessions are taught on Friday mornings during the Academic Family Medicine (AFM) rotation. Each session consists of one behavioral medicine topic and one BMR reflection. Both are taught by the residents. The topics and teaching schedule are listed in the Behavioral Medicine section on D2L. A Family Medicine and a Psychiatry preceptor are in attendance to help facilitate the discussion. Please see your local preceptor for variations to the Friday morning teaching sessions (E.g. Grand Falls-Windsor)

e) **Urgent Mental Health Care Experience**

Residents will gain exposure to urgent mental health cases in their local emergency departments.

f) **Behavioral Medicine Reflections (BMRs)**
The BMRs are two reflective exercises that first year residents complete during the Academic Family Medicine rotation. The BMRs provide an opportunity to document cases with a behavioral medicine aspect and to further explore and reflect on the
behavioral component of such encounters. The examples that you use in your BMR entries are not necessarily limited to your Academic Family Medicine rotation. There will be opportunities to discuss these entries during your Academic Family Medicine rotation during the Friday morning Behavioral Medicine teaching sessions or during teaching rounds. Each case needs to be printed off as a hard copy and “signed off” by a faculty member. It is the resident’s responsibility to deliver the completed, signed off BMRs to Postgraduate Office.

g) Videotape Review (VTR)/Direct Observation of patient encounters
All residents are to record patient encounters to be observed directly during training. This will take place during the AFM rotation. The VTRs are reviewed at the Counselling Centre and/or during Academic Family Medicine teaching rounds.

Central, Western & Northern-Nunavut Second Year
Second-year residents are required to do a minimum of seven (7) clinics per week. The remaining time during the week will be available for the pursuit of the following activities:

a) Academic Half Day
   - All residents attend the weekly Academic Half Day teaching sessions that are held Tuesday afternoon from 1:30 to 5:00 pm. (If there is a University holiday in the week, Academic Half Day is cancelled).

   - These sessions are held at the Health Sciences Centre and in person attendance is mandatory for all residents completing rotations in the St. John's area. Residents outside of St. John's attend via Blackboard Collaborate. Residents who are post call, on electives or on vacation are excused from attendance. Please note that you should communicate your absence to our Family Medicine Postgraduate Office. Presentations are archived on Blackboard Collaborate and can be viewed at a later date.

   - Residents and Faculty are involved with teaching the Academic Half sessions and content is based on the 99 Priority Topics as defined by the College of Family Physicians of Canada. Please note when you are scheduled to present and ensure that you contact the faculty facilitator at least three weeks prior to your presentation date.

   - The complete schedule for Academic Half Days and the suggested format for Academic Half Day presentations can be found on One45
     https://webeval.med.mun.ca/mun/.

b) Team Rounds
   - Videotape Reviews, Behavioural Medicine Reflection cases, Quips, Audit and Critiques will be discussed during Team Rounds. Simulated Office Orals (SOOs) practice is also offered. Please see the local teaching schedule at your site.
c) **Friday Morning Teaching Sessions**

- Most residents will participate in the Friday morning Behavioural Medicine and Evidence Based Medicine teaching sessions via Blackboard Collaborate.
- The teaching sessions are offered from 10:00 a.m. - 12 noon. The calendar of teaching sessions is emailed to residents at the start of the year and at the start of the Academic Family Medicine rotation. The schedule will also be posted in the Postgraduate Office.
- Residents will gain exposure to hands on Office Procedure teaching as cases arise in their clinics/local hospital.
- See your local preceptor for variations to this teaching schedule.

- **Evidence Based Medicine (EBM)**

  The EBM teaching curriculum consists of 3 components: 1) Critical appraisal of evidence, 2) Clinical practice audit and 3) The resident scholarly project. Critical appraisal and clinical practice audit will be taught (alternating with behavioral medicine teaching) in small group sessions during the 10-12 am timeslot Friday mornings during first year academic family medicine rotations. Each resident will be expected to complete 2 critical appraisal assignments and present them during these sessions (a schedule will be circulated via email early in the rotation). Residents are required to conduct a resident scholarly project and present it at the Resident Forum in the fall of second year. Introductory information for the resident project is provided at an academic ½ day early in the year. Residents are reminded that some projects require Ethics Approval which can take a considerable amount of time and must be received before data collection can begin. For further details please see: www.hrea.ca/home.aspx.

  *Please see the information under the curriculum section in this handbook for further details then talk to your faculty advisor or Dr. Kris Aubrey-Bassler.*

- **Behavioral Medicine (BM)**

  The Behavioral Medicine curriculum encompasses Friday morning teaching sessions, the Counselling Centre session, Psychiatric Emergency and Crisis Intervention (PEACI) sessions during Core Content, the Urgent Mental Health Care Experience and the completion of two Behavioral Medicine Reflections (BMRs). Please see the Behavioral Medicine Online Manual (Desire2Learn (D2L)) for further details.

  Friday morning teaching sessions – These sessions are taught on Friday mornings during the Academic Family Medicine (AFM) rotation. Each session consists of one behavioral medicine topic and one BMR reflection. Both are taught by the residents. The topics and teaching schedule are listed in the Behavioral Medicine section on D2L. A Family Medicine and a Psychiatry preceptor are in attendance to help facilitate the discussion.

- In second year, residents complete sessions in Behavioural Medicine (as above) and in Practice Management. All residents will attend these sessions via Blackboard Collaborate unless a local opportunity exists (E.g. Grand Falls-Windsor).
d) **Practice Management**
   - Residents will receive additional Practice Management teaching during their second year Academic Family Medicine rotation. All residents will attend these sessions via Blackboard Collaborate.

e) **Videotape review (VTR)/Direct Observation of patient encounters.**
   - All residents are to record patient encounters to be observed directly during training.

f) **Resident Forum Preparation and/or Study Time**
   - One half day per week will be protected for residents to pursue their Resident Scholarly Project (max of one half-day/week x 16). This half-day will need to be re-negotiated (for study time) with your preceptor after you have presented your projects at the Residents’ Forum should you have any remaining half days to use.
Northern - Goose Bay Stream

Northern - Goose Bay First Year
First-year residents are required to do a minimum of seven (7) half-day clinics per week. The remaining time is dedicated for mandatory teaching rounds as planned at the site.

a) Academic Half Day
   - There are a number of mandatory overarching program and PGME academic half day sessions that residents are required to attend via Blackboard Collaborate. Please see your primary preceptor for this information. All other Academic Half Day sessions will be delivered locally. When residents are away from Goose Bay on rotation (e.g. St. John’s), they are expected to attend Academic Half Day in person (St. John’s) or via Blackboard Collaborate if outside of St. John’s.

b) Team Rounds
   - Videotape Reviews, Behavioural Medicine Reflection cases, Quips, Audit and Critiques will be discussed during Team Rounds. Simulated Office Orals (SOOs) practice is also offered. Please see the local teaching schedule at your site.

c) Counselling Centre Curriculum
   - Residents completing their rotation within the Northern - Goose Bay Streams will gain exposure to the counselling centre curriculum via a variety of teaching sessions. Please see your local preceptors for further details.

d) Friday Morning Teaching Sessions
   - Most residents will participate in Behavioural Medicine and Evidence Based Medicine teaching on site in Goose Bay. Should residents need to attend sessions in St. John’s; residents can attend via Blackboard Collaborate. The teaching sessions in St. John’s are offered from 10:00 a.m. - 12 noon. The calendar of teaching sessions is emailed to residents at the start of the year and at the start of the Academic Family Medicine rotation. The schedule will also be posted in the Postgraduate Office.
   - Residents will gain exposure to hands on Office Procedure teaching as cases arise in the clinic/hospital.

   - Evidence Based Medicine (EBM)
The EBM teaching curriculum consists of 3 components: 1) Critical appraisal of evidence, 2) Clinical practice audit and 3) The resident scholarly project. Critical appraisal and clinical practice audit will be taught (alternating with behavioral medicine teaching) in small group sessions during the 10-12 am timeslot Friday mornings during first year academic family medicine rotations. Each resident will be expected to complete 2 critical appraisal assignments and present them during these sessions (a schedule will be circulated via email early in the rotation). Residents are required to conduct a resident scholarly project and present it at the Resident Forum in the fall of second year. Introductory information for the resident project is provided at an academic ½ day early in the year. Residents are reminded
that some projects require Ethics Approval which can take a considerable amount of time and must be received before data collection can begin. For further details please see: www.hrea.ca/home.aspx.

*Please see the information under the curriculum section in this handbook for further details then talk to your faculty advisor or Dr. Kris Aubrey-Bassler.*

- **Behavioral Medicine (BM)**
  The Behavioral Medicine curriculum encompasses Friday morning teaching sessions, the Counselling Centre session, Psychiatric Emergency and Crisis Intervention (PEACI) sessions during Core Content, the Urgent Mental Health Care Experience and the completion of two Behavioral Medicine Reflections (BMRs). Please see the Behavioral Medicine Online Manual (Desire2Learn (D2L)) for further details.

  Friday morning teaching sessions – These sessions are taught on Friday mornings during the Academic Family Medicine (AFM) rotation. Each session consists of one behavioral medicine topic and one BMR reflection. Both are taught by the residents. The topics and teaching schedule are listed in the Behavioral Medicine section on D2L. A Family Medicine and a Psychiatry preceptor are in attendance to help facilitate the discussion.

  Please see your local preceptor for variations to this teaching schedule.

  e) **Urgent Mental Health Care Experience**
  Residents completing their rotations within the Northern – Goose Bay stream will gain exposure to urgent mental health cases in their local emergency departments.

  f) **Behavioral Medicine Reflections (BMRs)**
  The BMRs are two reflective exercises that first year residents complete during the Academic Family Medicine rotation. The BMRs provide an opportunity to document cases with a behavioral medicine aspect and to further explore and reflect on the behavioral component of such encounters. The examples that you use in your BMR entries are not necessarily limited to your Academic Family Medicine rotation. There will be opportunities to discuss these entries during your Academic Family Medicine rotation during the Friday morning Behavioral Medicine teaching sessions or during teaching rounds. Each case needs to be printed off as a hard copy and “signed off” by a faculty member. It is the resident’s responsibility to deliver the completed, signed off BMRs to Postgraduate Office.

  g) **Videotape Review (VTR)/Direct Observation of patient encounters**
  All residents are to record patient encounters to be observed directly during training. This will take place during the AFM rotation. The VTRs are reviewed at the Counselling Centre and/or during Academic Family Medicine teaching rounds.
Northern - Goose Bay Second Year

Second-year residents are required to do a minimum of seven (7) clinics per week. The remaining time during the week will be available for the pursuit of the following activities:

a) **Academic Half Day**
   - There are a number of mandatory overarching program and PGME academic half day sessions that residents are required to attend via Blackboard Collaborate. Please see your primary preceptor for this information. All other Academic Half Day sessions will be delivered locally. When residents are away from Goose Bay on rotation (e.g. St. John’s), they are expected to attend Academic Half Day in person (St. John’s) or via Blackboard Collaborate if outside of St. John’s.

b) **Team Rounds**
   - Videotape Reviews, Behavioural Medicine Reflection cases, Quips, Audit and Critiques will be discussed during Team Rounds. Simulated Office Orals (SOOs) practice is also offered. Please see the local teaching schedule at your site.

c) **Friday Morning Teaching Sessions**
   - Most residents will participate in Behavioural Medicine and Evidence Based Medicine teaching on site in Goose Bay.
   - Residents will gain exposure to hands on Office Procedure teaching as cases arise in the clinic/hospital.

   - **Evidence Based Medicine (EBM)**
     The EBM teaching curriculum consists of 3 components: 1) Critical appraisal of evidence, 2) Clinical practice audit and 3) The resident scholarly project. Critical appraisal and clinical practice audit will be taught (alternating with behavioral medicine teaching) in small group sessions during the 10-12 am timeslot Friday mornings during first year academic family medicine rotations. Each resident will be expected to complete 2 critical appraisal assignments and present them during these sessions (a schedule will be circulated via email early in the rotation). Residents are required to conduct a resident scholarly project and present it at the Resident Forum in the fall of second year. Introductory information for the resident project is provided at an academic ½ day early in the year. Residents are reminded that some projects require Ethics Approval which can take a considerable amount of time and must be received before data collection can begin. For further details please see: [www.hrea.ca/home.aspx](http://www.hrea.ca/home.aspx).

*Please see the information under the curriculum section in this handbook for further details then talk to your faculty advisor or Dr. Kris Aubrey-Bassler.*
- **Behavioral Medicine (BM)**
  The Behavioral Medicine curriculum encompasses Friday morning teaching sessions, the Counselling Centre session, Psychiatric Emergency and Crisis Intervention (PEACI) sessions during Core Content, the Urgent Mental Health Care Experience and the completion of two Behavioral Medicine Reflections (BMRs). Please see the Behavioral Medicine Online Manual (Desire2Learn (D2L)) for further details.

  Friday morning teaching sessions – These sessions are taught on Friday mornings during the Academic Family Medicine (AFM) rotation. Each session consists of one behavioral medicine topic and one BMR reflection. Both are taught by the residents. The topics and teaching schedule are listed in the Behavioral Medicine section on D2L. A Family Medicine and a Psychiatry preceptor are in attendance to help facilitate the discussion.

  In second year, residents complete sessions in Behavioural Medicine (as above) and in Practice Management. All residents will attend these sessions via Blackboard Collaborate when a local opportunity does not exist.

d) **Practice Management**
- Residents will receive additional Practice Management teaching during their second Year.

e) **Videotape review (VTR)/Direct Observation of patient encounters.**
- All residents are to record patient encounters to be observed directly during training.

f) **Resident Forum Preparation and/or Study Time**
- One half day per week will be protected for residents to pursue their Resident Scholarly Project (max of one half-day/week x 16). This half-day will need to be re-negotiated (for study time) with your preceptor after you have presented your projects at the Residents’ Forum should you have any remaining half days to use.

**Rotation Specific Teaching**
There is ongoing rotation specific teaching in the form of Morning Rounds, Medical Grand Rounds, Chart Review, etc. Please check with your primary preceptor to review expectations at your site.

**Evidence-Based Medicine Curriculum**

**Introductory Information**
Access to health information is becoming increasingly easy for patients and health care professionals alike. What is more difficult is determining the usefulness of this information. The Evidenced Based Medicine (EBM) portion of the MUN Family Medicine Residency curriculum is designed to teach you about critical appraisal of the scientific literature, quality assurance and improvement, and professional work outside of clinical practice. To accomplish these objectives, we have a formal program consisting of three components which are listed below. This information currently applies to all residents except those in the
NorFam Stream in Goose Bay, where a similar EBM program is taught by the preceptors there. Other streams may soon be starting to teach part of the EBM curriculum to their residents so the information provided here may fall out-of-date more quickly than I am able to update it. Residents who are out-of-town for their first year FM rotation (but not in Goose Bay) will be expected to connect to small group EBM sessions via Blackboard Collaborate (webconferencing).

**CRITIquing the QUality of Evidence (CRITIQUE – Friday mornings AFM Year 1):**

These sessions are used to review how to ask a clinical question, conduct a literature search to identify the most relevant scientific paper, critically appraise the information found, and incorporate the information into clinical decision making. Residents will complete two critical appraisals during their AFM 1 rotation, one of which will be discussed on the Friday morning session. The other critical appraisal should be reviewed and signed by the preceptor, then forwarded to FMCurriculum@med.mun.ca to ensure that credit is given.

**Quality Improvement (Friday mornings AFM Year 1):**

A clinical practice audit is an assessment of how well a practitioner or group of practitioners is meeting a reference standard of care. Audit is one example of a quality assurance activity, and can also be used as part of a quality improvement exercise. Residents will usually be asked to review charts from the practice they are rotating in at the time. Please let me (kaubrey@mun.ca) know asap if your preceptor has concerns about this.

**The Resident Project:**

During the family medicine residency program, residents are required to complete a scholarly resident project. The exact nature of the project may take almost any form relevant to clinical medicine, research, administration or population health and it does not need to involve research. Residents are allowed 8 half-days (max 1 per week) during their AFM rotation to complete their project, but this time away must be approved by the program and their preceptor. We review some information relevant to the academic project at academic half-day, but we do not present a formal teaching curriculum, because of the diversity of the projects and the fact that much of the teaching would not apply to each individual project. Support for the project is available from your faculty advisor and the resident research director among others (see below).
Key Contacts

Resident Research Director: Kris Aubrey-Bassler
Room 424, Janeway Hostel
Health Sciences Centre
St. John’s, NL
(709) 777-8304
kaubrey@mun.ca

Resident Project Facilitator: Ricky Cullen
Room 417, Janeway Hostel
Health Sciences Centre
St. John’s, NL
(709) 777-8927
Richard.cullen@med.mun.ca

DFM Academic Office Contact: Jacqueline Ryan
Room 2743, Health Sciences Centre
St. John’s, NL
(709) 864-6522
FMCurriculum@med.mun.ca

Central Stream EBM Lead: Andrew Hunt
andrewhunt@nf.sympatico.ca

Eastern Stream EBM Lead: Megan Hayes
Megan.hayes@icloud.com

NorFam Stream EBM Lead: Margo Wilson
Margo_wilson@hotmail.com

Western Stream EBM Lead: Lorena Power
lorenapower@hotmail.com

Additional Contacts:

Dan Hewit
Various
dan.hewitt@hotmail.com

Gabe Woollam
Happy Valley-Goose Bay
gabewoollam@me.com
Peter Barnes
Botwood            pbarnesmd@icloud.com

Rebecca Powell
Grand Falls-       rebeccaepowell@gmail.com
CRITIquing the QUality of Evidence (CRITIQUE) Exercises are part of the Evidence Based Medicine (EBM) curriculum in the MUN FM residency program. We borrow heavily from resources available at the University of Oxford Centre for Evidence Based Medicine (CEBM) website.

Members of the Research Committee will facilitate the Friday morning sessions during the Academic Family Medicine Rotation in First Year. A schedule of these sessions will be circulated just prior to or early in your rotation. If you are listed on the schedule, you are expected to find a paper and circulate electronic copies of the paper and of the CEBM critical appraisal template appropriate for it to your fellow residents attending the session by the Monday prior to the session at the latest. All other residents attending the CRITIQUE session are expected to read each of the papers prior to the session and should be prepared to participate in the discussion.

Steps:

1. Develop a focused research question, usually using the “PICO” format. See the Asking Focused Questions page on the CEBM website for assistance. You may also find the PICO worksheet helpful. For your second CRITIQUE, try to choose a question that relates to a different category of paper (review, diagnosis, prognosis, therapy).
2. Conduct a literature search to find papers to answer your question. See the Searching Exercise page on the CEBM website for assistance.
3. Choose the best single paper (may be an original or a review paper). You are free to choose any type of paper that answers your clinical question. However, the CEBM only produces critical appraisal sheets for:
   - Systematic reviews
   - Diagnosis papers (can usually be used for screening papers)
   - Prognosis papers
   - RCTs (most papers on therapy). Works best with a dichotomous (yes/no, e.g. death or MI) not a continuous (e.g. pain scale rating or change in peak flow) outcome.
4. Download the appropriate critical appraisal sheet from the CEBM website.
5. Circulate your paper and critical appraisal sheet to your fellow residents attending the session (first year residents currently completing AFM).
6. Read the paper and complete the questions on the critical appraisal sheet.
7. Hand in a paper copy of the sheet on the day of your presentation, have it signed by the facilitator and ensure that it is delivered to the Academic Office.
8. If you are not scheduled to present one of your assignments or are scheduled after week 12 of your rotation, please hand in a paper copy of your assignment to your academic advisor by week 12 so that it can be marked prior to the end of the rotation.
9. Come to the session on Friday prepared to lead the discussion. As a very rough guide, you should present a brief overview of the paper lasting about 5-10 minutes, review the
important points regarding the quality of the evidence for 10 minutes and save some time for questions and discussion.

Please use the forms available on the CEBM website.

You should also note that the critical appraisal questions most likely to be asked on the CCFP exam relate to therapy (e.g. absolute risk, relative risk, risk reduction, number needed to treat) and diagnosis (sensitivity, specificity, positive and negative predictive values). Regardless of what type of paper you choose, you should make sure you understand these concepts and the calculations for them.

Scheduling
Because of time constraints, we are usually only able to schedule each resident to present 1 CRITIQUE during the Friday morning sessions. If this is the case for you, please present your second CRITIQUE to your clinical preceptor or at clinic teaching rounds. Regardless of where you present, please have the supervising faculty sign off the assignment and ensure that the academic office (FMCurriculum@med.mun.ca) receives the signed copy so that credit is given. If you are not scheduled to present your assignment, you must still complete it and hand it in to your academic advisor.

Due Date
If you are not scheduled to present one of your assignments or are scheduled after week 12 of your rotation, please hand in a paper or email copy of your assignment to your academic advisor (and cc to the academic office - FMCurriculum@med.mun.ca) by week 12 so that it can be marked prior to the end of the rotation.

Deadline for Submission: The presentation date or by week 12 of the AFM rotation in 1st year, whichever is earlier.

Quality Improvement (QI)
This portion of the curriculum was previously referred to as Practice Audit. Quality Assurance or Practice Audit is the process of studying some aspect of the structure, process or outcome of medical care by those personally engaged in the care, in order to measure how well objectives are being met. How well the activity should be performed is called the criterion standard. It is generally established from a thorough review of the current literature, from relevant, high quality clinical practice guidelines or by consensus of the audited clinicians. Quality Improvement builds on Quality Assurance by initiating changes to the practice to address any deficiencies found at the practice audit stage.
There are three main types of practice audit:

- **Structure**: Evaluate the physical or other resources that enable care (staff, environment, equipment).
- **Process**: Evaluate an activity that occurs in the course of delivery of care (e.g., bp checks, screening rates, test rates).
- **Outcome**: Evaluate patient outcomes (e.g., morbidity, mortality, quality of life).

Some authors group structure and process audits together.
Residents will complete a practice audit during their academic family medicine rotations. At Memorial, the audit cycle consists of three Friday morning academic sessions and an additional session where the residents from each clinic bring the audit findings back to share them with the clinical group.

**Session 1:** The first session includes an introduction to practice audit, a discussion of topics to consider performing the audit on and an initial draft of the audit question. Prior to the second session, residents will research the relevant topics to their audit question.

**Session 2:** At this session, residents will finalize the audit question and the definition of the criterion standard. This includes defining the exact sample population, number of charts to audit and the final inclusion and exclusion criteria. Residents will collect data to complete the audit prior to Session 3.

**Session 3:** At the third session, residents will present the findings of their audit, discuss the findings and interpret positive or negative behaviours. Most importantly, if the practice is not meeting the criterion standard, residents will discuss why this is so and try to develop process related ways to improve performance. These results will be brought back to the full faculty for discussion and implementation. Another audit will then be performed on the same topic at a later date to document if performance has improved.

**Session 4:** The residents participating in the audit bring the findings back to the faculty at their clinical site for discussion and to begin the process of implementing changes (The Improvement part of QI) if necessary.

The steps required to conduct a QI or audit project are nicely outlined in a paper by a former MUN faculty member available [here](#).

**The Resident Project**

All residents are required to complete a scholarly resident project and present their findings, usually at the Resident Forum in the fall of second year. A written paper must also be submitted at the time of the Forum. Past resident research project papers are available in the academic office to assist you with topic selection. Please see the [Written Submission Grading](#) section below for the evaluation scheme used for each project type. This scheme should be used to guide the amount of time you spend on each of the required sections.

**Resident Project Types**

The project can take any of the following forms:

**Quality Improvement/Audit:** Audit current practices using a process similar to the one used as a group during the academic Family Medicine rotation (see that section of this handbook). We strongly encourage residents to discuss their data requirements with the holder of the data (the clinic manager, Barb Morrissey in the case of the Academic Family Practices in St. John's) and probably their faculty advisor and/or research faculty early in the process of conceptualizing the project. See the Research Ethics page for information on whether ethics approval is required. The write-up of the QI project must include:

- Title
- Abstract
- Clearly worded audit question
Reference standard to which the audit results are being compared
Evidence for the reference standard
Methods
Results
Proposed solutions to address deficiencies in practice
Conclusions and recommendations
References
Appendices, if any

A Classical Research Project: A project that requires the collection and analysis of data. We encourage research but be warned that many research projects require a large amount of logistical work that can be difficult to complete in the required time frame. A clearly worded question is required as well as clear descriptions of methods and techniques for data analysis. See the Research Ethics page for information on whether ethics approval is required. If you intend to access data (including a mailing list) from an individual or organization (e.g., a clinic or group of clinics) in order to complete your project, then approval from that organization must be obtained before proceeding with the ethics application. If approval is not obtained and the dataholder is unwilling to proceed with the project as described, it may be necessary to revise your proposal and submit a request for amendment to the Health Research Ethics Board (HREB) for approval, or change the proposal completely. The write-up of a research project must include:
  - Title
  - Abstract
  - Introduction
  - Research Question/Objectives
  - Methods
  - Results
  - Discussion/Conclusions
  - References
  - Appendices, if any

A Systematic Review: A review of the literature that involves a thorough search to uncover all relevant articles of interest. Many guides to assist with methodology are available. We have included links to a few with this handbook. Please note that a non-systematic review of the literature will not normally meet the requirements of the Resident Project. HREB approval is not generally required for systematic reviews. The write-up of a systematic review must include:
  - Title
  - Abstract
  - Introduction
  - Research question
  - Systematic search strategy
  - Description of additional methods (culling of papers, process of review, metaanalyses if relevant)
  - Results
  - Discussion
  - Conclusion
  - References
**Health Policy Paper:** Residents can choose to write their resident project on a contentious issue of health policy. Examples of papers can be found on the CFPC website or the website of think tanks such as the Canadian Centre for Policy Alternatives and The Fraser Institute. Ideas can also be found by reviewing legislation that is currently being discussed by the provincial and federal governments. HREB approval is not generally required for a health policy paper. The paper may vary depending on the topic selected but should probably contain the following sections:

- Title
- Abstract
- Overview of the problem
- Severity of the problem
- Legislation: Is there any active or proposed legislation addressing the issue?
- Stakeholders: Which organizations are involved in promoting or advocating against the issue? Include a brief synopsis of their position.
- Expected benefits: What are the expected benefits to individuals or society if the issue is addressed?
- Problems: What are the potential problems if the issue is addressed? Make sure to include your own opinions, not just those of others. It is important to base your opinion on facts as much as possible and address both obvious problems and the potential for more subtle, unintended consequences.
- Conclusions: What is your recommendation on the issue? Base your opinion as much as possible on facts.

**An Artistic Project:** You may also present a medically related project that is somewhat outside the usual boundaries of academic writing. Options could include photography, painting, sculpture, music, poetry, drama, film and creative writing. Residents choosing this option should usually have a prior interest and some proficiency in their medium of choice. Although we have included an evaluation scheme to grade artistic projects below, we recognize that this may not suit all such projects. Projects not amenable to this evaluation scheme will be graded using a method at the discretion of the research committee. In addition to the usual requirements of the resident project, the following items will also usually be required, although exceptions will be considered if the project warrants it and if requested in advance:

- An introduction that defines a question or reason for the project.
- Demonstration that the process of completing the project has resulted in your personal growth in or increased understanding of the discipline of interest.
- Demonstration of an academic understanding of the integration of your medium of expression with medicine including historical and contemporary overviews of previous work and how they relate to your work.

**A Patient Education Project:** Residents may produce material that can be used for patient education about a particular health issue or procedure. The process of development will normally include a review of currently available tools and characteristics of the most effective tools. All of this information should be presented in the project presentation and write-ups. Ideally, residents will also include an evaluation of their tools. Examples of excellent patient clinical decision and education tools are available from the Canadian Task Force on Preventive Health Care website. Please note that the CFPC provides grants to fund the development of patient education material. Dr. Cathy MacLean sits on the DFM Patient Education Committee.
and has agreed to advise residents wishing to pursue a patient education project. Project write-ups may include the following sections:

- Title
- Abstract
- Patient Education topic being addressed
- Introduction including a strong section on rationale for developing the tool
- Currently available tools and why they are unsatisfactory
- Characteristics of effective patient education tools
- Overview of evidence to support information included in tools
- The tools themselves
- Evaluation
- Conclusions

**Clinical Tools/Patient Safety:** Projects that are designed to improve patient safety or clinical outcomes will also be accepted. Examples of such projects include the development of standardized hospital order sets or emr tools to facilitate the care provided to certain patients. Residents should establish that there is a need for this type of tool and usually evaluate the tools as part of the project. Project write-ups may include the following sections:

- Title
- Abstract
- Patient Safety topic being addressed
- Introduction including a strong section on rationale for developing the tool.
- Currently available tools if any and why they are unsatisfactory
- Characteristics of effective patient safety/emr tool.
- Overview of evidence to support information included in tool.
- The tools themselves
- Evaluation
- Conclusions

**Other:** Many other types of project will be acceptable, as long as they relate in some way to health or healthcare, and there is a requirement for a comparable amount of effort. Please discuss other project types with your faculty advisor. These projects will be evaluated at the discretion of the Resident Project Committee.

**Timelines**

The schedule below is for residents proceeding through the residency program according to the usual schedule (July start). For residents on an alternate schedule we prefer to follow this schedule as closely as possible, but will approve an alternative where necessary to accommodate exams, leave and the scheduled residency completion date. Please discuss these requests with the academic office (FMCurriculum@med.mun.ca) and the Resident Project Coordinator (kaubrey@mun.ca).
**First Year:**

*June orientation* (at beginning of residency): First years attend a session on the evidence based medicine portion of the curriculum which includes a section on the requirements and process for the project.

**November** (during core content week): First years meet with their faculty advisors. The agenda will include a discussion of the resident project. First year residents will also attend the Resident Forum.

**December 4th:** Deadline for the project proposal forms. This proposal includes the project title, type of project, and a short description. A blank proposal template, including instructions on how to submit the form, is available in this handbook.

**March** (during core content week): First years meet with their faculty advisors. The agenda should include a discussion of their projects.

**April:** Deadline for submission to the ethics committee for projects requiring this approval (Some practice audits and most research projects). For a discussion on whether ethics approval of your project is required, see the [Research Ethics](#) section below, or the [link](#) on the Health Research Ethics Authority (HREA) website. If ethics approval is required, please follow the [instructions](#) to submit your application on the HREA website. All ethics submissions must be reviewed and approved by your faculty advisor or project supervisor before they are submitted to the HREB.

**June:** If the project has changed since the original proposal was submitted (December 4th), this is the final deadline for a new, revised project proposal.

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**Second Year:**

**September 15th:** Deadline to submit the project abstract form which includes the final project title, project type, and requested presentation method. This project title will be included in the agenda for the Resident Forum and must not be changed after the form is submitted. A blank abstract template, including instructions on how to submit the form, is available in this handbook.

**November** (during core content week): The Resident Forum takes place. PGY1s attend and PGY2s present their projects to fellow residents, faculty and others. The last day of Core Content is the final deadline for written project papers to be submitted. These papers should be emailed to the Family Medicine PG Office ([FMCurriculum@med.mun.ca](mailto:FMCurriculum@med.mun.ca)).
# Academic Project Checklist

A checklist similar to the one included below will be used at your faculty advisor meetings to ensure that all of the appropriate steps are completed and that necessary approvals (e.g. research ethics) are received. All residents must complete the following steps sequentially in order to proceed with their resident project. **IF YOU DECIDE TO CHANGE YOUR PROJECT TOPIC, ANY OF THESE STEPS THAT HAD PREVIOUSLY BEEN COMPLETED AND THAT ARE SPECIFIC TO THE TOPIC MUST BE REDONE.**

<table>
<thead>
<tr>
<th>Task</th>
<th>Exempt</th>
<th>Completed</th>
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<tbody>
<tr>
<td>1. Attend Introduction to EBM Curriculum session during orientation</td>
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<tr>
<td>2. Attend Introduction to Resident Project academic ½ day</td>
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<tr>
<td>3. Attend Introduction to Research Ethics academic ½ day</td>
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<tr>
<td>4. Discuss academic project at fall faculty advisor meetings:</td>
<td></td>
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<tr>
<td>• Project topic and scope</td>
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<tr>
<td>• Need for ethics approval</td>
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<tr>
<td>• Primary supervisor (faculty advisor or subject expert alternate)</td>
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<tr>
<td>5. Attend Resident Forum in first year to observe project presentations</td>
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<tr>
<td>6. Submit Resident Project Proposal form to faculty advisor, academic office, PHRU Projects Coordinator and Resident Research Director.</td>
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<tr>
<td>Topic: _________________________________________________________________</td>
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<tr>
<td>7. Receive approval of proposal from faculty advisor</td>
<td></td>
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<tr>
<td>8. Receive approval of proposal from Resident Research Director</td>
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<tr>
<td>9. Attend academic ½ day session on completion of HREB forms</td>
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<tr>
<td>10. Complete necessary material for ethics approval if required (see returned Proposal Form and links in resident handbook):</td>
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<tr>
<td>• Tri-council online research ethics course</td>
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<tr>
<td>• HREB forms appropriate for the study type</td>
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<tr>
<td>• Indicate clearly on forms if project will continue after residency</td>
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<tr>
<td>• Review and discuss with project supervisor and obtain their signature</td>
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<tr>
<td>11. Submit HREB forms to Resident Research Director and PHRU Projects Coordinator</td>
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<tr>
<td>12. Receive approval of HREB forms from Resident Research Director</td>
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<tr>
<td>13. Submit forms to HREB and receive approval (BEFORE DATA COLLECTION BEGINS)</td>
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<tr>
<td>14. Discuss project at spring faculty advisor meetings:</td>
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<tr>
<td>• Has project changed (need to redo this form)?</td>
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<tr>
<td>• Progress report</td>
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<tr>
<td>15. Submit Resident Project Abstract form to the faculty advisor, project supervisor (if different) and the academic office</td>
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<tr>
<td>16. Receive approval of abstract from faculty advisor or Resident Research Director</td>
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<tr>
<td>17. Present at Resident Forum via poster or oral presentation (or at alternate time if previously arranged with the Resident Research Director)</td>
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Resident Project Topic Ideas

The topics below are listed to help residents choose. Essentially any topic that relates to health or healthcare will likely be approved.

1. City wide on call system for St. John’s for family physicians. What would this look like, how to organize, training, staffing, relationship with EM, remuneration models, etc.
2. Documentation of common After-Hours/ Sign-Out Practices of St. John’s -based Family Physician Offices and Effect on Patient Care
3. A Family Practice Resource List – what resources should we have on hand including IT Point of Care tools and books/journals
4. Common Emergencies in Office-Based Family Practice Setting, what equipment, role of simulation, including implementation in all four FM clinics.
5. Prevention Protocol Strategies in Infants, Children, Adolescents, Adults and the Elderly – what could we be doing collectively in NL?
6. Strategies for Prevention – A Tool for Evidence-Based Prevention in Office Practice Including through Electronic Medical Records
7. Cost Effective Care – Uninsured Service Fees/Lab Tests/X-rays, Cost of Medications etc. Using the Choose Wisely initiative and other data to come up with protocols that help save money in primary care and could be used to invest in the system for other areas of primary care reform.
8. How to Organize a Community Project as a Family Physician
9. Medicine and Parenting; what advice to do we give and how? For ourselves and our patients. What role could we play in initiatives such as Strongest Families? What basic family therapy skills do we need?
10. A Practice Formulary for Family Physicians
11. A Suicide Guide for Family Physicians in NL.
13. A Community-Based PAP Screening Project for Under-serviced Populations; build on mobile models used before or other strategies?
14. The evidence for Oral B12 and a decision support tool to use in family practice to increase physician use of oral B12 and patient acceptance of oral B12 options.
15. A Resident’s Information Manual on Wellness options – staying healthy and fit during residents. What are the options here and across training sites.
16. How Family Physicians are Portrayed in the Media, Particularly on Television. What might the impact of this be?
17. Teaching Family Medicine Residents How to Teach Medical Students, Best Practices for Common Problems in Family Medicine, Clinical Practice Tools, Practice Management Ideas,
18. Patient Education – Review of On-line CFPC Pamphlets and other resources. What should be in our waiting rooms and what should we be avoiding?
19. An audit to determine the length of non-pharmacological interventions including diet and lifestyle changes prior to starting drug therapy for common conditions in family medicine such as hypertension, elevated blood sugars, hyperlipidemia and weight loss.
20. The Role of the Health Coach in primary care
21. What to do with a patient who Refuses Ongoing Health Maintenance Care Such as PAP Tests and mammograms vaccination or other standard advice. How to manage this?
22. How Do Family Physicians Collaborate i.e. With Other Family Physicians, With Specialists, and With Other Allied Health Professionals. How are these competencies taught and measured?
23. Health Human Resource Planning in NL Including numbers of Family Physicians, Numbers of Patients, Future Practice Patterns, Number of Patients Without Family Physicians, Movement of Family Physicians from Solo Practice to Group Practice and Intercollaborative Care and the Organization of Family Physicians into Call Groups; role of IMG physicians, etc. What is the current practice and how has it affected recruitment. How do residents want to be recruited to areas of need.
24. What is the Role of NL Family Physicians in their Communities Including their affiliations with Community-based Organizations and Initiatives. How do we teach the community based nature of Family Practice?
25. Development of a Family Medicine Resident Information Package Specifically for Medical Students Interested in Learning about the MUN Family Medicine Program
26. Obesity in NL and what can family physicians be doing to more proactively deal with this?
27. Inactivity in NL and what strategies can be supported to help improve exercise in all populations and during all seasons? What role does kinesiology play and how can we work with them?
28. How to improve breastfeeding rates in the province. Who is doing what, what are the barriers, what could family physicians be doing differently to support breastfeeding, what resources exist now?
29. What interest is there here for Enhanced skills options / 3rd year programs – CoE, Palliative care, Health equity/Global Health, Developmental Disabilities, Sports Medicine, Occupational Medicine, OB and maternity care, etc. How will this impact recruitment and health human resource planning in the province?
30. What is complexity science and what do family medicine residents need to be taught about it?
31. What is the current demographic trends in the province related to Seniors Care and what can family physicians be doing to prepare for the increasing demands?
32. How to improve Audits by implementing a follow up phase to all clinical audits using PDSA cycles to enhance and improve patient care.
33. What is the accreditation of primary care practices and how will this affect family physicians in the future?
34. What is the evidence for Group Visits in family practice? How should they be set up and what types of conditions should they be considered for? How do you run a group visit in a family practice setting?
35. How are specialty referrals currently handled in EH or other RHA in NL? How many forms? How many different systems? What does the literature say about ideal referral practices? How might this be applied in NL?
36. How can we make the MUN Family Medicine program more family friendly? How are current changes going to impact this? What else needs to happen to improve our
reputation as a family friendly program? How would we be ranked today on this and what initiatives are needed? How do current perceptions compare to the reality of what is done? How do we compare to other programs across Canada?

37. What is the role of social media for family medicine at MUN?
38. How do family physicians change their behavior and what do you need to learn about this as a resident?
39. What should residents in family medicine be taught about leadership? What is in the literature and what are the current recommendations for medical education in Canada related to leadership?
40. Feasibility of a locum service for Newfoundland and Labrador.
41. Development of tools to integrate multi-disciplinary providers into primary care teams (review of the literature, role description, workflows, medical directives, policies and procedure, etc...).

Resources and Support

Each resident is provided with 16 half days during their academic family medicine rotations to work on their projects. (It is realized that more time than this is needed to complete a project but this does help to free up some time.)

Each resident has a faculty advisor to help them with ideas and with the process. Members of the faculty who are not your advisor but who have expertise and interest in the content area of your project may be approached for advice.

The Primary Healthcare Research Unit Director, the Centre for Rural Health Studies Director, and other faculty members with expertise in research may be approached for help with research methodology, survey design, data analysis, audits, and critical appraisal.

Literature searching and access to full text journal articles is available through the Health Sciences Library.

A resident’s resource room is provided in the Family Practice Unit with computer access to the internet as well as printing.

Expenses

Internal University resources are available for some expenses (as outlined below):
Photocopying: Use of the Family Practice Unit (FPU) photocopier. Residents are required to complete their own photocopying.
Printing: Bulk and large format (i.e. posters) is available through MUN Printing Services by completion of the appropriate requisition and with an authorized signature. For more information, see bullets #5 and 6 under the “other support” section.
Mailing to a maximum of 500 envelopes: Available through the Faculty of Medicine mailroom. Sealed and addressed envelopes should be left in the Family Practice Unit mailroom. Envelopes must be grouped by location (community, internal vs. external, province, etc.)
Online Survey: Please contact the Resident Research Director about online survey software.

Other Support

The following supports are available from the Faculty and the Discipline of Family Medicine:
Faculty Advisor: Advice on the development of your research question and project proposal, abstract and final project/presentation and write-up. Advice on whether Human Investigations Committee or other ethical approval is required, and review of the HIC application if submission
is necessary. Advice on whether other approvals are necessary (e.g., if data or mailing lists will be accessed).
Research Faculty or Director: Provides advice on the above issues if the faculty advisor is unable to help.
Academic staff: Provide process support only such as training on the use of the FPU photocopier and the appropriate forms to access internal MUN services.
HSIMS: Provides advice on on-line surveys, and slide and poster presentations.
Poster Design: Printing Services does not help with the actual design of posters. Adam Pike (adam.pike@med.mun.ca) at the Primary Healthcare Research Unit is available to provide brief instruction to residents on the use of Powerpoint for the preparation of posters, and verification of the formatting before the electronic file is sent to Printing Services. He will not prepare the actual content for inclusion in the posters.
Printing Services: Given an appropriately formatted electronic file, Printing Services will print posters. An internal requisition form must be completed by the resident, approved by the academic office, and submitted to Printing Services in order for your poster to be printed. Printing Services generally require at least one week advanced notice. To obtain an internal requisition form, please contact the academic office (FMCurriculum@med.mun.ca). An authorized signature is required. After completion of an internal requisition form, electronic files (to be printed) can be forwarded to Nancy Dawe (nancyd@mun.ca) in the Printing Services department.

Points to Remember
You are given 1.5 years to complete the project
We expect good work
Your presentation and written submission will be graded
Good luck and please ask for help whenever you need it!

Research Ethics
It is not always necessary to obtain ethics approval prior to collecting data for your resident projects. The main factors determining whether approval is required are if subjects are to be contacted to obtain data or if existing private data is being analyzed. If either of these conditions are met, ethics approval is likely required. For a more complete discussion and some examples to help with this decision, visit this link to the Health Research Ethics Authority page or ask your faculty advisor or a research faculty member. If there is ANY doubt about whether approval is required, you should discuss very early with your advisor because the process can take some time. It is a considered a very serious offence to conduct research without ethical approval.
If ethics approval for your project is required, you will need to follow the instructions on the HREA website. If you haven’t done so before, you will need to complete a research ethics tutorial called the Tri-Council Policy Statement – 2 Core Tutorial (TCPS) which can be reached via a link on the HREB website or here. You will need to print out a certificate after you have successfully completed the tutorial and attach it with your ethics application.
Studies that are relatively straightforward from both a methodological and ethical standpoint are likely to be triaged for expedited review which generally takes a few days. Should your study protocol change after ethics approval has been received, you can submit an amendment form which is usually approved quite quickly as well.
The Forum
The Residents' Forum will take place during the fall core content week. Second-year residents are expected to give either a 10 to 15 minute (exact time clarified when agenda is set) oral presentation in front of the audience, or a poster to be discussed in small group format over 10 to 15 minutes. There will be about 5 minutes allotted for questions following oral presentations. Because the schedule is quite tight, timelines will be strictly followed. Please practice your presentation timing before the Forum!

Poster Preparation
For assistance preparing posters, please contact Adam Pike (adam.pike@med.mun.ca). Posters can be printed at no cost to residents through MUN printing services, ONLY if submitted to them 2 weeks before the Forum. A requisition will also need to be completed with the assistance of the Family Medicine PG Office (mailto:FMCurriculum@med.mun.ca). If you are presenting a poster at the forum, please ensure that it fits on a display board of the following size. Please note that these display boards bend between the centre section and 2 side sections.
Presentation Grading

Most oral and poster presentation will be judged using the scheme below. If necessary, the research committee may evaluate creative projects using a different scheme. The written submission only will be used to determine a resident's progress through the program, except for projects involving a significant visual component (usually just creative projects), in which case the research committee will decide on the appropriate scheme to be used.

A. CONTENT

1. Was the project relevant to Family Medicine? n/a 1 2 3 4 5
2. Was the current state of knowledge summarized? n/a 1 2 3 4 5
3. Was the research question logically developed? n/a 1 2 3 4 5
4. Was the methodology articulated adequately? n/a 1 2 3 4 5
5. Was the methodology appropriate to answer the research question? n/a 1 2 3 4 5
6. Were the results/information presented? n/a 1 2 3 4 5
7. Was there adequate discussion/conclusion? n/a 1 2 3 4 5

B. QUALITY OF COMMUNICATION

8. Was the presentation well organized? n/a 1 2 3 4 5
9. What was the quality of the audio visual material? n/a 1 2 3 4 5
10. Was the question period handled well? n/a 1 2 3 4 5

The Discipline of Family Medicine welcomes scholarly projects other than research. For a project not effectively evaluated using the above criteria, please use your discretion to evaluate according to its aesthetic or other appeal as appropriate.

Overall evaluation:

- Exceeded expectations
- Met expectations
- Failed to meet expectations

SCORE: /50

The Written Submission

Regardless of what type of presentation you are doing or when, you are required to submit a written report by the end of the week after the presentation is given. This report can take on any format that makes sense given the type of project. For example, a research project should include an abstract, introduction, methods, results and discussion. Formatting for the research project should follow the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" published online here. As long as references, tables and figures are clear, the “Uniform Requirements” do not need to be followed
for these sections. Additional information regarding style, the information to be included in different sections of a paper and the length of each section is included in the American Medical Association Manual of Style, the full text of which is available in the Health Sciences Centre and Queen Elizabeth II libraries.

The write-up for other types of project should contain the headings listed here. The length of the paper is flexible but should usually be a maximum of 2500 words. Residents are encouraged to submit their written papers for publication and can format their paper according to the guidelines of whichever journal they wish to submit to. All references must be appropriately cited. Plagiarism of words or ideas without appropriate referencing is a serious academic offence.

Written Submission Grading
The written submission only will be used to determine a resident's progress through the program, except for projects involving a significant visual component (usually just creative projects), in which case the research committee will decide on the appropriate scheme to be used. The schemes used for evaluation of different types of written submissions are listed below. Please review these carefully when you are determining the appropriate amount of effort to spend on the different sections.

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<thead>
<tr>
<th>Systematic Review</th>
<th>Quality Assurance/Improvement</th>
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<tr>
<td>Background</td>
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<tr>
<td>The Question</td>
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<tr>
<td>Search Strategy</td>
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<td>Methods</td>
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<td>Results</td>
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<td>Discussion</td>
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<td>Conclusions/Answering the Question</td>
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<tr>
<td>Writing Style</td>
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<thead>
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<th>Research</th>
<th>Health Policy Paper</th>
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<td>Background</td>
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<td>The Question</td>
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<td>Methods</td>
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<td>Results</td>
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<td>Discussion</td>
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<td>Conclusions</td>
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<td>Appropriate Referencing</td>
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<td>Writing Style</td>
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<th>Creative Project</th>
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<td>Background and Question</td>
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<td>Organization</td>
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<td>Aesthetic Appeal</td>
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<td>Conclusions</td>
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<td>Writing Style</td>
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Awards

The Thomas Gleason Award for Social Accountability in Research: is an award given each year to the Family Medicine Resident project that best addresses the priority health needs of the community, region, or nation as assessed by the judges. It will be awarded annually at the MUN Family Medicine Resident Forum. Thomas Gleason was a faculty member in the MUN Faculty of Education and longstanding supporter of the Discipline of Family Medicine. His family donated money to finance this award in his memory.

Best Oral Presentation: is an award given each year at the Resident Forum for the best oral presentation as assessed by the judges.

Best Poster Presentation: is an award given each year at the Resident Forum for the best poster presentation as assessed by the judges.

The Discipline of Family Medicine Chair's Award: is an award given each year to the best overall resident project based on an assessment of the written papers and the presentations at the Forum. The winner of this award will usually be nominated for the CFPC National Resident Research Award. The College of Family Physicians of Canada, Newfoundland and Labrador Chapter offers an additional $500 award to the winner of the Chair's Award if they present their work at the CFPC Family Medicine Forum.
A guide to systematic literature reviews

Alison Nightingale

Abstract
Each year millions of papers are published reporting the results of medical research, making it virtually impossible for clinicians to keep up to date with the latest developments. However, it is important that clinical practice is based on the best available evidence and that effective treatments should be introduced as quickly as possible for the benefit of patients. Systematic reviews are different from traditional literature reviews because they aim to identify all studies (published and unpublished) that address a specific question and their methodology has been developed to minimize the effect of selection, publication and data extraction bias. In this guide to systematic literature reviews, the methods of conducting systematic reviews are discussed in relation to minimizing bias, searching the literature and investigating heterogeneity.

Keywords evidence-based medicine; evidence-based practice; meta-analysis; systematic literature reviews

Introduction
In 1992 Lau et al.1 published a cumulative meta-analysis of randomized controlled trials of thrombolytic therapy following acute myocardial infarction (AMI) and then compared the results of this analysis to the recommendations for the management of AMI.2 Using cumulative meta-analysis they found that by 1973 there was clear, statistically significant evidence from 33 randomized clinical trials (RCTs) that thrombolytic therapy reduced mortality following AMI (odds ratio 0.73 (95% confidence interval 0.59, 0.92)). Yet it was not routinely implemented in clinical practice until 13 years later. One of the reasons for this delay was that many of the studies included in the meta-analysis had small sample sizes and consequently the individual trials were underpowered for detecting a statistically significant treatment effect. By combining the results of the small trials together using meta-analysis it was possible to detect a statistically significant protective effect of thrombolytic therapy.

The Cochrane Collaboration
In 1993, Archie Cochrane founded the Cochrane Collaboration, an independent, not-for-profit organization that produces systematic literature reviews of interventions in healthcare that are published in the Cochrane Library. It has over 10,000 reviewers internationally and is organized into review groups, each with a specific area of interest. Each review group has an editorial board and a number of researchers responsible for supporting reviewers in the process of conducting their review. Additionally, each group holds a speciality database of RCTs that have been identified from numerous bibliographic databases and from the results of reviewers’ hand searching relevant journals that are not indexed in these databases. The Cochrane Central Trials Register (CCTR) is the most comprehensive resource for the identification of RCTs anywhere in the world. Whilst the Cochrane Collaboration is primarily involved in producing reviews of the effectiveness of interventions and consequently includes only RCTs, non-Cochrane systematic reviews can be conducted on any type of study design including case reports, if that is the highest available level of evidence to answer a specific question.

What makes systematic reviews different from other literature reviews?
Literature reviews appear in most introductions and discussion sections of research reports, case reports and expert opinion papers. All of these types of literature review may be affected by selection bias because the authors are likely to include only major studies in a particular area, and only those that are most consistent with their personal opinion or the results of their research. Moreover, it is known that positive studies (those with statistically significant findings either of benefit or harm) are more likely to be published, and published in high impact journals.3 Systematic reviews aim to identify all research addressing a specific question so that they give a balanced and unbiased summary of the literature. The methods used to identify studies for inclusion in systematic reviews have been developed specifically to identify the negative studies that might be published in low impact journals or within conference proceedings, which are not indexed in the bibliographic databases, but which might balance the results of the more easily identified positive studies.

Minimizing bias in systematic reviews
Selection bias in systematic reviews can arise when the inclusion and exclusion criteria for the review are not clearly established a priori or where they restrict inclusion of studies in a way that might bias the findings; for example, by excluding papers not published in English. The first stage in conducting a systematic review is to develop a protocol that clearly defines: 1) the aims and objectives of the review; 2) the inclusion and exclusion criteria for studies; 3) the way in which studies will be identified; and 4) the plan of analysis. Cochrane review protocols are peer reviewed and published on the Cochrane Library before the review commences. Changes to the protocol of a systematic review can introduce bias and should only be made if absolutely necessary. Table 1 is a summary of the inclusion criteria for systematic review protocols. During the process of the review, at least two reviewers should independently assess studies for inclusion into the review to minimize the risk of selection bias, and the reasons for exclusion should be clearly stated within the results section of the review. It is now a requirement of many journals that a PRISMA (formerly QUOROM) statement and flow diagram is included in the results section of the review (Figure 1).6

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Publication bias can affect systematic reviews if the method of identifying relevant studies is not sensitive enough, leading to relevant studies being missed. As previously discussed, studies with positive findings are more likely to be published in higher impact journals, resulting in publication bias. If only positive studies are identified and then combined in meta-analysis, publication bias might lead to a pooled treatment effect that overestimates the true treatment effect. The effects of publication bias can be minimized if the search strategy is sensitive and aims to identify studies not indexed in the databases as well as unpublished research.

Data extraction bias refers to bias that can arise during the process of the review when data are extracted from included studies. In order to minimize the likelihood of data extraction bias this process, as well as the process by which studies are critically appraised, should be conducted by at least two reviewers and the results compared to check for errors. Data extraction and critical appraisal should be conducted using standardized forms to ensure that the same information is collected for each study.

Search the literature

Search strategies for systematic reviews must be designed to identify all studies that have been conducted addressing a specific question. This means that the search strategy needs to be sensitive rather than specific. A specific search strategy identifies more relevant than irrelevant papers but might miss some important papers. A sensitive search strategy is less likely
Meta-analysis

Meta-analysis is a statistical method for combining the results of studies identified using systematic review methodology, to give a pooled measure of treatment effect. It is particularly useful when there are a large number of small, underpowered studies where combining the results increases the power and therefore precision of the estimate of treatment effect. There are a number of different methods of conducting meta-analysis and the method used will depend on the type of outcome data, whether the trial outcomes are considered to be rare events and whether there is significant heterogeneity between studies. Detailed information on the methods used in meta-analysis can be found in the Cochrane Handbook for systematic reviews of interventions. Studies are weighted within the meta-analysis and this weighting is generally based on the size of the study and the number of events that occurred. A small study with a low number of events will receive a low weighting whereas a large study with a high number of events will receive a high weighting. A large study with a low number of events will receive a low weighting.

Heterogeneity

The term heterogeneity generally refers to the variability in the results of studies included in a meta-analysis. Heterogeneity may arise from differences in study populations or interventions (clinical heterogeneity) or from differences in study methodology (methodological heterogeneity). It is usually possible to see on a forest plot if there is statistically significant heterogeneity because the 95% confidence intervals (the horizontal lines) of individual trials will not overlap to any reasonable extent. The presence of heterogeneity can be assessed formally using a chi-square test for heterogeneity where a $p$ value $>0.10$ is usually taken as indicating significant heterogeneity. This is higher than the ‘usual’ $p$ value of 0.05 because meta-analyses tend to include only a few underpowered trials, which in turn leads to an under powering of the chi-square test to detect heterogeneity. The $I^2$ statistic is also given for each meta-analysis and this refers to the amount of variability in the results that is due to heterogeneity rather than to chance. An $I^2$ value of $>50\%$ indicates significant heterogeneity. The process of critical appraisal of studies is essential in the identification of sources of heterogeneity. In the past, reviewers tended to use critical appraisal tools that gave a numerical or alphabetical rating for each study included in the review. More recently, there has been a move away from such scales to more qualitative measures of quality for different study designs. As well as critical appraisal, sub-group analyses can be used to determine whether the results of the meta-analysis are altered by removing specific studies or groups of studies. If the results from all sub-group analyses are consistent, then the results of the analysis are more likely to be found to be robust.

There is a lack of studies meeting your inclusion criteria — what next?

With the popularity of systematic reviews increasing dramatically over the past 15 years there seems to be an increasing number of published reviews concluding that only one study was identified, or that there were no studies fulfilling the inclusion criteria. This is not an uncommon problem in reviews of the effectiveness of surgical interventions that are aiming to identify RCTs. In a ‘gold standard’
systematic review of intervention, authors would report a lack of evidence from RCTs and would proceed no further. Whilst there is an argument that post-hoc changes to review inclusion criteria introduce bias and that the reviewer should be completely unaware of the availability of literature before commencing their review, a review that includes no studies is not helpful for the clinician trying to base their clinical practice on the best available evidence. Bearing in mind that the primary reason for conducting a systematic review should be to establish an evidence base for clinical practice rather than for the sake of conducting a review per se, an alternative approach to this scenario might be to consider the inclusion of other study designs such as prospective cohort studies. There might be some situations where the highest available level of evidence is from case reports or case series and in this situation, a systematic review might be used to inform the design of future prospective studies to assess benefit or risk associated with treatment.

Summary

- Systematic reviews are designed to identify all research related to a specific subject, which might be effectiveness of interventions, incidence or risk factors for disease, diagnostic test accuracy or patient experience.
- Systematic reviews are protocol-driven and rigorously conducted.
- Methods used in conducting systematic reviews have been developed to minimize the risk of selection, publication and data extraction bias in the review.
- Meta-analysis can be used to combine the result of individual studies to provide a pooled estimate of treatment effect and is particularly useful where there are a large number of small, underpowered studies or where there is significant heterogeneity.
- Sources of heterogeneity should be investigated through critical appraisal of included studies and sub-group analyses.
- The publication of systematic reviews that conclude that no studies fulfilling the inclusion criteria are not useful for clinicians that need to base their clinical practice on the best available evidence. Alternative approaches need to be considered where the majority of available evidence may come from study designs that are not considered to be the highest level of evidence for the particular research question.

REFERENCES


USEFUL RESOURCES

York Centre for Reviews and Dissemination, www.york.ac.uk/inst/crd.
Bandolier, www.york.ac.uk/inst/crd.
Lifestyle interventions in primary care
Systematic review of randomized controlled trials

Patrick Fleming  Marshall Godwin MD MSc

ABSTRACT

OBJECTIVE To determine whether lifestyle counseling interventions delivered in primary care settings by primary care providers to their low-risk adult patients are effective in changing factors related to cardiovascular risk.

DATA SOURCES MEDLINE (PubMed), EMBASE, and CINAHL were searched from January 1985 to December 2007. The reference lists of all articles collected were checked to ensure that all suitable randomized controlled trials (RCTs) had been included.

STUDY SELECTION We chose RCTs on lifestyle counseling in primary care for primary prevention of cardiovascular disease. The search was limited to English-language articles involving human subjects. Studies had to have been conducted within the context of primary care, and interventions had to have been carried out by primary care providers, such as family physicians or practice nurses. Studies had to have had a control group who were managed with usual care. Outcomes of interest were cardiovascular risk scores, blood pressure, lipid levels, weight or body mass index, and morbidity and mortality.

SYNTHESIS Seven RCTs were included in the review. Only 4 studies showed any significant positive effect on the outcomes of interest, and only 2 of these showed consistent effects across several outcomes. The main effects were on blood pressure and lipid levels, but the size of these effects, while statistically significant, was small. There was no obvious benefit to one provider doing the intervention over another (eg, physician vs nurse), nor of the focus of the intervention (eg, on diet vs on exercise).

CONCLUSION Lifestyle counseling interventions delivered by primary care providers in primary care settings to patients at low risk (primary prevention) appeared to be of marginal benefit. Resources and time in primary care might be better spent on patients at higher risk of cardiovascular disease, such as those with existing heart disease or diabetes.

EDITOR’S KEY POINTS

• This systematic review was conducted to determine whether lifestyle interventions delivered in primary care settings by primary care providers to their adult patients were effective in changing factors related to cardiovascular risk.

• Overall, for cardiovascular risk scores, blood pressure, lipid levels, weight or body mass index, morbidity, and mortality outcomes, the studies found little benefit from lifestyle-orientated interventions compared with usual care.

• While it is difficult to suggest that primary care providers not counsel all their patients on how to lead healthy lives, their time might be better spent focusing on those patients at higher risk.
Interventions visant le mode de vie en médecine primaire

Revue systématique d'essais cliniques randomisés

Patrick Fleming  Marshall Godwin  MD MSc

RÉSUMÉ

OBJECTIF  Déterminer si les conseils sur le  at de vie donnés par les soignants de première ligne à leurs patients adultes à faible risque sont efficaces pour modifier les facteurs de risque cardiovasculaires.

SOURCES DES DONNÉES  On a consulté MEDLINE (PubMed), EMBASE et CINAHL entre janvier 1985 et décembre 2007. On a vérifié la bibliographie de chaque article pour s’assurer d’inclure tous les essais cliniques randomisés (ECR) pertinents.

CHOIX DES ÉTUDES  Nous avons retenu les ECR portant sur les conseils donnés en première ligne pour la prévention primaire des maladies cardiovasculaires. La recherche était limitée aux articles de langue anglaise comportant des sujets humains. Les études devaient être menées dans un contexte de soins primaires, et les interventions effectuées par des soignants de première ligne, tels que des médecins de famille ou des infirmières praticières. Les études devaient inclure un groupe témoin recevant les soins usuels. Les issues principales étaient l’indice de risque cardiovasculaire, la tension artérielle, le niveau des lipides, le poids et l’indice de masse corporelle ainsi que la morbidité et la mortalité.

SYNTHÈSE  La revue a finalement porté sur 7 ECR. Seulement 4 revues ont montré un effet positif significatif sur les issues principales et seulement 2 d’entre elles montraient des effets positifs réguliers sur plus d’une issue. Les principaux effets concernaient la tension artérielle et le taux des lipides, mais l’amplitude de ces effets, quoique statistiquement significative, était faible. Il n’y avait pas d’avantage évident associé à un type d’intervenant (p. ex. médecin vs infirmière) ou à un type d’intervention (p. ex. régime ou exercice).

CONCLUSION  Les conseils sur le mode de vie donnés aux patients à faible risque par les intervenants de première ligne (prévention primaire) semblaient avoir peu d’effets bénéfiques. Dans un contexte de soins primaires, les ressources et le temps pourraient être mieux utilisés en ciblant les patients à risque plus élevé de maladie cardiovasculaire, comme ceux souffrant déjà d’une maladie cardiaque ou de diabète.
Elements of lifestyle, such as exercise, diet, smoking, and stress, are known to affect health and risk of cardiovascular disease. Various studies have identified relationships between lifestyle and health status, health care use, and costs to the health care system. Interventions aimed at improving patients’ lifestyles have resulted in improvements in health outcomes. The best known study of these interventions was conducted by the Diabetes Prevention Program research group. They found that lifestyle interventions prevented progression to diabetes in patients with prediabetes. Most of these interventions, however, involved intense exercise and diet programs delivered by exercise physiologists and dietitians.

The objective of this study was to determine whether lifestyle interventions delivered in primary care settings by primary care providers to their adult patients were effective in changing factors related to cardiovascular risk. Only patients without known cardiovascular disease or diabetes were included in the study (primary prevention situations only). Lifestyle interventions were limited to those related to exercise and diet. Outcomes of interest were cardiovascular risk scores, blood pressure, lipid levels, weight or body mass index, and morbidity and mortality.

**Data Sources**

We searched MEDLINE (PubMed), EMBASE, and CINAHL from January 1985 to December 2007 for all randomized controlled trials (RCTs) and systematic reviews of lifestyle counseling in primary care for primary prevention of cardiovascular disease. Search terms used included lifestyle counseling, dietary advice, exercise, physical activity, lifestyle intervention, behaviour modification, primary care, general or family practice, and primary prevention. The reference lists of all articles retrieved were checked to ensure that all suitable RCTs had been included. The search was limited to English-language articles involving human subjects.

**Study selection**

We considered only RCTs that reported on outcomes at 12 months or longer of patients who did not have pre-existing cardiovascular disease or diabetes. Study participants had to be 18 years or older and could be of either sex. Trials involving drug treatment in combination with lifestyle counseling were excluded.

Interventions had to be lifestyle orientated and focused on healthy eating or increased physical activity. Smoking could not be a main focus of the trial. Trials must have been conducted within the context of primary care and carried out by primary care providers, such as family physicians or practice nurses. Trials had to have had control groups who were managed with usual care. Usual care could include distribution of basic lifestyle messages, such as the literature on healthy living typically handed out by health professionals.

Both authors reviewed the articles independently using the criteria outlined in the users guides by Guyatt et al. Criteria used to assess the validity of the articles included randomization, accountability and follow-up after the study, intention-to-treat analysis, blinding and concealment, homogeneity, similarity of study and control groups, and evidence of contamination or simultaneous interventions. The reviewers were not blinded to the authors of the articles nor to the citation sources, but it turns out they were not familiar with any of the authors of the articles included. Reviewers considered both overall study validity and applicability to general practice. Overall assessment included details of studies’ methodology, patient populations, interventions and controls, and clinical aspects. Agreement as to whether an article would be included was settled by consensus after the independent reviews.

As shown in the flow diagram (Figure 1), our initial literature search identified 37 articles of which 24 were excluded. The remaining 13 articles were reviewed in more detail. Among these 13 articles, 4 were excluded because the study populations lacked homogeneity (eg, they included primary and secondary prevention patients), 1 was excluded because it lacked a control group, and another because of a lack of consistency in data reporting. In the end, 7 studies were included in the review (Table 1).

Because data were reported in various ways in the studies and because some information was missing (eg, no standard deviations, percentages without numbers), we could not adequately conduct a meta-analysis. We report outcome data in Table 2. In addition to determining the statistical significance of the outcomes, we assessed the relevance or importance of differences, when they were found, using the definitions shown in Table 3.

**Synthesis**

Overall, the studies found little benefit from lifestyle-orientated interventions compared with usual care. Three of the 6 studies that assessed blood pressure as an outcome found a small but significant benefit to lifestyle counseling versus usual care. Two of the 5 studies that assessed cholesterol levels as an outcome found a small but significant benefit of lifestyle counseling. Only 1 of the 5 studies that assessed body mass index showed significant benefit of counseling, but again the effect was small. Only 1 of the 7 studies included in this review measured cardiovascular risk scores as an outcome; it showed no significant improvement in risk.
between intervention and control groups. None of the articles included in this review measured mortality or morbidity as an outcome.

The studies used a variety of lifestyle interventions. Two used dietary interventions only. One study was strictly oriented toward physical activity. The remaining 4 studies used a combination of healthy-eating and staying-active messages. The interventions varied in duration from 1 to 9 months. There was also variation in who delivered the advice. In 1 study it was physicians only, in 2 others it was a combination of nurses and physicians, and in 4 studies it was nurses only. Details of the studies are shown in Tables 1 and 2.

**DISCUSSION**

Usefulness of lifestyle interventions

This review allows us to answer, or at least get insight into, specific questions about the usefulness of lifestyle counseling interventions delivered in primary care settings.

Were outcomes affected by which primary care provider (physician or practice nurse) delivered the intervention? Among the 4 studies in which a nurse alone delivered the intervention, only 1 showed a consistent positive benefit. The benefit was small, however, and the achievement of statistical significance was helped by a large sample size. The 1 study in which a primary care physician alone delivered the intervention showed the intervention was not effective at lowering cholesterol or body mass index, but did have a positive effect on diastolic blood pressure in men only. The intervention in this study was, however, complex and not easily generalizable to most practices. The 2 studies in which both physicians and nurses were involved showed little positive effect of the intervention. One study showed no benefit on any of the outcomes measured; the other looked at blood pressure only and showed a small but significant reduction. It does not appear to matter which primary care provider delivers the intervention. The results are generally not impressive.

Did adding external supports to the provider-delivered intervention improve outcomes? Two studies used additional services with the primary care providers’ intervention. One study had exercise specialists follow up patients after initial counseling by physicians and nurses. The other had experts providing physicians with extra training. Neither of these studies showed benefit of the intervention except for a moderate improvement in diastolic blood pressure in men only.

Were overall cardiovascular risk scores affected by the lifestyle interventions? The 1 study that looked at cardiovascular risk scores showed no benefit from the intervention, even though there was a reasonable sample size (N = 878), and the intervention was delivered by physicians and nurses with follow-up by exercise specialists.
Table 1. Articles included in this review

<table>
<thead>
<tr>
<th>STUDY</th>
<th>DESIGN</th>
<th>SAMPLE</th>
<th>INTERVENTION GROUP</th>
<th>CONTROL GROUP</th>
<th>OUTCOMES MEASURED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baron et al.16, 1990</td>
<td>RCT with 12-mo follow-up at a single general practice</td>
<td>368 subjects (189 men, 179 women) aged 25-60 y were recruited in England. Mean age for the intervention group was 41.2 y (SD 1.0 y) for men and 41.1 y (SD 1.0 y) for women, and for the control group was 41.6 y (SD 1.0 y) for men and 41.9 y (SD 1.1 y) for women</td>
<td>97 men and 90 women were given dietary advice and guidelines by a practice nurse in 30-min group or individual sessions. Subjects were given a diet booklet containing advice and recipes. There was a brief follow-up at 1 and 3 mo. Advice was to decrease intake of total fat and increase intake of polyunsaturated fatty acids and fibre. Retention rate was 89%</td>
<td>92 men and 89 women were given usual care with no dietary advice. Retention rate was 93%</td>
<td>TC and LDL and HDL levels were assessed at 1-yr follow-up</td>
</tr>
<tr>
<td>OXCHECK study group,16 1995</td>
<td>RCT with 36-mo follow-up at 5 general practices</td>
<td>4121 subjects aged 35-64 y were recruited in the United Kingdom</td>
<td>2205 subjects received lifestyle advice from a practice nurse at 45- to 60-min health checkups with 10- to 20-min follow-ups. Advice was tailored to individual patients’ risk factors. 1100 subjects received annual checkups, and 1105 did not. Retention rate was 81.7%</td>
<td>1916 subjects received usual care. Retention rate was 81.3%</td>
<td>TC, BP, and BMI were assessed at 3-yr follow-up</td>
</tr>
<tr>
<td>Elley et al.,17 2003</td>
<td>Cluster RCT with 12-mo follow-up at 23 intervention and 19 control practices</td>
<td>878 subjects (296 men, 582 women) aged 40–79 y were recruited from general practices in New Zealand. Mean age for the intervention group was 57.2 y (SD 10.8 y) and for the control group was 58.6 y (SD 11.5 y). Only subjects considered “less active” (&lt; 30 min of physical activity 5 d/wk) were enrolled</td>
<td>451 subjects (150 men, 301 women) received counseling on physical activity from a GP or practice nurse. Clinicians counseled verbally then gave out written advice on home-based exercise. Written advice and patient information were forwarded to exercise specialists who made 3, 10- to 20-min follow-up calls. Retention rate was 85%</td>
<td>427 subjects (146 men, 281 women) received usual care. Retention rate was 85%</td>
<td>Cardiovascular risk score, BP, and BMI were assessed at 1-yr follow-up</td>
</tr>
<tr>
<td>Kastarin et al.,18 2002</td>
<td>Open RCT with 24-mo follow-up at 10 primary care centres</td>
<td>341 subjects (48% male in intervention group and 46% male in control group) aged 25–74 y with primary hypertension were recruited in primary care in Finland. Mean age was 54.4 y (SD 10.1 y) in the intervention group and 54.2 y (SD 9.9 y) in the control group</td>
<td>175 subjects in a no-drug treatment group were given lifestyle counseling (less sodium, alcohol, and saturated fat; weight reduction; physical activity) based on individual risk factors by practice nurses with visits at 1, 3, 6, 9, 15, 18, and 21 mo. Two 2-h group sessions on salt and weight reduction were held at 6 and 18 mo. Retention rate was 84%</td>
<td>166 subjects received usual care. Retention rate was 80%</td>
<td>BP was assessed at 2-yr follow-up</td>
</tr>
<tr>
<td>Roderick et al.,19 1997</td>
<td>RCT with 12-mo follow-up at 8 general practices</td>
<td>956 subjects (48% male in intervention group and 52% male in control group) aged 30–59 y were recruited from general practices in the United Kingdom. Spouses were encouraged to enrol. Mean age was 47.2 y in the intervention group and 47.4 y in the control group</td>
<td>473 subjects were given dietary advice based on negotiated change and healthy living literature by a practice nurse at an initial session. Nurses negotiated up to 5 diet changes based on a food-frequency questionnaire interpreted for individual cases. Overweight patients were given special diet plans with calorie-restricted diets. Retention rate was 80% overall</td>
<td>483 subjects received usual care with standard healthy living literature and annual follow-up. Retention rate was 80% overall</td>
<td>TC, BMI, and BP were assessed at 1-yr follow-up</td>
</tr>
</tbody>
</table>

Continued on page 1711
Were specific components of risk (blood pressure, weight, lipid levels) affected by the lifestyle interventions? Only of the 7 studies in this review showed any positive effect of lifestyle interventions. The main effects were on blood pressure and to a lesser degree on lipids. In general, effects were small.

Were morbidity and mortality affected by the lifestyle interventions? These outcomes were not measured in any of the 7 studies included in the review.

Limitations
The main limitation of this review was the inability to conduct a meta-analysis because the study populations were not homogeneous and the presentation of results was done in a variety of ways. Since a meta-analysis was not done, we could not assess the likelihood of a negative result bias because we could not construct a funnel plot. We did not search non-English literature; it is possible that valid articles on the topic exist in other languages. We searched the 2 major medical databases (MEDLINE and EMBASE) and the major allied health database (CINAHL). It is unlikely that there is much primary care or family practice literature that has not been captured by the 3 databases we searched.

Future research
More sustained intensive programs of lifestyle counseling, delivered by health educators with backgrounds in nutrition and exercise, might be more effective. This has been shown to be the case outside the primary care setting in the Diabetes Prevention Program study. A randomized controlled trial (the PROACTIVE study) is currently under way in Canada, funded by the Canadian Institutes for Health Research, looking at the use of an intensive program of lifestyle counseling delivered during many visits over a 2-year period. The intervention is being delivered in primary care settings, but by providers referred to as health educators with backgrounds in exercise and health promotion. We await the results of this trial to know whether outcomes will be improved using this approach in primary care.

Conclusion
This review looked at lifestyle counseling interventions delivered by primary care providers in primary care.
**Table 2. Summaries of outcome data in the 7 articles included in this study**

<table>
<thead>
<tr>
<th>STUDY</th>
<th>OUTCOME</th>
<th>INTERVENTION GROUP</th>
<th>CONTROL GROUP</th>
<th>P VALUE</th>
<th>COMMENTS</th>
<th>EFFECT SIZE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baron et al,15 1990</td>
<td>Mean TC (SE) men/women, mmol/L</td>
<td>4.52 (0.08)/4.80 (0.11)</td>
<td>4.50 (0.08)/4.84 (0.11)</td>
<td>NS</td>
<td>No significant effect for women or men. Small sample size might account for this</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean LDL levels (SE) men/women, mmol/L</td>
<td>2.36 (0.07)/2.71 (0.09)</td>
<td>2.31 (0.08)/2.73 (0.10)</td>
<td>NS</td>
<td>Small sample size might account for this</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean HDL levels (SE) men/women, mmol/L</td>
<td>1.41 (0.03)/1.49 (0.03)</td>
<td>1.48 (0.03)/1.53 (0.03)</td>
<td>NS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>OXCHECK study group,16 1995</td>
<td>Mean TC (SD) attenders/all, mmol/L</td>
<td>5.93 (1.06)/5.99 (1.10)</td>
<td>6.18 (1.17)</td>
<td>&lt;.05</td>
<td>A large sample size can show statistical significance even when the absolute difference is small</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>Mean diastolic BP (SD) attenders/all, mm Hg</td>
<td>126.8 (19.6)/126.5 (19.3)</td>
<td>129.0 (20.4)</td>
<td>&lt;.05</td>
<td>None</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>Mean systolic BP (SD) attenders/all, mm Hg</td>
<td>75.7 (11.5)/75.7 (11.6)</td>
<td>77.2 (11.7)</td>
<td>&lt;.05</td>
<td>None</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>Mean BMI (SD) attenders/all, kg/m²</td>
<td>25.89 (4.14)/25.88 (4.21)</td>
<td>26.26 (4.31)</td>
<td>&lt;.05</td>
<td>None</td>
<td>Small</td>
</tr>
<tr>
<td>Elley et al,17 2003</td>
<td>Mean change (95% CI) in systolic BP, mm Hg</td>
<td>-2.58 (-4.02 to -1.13)</td>
<td>-1.21 (-2.57 to 0.15)</td>
<td>NS</td>
<td>No effect despite reasonable sample size and follow up by exercise specialists</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in diastolic BP, mm Hg</td>
<td>-2.62 (-3.62 to -1.61)</td>
<td>-0.81 (-1.77 to 0.16)</td>
<td>NS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>4-y cardiovascular risk score (95% CI)</td>
<td>0.42 (0.23 to 0.6)</td>
<td>0.52 (0.32 to 0.72)</td>
<td>NS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in BMI, kg/m²</td>
<td>-0.11 (-0.25 to 0.02)</td>
<td>-0.05 (-0.18 to 0.07)</td>
<td>NS</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Kastarinen et al,18 2002</td>
<td>Mean change (95% CI) in systolic BP, mm Hg</td>
<td>-2.0 (-3.7 to -0.3)</td>
<td>-0.4 (-1.3 to 2.0)</td>
<td>&lt;.05</td>
<td>None</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in diastolic BP, mm Hg</td>
<td>-2.4 (-3.4 to -1.4)</td>
<td>-0.4 (-1.4 to 0.8)</td>
<td>&lt;.05</td>
<td>None</td>
<td>Small</td>
</tr>
<tr>
<td>Roderick et al,19 1997</td>
<td>Mean differences† (95% CI) in TC, mmol/L</td>
<td>-0.20 (-0.38 to -0.03)</td>
<td>Use of practice nurses for dietary counseling to decrease cardiovascular risk scores was ineffective in a low-risk population</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean differences† (95% CI) in BMI, kg/m²</td>
<td>-0.12 (-0.03 to 0.05)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean differences† (95% CI) in systolic BP, mm Hg</td>
<td>-0.59 (-2.43 to 1.24)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean differences† (95% CI) in diastolic BP, mm Hg</td>
<td>0.09 (-4.9 to 5.0)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Salkeld et al,20 1997</td>
<td>Mean change (95% CI) in diastolic BP‡ men/women, mm Hg</td>
<td>-4.0 (-6.02 to -1.97)/-0.9 (-3.1 to 1.3)</td>
<td>Appears to be helpful only in improving diastolic BP in men</td>
<td>Moderate/ Negative</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in TC‡ men/women, mmol/L</td>
<td>-0.46 (-0.75 to -0.13)/-0.83 (-1.15 to -0.51)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in BMI‡ men/women, kg/m²</td>
<td>0.1 (-0.57 to 0.38)/0.03 (-0.6 to 0.53)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Steptoe et al,21 1999</td>
<td>Mean change (95% CI) in TC, mmol/L</td>
<td>-0.31 (-0.46 to -0.21)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in BMI, kg/m²</td>
<td>0.23 (-0.6 to 0.12)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in systolic BP, mm Hg</td>
<td>-4.3 (-7.0 to -2.3)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Mean change (95% CI) in diastolic BP, mm Hg</td>
<td>-0.7 (-0.31 to 1.6)</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

BP—blood pressure, BMI—body mass index, HDL—high-density lipoprotein, LDL—low-density lipoprotein, NS—not significant, SD—standard deviation, SE—standard error, TC—total cholesterol.

*See Table 3.

*Between intervention and control groups.

*Video and self-help materials group.
Lifestyle interventions in primary care

Table 3. Definitions of effect size for each outcome

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>NONE</th>
<th>SMALL</th>
<th>MODERATE</th>
<th>LARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol levels</td>
<td>P ≥ .05</td>
<td>P &lt; .05 and &lt; 5% decrease in mean level compared with control group</td>
<td>P &lt; .05 and 5%-10% decrease in mean level compared with control group</td>
<td>P &lt; .05 and &gt; 10% decrease in mean level compared with control group</td>
</tr>
<tr>
<td>(TC, LDL, HDL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic BP</td>
<td>P ≥ .05</td>
<td>P &lt; .05 and &lt; 4 mm Hg decrease in mean BP compared with control group</td>
<td>P &lt; .05 and 4-7 mm Hg decrease in mean BP compared with control group</td>
<td>P &lt; .05 and &gt; 7 mm Hg decrease in mean BP compared with control group</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>P ≥ .05</td>
<td>P &lt; .05 and &lt; 2 mm Hg decrease in mean BP compared with control group</td>
<td>P &lt; .05 and 2-4 mm Hg decrease in mean BP compared with control group</td>
<td>P &lt; .05 and &gt; 4 mm Hg decrease in mean BP compared with control group</td>
</tr>
<tr>
<td>Weight or BMI</td>
<td>P ≥ .05</td>
<td>P &lt; .05 and &lt; 5% decrease in mean weight compared with control group</td>
<td>P &lt; .05 and 5%-10% decrease in mean weight compared with control group</td>
<td>P &lt; .05 and &gt; 10% decrease in mean weight compared with control group</td>
</tr>
</tbody>
</table>

BMI—body mass index, BP—blood pressure, HDL—high-density lipoprotein, LDL—low-density lipoprotein, TC—total cholesterol.

Mr Fleming is a Research Assistant in the Primary Healthcare Research Unit, and Dr Godwin is a Professor of Family Medicine, both at Memorial University of Newfoundland in St John’s.

Competing interests

None declared.

Contributors

Mr Fleming and Dr Godwin contributed to concept and design of the study; data gathering, analysis, and interpretation, and preparing the article for submission.

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References


Treating prediabetes with metformin
Systematic review and meta-analysis

Muriel Lily Marshall Godwin MD MSc CCFP FCFP

Type 2 diabetes is a worldwide epidemic. Prevalence has tripled in the last 30 years, and diabetes is predicted to affect more than 320 million persons by 2025. The concept of pre-disease, or at least the language of pre-disease, is relatively new. Pre-disease is the recognition that the upper limits of normal (what we used to call high normal or borderline) for measurements such as blood pressure and blood glucose might pose a health risk and might be a warning that a patient is progressing toward overt hypertension or diabetes.

Prediabetes includes the concepts of impaired fasting glucose (IFG) and impaired glucose tolerance (IGT). In 2005 Wen et al reported on an 11-year follow-up of 36000 persons.¹ Those with IFG (fasting glucose levels between 6.1 and 6.9 mmol/L) had significantly increased risk of mortality related to cardiovascular disease (CVD) and diabetestocompared with people with blood glucose levels below 6 mmol/L. In a detailed review of the topic, Unwin and colleagues concluded that IFG and IGT (glucose ≥7.8 and <11.1 mmol/L, 2 hours after ingestion of a 75-g oral glucose load) were strongly associated with CVD. Impaired glucose tolerance was more strongly associated with CVD than IFG was.²

A number of studies have looked at lifestyle and pharmacologic interventions in people with prediabetes to determine if progression to frank diabetes can be prevented. These studies were summarized in a meta-analysis published recently in the British Medical Journal.³ Researchers concluded that, in people with IGT, lifestyle and pharmacologic interventions (various antidiobesity agents and oral hypoglycemic agents) are effective in delaying the onset of type 2 diabetes. They did not look at metformin individually, but instead included it with all other oral antidiabetic agents. Metformin is...

Abstract

OBJECTIVE To determine if the use of metformin in people with prediabetes (impaired glucose tolerance or impaired fasting glucose) would prevent or delay the onset of frank type 2 diabetes mellitus.

DATA SOURCES MEDLINE was searched from January 1966 to the present, and articles meeting the selection criteria were hand searched.

STUDY SELECTION Randomized controlled trials that involved administration of metformin to delay or prevent type 2 diabetes in individuals with impaired glucose tolerance or impaired fasting glucose were included. Development of diabetes was a required outcome measure; follow-up time of at least 6 months was required. Three studies met these criteria.

SYNTHESIS The 3 studies varied in ethnicity of the population studied, in the rates of conversion to diabetes from prediabetes, and in the dose of metformin used. In general the studies were well done, although 2 of the 3 did not do true intention-to-treat analyses. A sensitivity analysis was completed by converting all data to intention-to-treat data and assuming a worst-case scenario for the people who were lost to follow-up.

CONCLUSION Metformin decreases the rate of conversion from prediabetes to diabetes. This was true at higher dosage (850 mg twice daily) and lower dosage (250 mg twice or 3 times daily); in people of varied ethnicity; and even when a sensitivity analysis was applied to the data. The number needed to treat was between 7 and 14 for treatment over a 3-year period.

Résumé

OBJECTIF Déterminer si l’utilisation de la metformine chez des pré-diabétiques (intolérance au glucose ou hyperglycémie à jeun) prévient ou retarde l’apparition d’un franc diabète de type 2.

SOURCES DES DONNÉES On a consulté MEDLINE, depuis janvier 1966 jusqu’à aujourd’hui. Les articles répondant aux critères de sélection ont été repérés à la main.

CHOIX DES ÉTUDES On a retenu les essais cliniques randomisés qui comportaient l’administration de la metformine pour retarder ou prévenir le diabète de type 2 chez des sujets présentant une intolérance au glucose ou une hyperglycémie à jeun. Le développement d’un diabète était requis comme issue mesurable; le suivi devait être d’au moins 6 mois. Trois études répondaient à ces critères.

SYNTHÈSE Les caractéristiques ethniques des populations étudiées, les taux de conversion de pré-diabète en diabète et les doses de metformine utilisées différaient dans les études retenues. Les études étaient généralement bien faites, quoique deux d’entre elles n’avaient pas utilisé une véritable analyse respectant le principe de l’intention de traitement. On a effectué une analyse de sensibilité en transformant toutes les données comme si elles respectaient le principe de l’intention de traitement et en supposant le pire scénario pour les sujets n’ayant pas complété l’étude.

CONCLUSION La metformine a diminué le taux de conversion du pré-diabète en diabète. Cela était vrai aux fortes doses (850 mg b.i.d.) comme aux doses plus faibles (250 mg b.i.d ou t.i.d.); chez des personnes d’origines ethniques différentes; et même après analyse de sensibilité des données. Le nombre de traitements requis variait entre 7 et 14 pour un traitement d’une durée de 3 ans.

This article has been peer reviewed.

Cet article a fait l’objet d’une révision par des pairs. Can Fam Physician 2009;55:363-9
recommended as first-line treatment in diabetes; it is inexpensive compared with the newer drugs, and we believe that a review looking specifically at metformin is important.

The objective of this study was to determine whether the use of metformin in people with prediabetes (IFG or IGT) would prevent or delay the onset of frank type 2 diabetes mellitus.

**DATA SOURCES**

**Literature search**

MEDLINE was searched from January 1966 to the present for randomized controlled trials (RCTs) that focused on using metformin to treat prediabetes. The MeSH headings prediabetic state, glucose intolerance, and metformin were used. We also checked references of any articles and published reviews that used metformin to prevent type 2 diabetes. The search was not limited to English-language articles, but no articles written in other languages met the inclusion criteria.

**Study selection**

Only RCTs were selected, in order to ensure inclusion of only high-quality evidence. Studies had to involve administration of metformin to delay or prevent type 2 diabetes in a sample or subsample of individuals with IGT or IFG. Development of diabetes was a required outcome measure; follow-up time of at least 6 months was also required.

Twenty studies were identified through the literature search. Of those, we excluded 17: 13 did not focus on the development of type 2 diabetes as a primary outcome measure; 4 focused on inherent risk factors influencing diabetes progression, rather than on metformin use; and 1 examined metformin use in combination with rosiglitazone. Hand searching of the references in the remaining 2 articles and the references in a recent systematic review of all treatment options for prediabetes identified a third article that met our criteria. In total, 3 studies were included in this review (Tables 1 and 2).

**SYNTHESIS**

Both authors reviewed the 3 articles independently. Although we were not blinded to the authors or citation sources of the articles, we were not familiar with the authors of any of the excluded or included articles. The critical appraisal process considered the validity of the methods, the strength of the results, the study populations, and how well the results could be applied to clinical practice. The methods and results are reported for the 3 studies in Tables 1 and 2.

The study by Li et al enrolled 90 participants, 45 in each group. In their primary analysis, however, Li et al excluded patients from both groups if they did not comply with treatment (metformin or placebo), if they were lost to follow-up, or if they had gastrointestinal side effects. This left just 70 patients who were analyzed for outcomes in the primary analysis: 33 in the metformin group and 37 in the placebo group. The authors did perform what they referred to as an intention-to-treat analysis but still excluded the 5 participants in the metformin group with GI side effects. We report follow-up outcomes on those excluded for non-compliance and side effects but not on those lost to follow-up. In their primary analysis does not show a statistically significant difference as they reported. As expected, our intention-to-treat, worst-case-scenario sensitivity analysis also did not show a statistically significant difference.

The study by Ramachandran et al enrolled 531 participants randomly assigned to 1 of 4 different groups. We compared the metformin-only group with the usual care (control) group. No placebo was used in the control group, which meant that blinding patients to treatment was not possible. Of 129 participants enrolled in the control group and 136 in the metformin group, only 128 and 133, respectively, were available for follow-up and analysis. As in the study by Li et al, we carried out intention-to-treat, worst-case-scenario sensitivity analysis. The significant difference seen in the analysis reported in the study was still minimal in the sensitivity analysis.

The study by Knowler et al from the Diabetes Prevention Program (DPP) Research Group enrolled 3234 persons who were randomly assigned to 1 of 3 groups. We compared the placebo-controlled group (n = 1082) with the metformin group (n = 1073). This study appears to have been well done and was well reported; it also had a substantially larger sample size than the other 2 studies. The authors did an intention-to-treat analysis, meaning they included all those who were enrolled in the study in the assessment of outcomes. However, in order to have treated all studies equally, we decided to conduct a worst-case-scenario sensitivity analysis for this study as well. The authors did not report the actual number of participants lost to follow-up in each group. They did report that 99.6% of the full study population was alive at the end of the follow-up period. We assumed that this percentage was equally distributed across both groups and used this to calculate the number of people lost to follow-up in each group. We used these numbers in our worst-case-scenario analysis.

Four meta-analyses were performed. Figure 1 shows the results of the meta-analysis that includes...
Treating prediabetes with metformin

Clinical Review

the findings from all 3 studies as the authors reported them. Figure 22-24 reports on the results of the 3 studies when intention-to-treat, worst-case-scenario sensitivity analysis was used. Figure 322,23 reports on the 2 studies in which a lower dose of metformin was used (sensitivity

Table 1. Summary of methodology of reviewed trials studying the effects of metformin on prediabetes

<table>
<thead>
<tr>
<th>STUDY</th>
<th>DESIGN</th>
<th>PATIENTS</th>
<th>TREATMENT GROUP</th>
<th>CONTROL GROUP</th>
<th>OUTCOME OF INTEREST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li et al,22 1999</td>
<td>Double-blind, placebo-controlled RCT</td>
<td>29 938 subjects from Shougang Corporation in Beijing, China, were screened with OGTT in 1992. Of those, 1 165 had IGT and were rescreened in 1994. Those already taking metformin or who had renal, hepatic, or ischemic heart disease were excluded. After rescreening, 90 still had IGT. Participants included men and women aged 30-60 y</td>
<td>Received 250 mg metformin TID and diabetes education (information on diet, exercise, and healthy lifestyle) every 3 mo</td>
<td>Received placebo tablets identical in appearance to metformin, provided by the metformin manufacturer, and the same diabetes education as the metformin group</td>
<td>Development of diabetes after 12 mo</td>
</tr>
<tr>
<td>Ramachandran et al,23 2006</td>
<td>RCT with 4 groups: 1. Usual care 2. LSM 3. Metformin 4. LSM and metformin*</td>
<td>10 839 men and women, aged 33-55 y, from a middle-class Asian Indian population with no major illnesses and no pre-existing diagnosis of diabetes were screened from March 2001 to July 2002; IGT was diagnosed on basis of 2 consecutive OGTTs (FPG &lt; 7 mmol/L; 2-h postprandial glucose 7.8-11.0 mmol/L)</td>
<td>Received 250 mg metformin BID</td>
<td>Received usual care (standard health care advice)</td>
<td>Development of diabetes after 3 y</td>
</tr>
<tr>
<td>Knowler et al,24 2002</td>
<td>Multicentre RCT with 3 arms: 1. Placebo group 2. Metformin group 3. LSM group†</td>
<td>Adults 25 y and older (mean age 51 y) with FPG 5.3-6.9 mmol/L and 2-hr postprandial glucose of 7.8-11.0 mmol/L; 32% of patients were men; participants had an average BMI of 34</td>
<td>Received 850 mg metformin BID and standard lifestyle recommendations*</td>
<td>Received placebo tablets and standard lifestyle recommendations</td>
<td>Development of diabetes after 3 y</td>
</tr>
</tbody>
</table>

BID—twice daily, BMI—body mass index, FPG—fasting plasma glucose, IGT—impaired glucose tolerance, LSM—lifestyle modification, OGTT—oral glucose tolerance test, RCT—randomized controlled trial, TID—3 times daily.

*We included groups 1 and 3 in our review
†We included groups 1 and 2 in our review.
‡Intention-to-treat analysis was used. We also did a worst-case-scenario sensitivity analysis.

The meta-analysis of the results of these 3 studies as they were presented by the authors shows that metformin, used for up to 3 years, does decrease the likelihood that prediabetes will progress to diabetes (Figure 122-24). In order to counteract the potential bias caused by lack of intention-to-treat analysis in 2 of the studies and the effect of patients who were lost to follow-up in all of the studies, we conducted a sensitivity analysis. We restructured the numbers to reflect a true intention-to-treat scenario (we included all patients enrolled in each study in the results calculations for each study) and a worst-case scenario, in which those lost to follow-up in the intervention groups were assumed to have progressed to diabetes and those lost to follow-up in the control groups were assumed not to have progressed to diabetes. Even when stacking the odds against a significant effect, the meta-analysis still showed that metformin decreased the likelihood of progression to diabetes (Figure 222-24). We also performed 2 other meta-analyses. The first included only the 2 studies where a lower dose of metformin was used (Figure 322,23) and revealed that the lower dose also had a significant effect, at least in the ethnic

DISCUSSION

The meta-analysis of the results of these 3 studies as they were presented by the authors shows that metformin, used for up to 3 years, does decrease the likelihood that prediabetes will progress to diabetes (Figure 122-24). In order to counteract the potential bias caused by lack of intention-to-treat analysis in 2 of the studies and the effect of patients who were lost to follow-up in all of the studies, we conducted a sensitivity analysis. We restructured the numbers to reflect a true intention-to-treat scenario (we included all patients enrolled in each study in the results calculations for each study) and a worst-case scenario, in which those lost to follow-up in the intervention groups were assumed to have progressed to diabetes and those lost to follow-up in the control groups were assumed not to have progressed to diabetes. Even when stacking the odds against a significant effect, the meta-analysis still showed that metformin decreased the likelihood of progression to diabetes (Figure 222-24). We also performed 2 other meta-analyses. The first included only the 2 studies where a lower dose of metformin was used (Figure 322,23) and revealed that the lower dose also had a significant effect, at least in the ethnic
### Table 2. Summary of results from reviewed trials: Development of diabetes outcomes.

<table>
<thead>
<tr>
<th>STUDY</th>
<th>OUTCOME</th>
<th>EER n/N (%)</th>
<th>CER n/N (%)</th>
<th>RRR % (95% CI)</th>
<th>ARR % (95% CI)</th>
<th>NNT N (95% CI)</th>
<th>YATES CORRECTED P VALUE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li et al,22 1999</td>
<td>Development of diabetes at 12 mo</td>
<td>1/33 (3.0)</td>
<td>6/37 (16.2)</td>
<td>81.3 (-9.5 to 97.0)</td>
<td>13.2 (-0.9 to 17.9)</td>
<td>7.6 (5.5 to infinity)</td>
<td>.15</td>
<td>Our 2-way contingency table analysis did not show a statistically significant difference in development of diabetes based on $\chi^2$ test</td>
</tr>
<tr>
<td>Li et al,22 1999</td>
<td>Development of diabetes at 12 mo</td>
<td>6/45 (13.3)</td>
<td>8/45 (17.8)</td>
<td>25 (-9.3 to 71.0)</td>
<td>4.4 (-9.0 to 17.2)</td>
<td>22.5 (5.8 to infinity)</td>
<td>.77</td>
<td>As expected the sensitivity analysis is even less statistically significant</td>
</tr>
<tr>
<td>Ramachandran et al,23 2006</td>
<td>Development of diabetes at 3 y</td>
<td>52/128 (40.6)</td>
<td>73/133 (54.9)</td>
<td>26 (4.4 to 42.8)</td>
<td>14.3 (2.1 to 26.0)</td>
<td>7.0 (3.8 to 46.7)</td>
<td>.029</td>
<td>Shows a statistically significant and, by our assessment, clinically significant decrease in progression to diabetes; lack of placebo control is of some concern</td>
</tr>
<tr>
<td>Ramachandran et al,23 2006</td>
<td>Development of diabetes at 3 y</td>
<td>53/129 (41.1)</td>
<td>73/136 (53.7)</td>
<td>23.5 (1.2 to 40.9)</td>
<td>12.6 (0.6 to 24.2)</td>
<td>7.9 (4.1 to 178.0)</td>
<td>.054</td>
<td>Statistical significance at the .05 level is not quite reached using Yates correction for $\chi^2$; however, the 95% CIs suggest statistical significance</td>
</tr>
<tr>
<td>Knowler et al,24 2002</td>
<td>Development of diabetes at 3 y</td>
<td>233/1073 (21.7)</td>
<td>313/1082 (28.9)</td>
<td>24.9 (13.1 to 35.2)</td>
<td>7.2 (3.5 to 10.8)</td>
<td>13.9 (9.2 to 28.2)</td>
<td>&lt;.001</td>
<td>The large sample size contributes to the highly statistically significant outcome; the 7.2% absolute difference is clinically significant, especially on a population basis</td>
</tr>
<tr>
<td>Knowler et al,24 2002</td>
<td>Development of diabetes at 3 y</td>
<td>237/1073 (22.1)</td>
<td>313/1082 (28.9)</td>
<td>23.6 (1.7 to 34.0)</td>
<td>6.8 (3.2 to 10.5)</td>
<td>14.6 (9.6 to 31.6)</td>
<td>&lt;.001</td>
<td>Worst-case-scenario sensitivity analysis did not appreciably change results because almost all participants were available for follow-up</td>
</tr>
</tbody>
</table>

ARR—absolute risk reduction, CER—control event rate, CI—confidence interval, EER—experimental event rate, NNT—number needed to treat, RRR—relative risk ratio.
Figure 1. Meta-analysis of studies of effects of metformin on prediabetes using the results of the 3 reviewed studies as the authors reported them

<table>
<thead>
<tr>
<th>STUDY OR SUBCATEGORY</th>
<th>TREATMENT n/N</th>
<th>CONTROL n/N</th>
<th>OR (FIXED) 95% CI</th>
<th>WEIGHT %</th>
<th>OR (FIXED) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li et al\textsuperscript{22}</td>
<td>1/33</td>
<td>6/37</td>
<td>1.88 (0.02-1.42)</td>
<td>1.00</td>
<td>0.68 (0.56-0.83)</td>
</tr>
<tr>
<td>Knowler et al (ITT)\textsuperscript{24}</td>
<td>233/1073</td>
<td>313/1082</td>
<td>83.56 (0.34-0.92)</td>
<td>100</td>
<td>0.65 (0.55-0.78)</td>
</tr>
<tr>
<td>Ramachandran et al\textsuperscript{23}</td>
<td>52/128</td>
<td>73/133</td>
<td>14.56 (0.34-0.92)</td>
<td>100</td>
<td>0.65 (0.55-0.78)</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>1234</td>
<td>1252</td>
<td>100</td>
<td>0.65 (0.55-0.78)</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 286 (treatment), 392 (control)
Test for heterogeneity: $\chi^2 = 2.12, P = 0.35, I^2 = 5.8\%$
Test for overall effect: $Z = 4.60, P < 0.00001$

Figure 2. Meta-analysis of studies of effects of metformin on prediabetes using intention-to-treat and worst-case-scenario sensitivity analysis

<table>
<thead>
<tr>
<th>STUDY OR SUBCATEGORY</th>
<th>TREATMENT n/N</th>
<th>CONTROL n/N</th>
<th>OR (FIXED) 95% CI</th>
<th>WEIGHT %</th>
<th>OR (FIXED) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li et al\textsuperscript{22}: ITT, WCS</td>
<td>6/45</td>
<td>6/45</td>
<td>1.79 (0.30-3.37)</td>
<td>100</td>
<td>0.69 (0.58-0.82)</td>
</tr>
<tr>
<td>Knowler et al (ITT)\textsuperscript{24}: WCS</td>
<td>237/1073</td>
<td>313/1082</td>
<td>83.76 (0.57-0.85)</td>
<td>100</td>
<td>0.69 (0.58-0.82)</td>
</tr>
<tr>
<td>Ramachandran et al\textsuperscript{23}: ITT, WCS</td>
<td>53/129</td>
<td>73/136</td>
<td>14.44 (0.37-0.98)</td>
<td>100</td>
<td>0.69 (0.58-0.82)</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>1247</td>
<td>1263</td>
<td>100</td>
<td>0.69 (0.58-0.82)</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 296 (treatment), 392 (control)
Test for heterogeneity: $\chi^2 = 1.21, P = 0.27, I^2 = 17.7\%$
Test for overall effect: $Z = 2.73, P < 0.006$

CI—confidence interval, ITT—intention to treat, OR—odds ratio.
subgroups (Indian and Chinese) in which these studies were conducted. The other meta-analysis included only the 2 studies where a placebo (Figure 4) was used in control groups; this also showed a significant effect of treatment.

We also calculated the numbers-needed-to-treat (NNTs) for these 4 meta-analyses. For the meta-analysis in Figure 1, the NNT is 12 (95% confidence interval [CI] 9 to 21); for the meta-analysis in Figure 2, the NNT is 12 (95% CI 9 to 22); for the meta-analysis in Figure 3, the NNT is 7 (95% CI 4 to 32); for the meta-analysis in Figure 4, the NNT is 14 (95% CI 9 to 27). All of these meta-analyses are dominated by studies that followed patients for 3 years; hence the NNTs apply to treatment over a 3-year period.

It is important to note the variation in overall rates of progression to diabetes in these 3 groups. The study conducted in China had an overall rate of conversion to diabetes of 10%; the study in India, a rate of 48%; the DPP study, in which ethnicity was mixed (55% white, 20% African American, and only 5% Asian), a rate of conversion to diabetes midway between the other 2 studies at 24%. This fits with the recognized higher prevalence of diabetes and metabolic syndrome in people of South Asian decent.

It is difficult to know from this review whether the relative effectiveness of the lower dosage of metformin (250 mg twice or 3 times daily) compared with the higher dosage (850 mg twice daily) used in the DPP study would hold true for all people. The 2 studies that used lower dosages were conducted in China and India, where conversion rates to diabetes are different from that in the study using the higher metformin dosage. In the 2 studies that used lower dosages, only the Indian study (in which the overall conversion rate was much higher) showed a statistically significant difference in rates of conversion between treatment and control. It is possible that the effectiveness of the lower dosage is somehow related to genetics or ethnicity.

Limitations
The main limitation of this paper is the difficulty of applying the results to clinical practice. The studies do show that patients with prediabetes who take metformin are less likely to have blood glucose levels in the diabetic range after 3 years. It is possible, however, that this is simply a treatment effect and not a prevention of progression at all. It is likely because of this possibility that most primary care physicians are not yet prescribing metformin for their patients with prediabetes, but using lifestyle treatment instead. It is also probably because of this possibility that guideline-generating groups are not yet recommending that prediabetes be treated with metformin as a matter of course.

Whenever a systematic review is conducted, there is the possibility of missing important published articles and unpublished data. Our search of MEDLINE was exhaustive, and it is unlikely we missed any RCTs indexed in that database. It is possible that other databases, such as EMBASE, might have indexed articles that were not included in MEDLINE. Our hand checking of references in the articles we retrieved and the huge overlap between MEDLINE and EMBASE makes it unlikely that an important published article was missed. We did not approach investigators working in the field to see if they had unpublished data that met our criteria. The possibility of unpublished data exists, but we believe this possibility is remote because a randomized trial of sufficient power and quality to have met our inclusion criteria would have been expensive to complete and publication would, in all likelihood, have been sought.

Future research
There is uncertainty about the effect of metformin: is the effect seen in these studies a treatment effect or a preventive effect? A study of sufficient power needs to be conducted that duplicates the effects of metformin shown in these studies; that study then needs to switch both groups to placebo to see if the benefit disappears within a few weeks in the group that previously had metformin. If the effect disappears it would mean we are simply seeing a treatment effect—that is, the metformin was keeping the blood glucose in the nondiabetic range rather than slowing the course of diabetes.

Conclusion
It seems that, even when applying a worst-case-scenario sensitivity analysis, the effectiveness of metformin on rates of conversion from prediabetes to diabetes remains. The NNT for treatment over a 3-year period is between 7 and 14. This compares very favourably with many other treatments and on a population basis could have an important effect on diabetes and its complications. It is probably best to use a metformin dosage of 850 mg twice daily except in people of South Asian descent, for whom this dosage might be higher than needed and might lead to side effects.

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Competing interests
None declared

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Contributors
Ms Lily and Dr Godwin contributed to concept and design of the study, the literature review, selection and analysis of the studies, interpretation of the analysis, and preparing the manuscript for submission.

References


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A study needs to be conducted, however, to see if the benefits seen in these studies represent a treatment effect or a preventive effect. If patients treated with metformin were switched to placebo, would the benefit disappear within a few weeks?

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• A number of studies have looked at lifestyle and pharmacologic interventions in people with prediabetes to determine if progression to frank diabetes can be prevented, but none has looked at metformin individually.

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Education And Debate

How to read a paper: Papers that summarise other papers (systematic reviews and meta-analyses)

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Introduction

Remember the essays you used to write as a student? You would browse through the indexes of books and journals until you came across a paragraph that looked relevant, and copied it out. If anything you found did not fit in with the theory you were proposing, you left it out. This, more or less, constitutes the methodology of the journalistic review—an overview of primary studies which have not been identified or analysed in a systematic (standardised and objective) way.

Summary points

A systematic review is an overview of primary studies that used explicit and reproducible methods

A meta-analysis is a mathematical synthesis of the results of two or more primary studies that addressed the same hypothesis in the same way

Although meta-analysis can increase the precision of a result, it is important to ensure that the methods used for the review were valid and reliable

In contrast, a systematic review is an overview of primary studies which contains an explicit statement of objectives, materials, and methods and has been conducted according to explicit and reproducible methodology (fig 1).

Some advantages of the systematic review are given in box. When a systematic review is undertaken, not only must the search for relevant articles be thorough and objective, but the criteria used to reject articles as “flawed” must be explicit and independent of the results of those trials. The most enduring and useful systematic reviews, notably those undertaken by the Cochrane Collaboration, are regularly updated to incorporate new evidence.
Box 1: Advantages of systematic reviews

- Explicit methods limit bias in identifying and rejecting studies
- Conclusions are more reliable and accurate because of methods used
- Large amounts of information can be assimilated quickly by healthcare providers, researchers, and policymakers
- Delay between research discoveries and implementation of effective diagnostic and therapeutic strategies may be reduced
- Results of different studies can be formally compared to establish generalisability of findings and consistency (lack of heterogeneity) of results
- Reasons for heterogeneity (inconsistency in results across studies) can be identified and new hypotheses generated about particular subgroups
- Quantitative systematic reviews (meta-analyses) increase the precision of the overall result

Evaluating systematic reviews

Question 1: Can you find an important clinical question which the review addressed?
The question addressed by a systematic review needs to be defined very precisely, since the reviewer must make a dichotomous (yes/no) decision as to whether each potentially relevant paper will be included or, alternatively, rejected as “irrelevant.” Thus, for example, the clinical question “Do anticoagulants prevent strokes in patients with atrial fibrillation?” should be refined as an objective: “To assess the effectiveness and safety of warfarin-type anticoagulant therapy in secondary prevention (that is, following a previous stroke or transient ischaemic attack) in patients with non-rheumatic atrial fibrillation: comparison with placebo.”

Question 2: Was a thorough search done of the appropriate databases and were other potentially important sources explored?
Even the best Medline search will miss important papers, for which the reviewer must approach other sources. Looking up references of references often yields useful articles not identified in the initial search, and an exploration of “grey literature” may be particularly important for subjects outside the medical mainstream, such as physiotherapy or alternative medicine. Finally, particularly where a statistical synthesis of results (meta-analysis) is contemplated, it may be necessary to write and ask the authors of the primary studies for raw data on
individual patients which was never included in the published review.

**Box 2: Checklist of data sources for a systematic review**

- Medline database
- Cochrane controlled clinical trials register
- Other medical and paramedical databases
- Foreign language literature
- “Grey literature” (theses, internal reports, non-peer reviewed journals, pharmaceutical industry files)
- References (and references of references, etc) listed in primary sources
- Other unpublished sources known to experts in the field (seek by personal communication)
- Raw data from published trials (seek by personal communication)

**RETURN TO TEXT**

**Question 3: Was methodological quality assessed and the trials weighted accordingly?**

One of the tasks of a systematic reviewer is to draw up a list of criteria, including both generic (common to all research studies) and particular (specific to the field) aspects of quality, against which to judge each trial (see box). However, care should be taken in developing such scores since there is no gold standard for the “true” methodological quality of a trial and composite quality scores are often neither valid nor reliable in practice.

The various Cochrane collaborative review groups are developing topic-specific methodology for assigning quality scores to research studies.

**Box 3: Assigning weight to trials in a systematic review**

Each trial should be evaluated in terms of its:

- Methodological quality—the extent to which the design and conduct are likely to have prevented systematic errors (bias)
- Precision—a measure of the likelihood of random errors (usually depicted as the width of the confidence interval around the result)
- External validity—the extent to which the results are generalisable or applicable to a particular target population

**RETURN TO TEXT**

**Question 4: How sensitive are the results to the way the review has been done?**

Carl Counsell and colleagues “proved” (in the Christmas 1994 issue of the BMJ) an entirely spurious relationship between the result of shaking a dice and the outcome of an acute stroke. They reported a series of artificial dice rolling experiments in which red, white, and green dice represented different therapies for acute stroke. Overall, the “trials” showed no significant benefit from the three therapies. However, the simulation of a number of perfectly plausible events in the process of meta-analysis—such as the exclusion of several of the “negative” trials through publication bias, a subgroup analysis which excluded data on red dice therapy (since, on looking back at the results, red dice appeared to be harmful), and other, essentially arbitrary, exclusions on the grounds of “methodological quality”—led to an apparently highly significant benefit of “dice therapy” in acute stroke.
If these simulated results pertained to a genuine medical controversy, how would you spot these subtle biases? You need to work through the “what ifs”. What if the authors of the systematic review had changed the inclusion criteria? What if they had excluded unpublished studies? What if their “quality weightings” had been assigned differently? What if trials of lower methodological quality had been included (or excluded)? What if all the patients unaccounted for in a trial were assumed to have died (or been cured)?

PETER BROWN

An exploration of what ifs is known as a sensitivity analysis. If you find that fiddling with the data in various ways makes little or no difference to the review's overall results, you can assume that the review's conclusions are relatively robust. If, however, the key findings disappear when any of the what ifs changes, the conclusions should be expressed far more cautiously and you should hesitate before changing your practice in the light of them.

**Question 5: Have the numerical results been interpreted with common sense and due regard to the broader aspects of the problem?**

Any numerical result, however precise, accurate, “significant,” or otherwise incontrovertible, must be placed in the context of the painfully simple and often frustratingly general question which the review addressed. The clinician must decide how (if at all) this numerical result, whether significant or not, should influence the care of an individual patient. A particularly important feature to consider when undertaking or appraising a systematic review is the external validity or relevance of the trials that are included.

**Meta-analysis for the non-statistician**

A good meta-analysis is often easier for the non-statistician to understand than the stack of primary research papers from which it was derived. In addition to synthesising the numerical data, part of the meta-analyst's job is to tabulate relevant information on the inclusion criteria, sample size, baseline patient characteristics, withdrawal rate, and results of primary and secondary end points of all the studies included. Although such tables are often visually daunting, they save you having to plough through the methods sections of each paper and compare one author's tabulated results with another author's pie chart or histogram.

These days, the results of meta-analyses tend to be presented in a fairly standard form, such as is produced by the computer software MetaView. 3 is a pictorial representation (colloquially known as a “forest plot”) of the pooled odds ratios of eight randomised controlled trials which each compared coronary artery bypass grafting with percutaneous coronary angioplasty in the treatment of severe angina. 17 The primary (main) outcome in this meta-analysis was death or heart attack within one year.

**Fig 2**

Pooled odds ratios of eight randomised controlled trials of coronary artery bypass grafting against percutaneous coronary angioplasty, shown in MetaView format. Reproduced with authors’ permission 17

The horizontal line corresponding to each of the eight trials shows the relative risk of death or heart attack at one year in patients randomised to coronary angioplasty compared to patients randomised to bypass surgery. The “blob” in the middle of each line is the point estimate of the difference between the groups (the best single estimate of the benefit in lives saved by offering bypass surgery rather than coronary angioplasty), and the width of the line represents the 95% confidence interval of this estimate. The black line down the middle of the picture is known as
the “line of no effect,” and in this case is associated with a relative risk of 1.0.

If the confidence interval of the result (the horizontal line) crosses the line of no effect (the vertical line), that can mean either that there is no significant difference between the treatments or that the sample size was too small to allow us to be confident where the true result lies. The various individual studies give point estimates of the relative risk of coronary angioplasty compared with bypass surgery of between about 0.5 and 5.0, and the confidence intervals of some studies are so wide that they do not even fit on the graph. Now look at the tiny diamond below all the horizontal lines. This represents the pooled data from all eight trials (overall relative risk of coronary angioplasty compared with bypass surgery=1.08), with a new, much narrower, confidence interval of this relative risk (0.79 to 1.50). Since the diamond firmly overlaps the line of no effect, we can say that there is probably little to choose between the two treatments in terms of the primary end point (death or heart attack in the first year). Now, in this example, every one of the eight trials also suggested a non-significant effect, but in none of them was the sample size large enough for us to be confident in that negative result.

Note, however, that this neat little diamond does not mean that you might as well offer coronary angioplasty rather than bypass surgery to every patient with angina. It has a much more limited meaning—that the average patient in the trials presented in this meta-analysis is equally likely to have met the primary outcome (death or myocardial infarction within a year), whichever of these two treatments they were randomised to receive. If you read the paper by Pocock and colleagues17 you would find important differences in the groups in terms of prevalence of angina and requirement for further operative intervention after the initial procedure.

**Explaining heterogeneity**

In the language of meta-analysis, homogeneity means that the results of each individual trial are mathematically compatible with the results of any of the others. Homogeneity can be estimated at a glance once the trial results have been presented in the format illustrated in figures 3 and 4. In 3 the lower confidence limit of every trial is below the upper confidence limit of all the others (that is, the horizontal lines all overlap to some extent). Statistically speaking, the trials are homogeneous. Conversely, in 4 some lines do not overlap at all. These trials may be said to be heterogeneous.

![Fig 3](image)

**Fig 3**

Reduction in risk of heart disease by strategies for lowering cholesterol. Reproduced with permission from Chalmers and Altman18

The definitive test for heterogeneity involves a slightly more sophisticated statistical manoeuvre than holding a ruler up against the forest plot. The one most commonly used is a variant of the $\chi^2$ (chi square) test, since the question addressed is whether there is greater variation between the results of the trials than is compatible with the play of chance. Thompson18 offers the following rule of thumb: a $\chi^2$ statistic has, on average, a value equal to its degrees of freedom (in this case, the number of trials in the meta-analysis minus one), so a $\chi^2$ of 7.0 for a set of eight trials would provide no evidence of statistical heterogeneity. Note that showing statistical heterogeneity is a mathematical exercise and is the job of the statistician, but explaining this heterogeneity (looking for, and accounting for, clinical heterogeneity) is an interpretive exercise and requires imagination, common sense, and hands-on clinical or research experience.

4 shows the results of ten trials of cholesterol lowering strategies. The results are expressed as the percentage reduction in risk of heart disease associated with each reduction of 0.6 mmol/l in serum cholesterol concentration. From the horizontal lines which represent the 95% confidence intervals of each result it is clear, even without knowing the $\chi^2$ statistic of 127, that the trials are highly heterogeneous. Correcting the data for the age of the trial
subjects reduced this value to 45. In other words, much of the “incompatibility” in the results of these trials can be explained by the fact that embarking on a strategy which successfully reduces your cholesterol level will be substantially more likely to prevent a heart attack if you are 45 than if you are 85.

Clinical heterogeneity, essentially, is the grievance of Professor Hans Eysenck, who has constructed a vigorous and entertaining critique of the science of meta-analysis. In a world of lumpers and splitters, Eysenck is a splitter, and it offends his sense of the qualitative and the particular to combine the results of studies which were done on different populations in different places at different times and for different reasons.

The articles in this series are excerpts from How to read a paper: the basics of evidence based medicine. The book includes chapters on searching the literature and implementing evidence based findings. It can be ordered from the BMJ Publishing Group: tel 0171 383 6185/6245; fax 0171 383 6662. Price £13.95 UK members, £14.95 non-members.

Eysenck's reservations about meta-analysis are borne out in the infamously discredited meta-analysis which showed (wrongly) that giving intravenous magnesium to people who had had heart attacks was beneficial. A subsequent megatrial involving 58 000 patients (ISIS-4) failed to find any benefit, and the meta-analysts' misleading conclusions were subsequently explained in terms of publication bias, methodological weaknesses in the smaller trials, and clinical heterogeneity.20

Acknowledgments

Thanks to Professor Iain Chalmers for advice on this chapter.

References

13. Emerson JD, Burdick E, Hoaglin DC, Mosteller F, Chalmers TC. An empirical study of the possible relation of treatment


Core Content
There are two Core Content Workshops offered during each residency year (November, March). A variety of courses and workshops are provided and include:

- The Resident Forum
- Point of Care Ultrasound Training (PoCUS)
- Wilderness Medicine
- Teaching in Practice (TIPS)
- Psychiatric Emergencies and Crisis Intervention (PEACI)
- Practice Management
- Advanced Pediatric Life Support (APLS)
- Medical Ethics
- Exam Preparation (SOOs, OSCE)
- The Advanced Trauma Life Support (ATLS) course is offered when available. Alternatively, $1000 towards the cost of the course is offered for residents who wish to complete the course outside of Newfoundland and Labrador.
- Faculty Advisor Meetings
- Resident Review Meeting

Attendance at Core Content is mandatory. Should you have an approved absence, the organizing committee will decide upon the required make-up.

Exam Preparation
There are two national examinations that all Family Medicine residents will write during their training. The first, the Medical Council of Canada (MCC) Qualifying Examination Part II is held in May of first year or late October of second year and the Canadian Family Physicians of Canada certification examination (CCFP) is held in mid to late April of second year.

MCC Qualifying Examination Part II - During the November and March Core Content in first year residents will have OSCE practice. There are 2 stations in November and 5 stations in March. Additional training will be offered for residents who wish to avail of the practice sessions.

CCFP - Residents will complete simulated office oral (SOOs) practice during each of the Core Contents. Additional practice can be offered as requested. Most residents have additional SOO practice with their Family Medicine preceptors while on rotation.

The CCFP exam also has an additional component to the exam – Short Answer Management Problems (SAMPs). The SAMPs are intended to measure a candidate’s problem solving skills and knowledge in the context of a clinical situation. Basic information regarding the presentation of the patient is provided and a series of three or four questions will follow for each scenario. Residents will gain exposure to practice SAMPs during Academic Half Day.

Study Resources
Each year the Administrative Residents compile and distribute a list of useful study resources. Please see One45 for this resource. In addition, please visit the CFPC website for further study tips - [http://www.cfpc.ca/HomeStudy/](http://www.cfpc.ca/HomeStudy/).
Evaluation
Evaluation consists of finding out (a) the extent to which the resident has achieved competencies and (b) the quality of teachers and teaching techniques. The evaluation methods employed in this program can be described under these headings.

The resident’s file or ‘portfolio’ will serve to assist the resident in defining their learning needs and achievements as all resident information is kept in this file. The Family Medicine Postgraduate Office maintains the resident’s file. This file is available to individual Faculty Advisors, the Program Director, the Program Coordinator and the Assessment, Evaluations and Promotions Committee.

Resident Evaluation
There are a number of components to resident evaluation including ITERs, field notes, the scholarly project, teaching feedback, the successful completion of mandatory courses and attendance at teaching sessions. Please also see the PGME standards for Residents as Professionals: http://www.med.mun.ca/getdoc/642d46d8-f94e-43d5-98a6-d603e8fca2d5/2013_04_13-Statement-of-Professional-Attributes.aspx

Successful progression through residency is based on the attainment of competencies and upon the successful progression from one rotation/training experience to the next. The initial review of resident progress happens by the Assessment, Evaluation and Promotions Committee and then at the Faculty Advisor Meeting. During the Faculty Advisor meetings, there is a review of the ITERs, field notes and other evaluation documentation. The Faculty Advisor will review the resident’s Reflection Form during the Faculty Advisor Meetings and together they will create the learning plan that will help drive resident learning over the subsequent months.

The Assessment, Evaluations and Promotions Committee makes the recommendation about resident progress to the RTC and the RTC makes the final decision about resident progress. Please see the ‘Decision About Progress’ section below for additional information.

In-Training Evaluation Reports (ITERs) and/or Shift Cards
In-Training Evaluation Reports are completed at mid-rotation and at the end of each rotation/training experience. Daily Shift Cards are completed during the Adult Emergency Medicine rotation and they are used to inform the Adult Emergency ITER. Daily Pediatric Clinic Shift cards are collected by the resident and submitted to the Family Medicine Postgraduate Office upon the completion of the rotation.

The ITERs document the resident’s performance during the rotation and often include feedback from physician colleagues, clinic team members, allied health professionals and patients. The evaluation is both “formative” and “summative” and is intended to reflect to the resident his or her progress through the program and to guide, and perhaps modify, teaching and learning strategies for the attainment of specific competencies.

Evaluations are the responsibility of the resident. If you need assistance in having these evaluations completed by your preceptors, please contact the Family Medicine Postgraduate Office.
All ITERs are completed through a web-based system called One45. (Residents will receive a username and password at the beginning of residency). Upon the completion of the ITER by the preceptor, the resident will be asked to complete a feedback form of the preceptor(s) and of the rotation. Upon completion, residents can view their evaluation. There is a section at the end of the ITER for residents to include any additional comments that they wish to add to their ITER.

**Field Notes**
Residents are expected to obtain one field note per half-day clinic during rotations. Field notes can be initiated by the resident or by the preceptor. The Field Note is a tool to drive feedback (both positive and negative) and to drive future learning. Field notes are completed electronically and automatically collated allowing the resident to view all completed field notes in real time.

Field Notes form a significant portion of the learning/assessment process.

**Scholarly Project**
All residents complete a scholarly project during residency. These projects are presented during the Resident Forum during the November Core Content. The written report is due at the time of the Resident Forum. Residents must familiarize themselves with deadlines pertaining to project proposal submission, requirement for ethics approval and the deadline for abstract submission. All information can be found on D2L.

**Teaching Feedback**
Residents receive feedback on their teaching during Academic Half Day and the Friday morning Behavioral Medicine teaching sessions. Residents will receive feedback based on their teaching during team rounds. Ideally this feedback will be documented in a field note.

**Mandatory Courses**
Residents are required to successfully complete the mandatory courses as offered by the program. This includes the completion of practice SOOs and OSCEs.

**Attendance, Participation and Completion of Tasks**
All residents are expected to be in attendance for all clinics and teaching sessions. Residents must complete 2/3 of every rotation to receive credit for the rotation/training experience. Please note that time away from rotation includes core content, conference leave, vacation leave, sick leave and compassionate leave.

Residents must report any absences, including submitting the required documentation, to the Family Medicine Postgraduate Office.

Residents are expected to participate fully in all aspects of residency training. Residents should report any difficulty to fulfill this responsibility to Ms. Susan Carter, Program Coordinator or to Dr. Danielle O’Keefe, Program Director*. (*Dr. Ean Parsons and Dr. Susan Avery are covering as Co-Program Directors from July 2016-April 2017).
Residents must complete evaluations of their preceptors, their rotations and of the various learning sessions. These items are in the resident’s ‘to-do’ list on One45. Failure to complete the items on the ‘to-do’ list will delay resident progress through the program.

**Decision about Progress**
The Assessment, Evaluations and Promotions Committee reviews all resident ITERs and additional evaluation material as mentioned above before making a recommendation to the RTC about resident progress. The RTC makes the final decision.

This committee is responsible for resident progression from one training experience to the next, for progression from first to second year, for the recommendation to write the CCFP exam and for the recommendation for completion of the program.

A resident’s file/portfolio must be complete to be promoted from first to second year, to receive a recommendation to write the CCFP Exam or to be promoted from second year to completion of the program. This includes:

a) In training evaluation forms (ITER’s) for each rotation.

b) Field notes that have been reviewed.

c) Resident Evaluations of each rotation.

d) Periodic and regular Faculty Advisor summaries of resident achievements.

e) Evidence of completion of all components of the program that include educational exercises, Core Content, research project, seminar completion, etc.

In either first or second year, should this normal progression be considered in doubt, the resident will have to meet with the Program Director or his/her delegate to discuss their progress. In such an event the Program Director, in consultation with the Assessment, Evaluations and Promotions Committee, the RTC and the Resident's Faculty Advisor, may recommend further training.

If evaluations are not up to date by June 30, residents in first year will not be approved for progression from first to second year, and residents in second year will not be recommended for program completion, until such time as final evaluations are received and reviewed.

In the event of a decision being made that the resident should not be promoted (to the next training experience, to second year, or to complete the program) or not being recommended to write the CCFP exam, the resident has the right of appeal. Please see the Evaluation, Promotions and Appeals Policy for further details:

**Evaluations of Preceptors and Rotations**

Residents are expected to complete evaluations of their preceptors and their rotations. The evaluations of preceptors are confidential. The feedback is extremely important as it plays a significant role in overall program evaluation.

Preceptor Evaluations are completed through One45. Once a year, as long as there are three Preceptor Evaluations, the Medical Education Scholarship Centre (MESC) at Memorial collates the feedback and sends a report to the appropriate Department Chair. The resident evaluator is not identified. This feedback is valuable to the individual preceptor. Residents are sent reminders to complete these evaluations online. Please note that the Discipline of Family Medicine does not receive the evaluations of preceptors who work outside of Family Medicine.

Rotation Evaluations are also to be completed at the end of each rotation. The Discipline of Family Medicine reviews the evaluations yearly, upon a minimum of three evaluations, and sends an annual report to the rotation preceptors. Given that we do not receive preceptor evaluations of our specialist colleagues, we ask that residents also include any positive and negative feedback about particular preceptors in the appropriate rotation evaluation form. In this way, we are able to follow up on any concerns.

All evaluations should be completed in a timely fashion. Failure to complete these evaluations will result in a delay in progress through the program.

**Additional Program Evaluation**

In addition to Preceptor and Rotation Evaluation, there are quarterly reviews of all teaching sessions and Core Content Workshops and there is a yearly curriculum review. There are bi-weekly Postgraduate Executive Meetings where the Administrative Residents are asked to bring forth any resident concerns and all residents are involved with the biannual Resident Review Meetings during Core Content. At the end of residency training there are two surveys that exiting residents are asked to complete: Family Medicine Evaluation Survey and the PGME Exit Survey.
Faculty Advisors

We wish to ensure that all residents are supported during their training. Each resident will have an official connection with one particular faculty member; their faculty advisor. This advisor acts as an advocate and competency coach. They are involved in meeting with you to review your evaluations and field notes and they will work with you to develop learning plans that aim to help you achieve competency.

- Each resident will be assigned to a faculty member to provide the opportunity for support and "connectedness".

- The faculty advisor will be available to discuss concerns, both academic and personal, at the residents’ request.

- In preparation for the Faculty Advisor meetings, residents are to submit their resident reflections prior for review by their advisor. During the meetings, you will review your evaluations and field notes and your advisor will ask for your own impressions in order to understand any strengths and weaknesses that are highlighted. Together, you will develop a learning plan to help focus your learning over the following months.

- The faculty advisor will have all resident evaluations and will be involved in evaluation and progress decisions.

- Your advisor can also discuss planning the best electives to meet your learning goals.

- Your advisor will discuss career plans, practice opportunities, and continuing education programs.

- To make the best and most fruitful use of your faculty advisor, talk to him/her often, whether you are in or out of town (the bill is on us!!). Faculty email addresses are included in this handbook. Office phone numbers and email addresses for faculty are also found on the Family Medicine website under “People”. [www.med.mun.ca/FamilyMed/Home.aspx](http://www.med.mun.ca/FamilyMed/Home.aspx)

- Provision is made for residents who wish to switch their faculty advisor. This can be facilitated by contacting Ms. Susan Carter, Program Coordinator or Dr. Danielle O’Keefe, Program Director*. (*Dr. Ean Parsons and Dr. Susan Carter from July 2016-April 2017).

- Meetings are scheduled with faculty advisors during each of our core content workshops in the Fall and Winter and during June. If you need to speak with your faculty advisor at any time, please feel free to contact them.

- If your faculty advisor is unable to meet with you during the scheduled Faculty Advisor meetings alternate arrangements will be made.
Faculty Advisor Meetings
We have developed two resources to help you prepare for your Faculty Advisor Meeting. ‘The Dance Steps: Tips in Preparing for and Conducting a Faculty Advisor Meeting’ provides a step-by-step guide on how to prepare and conduct the meetings. Please see One45 for a copy of this resource.

The video illustrates a typical Faculty Advisor Meeting: https://www.youtube.com/watch?v=08Mmx-NW-3I&feature=youtu.be

All residents are to complete and submit their Resident Reflection Forms prior to their Faculty Advisor Meetings. These forms can be found on our website or on One45.

Together with your Faculty Advisor your Learning Plan Form will be completed during the Faculty Advisor Meetings. These forms are used to help focus and guide your learning over the next four months of training.

Rotations

Arrival at Rotations
Changeover days are Mondays.

If you must travel to get to your next rotation, Saturday is the designated travel day.

Site orientations occur on the first Monday of the rotation. If you are unable to be on site for orientation, please be sure to contact the site to ensure they know when to expect you so that they can make any necessary arrangements. This should be an infrequent occurrence.

Please let the site know if you will not require accommodations when completing rotations distant to your home base.

See the Handouts and Links section on One45 for preceptor contact names and numbers. This information is also available on the USB.

Eastern Health Guidelines for Travel Reimbursement

Please adhere to the following Eastern Health guidelines when submitting your travel expense claim form to the Postgraduate Medical Education office.

- Residents can apply for reimbursement, by Eastern Health, for travel expenses (gas/airline) associated with attending Core Content workshops, and completing mandatory core rotations, either outside the St. John’s and surrounding areas or out-of-province. For out-of-province core rotations, only those not available within the province will be reimbursed.
- If you are required to travel by air, for out-of-province core rotations, you must use the most economical fare. A copy of your airline itinerary will be required.
- Residents travelling to New Brunswick for mandatory core rotations must submit a travel expense claim to the New Brunswick office upon their arrival (details below) for
reimbursement for half of the travel expenses. An Eastern Health travel expense claim is to be submitted, upon their return, for the second half of the travel expenses.

- Gas receipts will be reimbursed for the day of travel to and from the rotation, not during the rotation.
- Lodging is only permitted for overnight travel, and all receipts must be provided, including cabin rental for overnight travel on a ferry, if applicable.
- Selective/Elective rotation expenses will not be reimbursed (as per the PGME Elective/Selective Proposal and Authorization Guidelines).
- All residents already receive a meal allowance. This allowance is provided to cover any meal expenses incurred when travelling to and from rotations.
- Course fees and related travel expenses are not reimbursed by Eastern Health.
- Residents must complete travel expense claim forms in detail. This includes the type, dates and location of the rotation, including that it was a core rotation. All receipts must clearly indicate the date and expense (i.e. gas).
- Residents must sign and date the Eastern Health travel expense claim form, and attach any supporting documentation.

**New Brunswick Core Rotations:**

Residents must submit the receipts (airfare) or mileage amount to the local site administrators at the appropriate medical education office. If submitting receipts for travel reimbursement, the resident will have to complete the travel expense form, within the first week of the rotation, so the site can submit it to the accounts payable department.

The following are the site administrators for each Medical Education Office in New Brunswick:

- **Miramichi:** Barb Muir (Barb.Muir@Horizonnb.ca)
- **Fredericton:** Stephanie Suter (Stephanie.Suter@Horizonnb.ca)
- **Upper River Valley Hospital:** Deborah Lutes (Deborah.Lutes@Horizonnb.ca)
- **Saint John:** Angeles Damil (Angeles.Damil@Horizonnb.ca) or Charlene Page (Charlene.Page@Horizonnb.ca)
- **Moncton:** Sarah Morgan (Sarah.Morgan@Horizonnb.ca)

These guidelines are subject to change at any time.

**New Brunswick License**

Residents will need to acquire a New Brunswick license if rotating in New Brunswick. These forms are on One45 and on the USB.

**Miramichi**

Contact: Barb Muir  
Medical Education Coordinator  
Miramichi Regional Hospital  
500 Water Street, Miramichi, NB E1V 3G5  
506-623-3357 (Office) 506-623-3347 (Fax)  
Barb.Muir@Horizonnb.ca
Residents will be provided travel reimbursement through the Miramichi Medical Education Office for one-way travel from Newfoundland to the site. Residents will need to present copies of travel receipts (airfare, ferry) upon arrival so they can be reimbursed for expenses. The return airfare is paid for by the Postgraduate Medical Education Office at Memorial.

There will be furnished, non-smoking accommodations in an apartment; rent-free. **NO PETS ALLOWED.**

**Fredericton**
Contact: Debby Cougle
Program Assistant
Dr. Everett Chalmers Hospital
700 Priestman Street, Fredericton, New Brunswick, E3B 5N5
506-452-5701 (Office) 506-452-5710 (Fax)
debby.cougle@horizonnb.ca

Please contact Debby Cougle at least 3 months prior to your rotation to confirm accommodations and arrange orientation.

**Travel Expenses Policy:**
Travel is reimbursed but not directly upon arrival. After a direct deposit form and receipts are submitted, they are sent to the Saint John Payroll Office who will reimburse the travel before the end of the rotation.

Apartments are located 5 minutes from the hospital. The apartments are fully furnished. There is a television, telephone (local calls only), internet access and equipped kitchen. Tenants will need to bring their own personal toiletries, bedding (for a double) and towels. You may also want to bring connecting cables for your laptop. There is a coin operated laundry room located in the building. Smoking and pets are not permitted. There is a $175 security deposit and a one-time $100 non-refundable maintenance fee.

Light housekeeping duties such as washing the dishes and maintaining general cleanliness are your responsibility. The apartments will only be cleaned by a professional between tenants. You will also have access to a parking spot in the building parking lot.

**Upper River Valley/Woodstock**
Contact: Ms. Deborah Lutes
Medical Education Coordinator
Upper River Valley Hospital (Zone 3)
Horizon Health Network
11300 Rte. 130, Waterville, NB E7P 0A4
506-375-2922 (Office) 506-375-2680 (Fax)
deborah.lutes@horizonnb.ca

Travel is reimbursed but not directly upon arrival. After a direct deposit form and receipts are submitted, they are sent to the Saint John Payroll Office who will reimburse the travel before the end of the rotation.
Non-smoking accommodations are on site at the hospital in an attached building. There are bedrooms (two with private bathrooms), a fully equipped shared kitchen and common area. There are also free laundry facilities, an exercise room and conference room. Bedding and towels are supplied by the hospital. There are phones in each room and the accommodations have internet access.

There is also an apartment available in Woodstock during the summer months for $50 per week. NO PETS ALLOWED.

**Saint John**
Contact: Ms. Angeles Damil
Angeles.damil@horizonnb.ca
Administrative Coordinator for MUN in New Brunswick
Medical Education Office, Saint John Regional Hospital
400 University Ave, PO Box 2100, Saint John, NB E2L 4L2
506-648-6233 (Office) 506-648-6833 (Fax)

**Accommodations contact:**
Contact: Charlene Page, Coordinator (MedEd Office)
506-648-6370 (Office) 506-648-6833 (Fax)
Charlene.page@horizonnb.ca

**Travel Expenses Policy:**
Residents completing core rotations in Saint John will be reimbursed for one-way economy airfare or ferry. A direct deposit form should be submitted to the Cashier’s Office, Accounts Payable Department, Level 2, Saint John Regional Hospital – a copy of the form is provided during hospital orientation on your first day. Receipts should be submitted to Charlene Page. The Finance Office will reimburse the travel expenses before the end of the rotation. The return airfare is paid for by the Postgraduate Medical Education Office at Memorial.

**Accommodations Info:**
Accommodations are arranged through the Medical Education Department by contacting the Accommodations Coordinator Charlene Page 506-648-6370 or by email at Charlene.page@horizonnb.ca.

The apartments are furnished; 2-bedroom apartment units fully equipped with eating/cooking utensils, pots/pan, TV and internet access. Free parking and coin-operated laundry facilities are located on premises. There is a common lounge and exercise room located in close proximity to the apartment units. Linens including bedding, towel/face cloths and dish towels/cloths are not supplied. A Calling Card is required to make long distance calls, as direct long distance dialing is restricted.

A $100 maintenance fee is included in the security deposit fee of $175. NO PETS PERMITTED and housekeeping services are not provided.

**Duty Rooms (when on call):**
Duty rooms are located on the patient floors and our Duty Room Suite is on Level 3. The Duty Room Suite is a secured area. The access code will be provided to you by the staff of Medical
Education, where the keys to the rooms may also be obtained. A lounge is also located in the suite with a television and DVD/VCR available for your enjoyment and a full kitchen for your use. Please help us keep this area clean. The Hospital will not accept responsibility for any personal belongings left in the duty rooms or open common areas in the Hospital. There will be a charge of $50 to anyone failing to return a Duty Room key.

*AVAILABILITY OF FAMILY ACCOMODATIONS FOR ALL NEW BRUNSWICK SITES SHOULD BE DISCUSSED WELL IN ADVANCE AS NOT ALL SITES CAN ACCOMMODATE FAMILIES.*

*Information about new sites will be updated as necessary.*

**Nunavut Rotations**

**Nunavut License**

Residents will need to acquire a Nunavut license if rotating in Nunavut. These forms are on One45, the USB as well as on the Family Medicine Website.

**Iqaluit, Nunavut**

All residents going to Nunavut will receive an email with Orientation information. Please review all of the material prior to travelling to Nunavut.

Contact: Ms. Rebecca Irwin  
Phone: (867)975-7168  
Fax: (867)975-7194  
Email: rirwin@gov.nu.ca

Residents will be housed in non-smoking family friendly apartments. Accommodations are provided rent-free. **NO PETS ALLOWED.**

**Travel Insurance/Medical Coverage**

Northern-Nunavut (NunaFam) stream residents should ensure they purchase additional travel insurance specific to medical evacuation coverage for the period of training time they are in Nunavut. Please note residents will be reimbursed for the cost of the medevac insurance (estimated at approximately 300-600 dollars per resident). Please contact Lisa Grant or Susan Carter, Discipline of Family Medicine for reimbursement details via email lisa.grant@med.mun.ca or scarter@mun.ca.

Residents doing core rotations in Nunavut will be reimbursed for travel. Please contact Ms. Lisa Grant or Ms. Susan Carter for further information pertaining to travel costs.
Resident Safety Guidelines

Purpose
These guidelines have been written to provide standards for resident safety with regards to clinical and/or academic activities and travel.

Specific Safety Concerns
Travel

- The Family Medicine program will provide an unscheduled day (travel day) between rotations to/from distributed training locations.
- Residents should not be on call the day before long distance travel for clinical or other academic assignments when they have to travel by private vehicle. When long distance travel is required in order to begin a new rotation, the resident should request that they not be on call the last day of the preceding rotation.
- Residents should not drive home after call if they have not had adequate rest.
- For long distance travel for clinical or other academic assignments, residents should ensure that a colleague or the home residency office is aware of their itinerary.
- When traveling by private vehicle, it is expected that residents will execute caution and judgment at all times. Residents should not drive in inclement weather or when fatigued.
- Residents should ensure that they have secured adequate personal insurance/coverage on their vehicle whether owned or rented.
- When residents are traveling for clinical or other academic assignments by private vehicle, it is expected that they maintain their vehicle adequately (e.g. winter tires, sufficient gas) and travel with appropriate supplies (e.g. emergency car kit, communication device) and contact information.
- Weather conditions change rapidly in NL. Residents should check the road and highway conditions before traveling in order to make informed travel decisions. The Newfoundland and Labrador Department of Transportation and Works (http://www.roads.gov.nl.ca) and the Weather Network (http://www.theweathernetwork.com/) are good resources. When residents drive they should take caution and drive in accordance with weather and road conditions and appropriate driving speed.
- If residents do not feel safe traveling to or from the workplace or learning environment, they should communicate their concerns to the academic office and preceptors.
- Provincial traffic laws and regulations will be adhered to at all times (e.g. cell phone use, speeding, etc.) while driving.
- Residents should be cautious of moose and other wildlife when traveling by private vehicle. Moose are very common in all areas of the island, including in the St. John’s...
metro area. Moose are most active at dusk and dawn, and appear more frequently during the peak months of May to September.

- When traveling by plane, residents must abide by all Transport Canada air travel regulations. (See: www.tc.gc.ca). Residents are required to listen and follow in flight directions.

**Personal Security**

- Residents should not disclose their personal and/or private information in the course of their daily professional and/or academic duties, including but not limited to telephone numbers, email addresses, social media sites, home addresses, banking information. Residents have a duty to make every effort to avoid inadvertent disclosure of their personal and/or private information. Residents are encouraged to password-protect all sensitive information and to use data protection services (e.g. Caller ID Blocking).
- Residents are entitled to a safe and secure environment when using health care facilities, including parking lots. Residents are to contact Security (where possible) or the Police immediately should they witness any activities that might compromise their safety.
- Residents who are anticipating interactions with potentially violent or aggressive patients or family members should make certain that a Faculty member and member of Security/Police are present during these interactions.
- Residents, through the health boards, are provided with safe and clean on call facilities.
- Residents must observe universal precautions and isolation procedures when indicated.
- Residents should keep their immunization status up to date. Overseas travel immunizations and advice should be sought well in advance when traveling abroad.
- It is recognized that, at times, a resident may be called upon to respond to an acute situation involving a patient, which poses a risk to the resident’s personal safety and wellbeing. In such an event, the resident and faculty should ensure that the Police are involved with the patient encounter.
- Residents may be placed in shared accommodations. All efforts are in place to ensure that that same sex members share accommodations; however, this is not always possible. Caution should be used when using shared accommodations. It is recommended that residents lock their rooms while sleeping and bathrooms be locked when in use. Valuable goods should not be left unsecured.
- Residents are required to know the safety policies and procedures of the site in which they are working. These topics are discussed at site orientation. (E.g. panic alarm in the on call room and the drug room in the Academic Family Medicine unit).
- Residents should use caution when outdoors alone: especially after daylight hours. Residents should always walk/cycle in visible and well-trafficked areas.

**Safety During Pregnancy**

- Residents who are pregnant are entitled to a safe and equitable work and learning environment. Residents who are pregnant have a duty to inform the residency program and the PGME office. Residents who are pregnant should be aware of specific risks to themselves and their fetus in the training environment and request accommodations where indicated. (See: http://www.pairn.ca/home.aspx)
- When residents reach 32 weeks of pregnancy they are released from evening and weekend duty responsibilities. (See: http://www.pairn.ca/home.aspx)

**Emotional (Psychological) Safety**

- All learning and work environments must be free from intimidation, harassment and discrimination (See: http://www.med.mun.ca/medpolicies/results.aspx?program=pgme)
Residents are entitled to freedom from discrimination on the basis of their physical or psychological health. Residents have a professional duty to seek professional advice whenever they are concerned with physical or psychological health issues that may affect their clinical or academic performance. Residents are entitled to confidential and non-discriminatory advice and counseling from one or more of the following:

- Program Director
- Post Graduate Counselor
- Associate Dean for PGME
- Associate Dean for Student Affairs
- Family Physician
- Memorial University Counseling Centre
- Newfoundland and Labrador Medical Association Professional’s Assistant Program

(See: [http://www.med.mun.ca/getdoc/d9b0ddf2-f8d1-415d-8b80-d92a189a0a34/Resident-Support-Services-(1).aspx](http://www.med.mun.ca/getdoc/d9b0ddf2-f8d1-415d-8b80-d92a189a0a34/Resident-Support-Services-(1).aspx))

Residents are entitled to leaves of absence. When the leave of absence is due to physical or psychological health issues residents should not return to work until an appropriate medical assessment declaring them ready to work has been completed.

Residents are entitled to notification in writing from any of the individuals listed above if their physical or psychological health issues are deemed sufficiently concerning as to require cessation of their clinical and/or academic duties.

Residents have a duty to abide by the professional code of ethics that governs all medical professionals as stipulated by the College of Physicians and Surgeons of Newfoundland and Labrador with respect to physical and/or psychological health. (See: [http://www.cpsnl.ca/default.asp?com=Bylaws&m=292&y=&id=5](http://www.cpsnl.ca/default.asp?com=Bylaws&m=292&y=&id=5))

**Professional Safety**

- All residents are entitled to work and learn in a culture of respect. Any act of discrimination based on religion, gender, race, colour, age or health condition should be reported to the Program Director and to PGME. All resident concerns will be documented in writing and will be kept on record in the strictest confidentiality by the residency program and by the PGME office.

- Residency Training Committee members must not divulge information regarding residents. It is the responsibility of the Program Director to make the decision and to disclose information regarding residents (e.g. personal information and evaluations) outside of the Residency Training Committee and to do so only when there is reasonable cause. (See: Access to Resident File Policy).

- Resident feedback and complaints must be handled in a manner that ensures resident anonymity, unless the resident explicitly consents otherwise. However, in the case of a complaint that must be dealt with due to its severity or threat to other residents or patients, a Program Director may be obliged to proceed, against the complainant’s wishes.

- Residents must be members of the Canadian Medical Protective Association (CMPA) and follow CMPA recommendations in the case of real, threatened, or anticipated legal action. Advice can be received directly from the CMPA at 1-613-233-1444 or 1-800-656-7440.
Critical Incidents
- Residents are entitled to participate in the investigation and the review of critical incidents that occur without fear of negative consequences. Residents have a professional duty to report all critical incidents to their preceptor.
- Residents will be guaranteed confidentiality for any critical incidents in which they are involved, unless the incidents were sufficiently severe as to compromise their own safety or patient safety, in which case these critical incidents must be reported to the Associate Dean PGME or the College of Physicians and Surgeons.

Confidentiality of Resident Information
- Residents will be guaranteed confidentiality for any critical incidents in which they are involved. (See: Critical Incidents Section)
- Residents are entitled to protection of their personal and/or private information in their resident files and elsewhere, especially where it does not concern their professional duties and responsibilities. (See: Access to Resident File Policy)
- Residents are not required to disclose personal and/or private information to any staff without prior written request. Residency programs must obtain verbal and written consent from the residents for disclosure or use of any personal and/or private information to third parties.

Northern, Rural and Remote Rotations
- Northern and rural rotations augment a trainee’s clinical experiences but are not without risks. These opportunities bring residents into unknown locations where unfamiliarity, isolation and travel can cause potential harm. At all times during these experiences residents should exercise caution and abide by the Resident Safety Guidelines.
- Residents should always be prepared for unexpected cold weather and dress appropriately.
- Residents must always discuss travel plans (E.g. car, snowmobile, plane) with their preceptors.

Overall Safety
- If safety concerns arise, residents should contact the primary preceptor and/or the Program Director.

Family Medicine On-Call and House Call Policies
- Please see the Resident Handbook for further information. The Resident Handbook is on One45 and on the resident’s USB drive. These policies will be discussed in detail at the Academic Family Medicine orientation sessions.

Resources
- www.med.mun.ca/familymed
- www.med.mun.ca/PGME
- www.pairn.ca/home.aspx
- www.nlma.nl.ca
- www.cpsnl.ca
- www.cmpa.ca

Approved by the RTC: February 16, 2016
Approved by the RTC: March 10, 2015
Northern – Goose Bay (NorFam) Medical Student Resident Safety & Supervision Policy

Policy statement:
NorFam desires to ensure that learners at NorFam are safe and adequately supervised in all of their learning activities.

Requirements:
1. All learners at NorFam will be given a copy of this policy at the first week of their training.
2. Ambulatory care
   - A preceptor is assigned to a learner for all ambulatory care clinics.
   - A preceptor is in house whenever there is a learner in the emergency room.
   - A preceptor is available by phone when the learner is in the clinic.
   - All outpatient and emergency charts are reviewed and signed off by a preceptor.
3. Wards
   - A preceptor is assigned for ward rounds.
   - Ward rounds are done every morning usually at 9:00-10:00am.
   - The preceptor will be available for teaching at 9:30-10:00am Monday to Friday and can be reached at any time by phone.
4. Coastal Clinics
   - A preceptor is assigned to a learner when they are in the coastal nursing station and is available by phone or video.
   - A preceptor reviews all patient charts.
   - The chart may be faxed ahead of time for review by the preceptor or be reviewed on site via video.
   - The charts will be signed off as having being reviewed with the name of the preceptor on the chart.
5. Medevacs
   - A preceptor is assigned to a learner who is on medevac call.
   - The learner who is on medevac call must discuss the case with a preceptor before leaving.
   - The preceptor may go with the learner if the learner or the preceptor feels this is the safest option.
• Learners may go on medevacs as an observer. Permission must be obtained from the flight team.
• Video and telephone consults are available to the learner at the nursing station at all times.

6. House Calls
• The learner must review all house calls with a preceptor. This ideally is the preceptor who is conjointly looking after the patient. The other options are to review with the preceptor on chart review, emergency or ward rounds.

7. Safety
• A learner must discuss with a preceptor if they feel unsafe. The learner has the right to not participate in any activity if they feel unsafe and this must have no negative consequences on the evaluation.
• A preceptor can prevent a learner from participating in any learning activity if it is felt to be unsafe. This must be discussed with the learner.
• Learner can get a free cab ride from the Labrador Health Center to home and vice versa. Vouchers are available at the hospital reception.
• Learners must not go out on snowmobiles belonging to Labrador-Grenfell Health without permission. If they go outside the community, they must have an escort from a local staff member.
• Safety issues should be discussed at the monthly meeting between learners and faculty.

Signed by:

Michael Jong
Professor Family Medicine
Memorial University VP
Medical Services Labrador-
Grenfell Health

Reviewed 2014 April 4th

Approved by the RTC: February 16, 2016
Leave Requests and Electives

All leave request forms can be found in the Family Medicine Postgraduate Office, on the Website, on One45 and on the USB. Please use the Family Medicine Leave Form ONLY.

All leave requests must be submitted to the Family Medicine Postgraduate Office – Fmevals.leaves@med.mun.ca.

**Vacation**

First and second year residents are entitled to four weeks (20 weekdays) of vacation. Vacation can be split into one or two week blocks, depending on the length of the rotation.

Vacation must be broken up into two weeks before Christmas and two weeks after Christmas.

Leave requests must be submitted in writing no later than three (3) months in advance of the requested vacation time. All vacation requests will be processed through the PGME office. Exceptions will be made for the first three months of the academic year.

Please note that leave requests received the week of the leave in question will not be approved, unless the request is of an urgent nature. The Family Medicine Postgraduate Office and the preceptors must receive adequate notice.

**Please see the reverse side of the Leave Request Form for further information.**

**Sick Leave and Bereavement Leave**

All sick leave/bereavement leave must be reported to the Family Medicine Postgraduate Office. If you are sick for greater than 3 days, you must complete a functional assessment form and present it to Memorial’s Postgraduate Medical Education Office.

**Conference Leave**

Residents are entitled to seven (7) days of paid leave in each of the 2 years of the program to attend educational events such as medical conferences. The 7 days includes travel and conference time. Conference leave days cannot be carried over from one year to another.

The Discipline of Family Medicine provides up to $1000.00 total once during the residency program, with preference that it be used in the second year.

Please do not confirm any travel plans until your request has been reviewed and you have received notification of final approval from the Family Medicine Postgraduate Office.

To claim for Conference Leave, a MUN travel claim with the appropriate details - the conference brochure, original ticket receipts and original boarding passes must be submitted to Jennifer Rideout in the Office of the Chair, Family Medicine. This form is available on the University website at: [http://www.mun.ca/finance/forms/TravelClaimA.pdf](http://www.mun.ca/finance/forms/TravelClaimA.pdf) as well as the Family Medicine Program website, on One45 and on the USB.
Electives
Two months of elective time is allocated in the second year of residency training. Residents should use this time to gain skills in areas they deem necessary for their future practice. Electives can be no shorter than two weeks in duration. Elective requests must be received by the Family Medicine Postgraduate Office, with rotation objectives, no later than 3 months in advance of the elective. The supervising preceptor must approve proposals before the Family Medicine Postgraduate Office will review them. Elective forms are available in the Family Medicine Postgraduate Office, on One45 and on the USB. Please note that residents must receive an educational license in the province or territory where they are to complete their elective. Residents completing electives out of the country must check with the local guidelines to ensure eligibility to practice.

Interview Leave
Residents interviewing for third year programs are entitled to up to five working days to use towards interviews and/or travel. Residents will have to submit a leave request form indicating dates and attach the interview invitation. Residents must use vacation leave if requiring additional time off.

Medical Service Trip Leave
Residents partaking in service trips overseas (e.g. Haiti) must use elective time or vacation time to cover for their time away. Please note the requirement of completing 2/3 of your rotation when considering your ability to go on a Medical Service Trip (e.g. 4 week rotation – maximum of 9 days away from service permitted, including weekend days).

Policies

Family Medicine Policies/Guidelines
* Please see One45
Academic Family Medicine Requirements Policy
On-Call and House Call Policy
Resident Safety Guidelines
Access to Resident Files Policy
R3 Leave Interview Forms
Resident Forum Preparation and/or Study Leave
Guidelines for Video Recording & Direct Observation of Clinical Interviews
Core Family Medicine Training Policy

RDoC
http://www.pairn.ca/Home/Policies.aspx
Postgraduate Medical Education (PGME) Policies

*Please see www.med.mun.ca/pgme/home.aspx

Respectful Workplace
Social Media
Evaluation, Promotions and Appeals
PGME Post-Call Guidelines: Home Call (See below)
PGME Post-Call Guidelines: In-Hospital Call (See below)

PGME Post-Call Guidelines: Home Call
In the interest of safe patient care and respect for the personal safety, wellbeing, and educational requirements of the Resident, duty hour restrictions must be considered. A Resident who is scheduled on out-of-hospital duty (i.e. “home call”) but who works more than one hour in hospital, or otherwise providing patient care (i.e. home visits) between midnight and 0600hrs, is entitled to the post-call provision outlined below:

Sign-over of patient care responsibilities and pertinent patient information shall begin no later than the 24th consecutive hour of duty. Apart from hand-over of patient care responsibilities, no Resident shall be required to assume new responsibilities following the 24th hour of duty. Such handover shall not exceed 2 hours.

It should be recognized that the above provisions may not suit the educational and well-being requirements of all residency programs. As such, alternate call arrangements may be permitted if agreed to by the residents training committee of the program in question, and approved through the PGME committee, including adequate representation from PAIRN.

PGME Post-Call Guidelines: In-Hospital Call
Article 9.03 of the PAIRN Collective Agreement currently states:

Any Resident or Fellow who is required to provide care of a continuous or intensive nature during his/her in-hospital duty period, shall be permitted to be relieved of his/her duties at 1200 hours of a regular work day which follows the in-hospital duty period after handover of patient care responsibilities, satisfactory to the Employer and the attending Physician responsible for the patient, to ensure continuity of patient care. It is understood that by allowing the Resident or Fellow to leave at 1200 hours, there is no additional cost to the Employer. Apart from the handover of patient care responsibilities, no Resident shall be required to assume new responsibilities following the 24th hour of duty.

As a supplement to the article above, handover of patient care responsibilities is to begin no later than the 24th consecutive hour of duty. Such handover is not to exceed 2 hours.
Resident Wellness Resources
You can speak with either your assigned faculty advisor; Ms. Susan Carter, Program Coordinator; Dr. Danielle O’Keefe, Program Director (Dr. Ean Parsons or Dr. Susan Avery from July 2016-April 2017), or Dr. Jennifer O’Dea, Jennifer.odea@easternhealth.ca 777-4520, Postgraduate Counselor for Family Medicine residents.

All of the services listed below are confidential. The services will only collect, use, or disclose your information to provide services and support to you, as consented by you, or as required by law. All information you provide, including your personal and health information, and the fact that you have contacted the service, is held in confidence.


Please refer to the Postgraduate Medical Education’s website www.med.mun.ca/pgme for the following links:

Employee and Family Assistance Program
Global Health
Health Services
In-Confidence Employee and Family Assistance Program
Postgraduate Counselor
Professionals’ Assistance Program
Sexual Harassment

Employee and Family Assistance Program (EFAP) (709) 777-7777
This program will provide completely confidential professional counselling and information services for all NLMA members and their immediate family. Skilled counsellors are available to you as well as work/life consultants to offer support with a wide variety of issues such as:
• health and disability
• emotional well-being
• work
• managing people
• education
• legal
• financial
• parenting and childcare
• midlife and retirement
• older adult concerns
• grief and loss
• addiction and recovery
In addition, the in Confidence website offers extensive educational resources, podcasts, online seminars and more.
To learn more about the services available and to access any of the counselling or work/life consultation services listed above, either call: 1-877-418-2181 or go online at www.myinconfidence.ca.

Physical
• Strategies Resident-Physicians Use to Manage Sleep Loss and Fatigue
• Medical Education Online (2005)
• Top 25 At-Home Exercises
• Ace Fitness Free Online Library
• Epworth Sleepiness Scale
• A score of 10 or higher indicates a possible sleep disorder.
• Cookspiration
• A website and app created by Dieticians of Canada that serves up recipe ideas to suit your mood and schedule.
• Healthy Practices Podcasts – Canadian Medical Association
• A new podcast series on physician health and wellness hosted by psychiatrist. Features honest, practical insights from several experts offering information and advice on how physicians can lead a healthier life.
• ephysicianhealth.com

Mental/Emotional
• Overcoming Compassion Fatigue
• Includes tips, warning signs, and a 9 point self-assessment tool.
• American Academy of Family Physicians
• Grief: The Inner Life of Physicians and Care of the Seriously Ill
• This article describes a model for increasing physician self-awareness, which includes identifying and working with emotions that may affect patient care.
• Early Warning Signs of Residents in Distress
• Canadian Association of Internes and Residents (CAIR)
• Uncomplicated vs. Complicated Grief
• Bedtime Relaxation
• Fall asleep easier by following this guided relaxation at bedtime.
• Revive Yourself: Energizing Breath
• Mindful Yoga
• A gentle guided yoga practice, including mindful awareness and physical cues.
• Progressive Relaxation: Release Muscle Tension
• Alcohol and Drug Addiction Screening Quiz
• From Johns Hopkins University Hospital
- **Mental Health Well-being Screening Quiz**
  - An anonymous 14-question quiz to gauge your overall mental health
- **Anxiety Disorder Screening Quiz**
- **Mind the Moment**
  - A 6-week mindful meditation e-learning course (Harvard Pilgrim Functioning)
- **The Art of Using Art to Create Balance**
- **Canadian Association of Interns and Residents (CAIR)**
- **Spiritual Wellness Pulse Check**
  - Evaluate your own spiritual wellness with this brief quiz.
  - This is a guide for using a simple and powerful storytelling approach to uncover and deepen a sense of professional satisfaction in daily work.

**Social**

- **A Physicians Multiple Roles**
- **Canadian Association of Interns and Residents (CAIR)**
- **Medical Marriages**
  - Discusses the emotional health of physicians and their families in intimate relationships.
- **Five Ways to Say ‘No’ Effectively**
- **American Academy of Family Physicians**
- **Dimensions of Wellness: Social Wellness**
  - Includes a 10-point self-assessment
- **Social Wellness Pulse Check**
  - Evaluate your own social wellness with this brief quiz.
- **Work-Life Balance Quiz**
- **Canadian Mental Health Association**

**Occupational**

- **When Physicians Feel Bullied: Effective Coping Strategies**
  - Canadian Medical Protective Association
- **Coping With an Adverse Event, Complaint, or Litigation**
  - Canadian Medical Protective Association
- **Pager Management for Resident Physicians**
  - Included on this page are suggestions for managing the pager in your practice.
  - Canadian Association of Interns and Residents (CAIR)
- **Medical Professionalism**
  - Excerpts from journalist Roger Collier’s multi-part series on medical professionalism from the Canadian Medical Association Journal.
- **10 Strategies for Staying Human During Residency**
  - Canadian Association of Internes and Residents
- **Doctors Make Mistakes. Can we Talk About That?**
  - TEDx Toronto 2010
Equity, Inclusion & Diversity

- **20 Steps to an Out and Equal Workplace**
- **Traditional Knowledge Toolkit**
  A toolkit developed by the First Nations Centre for individuals and communities interested in the protection and promotion of traditional knowledge and healing practices.
- **National Aboriginal Health Organization (NAHO)**
  Advancing the well-being of First nations, Inuit, and Métis.

Associations

- **Health Professionals Advancing LGBT Equality**
  Previously known as the Gay and Lesbian Medical Association.
- **Native Women’s Association of Canada**
  Founded on the collective goal to enhance, promote, and foster the social, economic, cultural and political well-being of First nations and Métis women.
- **Society of Rural Physicians of Canada**
  Providing leadership for rural physicians.
- **Federation of Medical Women of Canada**
  Committed to the development of women physicians and the well-being of all women.
- **Canadian Association of Physicians with Disabilities**
  A forum for discussion of issues of mutual interest and concern to physicians with disabilities.

Financial

- **How to Get Your Free Credit Report and Check Your Credit Score**
- **Free Webinars for Financial Wellness**
  Free online workshops on topics such as relationships & money, budgeting 101, irregular income, debt solutions, conscious consumerism, and retiring without debt.
- **Finance Articles from Emergency Physicians Monthly**
  From debt to investment to taxes, a range of financial articles tailored for physicians.
- **MD Management**
  Specializes in financial planning services for physicians.
- **Debt Payment, Interest, Expenses and Savings Calculators**
  Calculations are performed based on tour inputted information. Below the graph is an explanation to help you understand what you’re seeing.
- **Credit Counselling Society**

General

- **Time Management: A review for Physicians**
  Journal of the National Medical Association
- **Feedback**
  Canadian Association of Internes and Residents (CAIR)
- **Mentors**
  Canadian Association of Internes and Residents (CAIR)
- **Writing and Submitting Your Manuscript**
Canadian Association of Internes and Residents (CAIR)
Learning from the Master’s Series

- **A Few Teaching Tips for Residents**
  Canadian Association of Internes and Residents (CAIR)
  Learning from the Master’s Series

- **Reduce Test Anxiety: Guided Visualization**
  A free live-streaming audio file from MIT medical.

- **Mentorship in Canadian Residency Programs**
  Canadian Conference on Medical Education 2013

- **Transfers: An Evaluation of Official Canadian PGME Transfer Policies**
  Canadian Conference on Medical Education 2013
Licensure Information

Prior to Residency:
Prior to commencing residency you must visit the College of Physicians and Surgeons of Newfoundland and Labrador (CPSNL) Office to apply to practice as a resident. The College will ask you to complete an application form and they will require a copy of your Medical Diploma, a copy of your CMPA membership, a copy of your MCCQE Part 1 results and you will be required to pay a registration fee.

At the End of Year 1:
You must apply to the CPSNL for a modified provisional license as you will need this to practice as a second year resident. Please contact the College for detailed information. Once you have satisfactorily completed your first year, the Family Medicine Postgraduate Office will send a confirmation letter to the College on your behalf.
YOU MUST DO THIS BEFORE YOU BEGIN ANY SECOND-YEAR ROTATION!!

At the End of Year 2:
You will be required to provide the College of Physicians and Surgeons of Newfoundland and Labrador with the following:
1. Confirmation of CMPA coverage with practice code
2. CCFP (Please provide a notarized copy or present the original to the CPSNL
3. Practice address and the effective date
4. A completed new CPSNL application form
5. Applicable licensure fees

To be sent by the Family Medicine Postgraduate Office:
6. A confirmation letter stating that you have satisfactorily completed your second year will be sent to the College once the Family Medicine Postgraduate Office has received all of your evaluations and they have been reviewed by the Evaluations and Promotions Committee.

*If leaving the Province to practice, please inform the College of Physicians and Surgeons of Newfoundland and Labrador of your practice address.

YOU MUST DO THIS AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF PRACTICE.

The CPSNL office is located at 120 Torbay Road, Suite W100. (Phone: 726-8546, extension 228).
Important Information

Car Registration
To transfer your driver’s license you must visit the Department of Motor Vehicle Registration (DMV – in Mount Pearl, or at an office elsewhere in the province) within three months of your arrival. You will not have to write or take a driver’s test. Please see the following website for more information:
http://www.servicenl.gov.nl.ca/drivers/DriversandVehicles/driverlicensing/application.html#12

Clerkship Teaching
Most residents will be involved with teaching medical students and clerks during their training. Opportunities include rotations and procedure rounds as well as undergraduate teaching opportunities such as the Day in Violence workshops and clinical skills. Please see the Clerkship Teaching Objectives on One45.

Education Resource: Practice Based Small Group Learning Program (PBSGL)
All residents have access to the online Problem Based Small Group Learning Program modules. You should expect an email from the Problem Based Small Group Learning Program outlining your user ID and access code at the start of residency.

Email Accounts
If you must receive confidential documents by email we strongly recommend that you use your MUN email account. All MUN data is housed in a MUN server. Privacy cannot be guaranteed with outside servers (E.g. Gmail, Yahoo).

Encrypted USBs
Every resident will be given an encrypted USB during Orientation which consists of program information that you will reference on a regular basis. The USB will also be used during the first year Academic Family Medicine rotations to transport information on Wednesday mornings to the Counselling Centre. **Please remember that the program only provides you with one free USB. If you lose it and require a second one for your Academic Family Medicine rotation, you will be charged $20 in order to replace it.**

Exposure to blood or body fluids (E.g. a needle stick injury)
If you are exposed to a patient’s blood or body fluids, you should report to the nearest Emergency Department. If the injury occurs during working hours, you may report to the Occupational Health Nurse (OHN) for that institution. The Emergency Department or the OHN will review your immunization status and ensure that you are treated and following according to the risk assessment performed on the patient.

Family Doctor
All residents should have a Family Physician. Please see One45 for Family Physician contact information.
**Finances**
Residents have the support of Mr. Philip Kearley, Financial Counsellor through the Faculty of Medicine. Mr. Kearley is happy to meet with any resident interested in reviewing their finances. He can be reached at: Philip.kearley@med.mun.ca, 709-864-6395 x1234 (P), 1-877-794-9740 (Toll Free) or 709-864-6360 (F).

**Health Care Coverage (Medical Care Plan - MCP)**
For health care coverage (MCP) residents need to apply for an MCP card before the end of their third month (i.e. if you arrived June 15 then you would have until August 31). Please see the following website for more information: http://www.health.gov.nl.ca/health/mcp/registration.html.

**Mail**
You have a mailbox in the Family Medicine Postgraduate Office. Your mail will be sent out to you each Friday during out-of-town rotations. While you are in St. John’s it is expected that you will pick up your mail in the Family Medicine Postgraduate Office. If you do not want your mail forwarded to your rotation site please inform the Family Medicine Postgraduate Office (familymed@med.mun.ca).

**Moonlighting**
The Program will NOT approve moonlighting requests.

**Job Opportunities**
Job opportunities are regularly updated on the Family Medicine Website: http://www.med.mun.ca/familymed/Looking-for-a-practice.aspx

You may also contact the Provincial Physician Recruitment Office: Mr. Daniel Fitzgerald, danielfitzgerald@gov.nl.ca, 709-729-4029 (P), 709-729-5238 (F) Dr. Vina Broderick is our local faculty resource for locum and other job opportunities: vbroderi@mun.ca.