Dalhousie Family Medicine Resident Project Guide

July 2021

family.medicine.dal.ca

Resident Project Guide
Department of Family Medicine

Introduction

"A strong research base is as fundamental to general practice, as to any academic discipline. Research and education are not different kinds of academic activity but complementary, the two sides of one coin. Research is organized curiosity. Curiosity involves asking questions; if others do not know the answers, research is needed. Education in which the answers are not based on research is indoctrination; research in which questions are not based on need is prevarication. The advance of general practice as an academic discipline depends on our ability to integrate research and education in the pursuit of excellence in clinical care."

Charles Bridge-Webb
Adapted from the George McQuitty Memorial Lecture, University of Calgary, 1982, Can Fam Physician 1983, Vol. 29:52

The objectives for research in Family Medicine are detailed by the College of Family Physicians of Canada. The project promotes the attainment of the four CanMeds roles: health advocate, medical expert, scholar and communicator.

All residents are required to complete a resident project as part of their residency program requirements. The resident project is an academic/scholarly one that **must** meet the standards described in this guide and **must** be completed successfully in order to fulfill the requirements of the residency training program.

The purpose of the resident project is to provide an opportunity for the resident to explore an area of personal interest in a scholarly manner. With guidance provided by their supervisor, the process involves finding answers to questions commonly encountered in primary care by critically reviewing the available literature. Where such answers are found lacking, the resident may choose to employ an appropriate methodology to design a study using proper scientific rigor to answer that question. By contributing to this scholarly activity there is an opportunity for residents to positively impact primary care and the wider community.

There **is no requirement to conduct a research study**; however, it is hoped that the resident project will provide the resident with the opportunity to develop or practice primary care research skills. For those with more in-depth research interests, primary care research electives are available and inquiries should go to the Site Director.

Goal:
- To contribute to the understanding and/or effectiveness of Family Practice.

Purpose:
- To develop skills that the resident can use in order to be a resource to a family practice;
- To provide an evaluation of these skills for the resident transcript.

Objectives:
- To ask a question relevant to Family Medicine.
- To develop a way of answering the question, using appropriate resources and timelines;
- To write up the project and present it orally prior to completion of the residency.

Project Goals:
- To develop skills in asking and answering questions that are important and relevant to the discipline of

Family Medicine;

- To stimulate creative and original thought based on questions encountered in practice;
- To practice the fundamentals of evidence-based care or other critical inquiry;
- To be able to communicate the results clearly to colleagues;
- To promote an interest in Family Medicine research.

How to Use the Resident Project Guide

The Resident Project Guide has been developed as a resource for residents, project supervisors and project/research coordinators. The guide contains information regarding project and project form deadlines, format requirements, tips and tricks, assessments, etc. The Resident Project Guide is reviewed by the Resident Project Sub-Committee on an annual basis and updated accordingly. Residents may choose to follow the version of the Resident Project Guide released in their PGY1 year, or they may opt to follow the version released in the year in which they submit their project.

In order to ensure fairness in marking, residents are required to indicate on their project title/cover page which year's version of the Resident Project Guide they followed at the time when they submitted their final project.

Expectations:

The resident project must be aimed at answering a question in the field of Family Medicine. It can be in the form of a research project, a practice quality improvement project, a position paper, clinical educational tool, medical educational tool, literature appraisal or a health humanities project. The resident is expected to choose an area of interest to Family Medicine, propose a question, review the literature, and design a method of answering that question.

Family Medicine and Family Practice includes enhanced areas of expertise achieved and maintained by some family physicians, such as those recognized by the College of Family Physicians of Canada as Certificates of Added Competence (CACs). Approved CAC domains of care in Family Medicine include Care of the Elderly, Emergency Medicine, Family Practice Anesthesia, Palliative Care, Sport and Exercise Medicine, Addiction Medicine and Enhanced Surgical Skills.

PGY2 residents are expected to submit a written paper and give an oral presentation of their findings to their colleagues and faculty members at the ***Resident Project Presentation Day*** held at their Site Project Presentation event. The written documents will be graded and may be considered for various resident project awards.

PGY1 residents may be asked to give a 10-minute presentation discussing the progress of their projects.

Residents are welcome to submit their completed resident project in their PGY1 year; however, they are not required to do so until their PGY2 year.

Completed resident projects will be stored and available to review for internal use by residents and faculty.

Ethics Issues:

All residents who engage in research involving human beings require a full or an expedited ethics review by a research ethics board (REB). This applies also to research considered "minimal risk," for example the examination of patient charts, patient/resident/physician surveys, etc. The resident should discuss this with the Project Coordinator. *If possible, it is advised that residents should consult with the Chair of the local Research Ethics Board (REB) regarding requirements for REB applications. If REB approval is necessary, it must be ensured that all requirements of the local REB are met for the resident project.*

If REB approval is not required, residents are required to provide the appropriate REB documentation around that decision.

Resident Projects with More Than One Author

Residents are encouraged to collaborate when planning and completing Family Medicine projects. Collaboration with others must be acknowledged and explained in the manuscript. In most circumstances,

residents will collaborate on a topic but their project will ask a separate question; therefore individual manuscripts and project forms will be submitted by the primary author.

In the event that residents wish to co-author a project, we ask that this collaboration be approved by their site Project Coordinator(s) to ensure each author's contribution is substantial. Each author must outline, in a section entitled "Author Contribution", their individual contribution to the project. Each resident will be required to submit individual forms, project outline and final reports. *There will be one assessment of the project.* The project presentation may be collaborative if possible.

When collaborating as co-authors, it is important to recognize the four measures of authorship from the ICMJE:
- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Further advice on authorship can be found at   http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html

Type of Projects
Because different marking rubrics are used for different project types, residents are asked to submit their project as a single project type.

Projects may be submitted as *one* of the following with the project type clearly indicated on the cover page:

1.   Research Project
This involves the posing of a question, reviewing the literature, selecting the methods needed to answer the research question, collecting original data, conducting the data analysis, and reporting the findings

Residents are encouraged to engage in original research. It is important for residents to be aware that research projects require more steps to complete than other types of projects and therefore may take longer to complete. Most research projects require approval by the local Research Ethics Board (REB). Residents are advised to speak with their Project Coordinator about the need for ethical approval for their project. If REB approval is not required, residents are required to provide the appropriate REB documentation around that decision.

2.   Practice Quality Improvement Project
This involves identifying a practice-based question (aim statement), constructing a method for measuring change, developing that change by finding evidence-based guidelines/recommendations to guide the approach to clinical care with respect to the question, reporting the results and recommendations to target population, along with reassessments after change has been initiated (PDSA cycle; Plan, Do, Study, Act). Ideally this will involve multiple PDSA cycles.

Please note, residents are not permitted to use the same question or data used in their QI curriculum exercise at their site.

3.   Position Paper/Essay
This involves an extensive treatise on a topic of importance to Family Medicine. Topics can also relate to a broad range of pertinent issues such as the history of medicine, medical philosophy, medical education, politics, etc. The report must include critically appraised evidence to support the argument being presented.

4.   Clinical Education Tool

This involves developing a tool or resource useful for the education of physicians, other health care workers, patients or the public. The educational tool needs to be accompanied by a description of how the topic was selected, a literature review and the reason for the need of the tool.

5. Medical Education Tool

This involves developing a tool or resource useful for undergraduate or postgraduate medical education, with accompanied reason for tool and literature review to support the tool. Examples include Problem Based Learning Cases, OSCE development, online curriculum modules etc.

6. Literature Appraisal/EBM Review

This involves a detailed review of the literature on a specific topic pertinent to Family Medicine. Original research papers* should be reviewed and appraised using critical appraisal skills.

(* primary sources, no systematic reviews)

7. Medical/Health Humanities

This new stream would require residents to ask an important question relevant to Family Medicine.   The resident would conduct a review of the evidence on the topic and the final project may include an arts-based piece, or use of art in the scholarly project, both clinical and humanities.   This may take the form of writing, visual art, performance (eg. dance, theatre), production or a musical composition.   **While the health humanities project may be considered a category of its own, it could also be a component of any of the above categories.**   For example, the resident may choose to conduct a literature review on the effect of the use of writing as a tool to prevent burnout among medical students.   The final piece could be published or even incorporated into the medical school curriculum if appropriate.

Project Coordinator

Each site has a Project Coordinator, whose role it is to discuss the project format and requirements with the resident on a regular basis and encourage the resident to adhere to the deadlines. In some cases the Project Coordinator may also be the Project Supervisor.

Project Supervisor

Each resident must choose a Project Supervisor (or Project Supervisors) to counsel them on the content of their project. The Project Supervisor(s) may be a clinical supervisor, another family physician, a consultant or another individual with qualifications appropriate for the selected resident's project topic.

A Project Supervisor with a faculty appointment in the Dalhousie Department of Family Medicine is required for each project.   If the primary project supervisor is not a DFM faculty member, the resident is responsible to find a co-supervisor who has a faculty appointment with the Dalhousie Department of Family Medicine.

Budget

There are funds in each site's budget to cover some resident project expenses at that site.   Each resident is allowed $50 for minor expenses, but it is also possible to apply for more funding. This issue should be discussed with the Project Coordinator at the appropriate site. For amounts over $50, a written budget must be submitted to the Project Coordinator at the appropriate site.   All receipts must be submitted in order for expenses to be reimbursed. If funds are needed in advance, a written request can be submitted with receipts submitted at a later date.

Minimum Time Commitment (*please note timelines and conditions may vary from site to site*):

Residents should expect to commit at least **40 hours of work** to their project, although the actual amount of time spent on the project will depend of a number of factors.   The program **may** allow the resident to use some independent learning time to work on their project, however; the amount of time permitted depends largely on the nature and scope of the project and therefore residents will need to discuss this with either their Project Coordinator or Project Supervisor.   Time away from half-days back and academic half-days is not generally permitted.

Plagiarism

Plagiarism is a serious academic offence and can lead to expulsion. Please see the Dalhousie University website on plagiarism.

http://www.dal.ca/dept/university_secretariat/academic-integrity/plagiarism-cheating.html

To fulfill the competencies of resident projects, residents must conduct their own literature search (no third-party searches). However, residents are encouraged to seek assistance from hospital or university librarians.

Project Format
Although projects can be presented in different formats (art-work/handbooks/DVD, etc.) the project paper should be a minimum of 2500 words and a maximum of 4000 words, double spaced, 12 font, excluding tables and references, and cannot exceed 10MB. Alternatives for the word count and format will be considered for special circumstances and must be approved by the Project Coordinator.

The format of the written work should follow a scientific lay-out, including: Abstract, Introduction, Background, Study Design/Method, Results, Discussion, Conclusion/Limitations, References. Abstracts should be structured to include the following lay-out as described by the CMAJ (excluding Trial Registration) (https://www.cmaj.ca/submission-guidelines#research): Background, Methods, Results, Interpretation.   At least 15 references are recommended.

The project must be submitted as a single PDF.

Projects may only be submitted as a single project type.   For example, a project may be submitted as a research project or a clinical educational tool; not both.

Project Cover Page
Make sure that you include a cover page (title page) with your project.

The title page must include each contributing resident's name and site.   For non-Family Medicine resident co-authors, there must be some sort of identification of who they are (eg. physician from (name of clinic, hospital, etc.), pharmacist from (name of pharmacy, hospital, etc.), nurse practitioner from (name of clinic, etc.), PGY# resident from (name of program and institution)).

The cover page must include the following:
1. name(s)
2. title of project
3. site(s)
4. name of project supervisor
5. type of project (research, literature review, etc. – use only the headings specified under "Type of Projects")
6. date
7. which year's version of the Resident Project Guide the resident(s) followed during project development.

Timelines

PGY1 year:

❖ The resident must discuss the project topic with the Project Coordinator.

❖ The resident will select and discuss the content of the project with their Project Coordinator (and Project Supervisor if applicable) by the end of the three-month PGY1 Family Medicine clinical learning experience, but no later than the **1st Tuesday in November.**

❖ The resident will complete Form 1 that they will submit to their Project Supervisor and their Project Coordinator. This proposal will state their research question/objective, a brief background literature review, the type of project and the methodology they will use to answer the research question.

❖ Residents must have their PGY1 *Resident Project Proposal Form* (Form I) initiated and submitted via One45 by the **1st Tuesday in November** for their Project Coordinator to review/approve.

❖ Residents are required to distribute via One45 a *Project Supervisor Agreement Form* (Form II), which must be completed/signed by their Project Supervisor and submitted via One45 by the **1st Tuesday in December** for their Project Coordinator to review.

❖ Residents whose projects are research projects, must apply for approval through their local Research Ethics Board (REB). It should be noted that this can at times be a lengthy process, and residents must plan accordingly in order to allow sufficient time for punctual project completion.

❖ If necessary, the resident should write out a budget, and submit it to their Project Coordinator. (see below for budget guidelines)

❖ At some sites, PGY1 residents are required to present their proposal in a 10-minute oral format during their site's Resident Project Presentation Day (usually held in May), or at another venue, as determined by their site. PGY1 residents are to confirm details with their Project Coordinator.

PGY2 year:

❖ The resident will review their project progress and distribute the *Project Progress Report* (Form III) via One45 to their Project Supervisor. This form is to be submitted by their supervisor via One45 no later than the **1st Tuesday in September.** The progress report will be reviewed by the Project Coordinator.

❖ Once the project is complete, the resident will distribute the *Resident Project Final Approval for Assessment Form* (Form IV) to their supervisor via One45 no later than the **1st Tuesday in January**. It will be approved by their Project Supervisor as being ready to be sent out for assessment. Project Coordinators will review these forms.

❖ The Final Project must be submitted to the resident's site designate (named by each site), and from there forwarded to the Education Committee Secretary (fmcommittees@dal.ca) as a **single PDF document** by the **2nd Monday in February.** The PDF document must not exceed a file size of 10MB, and must be formatted in such a way as can easily be emailed and opened by project reviewers. The Education Committee Secretary will send the project to a project reviewer for assessment.

❖ A PowerPoint slide presentation (or appropriate alternative medium of presentation) of the resident project must be completed and submitted to the residents' site designate by the **1st Monday in May** of their PGY2 year.

❖ PGY2 residents will present their projects orally during their Site Project Presentation event.

❖ If a resident is concluding the program four months or more beyond the usual program end-date, submission of the written project can be deferred to 2 months before their concluding date, and an oral presentation will be arranged separately.

See the attached worksheet for timeline summaries. Please note that these deadlines may be modified if the nature of the project is such that data collection or analysis cannot be completed by the required dates.

In that case, the resident must discuss the new timelines in advance with the Project Coordinator and new timelines will be formally established.

Residents in the three-year integrated FM/EM program may, with permission from their Project Coordinator and Project Supervisor, extend their project timeline into the third year of their residency program.

Project Assessment
Completed resident projects should be forwarded by the site's designate (identified by each site) to the Department of Family Medicine Education Committee Secretary (fmcommittees@dal.ca) as a single PDF file by the **2nd Monday in February**. The PDF document must be no larger than 10MB, and formatted in such a way as can be easily emailed to and opened by project reviewers.

The Medical Education Committee Secretary will forward the completed resident projects to appropriate reviewers. Project reviewers are expected to complete their review within 4 to 6 weeks of accepting a project for review.

A resident project must be deemed "Acceptable" or higher for the resident to successfully complete the residency program requirements.

If a project is assessed as "Requiring Revisions," the resident and the Project Supervisor and/or Project Coordinator will be informed by the Education Committee Secretary. Once the resident has completed the required revisions, the revised project will be sent to the Education Committee Secretary in a single PDF document that is no larger than 10MB and that has been formatted in such a way as can easily be emailed and opened by the project reviewer. The Education Committee Secretary will then forward it to the original project reviewer. If, after a second revision the project is still deemed "Requiring Revisions" by the original reviewer, a second reviewer may be invited to review the project.

Late Projects
Residents who miss the final project submission date may face a delay in receiving their letter of program completion. Residents are encouraged to submit their final project by the appropriate deadline.

Non-compliance
Non-compliance with the designated deadlines may result in the inclusion of a professional misconduct note in the resident file.

Awards/Presentations
Projects submitted by the February deadline (according to project guidelines) that receive marks in the "Outstanding" range will be considered for award nominations. Select projects receiving a score in the 'Highly Acceptable' range may also be considered. Additionally, Project Supervisors and site Project/Research Coordinators may nominate for consideration any resident projects they consider to be exceptional. Award nominations include the following:

1. Dalhousie University Family Medicine: The *Dr. Doug Mulholland Award* for the best scholarly non-research project. The projects are judged on originality, relevance to family medicine and critical thinking.
2. Dalhousie University Family Medicine: The *Dr. R. Wayne Putnam Award* for the best research project.
3. Award competitions:
   a. Faculty of Medicine Research Award Competition: up to three projects (traditionally) are nominated from the Department of Family Medicine.
   b. College of Family Physicians of Canada *research awards* for Family Medicine Residents: Up to one project is nominated from the Dalhousie University Department of Family Medicine
   c. The College of Family Physicians of Canada *scholarly activity* award. Up to one project is nominated from the Dalhousie University Department of Family Medicine. This award aims to recognize outstanding family medicine scholarship performed by a resident.
   d. Nominee(s) for the PBSG Family Medicine Residency Scholarship Award.

Resident Project Repository

A selection of completed and acceptable resident projects may be posted on Dalhousie University's Postgraduate Family Medicine Brightspace Page (under Resident Resources) for 2 years. This is to provide ideas and to serve as project examples for current Family Medicine Residents.

Questions regarding resident projects may be directed to: Dr. Laura Sadler
Chair, Resident Project Sub-Committee
Phone: 902-473-4700; Fax 902-473-8548
E-mail: LSadler@dal.ca

	Worksheet and Dates for **Completion of Resident Project**			
	PGY1			
Form	**Task**	**Timelines**	**Dates**	**Task Complete**
	Meet with Project Coordinator to begin formulating a type of project	July-September	suggested by early September	
	Select Project Supervisor	July-October	suggested by early October	
	Begin conducting literature review	September-December		
Project Proposal (Form I)	Residents must initiate and complete Form I (Resident Project Proposal) for Project Supervisors and Coordinators to review. Residents are responsible for ensuring the form is completed in a timely manner, in compliance with deadlines.		**1st Tuesday in November of the resident's PGY1 year**	
Project Supervisor Agreement Form (Form II)	Residents are responsible for initiating Form II (Project Supervisor Agreement Form), to be completed and submitted by their project supervisor. Residents are responsible for ensuring the form is completed in a timely manner, in compliance with deadlines.		**1st Tuesday in December of the resident's PGY1 year**	
	If the resident project is a research project, the resident must apply to their local Research Ethics Committee for approval. (NOTE: *This may be a lengthy process and residents must plan accordingly*)	September-February		
	At some sites, Proposal Presentation Day (10-minute presentation)		**Usually in May** *(date to be determined by each site)*	

Worksheet and Dates for **Completion of Resident Project**				
PGY2				
Form	**Task**	**Timelines**	**Dates**	**Task Complete**
Resident Project Progress Report (Form III)	Resident must initiate Form III (Resident Project Progress Report), for their project supervisor to review and submit. Residents are responsible for ensuring the form is completed in a timely manner, in compliance with deadlines.		**1ˢᵗ Tuesday in September**	
Project Draft and Project Final Approval Form (Form IV)	Completed draft of project given to Project Supervisor for feedback Residents must initiate Form IV (Project Final Approval for Assessment), for their project supervisor to review and submit. Residents are responsible for ensuring the form is completed in a timely manner, in compliance with deadlines.		**1ˢᵗ Tuesday in January**	
Final Project	Completed **FINAL** project to be submitted by the designated person(s) at each site to the Education Committee Secretary (fmcommittees@dal.ca)		**2ⁿᵈ Monday in February**	
	Education Committee Secretary will distribute projects for assessment	as received		
	PGY2 residents will present their projects orally during their Site Project Presentation event.		**Usually in May** *(date to be determined by each site)*	

Dalhousie University Fam Med Postgrad	Evaluated By : evaluator's name	
	Evaluating : person (role) or moment's name (if applicable)	
	Dates : start date to end date	

* indicates a mandatory response

Form-1: Resident Project Proposal.

All family medicine residents are required to complete a resident project as part of their residency program requirements. The purpose of the resident project is to introduce the resident to the process of finding answers to questions commonly encountered in primary care.

Residents are expected to submit a written paper and give an oral presentation at their site's project presentation event in their final year of residency.

Types of Projects:
• Clinical Education Tool
• Literature Appraisal / EBM Review
• Medical Health / Humanities
• Medical Education Tool
• Position Paper / Essay
• Research Project
• Quality Improvement / Patient Safety

Please submit this one45 form no later than the first Tuesday in November of your PGY1 year.

*Proposed project supervisor's full name:

*Project supervisor's email address:

Proposed co-supervisor(s) full name:

Proposed co-supervisor(s) email address:

Once the project supervisor has been named, the resident is responsible to provide them with the Project Supervisor Information Kit.

*Working Title of Resident Project:

*Type of project:
○ Clinical Education Tool
○ Literature Appraisal / EBM Review
○ Medical / Health Humanities
○ Medical Education Tool
○ Position Paper / Essay
○ Quality Improvement / Patient Safety
○ Research
○ Other (if "other" please elaborate in the comment box below.)

Comment section, if "other" was selected:

Research Question/Objective

Brief background literature review

Methodology

*Brief description:

*Brief timeline:

Resident's comments for project coordinator(s):

Research Ethics Board (REB) Application Status:

	n/a	No	Yes
*Will this project require REB approval?			

If "No," please explain why:

* indicates a mandatory response

Form-2: Project Supervisor Agreement.

Please submit this one45 form no later than the first Tuesday in December of the PGY1 year.

Project Supervisor:

All residents should have a Project Supervisor and a Project Coordinator.

The Project Supervisor will counsel the resident on the content of the project. The Project Supervisor may be a clinical supervisor in the home base Family Medicine Unit, another family physician, a consultant or another appropriate individual. If someone other than a family physician is selected, it is important to obtain advice on the relevance of the project to Family Medicine from the Project Coordinator.

The Project Coordinator will discuss the project format and requirements with the resident on a regular basis and encourage the resident to adhere to the deadlines. In some cases the Project Coordinator may also be the Project Supervisor.

*I have agreed to be the Project Supervisor for this resident's project:

○ No
○ Yes

*Project Supervisor's full name:

[   ]

Proposed co-supervisor(s) full name, if applicable:

[   ]

*Are you, or one of the committee members for this resident project, a faculty member of Dalhousie's Department of Family Medicine?

○ No
○ Yes

*Type of project:

○ Clinical Education Tool
○ Literature Appraisal / EBM Review
○ Medical / Health Humanities
○ Medical Education Tool
○ Position Paper / Essay
○ Quality Improvement / Patient Safety
○ Research
○ Other (if "other" please elaborate in the comment box below.)

Comment section, if "other" was selected:

Research Ethics Board (REB) Application Status:

	n/a	No	Yes
*Will this project require REB approval?			

If "No," please explain why:

* indicates a mandatory response

Form-3: Project Progress Report

Please submit this one45 form no later than the first Tuesday in September of the PGY2 year.

*Project title:

*Type of project:

○ Clinical Education Tool

○ Literature Appraisal / EBM Review

○ Medical / Health Humanities

○ Medical Education Tool

○ Position Paper / Essay

○ Quality Improvement / Patient Safety

○ Research

○ Other (if "other" please elaborate in the comment box below.)

Comments:

*As the Project Supervisor, I have reviewed the progress of the resident project.

○ No

○ Yes

As the Project Co-Supervisor (if applicable), I have reviewed the progress of the resident project.

○ No

○ Yes

Research Ethics Board (REB) Application Status:

	n/a	No	Yes
*Will this project require REB approval?			

*Why, or why not?

	n/a	No	Yes
*If "Yes", has REB been obtained?			

If "No", what is the status/plan?

	n/a	No	Yes
*If "Yes", has REB been obtained?			

If "No", what is the status/plan?

The following will be displayed on forms where feedback is enabled...

* indicates a mandatory response

Form 4: Project Final Approval for Assessment.

Please submit this one45 form no later than the first Tuesday in January of the PGY2 year.

*Project Title:

[   ]

*As the Project Supervisor, I have reviewed and approved the final draft copy of the resident project for assessment:

○ No

○ Yes

As the Project Co-supervisor (if applicable), I have reviewed and approved the final draft copy of the resident project for assessment:

○ No

○ Yes

Comments:

Research Ethics Board (REB) Application Status:

	n/a	No	Yes
*Did this project require REB approval?			
*If yes, was REB obtained?	○	○	○

Resident: Assessor: Date:

Type of Project: ☐ Research Project   ☐ Practice Quality Improvement

	Outstanding (90-100)	Highly Acceptable (75 – 89)	Acceptable (60 – 74)	Requires Revisions (<59)	
Define Research Question	☐ Clear rationale for study question ☐ Clearly stated objectives ☐ Innovative nature of project	☐ Clear rationale for study question only ☐ Clearly stated objective ☐ Study was somewhat innovative (question previously asked but interesting aspects of authors' approach to the question)	☐ Research question defined but not innovative ☐ Objectives stated	☐ Research question not defined ☐ Objectives not stated	**/10**
Relevance to Family Medicine (including domain specific competencies required for awarding Certificates of Added Competence (CAC) by the College of Family Physicians)	YES: ☐ Study question appeals to the Family Medicine community ☐ Relevance to family medicine is identified and/or discussed ☐ The project may be linked to the principles of Family Medicine.			NO: ☐ Study question is of no interest to the Family Medicine community ☐ Relevance to Family Medicine not identified or	**YES/NO** *If "NO", return project to resident for revisions. Do not grade until satisfactory*
Background Literature Review	☐ Comprehensive literature review ☐ Differentiation of levels of evidence from different sources ☐ Recent evidence reviewed	☐ Adequate literature review ☐ Recent evidence reviewed but does not differentiate levels of evidence from different sources	☐ Brief/short literature review ☐ Limited, but adequate sources used	☐ Incomplete literature review ☐ Does not include recent evidence ☐ Does not differentiate levels of evidence from different sources	**/15**
Appropriateness of Study Design (to answer the research question)	☐ Study design is scientifically sound and answers study question ☐ Methods are clearly described with appropriate citation	☐ Study design is answers study question ☐ Methods are clearly described	☐ Study design answers the question, but more appropriate designs exist ☐ Methods would benefit from further explanation	☐ Study design does not adequately answer the study research question	**/15**
Appropriateness of Data Analysis	☐ The analysis answers the study question appropriately ☐ Well described statistical analysis and rational for	☐ The analysis answers the study question ☐ The rationale is explained	☐ The analysis somewhat answers the study question but another statistical approach would be more appropriate	☐ The analysis is not able to answer the study question ☐ Inappropriate statistical tests	**/15**

Research Project or Practice Quality Improvement Project

	Outstanding (90-100)	Highly Acceptable (75 – 89)	Acceptable (60 – 74)	Requires Revisions (<59)	
Results	◻ Results included and clearly presented ◻ Tables/Graphs were of high standard and appropriate	◻ Results included and clearly presented ◻ Tables/Graphs appropriate for the type of project	◻ Minimum level of results presented ◻ Basic Tables/Graphs presented	◻ Results inadequately presented	**/15**
Discussion / Conclusions	◻ Proper discussion of key findings, including strengths and limitations ◻ Comparison to similar studies in the literature ◻ Conclusions drawn reflect the results ◻ Discussion of next	◻ Discussion of key findings included ◻ Some discussion of strengths/limitations ◻ Comparison to similar studies in the literature	◻ Brief discussion of key findings ◻ Less thorough understanding of strengths / limitations ◻ Less thorough comparison to similar studies in the literature	◻ Lack of summary of key findings, strengths/limitations ◻ Lack of comparison to similar studies in the literature ◻ Conclusions go beyond the limitation of the research	**/20**
Quality of Language	YES: ◻ Clear and accurate word choice ◻ Selected appropriate academic vocabulary ◻ Well structured sentences ◻ Minimal spelling mistakes and sentence structure concerns			NO: ◻ Word choices invite misunderstanding or may give offence ◻ Use consistently poor	**YES/NO** *If "NO", return project to resident for revisions. Do not*
Organization	◻ Organized thoughts ◻ Smooth transitions ◻ Appropriate research project components	◻ Organized thoughts ◻ Appropriate research project components	◻ Fairly organized thoughts ◻ Appropriate research project components	◻ Missing key elements of research project components	**/10**
Proper Citation and Quality of	◻ Excellent citations ◻ Adequate number of references	◻ Very good citation ◻ Adequate number of references	◻ Good citation ◻ Adequate number of references	◻ Improper citation	**YES/NO**
Instructions: Judge level of achievement, based on the descriptors in the box and underline some descriptors for guidance or praise. "Requires Major Revisions" must include specific descriptors and comments to help the resident improve. Only provide a final grade for those in the ***Outstanding Highly Acceptable, and Acceptable*** range. Give grades to projects requiring revisions ***only after the revisions have been***					**/100**

Feedback *(please add additional pages when needed)***:**

Resident: Assessor: Date:

	Outstanding (90-100)	Highly Acceptable (75-89)	Acceptable (60-74)	Requires Revisions (<59)	
Identification of the Need for an Educational Tool	o Problem/topic clearly identified • ☐ Objectives for development of the Tool are richly stated	☐ Problem/topic clearly stated ☐ Objectives less richly stated	☐ Objectives not fully stated	☐ Problem not defined ☐ Objectives not stated	**/20**
Relevance to Family Medicine (including domain specific competencies required for awarding Certificates of Added Competence (CAC) by the College of Family Physicians)	YES: ☐ Question/Problem appeals to or is of interest or is potentially of interest to the Family Medicine community ☐ Relevance to family medicine is discussed or identified ☐ The project may be linked to the principles of Family Medicine.			NO: ☐ Question/Problem is of no interest to the Family Medicine community ☐ Relevance to Family Medicine not identified or approved	**YES/NO** *If "NO", return project to resident for revisions. Do not grade until satisfactory*
Information Gathering: Literature Review of the Identified Problem	☐ Rich description of the literature on the identified problem/topic	☐ Clear description of the literature on the identified problem/topic	☐ Literature review is basic, should include other sources	☐ Incomplete literature review to support the identified problem/topic	**/15**
Information Gathering: Researching Existing Tools	☐ Complete description of the literature on the value of existing Tools ☐ Clearly described existing Tools	☐ Some review of the literature on the value of existing Tools ☐ Less clearly described existing Tools	☐ Sparse/basic literature description on existing Tools	☐ Absent description of literature of existing Tools	**/15**
Methodology	☐ Development of the Tool clearly incorporates literature findings ☐ Includes thorough consideration of the applicability in practice of the Tool in Family Medical Education	☐ Development of the tool incorporates literature findings ☐ Includes consideration to the applicability in practice of the Tool in Family Medicine Education	☐ Partial incorporation of the literature findings ☐ Some consideration to the applicability in practice of the Tool in Family Medicine Education	☐ Inadequate incorporation of the literature findings ☐ Inadequate consideration to the applicability in practice of the Tool	**/20**

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Dalhousie Family Medicine Resident Project Assessment Rubric for
Clinical Educational Tool

	Outstanding (90-100)	Highly Acceptable (75-89)	Acceptable (60-74)	Requires Revisions (<59)	
Results and Discussion: The Completed Tool	☐ The Tool is of outstanding quality ☐ Practical application into practice is straightforward and well explained ☐ Rich discussion of the likelihood of use of the Tool and its impact	☐ The Tool is of high quality ☐ Practical application into practice is explained ☐ Discussion of the likelihood of use of the Tool and its impact	☐ Tool is of average quality ☐ Some explanation of application into practice ☐ Some discussion of the use of the Tool and its impact	☐ Poor quality Tool ☐ Minimal discussion of the practical application and the impact of Tool	**/20**
Quality of Language	YES: ☐ Clear and accurate word choice ☐ Selected appropriate academic vocabulary ☐ Well structured sentences ☐ Minimal spelling mistakes and sentence structure concerns ☐ Proofread adequately			NO: ☐ Word choices invite misunderstanding or may give offence ☐ Use consistently poor grammar and spelling	**YES/NO** *If "NO", return project to resident for revisions. Do not grade until satisfactory*
Organization	☐ Organized thoughts ☐ Excellent layout of Tool ☐ Appropriate Educational Tool project components	☐ Organized thoughts ☐ Appropriate Educational Tool project components	☐ Fairly organized thoughts ☐ Appropriate Educational Too project components	☐ Missing key elements of Educational Tool project components	**/10**
Proper citation & quality of references	☐ Excellent citations ☐ Adequate number of references	☐ Very good citation ☐ Adequate number of references	☐ Good citation ☐ Adequate number of references	☐ Improper citation	**YES/NO**
Instructions: Judge level of achievement, based on the descriptors in the box and underline some descriptors for guidance or praise. "Requires Major Revisions" must include specific descriptors and comments to help the resident improve. Only provide a final grade for those in the ***Outstanding Highly Acceptable, and Acceptable*** range. Give grades to projects requiring revisions ***only after the revisions have been satisfactorily completed***.					**/100**

Updated June 2019

Feedback *(please add additional pages when needed)***:**

Dalhousie Family Medicine Resident Project Assessment Rubric for
Medical Education Tool

Resident: Assessor: Date:

Type of Project: ☐   Medical Educational Tool (*please confirm*)

	Outstanding (90-100)	Highly Acceptable (75-89)	Acceptable (60-74)	Requires Revisions (<59)	
Identification of the Need for an Educational Tool	☐ Problem/topic clearly outlined ☐ Objectives for development of the Tool are richly stated ☐ Complete description of the need for the Tool and/or the value of existing similar Tools	☐ Problem/topic clearly stated ☐ Objectives less richly stated ☐ Clear description of the need for the Tool and/or the value of existing similar Tools	☐ Problem/topic stated ☐ Objectives not fully stated ☐ Brief description of the need for the Tool and/or the value of existing similar Tools	☐ Problem/topic not defined ☐ Objectives not stated ☐ Need for the Tool and/or the value of existing similar Tools not stated	**/20**
Relevance to Family Medicine	YES: ☐ Question appeals to or is of interest to or is potentially of interest to the Family Medicine community ☐ Relevance to family medicine is discussed or identified ☐ Linking the project to the principles of Family Medicine.			☐ Question/Problem is of no interest to the Family Medicine community ☐ Relevance to Family Medicine not identified or approved	**YES/NO**
Information Gathering: Literature Review of the Identified Problem	☐ Rich description of the literature on the identified problem/topic	☐ Clear description of the literature on the identified problem/topic	☐ Literature review is basic, should include other sources	☐ Incomplete literature review to support the identified problem/topic	**/15**
Methodology	☐ Development of the Tool clearly incorporates literature findings ☐ Includes a thorough consideration of the applicability of the Tool to the defined medical education setting to be utilized	☐ Development of the tool incorporates literature findings ☐ Includes consideration to the applicability of the Tool to the defined medical education setting to be utilized	☐ Partial incorporation of the literature findings ☐ Some consideration to the applicability of the Tool to the medical education defined setting to be utilized	☐ Inadequate incorporation of the literature findings ☐ Inadequate consideration to the applicability of the Tool to the defined medical education setting to be utilized	**/20**

Dalhousie Family Medicine Resident Project Assessment Rubric for
Medical Education Tool

	Outstanding (90-100)	Highly Acceptable (75-89)	Acceptable (60-74)	Requires Revisions (<59)	
Results and Discussion: The Completed Tool	☐ The Tool is of outstanding quality ☐ Practical application is straightforward and well explained ☐ Rich discussion of the likelihood of use of the Tool and its impact	☐ The Tool of highly acceptable quality ☐ Practical application is explained ☐ Discussion of the likelihood of use of the Tool and its impact	☐ Tool is of average quality ☐ Some explanation of application ☐ Some discussion of the likelihood use of the Tool and its impact	☐ Poor quality Tool ☐ Minimal discussion of the practical application and the impact of Tool	**/25**
Achievement of Goals/ Objectives	☐ The Tool is exceptional in meeting the stated objectives for the defined medical education setting	☐ The Tool highly achieves the stated objectives for the defined medical education setting	☐ The Tool meets the stated objectives for the defined medical education setting	☐ The Tool does not meet the stated objectives for the defined medical education	**/10**
Quality of Language.	YES: ☐ Clear and accurate word choice ☐ Selected appropriate academic vocabulary ☐ Well structured sentences ☐ Minimal spelling mistakes and sentence structure concerns ☐ Proofread adequately			☐ Word choices invite misunderstanding or give offence; use consistently poor grammar and spelling	**YES/NO**
Organization	☐ Organized thoughts ☐ Excellent layout of Tool ☐ Appropriate Educational Tool project components	☐ Organized thoughts ☐ Appropriate Educational Tool project components	☐ Fairly organized thoughts ☐ Appropriate Educational Too project components	☐ Missing key elements of Educational Tool project components	**/10**
Proper citation & quality of references	☐ Excellent citations ☐ Adequate number of references	☐ Very good citation ☐ Adequate number of references	☐ Good citation ☐ Adequate number of references	☐ Improper citation	**YES/NO**
Instructions: Judge level of achievement, based on the descriptors in the box and underline some descriptors for guidance or praise. "Requires Major Revisions" must include specific descriptors and comments to help the resident improve. Only provide a final grade for those in the **Outstanding Highly Acceptable, and Acceptable** range. Give grades to projects requiring revisions **only after the revisions have been satisfactorily completed**.					**/100**

Updated June 2019

Feedback (*please add additional pages when needed*)**:**

Resident: Assessor: Date:

Type of Project: ☐ Literature Review   ☐ Position Paper.

	Outstanding (90-100)	Highly Acceptable (75-89)	Acceptable (60-74)	Requires Revisions (<59)	
Define question/thesis or presenting case	☐ Original question/thesis/ position presented ☐ Demonstrates the significance of the question with strong rationale ☐ Uses rich detail and identifies perceptively what is at issue	☐ Clear question/thesis/position presented ☐ Demonstrates judgment in the rationale for the importance of the question ☐ Identifies some significant points	☐ Less clear definition of the topic and question ☐ Further discussion regarding the rationale for the importance of the topic needed	☐ Vague topic presented ☐ Poorly thought-out rationale ☐ Does not match the project that was carried out	/20
Relevance to Family Medicine (including domain specific competencies required for awarding Certificates of Added Competence (CAC) by the College of Family Physicians)	YES: ☐ Question appeals to or is of interest to or is potentially of interest to the Family Medicine community ☐ Relevance to family medicine is discussed or identified ☐ Linking the project to the principles of Family Medicine.			NO: ☐ Question is of no interest to the Family Medicine community ☐ Relevance to Family Medicine not identified or approved	**YES/NO** *If "NO", return project to resident for revisions. Do not grade until satisfactory*
Researching/ Information gathering	☐ Conducted a comprehensive and recent review of the literature ☐ Clear and structured approach; inclusion / exclusion criteria identified ☐ Judiciously selected important sources to focus on; reject or qualify less reliable sources.	☐ Variety of sources used ☐ Inclusion / exclusion criteria identified ☐ Well-chosen sources according to clear criteria as appropriate ☐ Balanced in perspectives; take into account strengths and limitations of sources.	☐ Did not present the most relevant sources ☐ Could be more balanced in the source used ☐ Takes account of pitfalls in some sources.	☐ Fails to make use of appropriate literature ☐ Makes use of unreliable sources.	/20
Presenting and evaluating sources/others' perspectives	☐ Summarized diverse literature/views accurately and fairly ☐ Consistently focusses on the most central and significant ideas ☐ Critically evaluated sources/perspectives in a precise/nuanced manner	☐ Summarized other's view fairly, with few errors ☐ Used appropriate methodologies/standards for critique ☐ Balanced detail with focus in summary and/or critique	☐ Needs to be more fair in summarizing the views of others ☐ Should be more focused and/or fair in the criticisms ☐ Should be more judicious in honing in on what is important	☐ Presented others' view in inaccurate or unfair ways ☐ Fails to apply reasonable standards of rigour in evaluating evidence	/25

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	Outstanding (90-100)	Highly Acceptable (75-89)	Acceptable (60-74)	Requires Revisions (<59)	
Applying sources; reaching conclusions, resolving case, proving thesis	☐ Successfully synthesized and weighed diverse kinds of evidence ☐ Provided a compelling argument/evidence for conclusion, and/or a conclusion that is appropriately qualified given the	☐ Drew plausible conclusion from the evidence and arguments ☐ Demonstrated some ability to synthesize and or evaluate diverse evidence	☐ Should improve the argument(s) provided ☐ Recommend getting more comfortable in evaluating and synthesizing information/ reaching clear conclusion	☐ Project fails to support views with evidence and arguments ☐ Poor synthesizing of information and reaching conclusions	**/25**
Organization	☐ Organized thoughts ☐ Smooth transitions ☐ Appropriate literature/position paper project components	☐ Organized thoughts ☐ Appropriate literature review/position paper project components	☐ Fairly organized thoughts ☐ Appropriate literature review/position paper project components	☐ Missing key elements of literature review/position paper project components	**/10**
Quality of Language	YES: ☐ Clear and accurate word choice ☐ Selected appropriate academic vocabulary ☐ Well structured sentences ☐ Minimal spelling mistakes and sentence structure concerns ☐ Proofread adequately			NO: ☐ Word choices invite misunderstanding or may give offence ☐ Use consistently poor grammar and spelling	**YES/NO** *If "NO", return project to resident for revisions. Do not grade until satisfactory*
Proper citation & quality of references	YES: ☐ Proper citations ☐ Adequate number of references			NO: ☐ Improper citation	**YES/NO**
Instructions: Judge level of achievement, based on the descriptors in the box and underline some descriptors for guidance or praise. "Requires Major Revisions" must include specific descriptors and comments to help the resident improve. Only provide a final grade for those in the ***Outstanding Highly Acceptable, and Acceptable*** range. Give grades to projects requiring revisions ***only after the revisions have been satisfactorily completed***.					**/100**

Feedback *(please add additional pages when needed)*:

Dalhousie Family Medicine Resident Project Assessment Rubric for
Medical/Health Humanities

	Outstanding	Highly Acceptable	Acceptable	Requires Revisions	
Identification of the Need for Humanities Project	☐ Problem/topic clearly outlined, originality, creativity ☐ Objectives for development of project are richly stated ☐ Complete description of the need for this project and / or a description of existing/similar projects	☐ Problem/ topic clearly stated, originality, creativity ☐ Objectives less richly stated ☐ Clear description of the need for the tool and/or the value of existing / similar projects	☐ Problem/ topic stated ☐ Objectives not fully stated ☐ brief description of the need for the project and/or the value of existing projects	☐ Problem/topic not defined ☐ Objectives not stated ☐ need for the tool and/or the value of existing similar tools not stated	/20
Relevance to Family Medicine	YES: ☐ Problem/topic appeals to or is of interest to the family medicine community, student learned from experience, open to learning, independent worker, took initiative			NO: ☐ Problem/topic is of no interest to the family medicine community ☐ Relevance to family medicine not identified or approved	YES / NO
Information-gathering: literature review of the identified problem	☐ Thorough description of literature review of the value of existing humanities projects ☐ Clear description of existing projects ☐ Critical evaluation of evidence and certainty of conclusions	☐ Some review of the literature ☐ Less clear description of existing projects ☐ Limited assessment of strength of evidence and certainty of conclusions	☐ Sparse/basic literature review ☐ Minimal statement about strength of evidence and certainty of conclusions	☐ Incomplete literature review to support the identified problem / topic ☐ No mention of strength of evidence and certainty of conclusions	/15
Achievement of Goals / Objectives	☐ The project is exceptional in meeting the stated objectives for the defined health setting	☐ The project highly achieves the stated objectives for the defined health setting	☐ The project meets the stated objectives for the defined health setting	☐ The project does not meet the stated objectives for the defined health setting	/10
Results and Discussion: The completed	**Results** ☐ The results were extremely well-presented and of high quality ☐ The presentation was	**Results** ☐ The results were well-presented and of good quality ☐ The presentation was	**Results** ☐ The results were adequately presented and of acceptable quality	**Results** ☐ The results were inadequately presented and not of acceptable quality	/25

	Outstanding (90-100)	Highly acceptable (75-89)	Acceptable (60-74)	Requires revisions (<59)	
Humanities Project	meaningful and engaging **Discussion** ☐ Insightful, very detailed ☐ Rich discussion of how the project connects to the literature ☐ Identifies strengths and limitations ☐ A rigorous discussion of implications for practice and further development	meaningful and engaging **Discussion** ☐ Insightful, less detailed ☐ Some discussion of how the project connects to the literature ☐ Identifies strengths and limitations ☐ Some discussion of implications for practice and further development	☐ The presentation was less meaningful and engaging **Discussion** ☐ Minimal insights and detail ☐ Limited discussion of how the project connects to the literature ☐ Limited discussion of strengths and limitations ☐ Limited discussion of implications for practice and further development	☐ The presentation was not meaningful nor engaging **Discussion** ☐ Insufficient insights and detail ☐ Insufficient discussion of how the project connects to the literature ☐ Insufficient discussion of strengths and limitations ☐ Insufficient discussion of implications for practice and further development	

Quality of language	YES
	   ☐ clear and accurate word choice
	   ☐ selected appropriate academic vocabulary
	   ☐ well-structured sentences
	   ☐ minimal spelling mistakes and sentence structure concerns
	   ☐ proofread adequately
	   ☐ cultural and identity sensitivity as appropriate
				NO
				☐ Word choices invite misunderstanding, consistently poor grammar and spelling, insensitive to culture and/or identity
					YES/ NO

Organization	☐ Organized thoughts and high level of clarity ☐ Project has excellent layout ☐ Includes appropriate components	☐ Organized thoughts ☐ Appropriate components	☐ Fairly organized thoughts ☐ Appropriate components but lacking in clarity	☐ Missing key elements of project components	/10
Proper citation and quality of references	☐ Excellent citations ☐ Appropriate number of resources	☐ Very good citation ☐ Adequate number of references	☐ Good citation ☐ Adequate number of references	☐ Improper citation	YES/ NO
RESULTS	**Outstanding (90-100)**	**Highly acceptable (75-89)**	**Acceptable (60-74)**	**Requires revisions (<59)**	
Instructions: Judge level of achievement, based on the descriptors in the box and underline some descriptors for guidance or praise. "Requires Major Revisions" must include specific descriptors and comments to help the resident improve. Only provide a final grade for those in the ***Outstanding Highly Acceptable, and Acceptable*** range. Give grades to projects requiring revisions ***only after the revisions have been satisfactorily completed***.					/100

Guide on How to Organize Resident Projects Based on Type of Project

	Research	Practice Quality Improvement/Audit	Position Paper / Essay	Educational Tool	Literature Appraisal / EBM Review	Heath Humanities
Cover Page: 1 page	Must include project title, author's name, name(s) of co-author(s) (if applicable), site, name(s) of Project Supervisor(s), type of project, and date.					
Abstract: ½ page	Summary of all the sections using the headings in the left column					
Introduction: ½ to 1 page	Summary of background literature and state research question. State objective(s) or hypothesis(es)	Summary of background literature and state research question. State objective(s).	Summary of background literature and the position that will be taken. State objective(s).	Summary of background literature and provide evidence for relevance and indicate gaps. State objective(s).	Summary of background to topic for literature appraisal and state research question. State objective(s).	Summary of background literature and provide evidence for relevance and gaps. State objective(s).
Study Design / Method: 1 to 2 pages	Describe study methods.	Describe study methods, inclusion and exclusion criteria.	Provide brief description of evidence development to support position (literature review).	Provide methodology for educational too development, audience focus, visuals, language level, tool choice (paper, video), etc.	Describe how review was conducted, data-bases searched, terms used for searches and inclusion/ exclusion criteria used. Method applied for appraisal.	Provide methodology for project development, audience focus, visuals, language level, medium choice (paper, video) etc. Describing the art form that was chosen and why.
Results: 3 to 5 pages	Present findings from data.	Present findings from data and describe the strength of the findings.	Detail position in relation to literature/ evidence and, if appropriate, make recommendations or describe the meaning of the position and identify implications for practice and	Statements need to be grounded in the literature. Describe the tool and how to implement it. Provide the tool in appendix. Identify implications for research.	Summarize findings including evidence strength.	Inclusion of the humanities piece with a description.
Discussion: 2 to 3 pages	Synthesize/ interpret findings, link back to literature, identify implications for practice and research.	Synthesize the data and identify implications for practice and research.			Synthesize the literature, create meaning, and identify implications for practice and research.	Synthesize/reflect on the piece, link back to literature, identify implication for practice and research.
Strengths/ Limitations: ½ page	Share limitations and highlight advantages and disadvantages of the data/literature					
Conclusion: ½ page	Summarize the results					
References	References should be appropriate, relevant, and the style should be consistent.					

Tips and Tricks When Doing a
Family Medicine Resident Research Project

Conducting research for your resident project can be rewarding and challenging. The following is intended to provide guidance and suggest resources to help with the research endeavor so you can competently complete your project with the time and resources you are prepared to expend. This guide is divided into 5 Steps:

Step 1: Select a topic, identify the research problem, and state a clear research question.
Step 2: Choose a research method.
Step 3: Find an appropriate supervisor.
Step 4: Write a research proposal.
Step 5: Ask the expert.

Step 1: Select a topic, identify the research problem, and state a clear research question.

Topic requirements are:
- It needs a strong relationship to family medicine
- You need to be curious/passionate about it
- It needs to address a gap in the research literature
- It needs to be doable within the allotted time and your skill set

Identifying your research problem/research question:
Selecting your research question can be one of the most agonizing and critical steps in developing a solid research study. It defines your whole process, from what background literature you need to read, guiding what method you should use, analysis required, and the findings to report in order to answer the question. Your question should be clear, focused, concise, complex and arguable. This will take time. Step away from your computer; consider what drew you to your topic. What about it animates and matters to you? Listen to yourself and start formulating your question by following your own interests. Remember, you will spend a lot of time researching and writing about the proposed project: if it does not interest you in the beginning, it will certainly become very difficult to write about in the end.

Next, extensively research your topic. What have experts published in peer reviewed journals? How have they framed their research? What gaps, contradictions, or concerns arise for you as you read, talk to people, and visit places? Would doing a local project using existing studies enhance knowledge? Consult the literature! If you aren't sure how to do this, consult a subject librarian: http://util.library.dal.ca/Subspecialists/ and/or a subject matter expert.

Formulating your Research Question
- Conduct a preliminary literature review of the topic area to help frame the research question
- The question needs to be specific and answerable within your time frame
- Is your question adding something new to what is already known?   Is it addressing local relevance?
- Formulate two or three research objectives that will answer the question

Think, Consider and Estimate
- be sure of the feasibility of your study

Edit Your Writing
- choose your words carefully
- rewrite, rewrite, rewrite
- keep your sentences short

Too broad: *How are doctors addressing diabetes in Canada.?*

Appropriately Specific *What are common traits of those suffering from diabetes in Canada, and how can these commonalities be used to aid the medical community in prevention of the disease?*

The simple version of this question can be looked up online and answered in a few factual sentences; it leaves no room for analysis. The more complex version is written in two parts; it is thought provoking and requires both significant investigation and evaluation from the writer. As a general rule of thumb, if a quick Google search can answer a research question, it's likely not very effective.

Step 2: Choose a research method.

There are several methods to choose from for conducting research. They broadly group into qualitative studies, quantitative studies and evidence review. Mixed methods studies draw on both qualitative and quantitative methodologies because they are complementary.

Qualitative Research
- Qualitative research focuses on the interpretation of a situation, a set of behaviors, or a setting.
- Collects large amount of data from a small number of individuals, usually through interviews, analyzed to identify themes.
- Used to understand people's experiences in much greater depth than is possible with quantitative research.
- Qualitative data is analyzed using thematic techniques.
- Methodology examples include: ethnography, narrative, phenomenological, grounded theory and case studies.
- Examples include: interviewing patients to understand how they experience a disorder or health system approach, or interviewing health care providers to understand how they view a clinical tool or their experience of medical education, or describing a series of cases with a similar type of health issue.

Quantitative Research
- Quantitative research measures characteristics of a population or phenomenon of interest.
- Collects data from larger number of individuals through surveys or existing or prospectively collected data sets.
- Quantitative data is analyzed using statistical analyses with tests of statistical significance.
- Methodology examples include: population surveys to measure prevalence of a disorder or implementation of a clinical tool, observational studies using clinical or administrative data sets, or randomized controlled trials of the efficacy and safety of treatments.
- Examples include: Identifying correlates of suicide, evaluating measures to prevent suicide, or determining the benefit/risk of a medication to treat a disorder.

Step 3: Find an appropriate supervisor.

A supervisor should be interested in your project and available to guide you. If you are having trouble finding one, talk to your resident project site coordinator.

Step 4: Write a research proposal. This will also be required for ethics REB approval.

A research proposal is a study plan that is to be followed in the course of a research study. It is important for you to understand your objectives, method, analysis plan, any budgetary requirements, as well as how prepared you are to do the work required and if you have the needed skills. From this you can identify where you will need assistance.

Research proposal sections:

1. One paragraph **introduction** to your research question/problem, why this is important to study, relevance to family medicine. A good first line of a research proposal begins: "The research objective of this proposal is…"

2. Write a **more in-depth introduction**. After you have identified a pertinent problem and framed a purpose statement, then you need to craft an introduction. Among other things, the introduction to the proposal will include:
    a. The problem statement
    b. A brief summary of the literature
    c. A brief description of any gaps in the literature
    d. A Purpose statement as to why you are proposing the study and why others should care about the subject matter of your research proposal.

3. **Background/literature review**. Frame your project around the work of others. Remember that research builds on the extant knowledge base, that is, upon the **peer reviewed published work of others**. Be sure to frame your project appropriately, acknowledging the current limits of knowledge and making clear your contribution to the extension of these limits. Be sure that you include references to the work of others. Also frame your study in terms of its broader impact to the field and to society. Ex. "If successful, the benefits of this research will be…"

4. **Methods**. Determine the Method of Investigation. The method section is the second of the two main parts of the research proposal. In good academic writing it is important to include a method section that outlines the procedures you will follow to complete your proposed study. Many scholars have written about the different types of research methods in articles and textbooks. It is a good idea to site the method and provide a reference. The method section generally includes sections on the following:
    a. Research design;
    b. Sample size and characteristics of the proposed sample;
    c. Data collection and data analysis procedures

5. **Determine the Research Design**
    a. The next step in good academic writing is to outline the research design of the research proposal. For each part of the design, it is highly advised that you describe two or three possible alternatives and then tell why you propose the particular design you chose. For instance, you might describe the differences between experimental, quasi-experimental, and non-experimental designs before you elaborate on why you propose a non-experimental design.

b. Determine the Sample Size and the Characteristics of the Sample. There are several free online sample size calculators, though you will need a basic understand of statistics to know how to use and interpret them. Some sites include:

> http://www.stat.ubc.ca/~rollin/stats/ssize/
> http://www.raosoft.com/samplesize.html
> http://homepage.stat.uiowa.edu/~rlenth/Power/

c. In this section of your research proposal, you will describe the sample size and the characteristics of the participants in the sample size. Describe how you determined how many people to include in the study and what attributes they have which make them uniquely suitable for the study.

6. **Determine the Data Collection and Data Analysis Procedures**
   a. In this section you will describe how you propose to collect your data e.g. through a questionnaire survey if you are performing a quantitative analysis or through one-on-one interviews if you are performing a qualitative or mixed methods study.
   b. After you collect the data, you also need to follow a scheme as how to analyze the data and report the results. In a quantitative study you might run the data through Mintab, Excel or better yet SPSS, and if you are proposing a qualitative study you might use a certain computer program like ATLAS.to to perform your analysis using a specific qualitative approach such as a narrative study, grounded theory study, or framework analysis, that exposes the main themes from the proposed interviews (see Tips and Tricks on Statistics).

7. **Software and analysis: There are several options for creating a database, cleaning your data and conducting your analysis.**
   Free analysis software is available through Dalhousie.   Minitab and SPSS for quantitative analyses and NVivo is used for qualitative analyses.   They are found here: https://software.library.dal.ca/index.php .   User guides and tutorials can be found here: http://www.minitab.com/en-CA/training/ . Additionally, students familiar with conducting statistics in Excel can download the free add-on package to a windows suite. However, reviews demonstrate that Excel has many issues handling data correctly for analysis and is not as user-friendly as Minitab.

8. **Ethics.** You will need to address any ethical considerations and how they will be dealt with including confidentiality, data storage etc. If Research Ethics Board (REB) approval is required for your study, you should check the website for the relevant REB review. Each site has its own REB process.

Step 5: Ask the experts.

Review your proposal with your supervisor and resident project site coordinator. Depending on your research needs, you may also consult with the Research Methods Unit (RMU) at Dalhousie University. An initial consultation is free, although there may be a fee if further assistance is required. Early consultation can help you avoid costly mistakes.

Consider using the ARECCI tool when determining whether REB approval is required.
http://www.aihealthsolutions.ca/arecci/screening/454024/c70dc912039757098791042568de7c6e

Tips and Tricks when Applying to a Research Ethics Board (REB) for a Family Medicine Resident Project

- When collecting data for a resident (research) project involving human beings, an ethics review from a recognized **Research Ethics Board (REB)** is required**.**

- This application requires a proposal with a brief background, methods and data analysis section. In addition, the REB is particularly interested in the **consent process** regarding research participants. It is paramount that research participants are volunteers, who are fully aware to what they consenting.

- The Tri-Council - Canadian Institutes for Health Research (CIHR), Social Science and Humanities (SSHRC) and National Science and Engineering Research Council (NSERC) – has developed a joint research ethics policy.   See this link for the entire policy:

     http://www.pre.ethics.gc.ca/pdf/eng/tcps2/TCPS_2_FINAL_W eb.pdf

  The Tri-Council states:
  REBs shall consider whether information is identifiable or non- identifiable. Information is identifiable if it, alone or when combined with other available information, may reasonably be expected to identify an individual. The term "personal information" generally denotes identifiable information about an individual.

  However, there are some exceptions. The Tri-Council states:
  Research that relies exclusively on publicly available information does not require an REB review when: (a) the information is legally accessible to the public and appropriately protected by law; or (b) the information is publicly accessible and there is no reasonable expectation of privacy.

- Chart reviews, or chart audits, usually require REB approval when the resident is planning to discuss the results publicly (Resident Project Day).

- Many resident projects are considered "minimally invasive" and they may qualify for an "expedited review." An expedited review usually takes between 3 to 4 weeks, while a full review may take up to 2 months.

- After REB approval has been obtained, no changes to the research instruments or recruitment strategy can be made. If that is required, the REB needs to be informed.

- Each family medicine resident, who requires REB approval, needs to obtain it in the province, or hospital, of their residency.

- Here are some links for REB websites in various provinces that residents can access for a specific REB application information and forms (each institute has a different process).

     New Brunswick
     https://en.horizonnb.ca/home/research/research-ethics-board.aspx

     http://www.mta.ca/reb/Vitalite%20Guide%20Feb%202011%20English.pdf

     Prince Edward Island
     http://www.healthpei.ca/reb

Nova Scotia

www.cdha.nshealth.ca/discovery-innovation-29

https://www.cdha.nshealth.ca/discovery-innovation/ethics

https://www.dal.ca/dept/research-services/responsible-conduct-/research-ethics-.html

- Please consult with your **resident project site coordinator** regarding the need for an REB application and how to go about it.

Tips and Tricks When Doing Statistics
Family Medicine Resident Project

If you want to do a resident project that involves collecting data and requires statistical analysis, here are some tips of how you can go about that. Keep in mind that you are responsible for doing the work, and should be prepared to know how to collect data, enter data, run your own analysis and interpret your findings, though some resources are available to assist you.

ASSISTANCE RESOURCES:

BEFORE you start collecting data, find somebody you can discuss your plan and statistical needs with. It could be your project supervisor, your resident project site coordinator and/or somebody else who can help you who is experienced with statistics. Resident project site coordinators can help you find someone to assist you. Also, the Dalhousie University Research Methods Unit (see below) can be consulted. There will likely be a cost associated with receiving assistance, and these should be appropriately budgeted. Each resident has access to $50 towards their resident project. Additional funds would require an application with proposal and budget to your resident project site coordinator. Funding is at the discretion of the Department.

Dalhousie Research Methods Unit
If you need more sophisticated help you can consult with the Dalhousie Research Methods Unit http://www.cdha.nshealth.ca/discovery-innovation/research-methods-unit. The initial consultation with them is free.

Software Resources
Several software packages are available to assist with statistical analysis and they often have helpful tutorials. Here are some examples:

MINITAB
Minitab is likely the easiest solution to your statistical software needs. You can directly enter your data in Minitab or import from excel. This program is free of charge from the Dalhousie website; http://its.dal.ca/helpdesk/licences.html (not for MAC users). Minitab is useful for basic statistics, regression, ANOVA, reliability and survival analysis.

Here is a YouTube getting started video: http://www.youtube.com/watch?v=Ql88ytNBNgw
Or tutorials from Minitab: http://www.minitab.com/en-GB/training/tutorials/default.aspx

SPSS
Statistical Package for Social Sciences (SPSS) is a popular statistical analysis program that is fairly easy to learn with several resources available. All Dalhousie University faculty and learners can download SPSS programs. Resident project site coordinators can sometimes assist in finding access to a computer with SPSS.

Microsoft Excel
Microsoft Excel is included in most MS office suites and can be used to conduct some basic statistics and creates attractive charts and graphs. However, a quick Google search will provide concerns as the reliability of its statistical analysis accuracy, so use with caution. You can use Microsoft Excel sheets to enter data. These Excel sheets can be easily imported to the statistical package Minitab. In theory you can also import the Excel data sheet in SPSS but it has caused some problems in the past.

There are several videos and other supports found online.

Statistical Analysis Software (SAS)

If you require more advanced statistical techniques than the above options provide, you may want to use SAS or STATA, and unless you have advanced training and experience, you will likely need to hire assistance. It is recommended you consult with your supervisor, resident project site coordinator and/or the Research Methods Unit.

R

R is free software for statistical computing and graphics. It compiles and runs on a wide variety of platforms such as Windows and MacOS. You can download from http://www.r-project.org/

Tips and Tricks When Creating an Educational Tool
Family Medicine Resident Project

Before you start thinking about developing an educational tool, you need to consult the literature to find out the following:
- Does a tool already exist?
- Could you revise an existing tool?
- Could you adopt an existing tool to local conditions?

If no educational tool exists for what you want to do, go back to the literature. Remember, an educational tool's information has to be grounded in the scientific literature.

Also, if you select an educational tool as your resident project, it needs to be accompanied by a literature review paper. The purpose of this is that the reviewer can assess that the information in the educational tool is scientifically sound.

Once you have determined that you want to create your own educational tool, you need to consider the following:
- Who is your audience?
- What is the message you want to provide?
- What is the medium you want to use for the educational tool?
  - Paper, Internet, Video etc.
    - Do you have easy access to such mediums?
- What reading level should you aim for? (readability)
- Should the tool be interactive, passive?
- Consider the cost of an educational tool?
  - Do you need professionals to help with the design and what is the cost?
  - Are you going to distribute the tool and how many copies and what is the cost?

Also, you need to consider if you will test your tool on the target audience. Even a small pilot test may inform you about the readability and validity of the educational tool.

An educational tool should be
- Fun
- Visually compelling
- Use images
- Limit text
- Make your material easy to understand
- Create a "story" plot

Some references that may be of interest:

http://www.ncbi.nlm.nih.gov/pubmed/23044857

http://www.ncbi.nlm.nih.gov/pubmed/22720382

http://www.ncbi.nlm.nih.gov/pubmed/21070533

Tips and Tricks When Doing a Health Humanities
Family Medicine Resident Project

This stream involves two main components:
1) **A paper:** including a Cover Page, Abstract, Introduction, Methods, Results and Discussion, Strength and Limitations, Conclusion
2) **The artistic piece**: included in the results section

The health humanities are a burgeoning stream of scholarship that involve areas connected to, but not limited to, the field of medicine. Your project may explore themes such as compassion, ethics or lived experience. It will involve the creation of an original piece of work, which may take the form of writing, audio, film, visual art, or music, for example. In the Introduction, you may choose to describe your inspiration for the project. This is optional.

EXAMPLES:
- Exploring the social determinants of health using photography
- Podcast about understanding patient values in diagnosis and recommending therapy
- The use of the visual arts to affect public health policy
- A multimedia project (e.g., video or blog) about women's health
- Create a musical composition based on prior published evidence for using therapy in the treatment of children with autism spectrum disorder
- The use of visual art in understanding the patient experience with mental illness, then creates a visual art piece reflecting their understanding.

These are just a few examples to launch your creativity.

For the methodology section, be sure to include the steps taken in creation of your final piece. If, for example, you are making a podcast, describe the steps involved in the production process (e.g., arranging interviews, construction of interview questions, recording technique, use of editing software). For music, the process of songwriting and what influenced your choice of musical style and lyrics could be explained. For a piece of visual art, you could explain the art-making process, your choice of media and colour and what they hope to portray by making these choices.

Sharing humanities projects publicly would be encouraged, whether as an art installation, publication in the Humanities section of a medical journal or live reading of a short story.

Your methodology section also needs to explain the rationale for your choice of medium of expression.

Ethics and Confidentiality. Humanities projects are not exempt from ethics review. If your scholarship involves human subjects, you must propose your project to the appropriate Research Ethics Board for your site.

As within clinical practice, protecting confidentiality is paramount. It is key when considering a humanities-related project. If writing a story based on an actual patient experience, for example, you would change the name, gender and clinical scenario so that the patient cannot be identified. If pursuing a photography-based project, capturing identifying images without an individual's consent is not permitted.

The following websites may help you learn more about the health humanities:

Art for the Sake of Medicine (an article by Dr. Sarah Fraser about why the health humanities are important)   https://www.cfp.ca/content/64/10/760

Canadian Association of Health Humanities: https://www.cahh.ca/

Tips and Tricks When Doing a Literature Review
Family Medicine Resident Project

Literature reviews are used to systematically and critically evaluate available evidence as a basis for practice or further research. Examples include reviewing evidence for the effectiveness of a drug, the causes of a physical or mental health problem, or barriers and facilitators that patients experience in accessing health care. When doing a literature review project, you need to adhere to some conventions.   Before you start you may find it helpful to consult with a university/hospital librarian or a subject matter expert on how best to access resources for the literature review.

1) Research question has to be relevant to family medicine.
2) Search for original primary papers (not reviews) published in peer-reviewed journals. If you include other types of evidence, provide a rationale. Obtain and review whole papers, not just abstracts.
3) Assess the strength of evidence of the studies you are reviewing, using an approach appropriate to the type of research question (see Basic Evidence Levels for Treatments).
4) Create a table to summarize your findings with respect to the research question and objectives (see Sample Table).
5) Do not repeat word for word in the text what you have in the tables: they should be complementary
6) Use the same outline as a regular scientific study.

   a. Introduction: why did you want to do this project

   b. Background: set up the research question by reviewing what has been

   published on the topic and explain the rationale for your review.

   i. Finish the section with a clear research question and 1-3

   objectives designed to answer the question.

   c. Methods need to include the following:

   i. Search terms

   ii. Inclusion and exclusion criteria.

   iii. Citation databases searched - e.g. PubMed. List other sources if used.

   iv. Number of articles pulled and ultimately reviewed.

   vii. Method of analyzing the literature collected. Examples include narrative review pointing out findings, level of evidence and basic strengths and limitations for each study; or systematic review using formal procedures to categorize strength of evidence and certainty of conclusions (e.g. GRADE); or statistical meta-analyses of data obtained from published studies combined with formal assessment of strength of evidence and certainty of conclusions.

   a. In the discussion, describe the strengths and limitations of each article and synthesize the data in the context of published literature. Use subtitles to help the reader. Answer the objectives to answer the research question.

   b. In the conclusion pull it all together. No new information should be added. Draw conclusions and point out implications for practice and further research. Make an overall statement regarding strength of evidence and certainty of conclusions.

   c. Acknowledgments: supervisor and others that may have helped you.

   d. Use a standard bibliography format and do not mix bibliography styles.

LEVELS OF EVIDENCE

Level of Evidence	Study Design	Definition	*How does sleeping with a bottle of juice versus a bottle of water affect children's dental hygiene?*
1	Randomized Control Trials (RCTs)	RCTs are considered the most reliable form of scientific evidence. They involve the random assignment of participants to interventions and controls.	A group of children are randomly selected from the general population (each child has the same likelihood of being selected as all the others). This group is then randomly divided into two groups (A and B). Again, each child has an equal chance of being placed in either group. Group A is given a bottle of juice to sleep with at night. Group B is given a bottle of water to sleep with at night. The effect on the children's teeth is monitored for a set amount of time.
2	Cohort Studies	A Cohort Study is a study in which participants who presently have a certain condition and/or receive a particular treatment are followed over time. They are then compared with another group who are not affected by the condition.	A group of children who have poor dental health are followed across time. The habit of sleeping with a bottle of juice or water of the poor dental health group is compared to the sleep habits of a control group.
	Ecological/ Epidemiological Studies	Ecological studies look for associations between the occurrence of disease and exposure to known or suspected causes. The unit of observation is the population or community and may be defined in various ways.	Children with poor dental health are identified. Then correlations are made between (a) sleeping with a bottle of juice and dental health and (b) sleeping with a bottle of water and dental health.
3	Case-Controlled Studies	Case-control studies are a frequently used in epidemiological studies. Case-control studies compare participants who have a specific condition with participants who do not have the condition. Otherwise similar in order to identify factors that may contribute to the condition of interest.	Comparing children with poor dental health, with those who have good dental health who are the same age, ethnicity, socio-economic background, number of dental check-ups, etc.
	Non-Randomized Control Trials	The participants and interventions are not randomly assigned.	The first 50 to volunteer are instructed to have their child sleep with a bottle of juice, with the last 50 volunteers are instructed to have their child sleep with a bottle of water.
4	Case-Series	A number of individual cases of a particular condition are identified and followed individually over time.	Ten cases of poor dental hygiene in children are identified and intensely followed for a set amount of time.
5	Expert Opinion	The opinion of a professional who is considered an expert in their field.	The advice/opinion of a dentist who specializes in children's oral health and who has worked in the field for a long period of time.

SAMPLE PAPER OUTLINE

A review of evidence in support of school-based health promotion programs[1]

Introduction (1/2 – 1 page)

Background (1 page)
        Obesity
        Why school-based programs?

Research Question
        What are the features of a successful school-based health program?

Methods (1/2 – 1page)

Results (4 – 5 pages)
        Features of successful programs
                Peer-led
                Collaborative – community
                Dedicated school health coordinators
                Incorporates national/provincial/regional guidelines
                Parents as integral part of program and source of support for children
                Role of family doctors in the school-based health program model
                Gender and other subgroup analysis

Discussion (4 – 5 pages)

Conclusion (1 page)

Acknowledgement

Bibliography

Tables
        The table becomes the central piece of your review.
        Do not repeat what is in the table in the text, but describe it in general
        terms.

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[3] Dr. Kappagantula provided permission to use her resident project as a sample project outline and literature review table.

Sample Table for a Literature Review

Author	Design	n	Variables	Results	Limitations
Bjelland et al.	RCT	14 65	Sugared beverage intake, sedentary behaviour	Preventive initiatives more effective in girls, need to study gender subgroups	Crude estimates of sedentary behaviours, sampling bias, social desirability in data
Brown T, Summerbell C.	Literature Review	38	Weight outcome	School based interventions may have benefit but inconsistent, may be short-term, girls/younger children have more benefit, physical activity must be combined with diet interventions	Heterogeneity of studies evaluated, therefore difficult to generalize any findings.
Bryn Austin S et al.	Qualitative	9	Effectiveness of *School Health Index*, Role of external facilitator	Presence of external facilitator influenced effectiveness of *SHI* and ability of schools to implement health promotion initiatives	Most schools in one geographical location (New England), reliance on self-reported data, did not include an objective data source
Card A, Doyle E.	Qualitative	40	Effectiveness of School Health Coordinator in implementing health promotion strategies in Nfld.	School health coordinator can change the approach of health promotion in schools to involve social, environmental as well as physiological health determinants	Vague descriptors regarding effectiveness of school health coordinators, results very preliminary in nature
Crawford PB et al.	Position paper	n/a	n/a	Using a bioethics framework further justifies the promotion of nutritional health through schools	n/a

Department of Family Medicine Resident Project Guide (2020)