DALHOUSIE UNIVERSITY
FACULTY OF MEDICINE
Department of Family Medicine

Dalhousie University

Department of Family Medicine

Resident Project Guide

Updated for July 2017

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. They emphasize curiosity, self-assessment and skill at critically reviewing the medical literature.

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 introduce the resident to the process of 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.

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 time lines;
- 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.

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 position paper, an educational tool, a research project, a literature appraisal, or a practice quality improvement 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.

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 an award will be presented to the author(s) of the project judged to be the most outstanding. In addition, in some sites, PGY1 residents are expected to give a 10 minute presentation discussing the progress of their projects. 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.*

Multiple Authors "Author Contribution":
When a resident project involves multiple authors (colleague resident or others), each author must outline, in a section entitled "Author Contribution", their individual contribution to the project. It is expected that each individual author's contribution be substantial and that they review and approve of the final text.

Type of Projects:
1. 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.

   Those interested in topics debunking a Canadian healthcare myth related to Family Medicine may choose to create a "Mythbuster." This method must follow the Canadian Health Services Research Foundation guidelines:
   http://www.cfhi-fcass.ca/PublicationsAndResources/Mythbusters.aspx

   If this option is selected, residents should indicate that this is the intended format of the project and discuss the requirements and page length with their Project Supervisor and Project Coordinator.

2. 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.

3. Educational 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.

4. Practice Quality Improvement Project/Audit
   This involves identifying a practice-based question, finding evidence-based guidelines/recommendations to guide the approach to clinical care with respect to the question, constructing an audit tool, auditing charts, and reporting the results along with recommendations.

5. 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. Residents are advised to speak with their Project Coordinator about the need for ethical approval for their project.

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

Budget
There are funds in the budget to cover some resident project expenses at all sites. 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 and expenses will be reimbursed. If funds are needed in advance, a written request can be submitted and 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. 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 the Project Coordinator or Project Supervisor. Time away from half-days back and academic half-days is not generally permitted.

Project Format
Although projects can be presented in different formats (art-work/handbooks/DVD, etc.) the project paper should be a minimum of 8 pages (±3000 words) and a maximum of 16 pages (±6000 words), double spaced, 12 font, excluding tables and references. The format of the written work should follow a scientific lay-out: *Abstract, Introduction, Background, Study Design/Method, Results, Discussion, Conclusion and Limitations*. Alternatives for the min/max page length and format will be considered for special circumstances, and must be approved by the Project Coordinator.

Project Cover Page
Make sure that you add a cover page to you project. The cover page needs to include the following: 1) name, 2) title of project 3) site 4) name of supervisor 5) type of project (research, literature review etc),. 6) date

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

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 by the end of the three-month PGY1 Family Medicine clinical learning experience, but no later than the **1st Monday of November**.
    - This does not apply to Halifax-based residents who may spend some of their first 6 months of their residency at sites away from Halifax. Their deadline is June 30th of their PGY1 year. However, those residents are expected to contact the Project Coordinator with an outline of their proposal by the last Friday in September in their PGY1 year.

- ❖ The resident will develop a well-defined *project proposal* (2-3 pages) in writing that they will submit to their Project Supervisor and their Project Coordinator.
- ❖ *Halifax site residents need only submit their project proposal to their Project Supervisor, and are not required to also submit it to their Project Coordinato*r.

- Residents must have their PGY1 Resident Project Proposal Form (Form I) signed by their Project Coordinator.

  Halifax residents are not required to complete and submit a Form I; however, they are still required to complete and submit a Form II.

- All residents are required to complete a Project Supervisor Agreement Form (Form II), which must be signed by their Project Supervisor.

- The proposal and required signed forms (Forms I and II) are due no later than the **1st Monday of February of the resident's PGY1 year.** Forms are to be submitted to the Project Coordinator, who will forward electronic copies to the Education Committee Secretary (fmcommittees@dal.ca).

  Halifax residents will forward their proposal and Form II directly to the Education Committee Secretary (fmcommittees@dal.ca).

- 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 the 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 prepare a project progress report no later than the **2nd Monday of September of their PGY2 year** and meet with their Project Supervisor in order that their Project Supervisor may evaluate the resident's progress. A Project Progress Report (Form III) will be completed at that time by the Project Supervisor, an electronic copy of which will be sent to the Education Committee Secretary.

- The resident will have their Project Supervisor complete and sign a Resident Project Final Approval Form (Form IV). The signed Form IV and the completed draft of the written project must be submitted to the Project Coordinator for review no later than the **1st Monday of January.** *Halifax residents are not required to submit their final project and signed Form IV to the Halifax site Project Coordinators.*

- Once approved by their Project Coordinator (Project Supervisor for Halifax site residents), the **FINAL project** must be submitted to the Education Committee Secretary (fmcommittees@dal.ca)as a **single PDF document** by the **2nd Monday in February for ALL residents**. The PDF document 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.

- The **non-Halifax site** Project Coordinators will send an electronic copy of the signed **Form IV** to the Education Committee Secretary. *Halifax residents will send the electronic copy of the signed Form IV to the Education Committee Secretary.*

- A PowerPoint slide presentation of the resident project must be completed and submitted to the resident's Project Coordinator by the **1st Monday of May** of their PGY2 year. Halifax site residents will submit their PowerPoint slide presentation to the Halifax Site Administrator and not to the Project Coordinator.

- 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.

Project Assessment
Completed resident projects should be forwarded 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 formatted in such as way as can be easily emailed to and opened by project reviewers. The Medical Education Committee Secretary will forward the completed resident projects to an appropriate reviewers. Project reviewers are expected to complete their review within 4 to 6 weeks of accepting a project for review. Late submissions often take longer to complete, so residents are strongly discouraged from submitting after the deadline. If a project is deemed "Acceptable" the resident and the Project Coordinator will be informed. A resident project must be deemed "Acceptable" or higher for the resident to successfully complete the residency program requirements. An assessment rubric has been developed and is attached to this guide.

If a project is assessed as "Requiring Revisions," the resident and the Project Coordinator will be informed by the Education Committee Secretary. The Project Coordinator will communicate with the reviewer and then follow-up with the resident, and if need be with the Project Supervisor to ensure they understand the reviewer's concerns.

The revised project will be sent to the Education Committee Secretary in a single PDF document 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 without proper documented reasons may face a delay in receiving their "letter of program completion." Hence, residents are encouraged to submit their final project at 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 receiving marks in the "outstanding" range, and some others receiving marks in the "highly acceptable" range may be considered for a variety of award nominations, including:

1. Dalhousie University Family Medicine: The "*Doug Mulholland Award*" for the best *resident project*. The projects are judged on originality, relevance to family medicine and critical thinking.

Nominations for award competitions

2. Faculty of Medicine Research Award Competition (up to 3 nominees from the Department of Family Medicine)
3. College of Family Physicians of Canada *research awards* for Family Medicine Residents (one nominee from Dalhousie University Department of Family Medicine)
4. The College of Family Physicians of Canada *scholarly activity* award. This award aims to recognize outstanding family medicine scholarship performed by a resident (one nominee from Dalhousie University Department of Family Medicine).

Questions regarding projects may be directed to:

Dr. Laura Sadler, Chair, Resident Project Sub-Committee
Phone: 902-473-4700 ; Fax 902-473-8548
E-mail: lyouden@dal.ca

Worksheet and Dates for Completion of Resident Project

PGY1

Form	Task	Timelines	Dates No later than…	Task Complete
	ALL Residents: Meet with Project Coordinator to begin formulating a type of project	July-September	suggested by early September	
	Halifax site residents submit short project outline to Project Coordinator for feedback		**End of September**	
	Decide on topic and formulate the (research/project) question	July-October	Suggested by early October	
	ALL Residents: Select Project Supervisor	July-October	Suggested by early October	
	ALL Residents: Begin conducting literature review	September-December		
Project Proposal, Form I & Form II (*forms III and IV are required later, not now***)**	Submit *project proposal* (2-3 pages) in writing, signed by their Project Coordinator (Form I) and the Project Supervisor (Form II)**.** **Halifax residents do not need Form I** The Project Coordinator will forward these forms to the Education Committee Secretary. **Halifax residents must forward their proposal and the Project Supervisor Form (Form II) directly to the Education Committee Secretary (fmcommittees@dal.ca)**		**1st Monday in February**	
	ALL Residents: 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) (this does not apply to Halifax residents)		**Usually in May – date to be determined by each site**	

Worksheet and Dates for Completion of Resident Project				
PGY2				
Form	**Task**	**Timelines**	**Dates No later than…**	**Task Complete**
Form III	**ALL Residents:** Completed Resident Project Progress Report (Form III), signed by Project Supervisor		**2nd Monday in September**	
Project Draft and Form IV	**ALL Residents**: Completed draft of project given to Project Supervisor for feedback **ALL Residents:** Project Supervisor to complete and sign Resident Project Final Approval Form (Form IV)		**1st Monday in January**	
Final Project	**Non-Halifax Residents:** Completed **FINAL** project and Form IV to be submitted to the Project Coordinator who will forward to the Education Committee Secretary (fmcommittees@dal.ca) **Halifax Residents:** Completed **FINAL** project and Form IV to be submitted to the Education Committee Secretary (fmcommittees@dal.ca)		**2nd Monday in February**	
	Education Committee Secretary will distribute projects for assessment	as received		
	ALL Residents: 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
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PGY1 Resident Project Proposal (Form I)
(*not required for Halifax site residents*)

Please attached a 2-3 page detailed proposal to this form

Resident Name:_____

Project Supervisor Name:_____

Date:_____

Working Title of Resident Project:

_____

_____

Signature of Project Coordinator:_____

Signature of Resident:_____

Comments:

Please send a signed copy of this form to the Project Coordinator no later than
1st Monday in February

Please send an electronic version of the signed copy to the Education Committee Secretary (fmcommittees@dal.ca)

DALHOUSIE UNIVERSITY
FACULTY OF MEDICINE
Department of Family Medicine

Dalhousie University Family Medicine PGY1 Resident

Project Supervisor Agreement (Form II)

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 by critically reviewing the available literature.

Residents are expected to submit a written paper and give an oral presentation of their findings to their colleagues and faculty members at the annual Resident Project Presentation Day held on the second Monday in May of the PGY2 year or at their site project presentation event.

Types of Projects Acceptable

- Literature Appraisal/EBM Review
- Position Paper/Essay
- Educational Tool
- Practice Quality Improvement Project/Audit
- Research Project

Project Coordinator and Project Supervisor

All resident should have a *Project Coordinator* and a *Project Supervisor*. 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. 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 retain advice on the relevance of the project to Family Medicine from the Project Coordinator.

If you have any questions or concerns please contact: Dr. Laura Sadler, Resident Project Sub-Committee Chair, (902) 473-4700, or lyouden@dal.ca

I have agreed to be the Project Supervisor for Dr. _____
(name of Family Medicine resident)

Name of Project Supervisor:_____

Signature of Project Supervisor_____Date:_____

Please send a signed copy of this form to the Project Coordinator no later than the 1st Monday in February

Please send an electronic version of the signed copy to the Education Committee Secretary (fmcommittees@dal.ca)

DALHOUSIE UNIVERSITY
FACULTY OF MEDICINE
Department of Family Medicine

Dalhousie University Family Medicine PGY2 Resident

Project Progress Report (Form III)

Resident:_____

Project Supervisor: _____

Title of Resident Project: _____

_____

Type of Project: _____

(*please specify: research, educational tool, literature appraisal/EBM review, position paper/essay, practice quality improvement/audit*)

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

Signature of Project Supervisor: _____

Signature of Resident:_____

Date:_____

Comments:

Please send a copy of this completed form to the Project Coordinator no later than the
2nd Monday in September

Please send an electronic version of the signed copy to the Education Committee Secretary (fmcommittees@dal.ca)

DALHOUSIE UNIVERSITY
FACULTY OF MEDICINE
Department of Family Medicine

Dalhousie University Family Medicine PGY2 Resident

Project Final Approval (Form IV)

Resident: _____

Title of Resident Project:

_____

_____

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

Name Project Supervisor: _____

Signature of Project Supervisor: _____

Date: _____

Comments:

Please send a signed copy of this form to the Project Coordinator no later than the **1st Monday in January** with a copy of your completed draft project.

Dalhousie Family Medicine Resident Project Assessment Rubric

Resident: Assessor: Date:

Type of Project: ☐ Research ☐ Literature Review ☐ Position Paper/Essay ☐ Educational Tool ☐ Practice Quality Improvement/Audit

	Outstanding (90-100)	**Highly Acceptable (75-89) Suggested revisions optional**	**Acceptable (60-74) Suggested revisions optional**	**Requires Major Revisions (<59)**	
	In this project, you...		**In this area, you need to...**	**Remediation is required: you...**	
Define question/thesis or presenting case	...present a precise original, thesis/ research question; demonstrate the significance with strong rationale; or describe case with appropriate rich detail and identify perceptively what is at issue	...present a clear question/thesis; demonstrate judgment in rationale for importance; or describe a case that works well for appraisal of values and/or evidence, and identify some significant points	...be more precise in defining your topic / (research) question, be more realistic and/or in tune with the reader in the rationale for the importance of your topic; be more accurate in seeing what is at issue in a case	..present a vague topic, with a poorly thought-out rationale that does not match the actual project carried out	**/10**
Researching/ Information gathering	...conduct a comprehensive and recent review of the literature with a clear and structured approach; inclusion / exclusion criteria identified; judiciously select important sources to focus on; reject or qualify less reliable sources.	...use a variety of sources, inclusion / exclusion criteria identified; well-chosen according to clear criteria as appropriate, and balanced in perspectives; take into account strengths and limitations of sources.	...pay more attention to finding the most relevant sources; be more balanced in the sources you use; take account of pitfalls in some sources. Describe methods and inclusion / exclusion criteria identified.	...fails to make use of appropriate literature, policy, and/or guidance of documents; make, use of unreliable sources.	**/20**
Presenting and evaluating sources/others' perspectives	...summarize diverse literature/views accurately and fairly; consistently focusses on the most central and significant ideas; critically evaluate sources/perspectives in a precise/nuanced manner	...summarize other's view fairly, with few errors; use appropriate methodologies/standards for critique; balance detail with focus in summary and/or critique	...be more fair in summarizing the views of others; be more focused and/or fair in your criticisms; be more judicious in homing in on what is important	...presents others' view in inaccurate or unfair ways; fail to apply reasonable standards of rigour in evaluating evidence	**/25**

	Outstanding (90-100)	**Highly Acceptable (75-89) Suggested revisions optional**	**Acceptable (60-74) Suggested revisions optional**	**Requires Major Revisions (<59)**	
Applying sources; reaching conclusions, resolving case, proving thesis	…successfully synthesize and weigh diverse kinds of evidence/applied appropriate research instruments and methods/ provide a compelling argument/evidence for conclusion, and/or a conclusion that is appropriately qualified given the argument/evidence	…utilized good research instruments and methods with few gaps/ draws plausible conclusion form the evidence and arguments/ demonstrate some ability to synthesize and or evaluate diverse evidence	…to improve the argument/ research methods/ get more comfortable in evaluating and synthesizing information/ reach clear conclusion	…fail to support views with evidence and arguments/research instruments and methods are inappropriate for the research question.	**/25**
Organization	...consistently organize your thoughts in a clear structure at both the overall and paragraph levels/ employ smooth transitions and cues for the reader/used appropriate and ordered research sections.	...organize thoughts so that the reader can follow, with intro/ body/ conclusion and paragraph breaks usually appropriate/ no gaps in the research sections and order used to organize the paper.	... break text appropriately into paragraphs and/or sections/ avoid repetition/ need to organize more logically/research presentation needs improvement	...don't organize well enough for the reader to follow your argument/research poorly presented	**/10**
Quality of Language	...write clear prose, use suitably complex sentence structures, consistently select appropriate academic vocabulary; proofread adequately	...make use of clear and accurate word choice; structure sentences well; commit few if any grammatical or spelling errors	...choose words more accurately for meaning or connotation; improve your grammar or spelling, whether by correcting mistakes or proofreading more carefully	...demonstrate problems in word choice that invite misunderstanding or give offence; use consistently poor grammar and spelling	**/5**
Relevance to Family Medicine	... relevance clearly stated	...relevance stated	...state the relevance more clearly	...demonstrates little relevance	**Yes/ No**
Proper citation & quality of references	…excellent	..very good	…good/needs improvement	…needs improvement	**/5**
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. Grades Requiring ***Major Revisions*** will be given ***after the revisions have satisfactorily been completed***.					**/100**

Updated October 2015

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

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

PROJECT TYPE	Literature Appraisal/EBM Review	Position Paper/Essay	Educational Tool/ Myth-buster	Practice Quality Improvement Project/Audit	Research Project
SECTIONS:					
Abstract ½ page	Summary of all the sections using the headings in the left column.				
Introduction ½ to 1 page	Brief introduction to why topic was chosen and its relevance to family medicine.				
Background 2 to 3 pages	Summary of background to topic for literature appraisal and state research question.	Summary of background literature and the position that will be taken.	Summary of background literature and provide evidence for relevance and indicate gaps.	Summary of background literature and state research question.	Summary of background literature and state research question
Study Design/Method 1-2 pages	State objective(s). Describe how review was conducted, data-bases searched, terms used for searches and inclusion /exclusion criteria used. Method applied for appraisal.	State objective(s). Provide brief description of evidence development to support position (literature review).	State objective(s). Provide methodology for educational tool development, audience focus, visuals, language level, tool choice (paper, video) etc. For Myth-busters, provide method for lit review (see literature appraisal). Use literature to support choice design, method & content	State objective(s). Describe study methods. Inclusion and exclusion criteria.	State objective(s). Describe study methods
Results 3-5 pages	Describe strength and summarize findings of literature/EBM review	Detail position in relation to literature/ evidence and, if appropriate, make recommendations or describe the meaning of the position and how it applies and will be incorporated in family medicine.	Tools/Myth-busters statements need to be grounded in the literature. Describe tool and how to implement it. Provide tool/Myth-buster in appendix.	Present findings from data and describe the strength of the findings.	Present findings from data.
Discussion 2-3 pages	Synthesize the literature, create meaning, and make recommendations and/or next steps.			Synthesize the data and make recommendations/next steps.	Synthesize/ interpret findings, link back to literature/ make recommendations/next steps
Strength/ Limitations ½ pages	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 addresses 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/

More on research question formulation:

Source: Practical Advice on how to formulate your research question: (edited from source http://www.chsbs.cmich.edu/fattah/courses/empirical/03.htm)

Keeping the Research Process in Focus:

- heart of the research project is the problem
- must articulate an acceptable problem
- formulate a problem that is carefully phrased and that represents the single goal of the research effort

State the Problem Clearly and Completely

- always state the problem in a complete grammatical sentence in as few words as possible
- be specific
- limit areas studied so that the study is of manageable size

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

Every Problem Needs Further Delineation

- eliminate any possibility of misunderstanding
- give full disclosure of what you intend to do and not do
- give the meanings of all terms used
- state the assumptions
- state the hypotheses and/or research question

Sample Research Questions (source: http://writingcenter.gmu.edu/?p=307)

Too simple: *How are doctors addressing diabetes in the U.S.?*
Appropriately Complex: *What are common traits of those suffering from diabetes in America, 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.

Qualitative/Exploratory Research

- Qualitative research focusses on the interpretation of a situation, set of behaviors, or a setting.
- Analysis must take place within a context.
    - Note: Different researchers may view the same situation and obtain different results.
- Qualitative research answers "how" and "why."
    - E.g.: How do patients perceive?

Quantitative/Explanatory Research

- Focuses on causal relationships and their impact (outcomes).
- Quantitative Research answers "what" questions.

Descriptive Research

- Descriptive research describes data and characteristics about the population or phenomenon being studied.
- Descriptive research answers the questions "who", "what", "where", and "when."
- The research cannot describe what caused a situation. Thus, Descriptive Research cannot be used to create a causal relationship, where one variable affects another.

- Descriptive research classifies phenomena.
  - E.g.: We may simply wish to describe the participants in a study and how they act, believe, perceive the world, or look.
- Examples of research questions for descriptive studies:
  - What is the clients' degree of satisfaction with the services provided though the clinic's open access model?
  - What percentages of people living in Cairo have incomes below the poverty line?

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.ti 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.**
    a. The only free software for quantitative data analysis through Dalhousie is Minitab, found here: https://software.library.dal.ca/index.php . Note, Minitab is only available for PC (not Macs). 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. If you can afford to buy, or find access to SPSS, it is user friendly and has a good tutorial, though it is not provided to students via Dal.

b. The top qualitative software programs are Atlas.ti, NVivo, and MAXQDA. Atlas and MAXQDA have a student version for about $99. Atlas.ti is $199 for 12 months for students. Dedoose is available on 6 month ($12.95) and 9 month ($10.95) contracts for students.

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, though to use their services for data analysis is $100 an hour. Early consultation can help you avoid costly mistakes.

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_Web.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, also require REB approval when the resident is planning to discuss the results publicly (Resident Project Day). If a Chart audit is only used to improve the practice, no REB approval is required.

- A REB application adds time to the resident project; however, the work for the REB will be used for the final project.

- 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 (Dalhousie University recognizes the REB certificate from Horizon Health Network (HHN) for New Brunswick residents and vice versa).

- 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
http://www.horizonnb.ca/home/research.aspx#

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

Nova Scotia
http://www.dal.ca/dept/research-services/services/ethics-research-reviews/research-ethics-board-approval.html

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

- 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. Only Dalhousie University faculty 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.

Here are some videos that may help with Excel sheets:

http://noether.uoregon.edu/~dps/243/EXCEL.pdf

http://people.umass.edu/evagold/excel.html

http://office.microsoft.com/en-us/training/excel-statistical-functions-RZ001091922.aspx

http://www.youtube.com/watch?v=OTz2PQ-CdJU

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

Tips and Tricks when doing a Literature Review
Family Medicine Resident Project

When doing a literature review, you need to adhere to some conventions. Before you start you may find it helpful to consult with a university/hospital librarian on how best to access resources for the literature review.

1) Research question has to be relevant to family medicine.
2) Assess the level of evidence of the studies you are reviewing (page 2).
3) Focus of literature review (page 3).
4) Create a table that is the focus of your review (page 4).
5) Do not repeat word for word what you have in the tables in the text.
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 with some general literature.
        i. Finish the section with a clear research question.
    c. Methods need to include the following:
        i. Search terms
        ii. Inclusion and exclusion criteria
        iii. Grey literature, if used
        iv. Data sets used - e.g. PubMed
        v. Number of articles pulled and ultimately reviewed
7) In the discussion describe the strengths and weaknesses of each article and synthesize the data. Use headings to help the reader. Answer the research question.
8) In the conclusion pull it all together, no new information should be added.
9) Acknowledgments: supervisor and others that may have helped you.
10) 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 (1page)
- Obesity
- Why school-based programs?

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

Methods (1/2-1 page)

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.

[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	1465	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