

# Research electives in rural health care

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## ABSTRACT

**PROBLEM BEING ADDRESSED** As academic medical institutions begin to address the education and service needs of rural Canadians, research will make its way to the foreground. Rural physicians are well positioned to lead in this venture, but often have little time or energy to take on extra duties. Rural populations differ in essential ways from urban populations. Certainly, the limitations of geography, funding, and population density alter medical surveillance, treatment, and research in ways that are largely undocumented.

**OBJECTIVE OF PROGRAM** To undertake research projects of interest to our group of rural clinicians and to expose medical students to both research and rural practice.

**MAIN COMPONENTS OF PROGRAM** Seven rural family physicians welcomed medical students into their group practice for summer research electives. Topics were chosen in advance by the medical group, and one member was designated as supervisor for each student. A local nurse educator also provided support to students and to clinicians after the students' departure. Several projects were undertaken simultaneously each summer; the result was several published peer-reviewed articles and good teaching and learning experiences.

**CONCLUSION** Rural research electives provide a valuable experience for students and preceptors. Such initiatives deserve broad promotion and support.

## RÉSUMÉ

**PROBLÈME À RÉGLER** À mesure que les établissements universitaires en médecine commencent à se pencher sur les besoins en éducation et en services des Canadiens en milieu rural, la recherche se taillera une place prépondérante. Les médecins en milieu rural occupent une position privilégiée pour se faire des chefs de file dans cette initiative, mais ils ont rarement le temps ou l'énergie pour assumer des tâches additionnelles. Les populations rurales diffèrent de manière fondamentale des populations urbaines. Assurément, les limites imposées sur le plan de la géographie, du financement et de la densité de la population affectent la surveillance médicale, les traitements et la recherche de manières qui restent largement non documentées.

**OBJECTIF DU PROGRAMME** Entreprendre des projets de recherche susceptibles d'intéresser notre groupe de cliniciens ruraux et donner l'expérience aux étudiants de la recherche et de la pratique rurale.

**PRINCIPALES COMPOSANTES DU PROGRAMME** Sept médecins ruraux ont accueilli des étudiants en médecine dans leur pratique collective pour un stage d'été optionnel en recherche. Les sujets ont été choisis au préalable par le groupe de médecins et un membre du groupe était jumelé à titre de superviseur pour chacun des étudiants. Une infirmière éducatrice offrait également du soutien aux étudiants et aux cliniciens après le départ des étudiants. Plusieurs projets ont été entrepris simultanément chaque été; ils se sont traduits par plusieurs articles révisés par des pairs et publiés ainsi que par de bonnes expériences d'enseignement et d'apprentissage.

**CONCLUSION** Les stages optionnels en milieu rural procurent une expérience précieuse aux étudiants et aux précepteurs. De telles initiatives méritent d'être valorisées et appuyées.

*This article has been peer reviewed.*

*Cet article a fait l'objet d'une évaluation externe.*

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**I**f primary care research is in its adolescence,<sup>1</sup> rural research is in its infancy. There is scant literature on rural research as a discrete focus. Much of the literature on more general primary care research comments on its own paucity.<sup>2</sup> The absence of a critical mass of researchers and a poorly developed research culture affect both rural and primary care research.<sup>3,4</sup> Absence of time, money, and skills<sup>5</sup> is compounded by funding agency bias,<sup>6</sup> difficulty in translating practice-based insight into sound research, and an intellectual chasm between researchers and clinicians.<sup>7,8,9</sup>

Most published research occurs at tertiary care centres, where 0.1% of patients receive their care,<sup>3</sup> leading one author to bewail the "tyranny of the randomized controlled trial."<sup>4</sup> Quantitative primary care research projects benefit from a network approach nationally<sup>3,10</sup> or even internationally.<sup>11</sup> In the United States, some 28 primary care research networks exist<sup>3</sup>; smaller networks have developed in Canada.<sup>2,12</sup> Qualitative research is seen to have a natural affinity to primary care research.<sup>8,13-15</sup> Its focus on seeing patients within their cultural support systems and understanding their behaviour<sup>16</sup> make it well suited to primary care.

A survey of primary care researchers showed that socialization, mentor relationships, time, and research skills were associated with productivity.<sup>17</sup> Numerous authors<sup>3,5,6,9</sup> stress the need for dedicated support staff if busy clinicians are to be involved in research. Early interest predicts future research involvement,<sup>18,19</sup> as does faculty involvement in family medicine residency research projects.<sup>20</sup>

Both urban primary care research and rural population health research share the need to develop adequate research expertise and appropriate infrastructure and funding. Rural populations<sup>21</sup> are large, spread out in distance, and have limited health care services. Rural patients also<sup>21</sup> have a shorter life expectancy and a greater burden of occupational and chronic health problems. Rural researchers, working in isolation, with gaps in the literature, have little effect. The trickledown theory has not worked for medical human resource distribution, nor will it be effective in rural health research. A national funding agency is required to support multiple models of

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rural research projects, including both grass-roots initiatives and large collaborative initiatives.<sup>22</sup>

Our rural research program is unique in several ways. It was developed in the field, used our clinical group as a resource, and relied on a regional infrastructure developed for clinical student electives (Northwest Ontario Medical Program).

### Objective of the program

Initially we wanted to begin several research projects of interest to our group. We also wanted to continue a tradition of elective medical student rotations, in this case combining some clinical work with a focus on primary care research.

### Components of the program

Our group of seven practitioners invited medical students to undertake research electives for a 6- to 8-week period in summer. Our group has a full scope of practice including obstetrics, emergency, family practice, anesthesia, and general practice surgery. Members have an average of 10 years' practice in the community, and one has taken a graduate course in research methods. The medical students taking the research electives came from across Ontario.

**Before students' arrival.** Before arrival is when the elective rotation is made or broken. If the elective is not well planned, students' educational goals will not be met, nor will preceptors'. We planned two to three manageable projects for each summer elective. We chose issues of interest and relevance to our rural practice. The projects had to be feasible and be well thought out, an outline written, and an approach chosen. While there would be an overall coordinator, each project had input from several preceptors.

In addition to clarifying specific projects for the elective, a mini-curriculum was developed for students. We gathered a small resource library on primary care research topics.

Student placement and travel arrangements were coordinated by the Northwest Ontario Medical Program. If regional funding for summer students is available, applications can be submitted. Last summer, \$4000 was available for our students' 2-month placement. Prior communication by e-mail gave students some time to consider the projects and even do a literature search before arriving. We provided clinic work space with computers and Internet access, including MEDLINE and Ovid capabilities.

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**During students' electives.** As with a clinical elective rotation,<sup>23</sup> educational planning followed a welcome and orientation to the practice. Specifically, we discussed written project outlines with students and developed a strategy for managing workload, recreational opportunities, and clinical time if requested. We thought that the students needed to feel a part of the team and to have easy access to members of the group.

We used the standard format suggested by *Canadian Family Physician* and summarized in the publication *What We Want* (available from [www.cfpc.ca/](http://www.cfpc.ca/)) and framed projects that could lead to publishable articles. It seemed important to have these outlines in place so that students understood the projects. Otherwise they might be confused and could have trouble focusing the elective as a whole.

At first, the designated coordinator met with the student daily and then twice weekly. We found it useful to have several projects on the go at once in a staggered fashion. While we waited for searched articles to arrive, another design or literature search could begin. Newly available on-line, full-text versions of medical journals proved very useful. Because reports of many projects could be submitted for publication, authorship<sup>24</sup> guidelines were clearly discussed, so that no misunderstandings arose.

As the rotation neared completion, the last week was spent finalizing drafts or completing initial drafts of articles. Certainly students' contribution to the research project needed to be wrapped up so that it did not drag on after the rotation was completed.

**After rotations conclude.** We kept students informed about how projects progressed. If projects were not near completion when student researchers left, these projects often languished until clinicians found time to complete them. This speaks to the need for close involvement with projects while students are working on them, so that the work can be continued after the students leave. It also clarifies the key role for students as agents who move things forward. Ideally, projects would be completed within the allotted time with both preceptors and students present.

Students are kept aware of any important changes to or publication of the articles. One of our past students voluntarily continues collaborating on projects by e-mail with one of our preceptors, 3 years after the placement!

Overall, the process involves:

- curiosity;
- preparation of appropriate projects;

- infrastructure and funding for students;
- integration of students into the clinical group;
- regular student contact with rural faculty;
- research support staff for faculty members;
- collaboration among rural and research faculty;
- wind-up, authorship, and evaluation of projects; and
- publicity and program development.

**Evaluation.** Written evaluations are completed by both students and preceptors. We evaluate their knowledge, skills, and attitudes, and we ensure that housing, travel, and program communication are appropriate. Our joint evaluations have been very positive to this point. Over the past 3 years, our group and our three research students have published three articles<sup>25-27</sup> and have an additional five projects in progress. They involve regional surveys, needs assessments, case series, program descriptions, and drug interaction reviews.

### Discussion

The literature indicates a need for nurturing research on rural health care. Rural populations need research designed appropriately for studying them, without the selection bias inherent in urban tertiary centre research projects. Because early exposure of medical students to research seems to predict future involvement,<sup>18</sup> our experience, and two primary care research programs<sup>28,29</sup> described in the literature, address this issue.

An article on the University of Colorado<sup>28</sup> project describes 7 years of primary care research electives involving a student research skills development program, financial support, and a core of interested faculty members. The authors refer to the need to develop a "culture of primary care research,... which must evolve in a medical school environment."<sup>28</sup> They accepted 10 first-year medical students yearly into a voluntary program that required a research project to be completed in the ensuing 4 years. The project was supported by a course on research, yearly funded summer assistantships, and student-chosen faculty mentors. Faculty support was important, and faculty members required dedicated research support staff to maintain involvement. Initial stages required about 2 hours weekly of faculty members' time.

The other program<sup>29</sup> described is a federally funded program in Buffalo, NY, for first- and second-year students involved in faculty-designed projects. The program encountered difficulty in maintaining faculty interest and thought improved communication and infrastructure might help. Program directors

instituted a prestudy and poststudy survey to evaluate students' knowledge base and measure their satisfaction with the program; results were quite positive. Students learned the most while developing research questions and formulating research plans.

**Funding for students.** Students acknowledge funding is essential, especially in view of escalating medical school fees. University of Colorado research faculty stated: "Financial support for our students has added considerably to our success."<sup>28</sup> While student funding was crucial, faculty funding was seen as less critical in a self-reported faculty survey.<sup>30</sup>

**Infrastructure support.** Many say infrastructure support is critical<sup>3,5,6,9,28,29</sup> to involve busy clinicians, and our experience validates that. We found that support staff are needed to set up the elective experience, match preceptors and students, and make transportation and housing arrangements. Support staff to prepare posters and help prepare texts for publication are beyond our current resources, but would be a great asset. At times, our group has had to hire a local educator to fill this role. Stange<sup>6</sup> discussed the need to have more than one project on the go at any given time as a successful research strategy; our experience supports this practice.

**Faculty interest.** Maintaining interest among faculty is always a challenge, particularly in rural areas with busy clinicians who often have limited experience in research. Collaboration with more experienced researchers could facilitate project design and execution. Numerous authors<sup>8,17,19,20,30,31</sup> identify mentor relationships with experienced researchers as a requirement for successful research in primary care. This requirement could reflect the need for both research expertise and a culture of research. University research departments might need to act as resources for rural practitioners interested in writing and research. We have found an increase, year by year, in the number of our group members involved in projects—a positive development.

**Limitations.** Limitations of the program include the ad hoc and episodic nature of research electives; the time and energy required; the problem of living, working, and researching in a small community; designing appropriate research projects; and the lack of local research expertise. Our students currently refer themselves or come to our attention by word of mouth and through the Northwest Ontario

### Editor's key points

- While primary care research struggles to mature, rural primary care research is even more challenged by lack of trained researchers, infrastructure, and funding.
- An innovative program was developed in remote northwestern Ontario whereby medical students on 6- to 8-week summer electives provided the main impetus for completing rural research projects generated by local preceptors.
- Several key elements were identified including good preparation and communication with students; an infrastructure to house, feed, and entertain them; and modest financial support.
- The energy of the students, when harnessed to the clinical experience of the preceptors, produced several successful projects that were subsequently written up and published. Students and faculty alike benefitted, and the body of rural primary care research was enlarged.

### Points de repère du rédacteur

- Si la recherche en soins de première ligne s'efforce de prendre de la maturité, la recherche en soins de première ligne en milieu rural est d'autant plus mise au défi par le manque de chercheurs qualifiés, d'infrastructures et de financement.
- Un programme novateur a été élaboré dans une région éloignée au nord-ouest de l'Ontario dans lequel des étudiants en médecine suivant un stage d'été optionnel de 6 à 8 semaines offraient l'élan principal voulu pour effectuer des projets de recherche en milieu rural à l'instigation des précepteurs locaux.
- Plusieurs éléments clés ont été identifiés, notamment une bonne préparation des résidents et une bonne communication avec eux; une infrastructure pour les loger, les nourrir et les divertir, ainsi qu'un modeste soutien financier.
- L'énergie des étudiants, associée à l'expérience clinique des précepteurs, a produit plusieurs projets fructueux qui ont, par la suite, fait l'objet d'articles et de leur publication. Les résidents et les professeurs en ont tiré profit et le potentiel de la recherche en soins de première ligne ruraux en a été élargi.

Medical Program, which coordinates transportation, housing, and administrative support. Some student funding is available if a program is in effect during a particular summer, but it is a year-by-year activity. A rural physician's main role is caregiver, and research

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interests come a distant second. Research in aboriginal communities has already been recognized for its potential for doing harm, and appropriate protocols have been recommended.<sup>32</sup> In all small communities, local sensitivities must be considered, a consideration beyond the approval of distant academic ethics committees. This applies to choice of research method as well as of research topics.

Rural health is an important field of enquiry. Rural physicians and medical students are keen to be involved in local research. The process requires some nurturing. Establishing a rural research infrastructure, including networks and decentralized support staff, would allow grass-roots research to flourish. We recommend academic programs develop or participate in such opportunities with appropriate administrative, financial, and academic support. This could be done on a school-by-school basis, or could be centralized through a Canadian Institutes of Health Research program ([www.cihr.ca](http://www.cihr.ca)) or the Rural Experience Access Program ([www.srpc.ca](http://www.srpc.ca)).

### Conclusion

This article describes our experience with research electives in a group practice in a small Canadian town over a 3-year period. We used the group as a resource for developing and completing research projects. Summer students in elective placements enabled us to get the projects started with support from a regional infrastructure already in place for students doing clinical electives. ❁

### Competing interests

None declared

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