

Getting started in primary care research: choosing among six practical research approaches

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To cite: Fetters MD. Getting started in primary care research: choosing among six practical research approaches. *Fam Med Com Health* 2019;7:e000042. doi:10.1136/fmch-2018-000042

In addition to its use in the University of Michigan residency research curriculum, an earlier version of this presentation was given at the Fifth Annual Family Medicine Across-Strait Conference in Guangxi, Nanning, China on 30 March 2018.

Received 12 October 2018
Revised 18 December 2018
Accepted 24 January 2019

ABSTRACT

While many primary care practitioners want to conduct research, many also struggle with getting started. This article's purpose is to assist emerging researchers in identifying a topic of interest, to try the 'fit' of feasible research approaches and commit to a research approach. The article addresses six objectives: (1) identify how important primary care research comes from clinical stories; (2) recognise how clinical stories become the source of research topics; (3) discern how the research process resembles the care of patients; (4) distinguish the essential features of six research approaches feasible for primary care researchers; (5) evaluate the fit of the six research approaches featured in this special issue; and (6) develop a list of steps that need to be taken to implement primary care research projects. Using 'HPV (human papilloma) vaccination' as a hypothetical topic, the article illustrates how an emerging researcher can complete the worksheets. Using the HPV topic, a worksheet illustration shows how to complete the worksheets, and examples from the literature illustrate how actual studies have used six feasible research approaches for primary care: (1) survey research, (2) semistructured qualitative interviews, (3) curriculum development, (4) continuous quality improvement, (5) clinical policy analysis and (6) case study research. The worksheet exercises support choosing a feasible research approach for emerging researchers. Emerging researchers using these exercises can identify a topic, choose a research strategy aligned with the researcher's interest, create a study title, develop a list of the next steps, and be well positioned to implement an original research project

SIGNIFICANCE STATEMENT

While many family medicine and community health practitioners lack formal training in research, they would like to engage in research. A resource that helps aspiring researchers move from a clinical topic of interest to choosing a practical research approach has been lacking. This article provides guidance for aspiring researchers to identify topics of interest from clinical stories. The article then provides a worksheet activity to support choice of a project by considering six research approaches: survey, semistructured interviews, curriculum development, quality improvement, health policy analysis

and case study research. By comparing each according to the problem, information needed, intervention involved, implementation strategy, and how to evaluate findings and take the next steps, aspiring researchers can choose a practical research approach.

INTRODUCTION

Primary care practitioners can and need to engage in research.^{1 2} The purpose of this article is to assist emerging researchers in primary care, that is, students, residents, fellows and practitioners who are motivated to conduct primary care research, but lack guidance as to how to proceed. The paper addresses this challenge by demonstrating how research questions come from clinical stories, illustrating six feasible research approaches for emerging researchers, developing a title and planning the next steps. This article helps aspiring researchers consider different research approaches. Through the use of worksheets and examples, the main outcome of this article is to identify a topic and choose an appropriate research approach.

Best research questions come from clinical stories

Emerging researchers often say, "I want to do research, but I don't know where to start." Clinical stories provide the best starting point for developing research plans. A story is the narration of an incident or a series of events that becomes the source of research questions. Clinical stories reflect issues that a primary care provider sees, but does not understand or that do not make sense. Clinical stories can be anything that causes one to stop and think, or something with multiple options for treatment with an elusive best choice. Identifying a story of personal relevance will best facilitate and sustain completing a research project.



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Table 1 Illustration for choosing among six research approaches practical for family medicine research1. *Name(s)*: Michael Fetters2. *Research topic*: HPV vaccination3. *Clinical story*: In our clinic serving Japanese and Asian patients in the USA, many parents refuse HPV vaccination for their children.

4. Six practical approaches	Problem	Information needed	Type of intervention	Implementation strategy	Evaluate and plan the next steps
Survey	Immunisations of girls aged 11–12 years old or less on team 3.	What is literature on parent/child attitudes about HPV vaccination?	Develop or adapt existing survey for self-administration?	Distribute throughout the clinic system.	Examine practices in best and worst centres.
Qualitative interviews	Fewer Japanese families accepting HPV vaccine?	What is literature on HPV vaccination in Japan? Cultural issues and HPV?	Interview mother, daughters, physicians.	Conduct interviews in the practice.	Adapt materials, adjust consent, community article.
Quality improvement	Administration seeks 80% vaccine uptake in those aged 11–12 years old.	What is my clinic's HPV vaccination rates? What is literature on QI and HPV?	Organise clinic focus on HPV vaccine, posters, prompts and so on.	Implement PDSA process (Plan, Do See, Act).	Reassess in 3 months, cyclically, make further changes.
Curriculum development	GP residents need training on how to discuss vaccines.	What is the current curriculum? Deficits? Problems? Examples?	Teach knowledge and skills in giving, and communication skills.	Assess baseline, intervene, assess if improved.	Change components of curriculum not effective/popular.
Clinical policy analysis	Should boys 11–12 receive HPV vaccination?	Policy of government, other countries, WHO speciality organisation.	Critique policy.	Examine assumptions, make persuasive argument.	Disseminate to government, specialty organisations.
Case study	Responding to Japanese parents' culturally driven HPV vaccine concerns.	Literature on cultural adaptations to make programme acceptable.	Review clinic rates, interview staff, parents, current media.	Develop culturally adapted programme and assess effectiveness.	Assess rates after intervention, disseminate results.

5. *Research title*: Improving (HPV vaccination of eligible adolescents) in (a family medicine clinic serving overseas Japanese patients): a (quality improvement) study.6. *Next steps*: (1) identify current HPV vaccination rates; (2) discuss with staff members a strategy to improve; (3) search the literature for other similar experiences.

GP, general practice; HPV, human papillomavirus; QI, quality improvement; WHO, World Health Organization.

Where do clinical stories arise?

Clinical stories can arise out of relationships with patients, office staff or other colleagues including subspecialists. Stories often arise from specific settings or transitions between settings, for example, ambulatory, hospital, long-term institution or home care settings. They may arise during training of students, residents or fellows, as questions emerge about clinical care or the best approach to training. Sometimes, stories come from circumstances that recur repeatedly over time or from observations regarding a series of patients. Stories also give rise to anomalies that become research questions.

Activity for getting started: identifying a relevant clinical story

Table 1 illustrates a clinical story that could become the source of a research project with real-world applicability. The topic of the case is human papillomavirus (HPV) vaccination, and comes from my work as a bilingual (English

and Japanese) family physician working in a clinic serving many Japanese and other Asian families.³ Table 2 is for readers to complete in response to the clinical story. To get started, use table 1 as a reference and complete in table 2 the following three items: (1) researcher name(s), (2) research topic and (3) a clinical story.

A clinical story

Consider the case of a 46-year-old obese Asian woman who visits the office frequently and often with different practitioners. Her medical history includes recurrent visits for chest pain, hypertension, hypercholesterolaemia, type 2 diabetes, and suspected anxiety and depression. Two previous cardiologists who evaluated her concluded she had non-cardiac chest pain. She says they told her that her "heart was fine" and advised her "not to worry". The patient has other physical complaints, including intermittent aches, fatigue, headaches and food allergies. On

Table 2 2 Activity for choosing among six research approaches practical for family medicine research

1. Name(s):					
2. Research topic:					
3. Clinical story:					
4. Six practical approaches	Problem	Information needed	Type of intervention	Implementation strategy	Evaluate and plan next steps
Survey					
Qualitative interviews					
Quality improvement					
Curriculum development					
Clinical policy analysis					
Case study					
5. Research title:					
6. Next steps:					

questioning, she is adamant as in previous visits that she has no problems with anxiety or depression. She agrees to laboratory testing and regular follow-up, but asks for another referral to cardiology as the visit comes to closure. While the details vary, visits with patients such as this one occur frequently in primary care.

Research design starts with the story and the question

A number of questions arise from the story of this patient. How can primary care practitioners optimally manage the care of patients with multiple chronic problems? How can they efficiently recognise common mental health problems like anxiety and depression? What is the acceptability of a diagnosis of anxiety and depression for patients, and how might it differ among different cultural groups? How might it differ between men and women? What are the best ways to follow patients with chronic diseases over time? Concerns such as these that arise from this story can be framed as clinically meaningful research questions.

Activity: getting started by making a list

Developing a list of interesting clinical stories or problems that occur during patient care provides a great starting point for conducting research. Table 3 provides an organisational structure for recording important details. This structure serves as a reminder of the importance of stories. Completing the table helps distinguish whether the identified problems resonate as issues of real

or passing interest. The list can be completed electronically, in a computer or handheld device, or in a paper notepad. The list also functions to stimulate ideas that can be later discussed with a colleague, for example, practice colleague, resident, fellow or advisor, in order to reflect about the personal meaning, clinical value and practical significance of the issues, and potential for research.

How to recognise a good clinical story

Recognising a good clinical story requires an inquisitive and receptive mind when problems arise that lack good answers. What are the ways to recognise good clinical stories? As an early third-year resident, I had a 52-year-old female patient new to me who came for well-woman check-up in my family medicine clinic (Table 3). On review of her chart, I noted she had a history of obesity, hypertension and uterine fibroids. I also noted that she was status-post total hysterectomy due to her fibroids. I was puzzled both if I should do a Pap smear, and if so, how to do it. I consulted with my faculty preceptor. “That is a great question!” she responded. In looking at the literature, I found that recommendations on whether and how to do a Pap smear in this setting were notably vague, absent or conflicting. This story led to the question: What is the utility of obtaining Pap smears for women who have undergone total hysterectomy for benign reasons? I used a clinical policy analysis to explore this question and

Table 3 Capturing six critical elements of clinical stories that arise in family medicine

When	Who	What	Where	Why	How	Comment
10 September 1991	52-year-old female patient for well-woman examination.	History of total hysterectomy.	Family medicine clinic.	Unclear if Pap test needed.	Conducted scraping of vaginal cuff.	Faculty confirmed importance of the problem.

published an article in response.⁴ Later, with the support of a small grant, I conducted a cost-effectiveness analysis on the topic as well.⁵

Recording details of clinical stories

Let us now review how the case above served as a starting point for developing a research question, and how we can replicate the process of question development and choice of method using other stories. Look at [table 3](#) and note the steps to follow. Then retrieve and use your list of clinical stories to generate a research question. Using full sentences if possible, complete the other sections of the table. Record *when* the event occurred, especially specific date in the event of a need to review records. Indicate *who* was involved, for example, specific patient, learner or administrative personnel. Record in detail what happened. Indicate *where* the event occurred, for example, ambulatory setting, hospital and so on. Record *why* the care, incident or phenomenon was perceived to be a problem. Describe *how* the problem was responded to, and as relevant, the outcome of the response/intervention. Use the comment section to record any other information that might be important, including ideas or other reminders that might be helpful at a later time, for example, others involved, follow-up issues and so on.

Analogies between clinical practice and conducting clinical, management and education research

The five major steps of the approach to research enquiry are remarkably similar to the care of patients (see [table 4](#)).

Practitioners new to research may find this analogy helpful for thinking about the research process.

'Trying On' feasible research approaches

Having identified topics of interest, emerging researchers often become stuck at the fourth step in [table 4](#). As they are uncertain about what approach to use, it is hard to identify and settle on a strategy for intervention and/or research. I advise 'trying on' a variety of options. This means considering the various research approaches, thinking through the work involved and the expected outcomes. Think of the analogy of trying on different clothes to find out what is the best 'fit'. This article now focuses on 'trying on' the six different approaches featured in this special issue of *FMCH*.

Activity for 'Trying On' the six featured approaches

Using [table 1](#) as a reference, complete section 4 of [table 2](#). Trying on all approaches will provide the most thorough opportunity for choosing. To fully benefit from the exercise, try on at least two. This exercise will help narrow down a decision about one or two preferred approach(es) so as to focus reading on the candidate methodological approaches. The following discussions and the full papers on these topics in this special issue can be used as references.

Feasible research approaches for primary care

The research approaches addressed in this special issue of *FMCH* include (1) survey research, (2) qualitative

Table 4 Five similar steps in the process of clinical care, and conducting clinical, management and educational research

Major steps	1. Identifying the problem	2. Gathering information	3. Determining whether to proceed	4. Implement an intervention	5. Evaluating the effect of intervention
Clinical care	Identifying the patient's chief complaint.	Gathering information through the history and clinical references.	Assessing the problem and available information.	Formulating and implementing a treatment plan.	Assessing the outcome of the intervention and revising the treatment plan based on the outcomes of the intervention.
Clinical research	Identifying the problem/question.	Gathering information through a literature review.	Assessing whether the topic merits further investigation.	Formulating and implementing an intervention or project.	Evaluating the results and changing practice based on the findings.
Management research	Identifying the management or administrative issue.	Gathering information about current office practices, other management or administrative approaches.	Assessing if the challenge warrants further intervention.	Formulating and implementing a quality improvement project.	Assessing the impact of the management or administrative change, and evaluate the need for additional change.
Education research	Identifying the educational problem.	Gathering information about other curricula, teaching strategies.	Evaluating if there are alternative approaches or if innovation is needed.	Formulating and implementing a new curriculum or educational intervention.	Evaluating the curriculum or educational intervention and modifying as needed.

Table 5 Published examples of research on HPV for the six featured methodologies

Major steps	1. Identifying the problem	2. Gathering information	3. Determining whether to proceed	4. Implement an intervention	5. Evaluating the effect of intervention
Survey research ⁸	What are primary care physicians' perspectives about HPV?	Identified increasing prevalence of cervical and throat cancer, but missed opportunities in prevention.	Created a survey on demographics and five major constructs.	Conducted national survey of paediatricians and family physicians.	Identified steps for addressing gaps and future research.
Semistructured interviews ¹¹	How does HPV decision making occur in clinical offices?	Identified HPV vaccination rates as low, and the decision-making process about vaccination to be poorly understood.	Developed interview guide with questions appropriate for adolescents, mothers and clinicians.	Conducted semistructured interviews with the three groups.	Perspectives were different for each stakeholder group; advised strategies to engage parents and teens.
Curriculum development ²⁵	How to promote interest in HPV vaccination and promote uptake?	Identified HPV as significant public health problem of boys and girls being at risk for cancers caused by HPV.	Developed an online educational tool with video, fact sheet and references.	Evaluated the curriculum with attitudinal ratings and open comments.	Not explicit, but implied feedback being used to improve programming.
Quality improvement ¹⁴	Low HPV vaccination rates across paediatrics practices recognised as problematic.	Identified chronic care model to guide quality improvement efforts.	Developed an HPV change package for clinical sites, process measures and outcome measures.	Different practices presented the strategies used and outcomes in their practices.	Recognised potential utility for different strategies and need for ongoing interventions.
Health policy analysis ¹⁶	HPV vaccination was inconsistently supported in Canadian provinces.	Identified literature emphasis on HPV infection as female cancer risk factor, but not male cancer risk factor.	Examined burden of HPV, efficacy of HPV vaccination, obstacles to male vaccination, new evidence, equity and public advocacy.	Systematic consideration of issues and disseminated report through Canadian medical literature.	Canadian National Advisory Committee adopted policy supporting vaccine for males 9–26 years old.
Case study ²¹	Resistance to HPV vaccination in Uganda despite WHO policy supporting HPV vaccination.	Identified sociocultural concern that HPV vaccination encourages early sexual debut of young women.	Compare young women's responses to vaccinations by comparing similar communities, one vaccinated and one not vaccinated.	Used surveys and focus group interviews to compare the behaviour of HPV-vaccinated and non-vaccinated school girls.	Identified no difference in sexual debut between communities and advocated routine for HPV vaccination.

HPV, human papillomavirus; WHO, World Health Organization.

interviews, (3) curriculum development, (4) continuous quality improvement, (5) clinical policy analysis and (6) case study research. To illustrate the six approaches, this article features examples for each methodological approach applied to the topic of HPV vaccination (table 5). For example, suppose a resident physician consulted with a faculty about an interest in doing HPV vaccine research. The illustration in table 1, section 4 suggests how the topic could be pursued with each type of project. Below, examples from the literature illustrate the application of each. While some examples were conducted nationally, the same research could be conducted in an emerging

researcher's own community, clinical practice (especially if serving a unique population) or in one's residency. By addressing a gap in the literature, the findings could yield a scholarly publication. Table 1, section 4 illustrates how I might conduct this research and can guide completion of table 2, section 4.

Survey research

Researchers who engage in survey research may begin by identifying information for inclusion in the survey through qualitative procedures.⁶ Surveys involve a series of questions delivered to a target population. When

engaging in survey research, using a previous survey that has been demonstrated to be reliable and valid can be very practical. Unfortunately, existing surveys do not address the issues of interest to primary care researchers. Emerging researchers can create a survey, but should be methodical and patient. Experienced survey methodologists go through extensive revisions, cognitive testing and pilot testing. Surveys often include closed and open-ended questions.⁷ Responses are summarised and the findings examined. Analysis of data frequently involves a comparison between one or more groups for differences. **Table 5** illustrates how Allison *et al*⁸ used survey research to assess primary care physicians' attitudes about HPV vaccination.

Semistructured qualitative interviews

While often attributed to Einstein, William Bruce Cameron may have been the first to articulate the concept of 'Not everything that can be counted counts, and not everything that counts can be counted'.⁹ This point illustrates the importance of qualitative research for understanding how things happen, why they happen and the perspectives of particular groups. A key approach to qualitative research is the semistructured qualitative interview.⁶ Research appropriate for semistructured qualitative interviews often involves investigating perspectives, experiences and processes as they relate to a particular phenomenon (**table 4**). While less familiar to many medical researchers, qualitative research has a robust history in numerous fields in the social sciences.¹⁰ **Table 5** illustrates how Hughes *et al*¹¹ explored the process of HPV vaccine decision making in paediatric primary care using semistructured qualitative interviews.

Curriculum development

Primary care educators often gravitate to research about curriculum development as an opportunity to advance educational practice according to best evidence.¹² Systematic change in curriculum grounded in evidence involves the same five major steps illustrated in **table 4** and follows a research approach by (1) identifying a deficit in performance, (2) assessing current educational efforts, (3) developing a curriculum, (4) implementing the curriculum and (5) evaluating the impact of the curriculum change and modifying. **Table 5** illustrates how the Centers for Disease Control and Prevention developed an online curriculum to promote interest in HPV vaccination.¹¹

Quality improvement

In administration of a clinic, primary care practitioners may be positioned or requested to examine current practice approaches and optimise them.¹³ Continuous quality improvement provides a framework for improving practice performance (**table 4**): (1) identifying the problem or unintended outcome of clinical care or practice management; (2) assessing the factors involved; (3) developing an alternative strategy to the current approach; (4) implementing the alternative strategy; and (5) evaluating

the effects of the alternative strategy and modifying it, and thus resuming the cycle. **Table 5** illustrates how the Quality through Technology and Innovation in Pediatrics organisation developed a quality improvement effort to support practices to increase HPV vaccination rates.¹⁴

Clinical policy analysis

A clinical policy analysis process can apply locally or globally.¹⁵ That is, as new recommendations or evidence emerges, a solo-practice physician or physician group will need to decide whether to follow recommendations. Alternatively, as illustrated above under the 'How to recognise a good clinical story' section, a seemingly simple problem can have implications for national policy. Policy work can also be conceptualised under the five steps of **table 4**. This process involves (1) identifying relevant policies or guidelines addressing the health issue; (2) assessing the development of the policy and consulting relevant literature; (3) analysing the policy based on a framework; (4) disseminating the policy, for example through publication, or perhaps locally within an organisation or even within a practice; and (5) evaluating the impact of the policy recommendation, for example, was there uptake by one or more organisations. **Table 5** illustrates how Shapiro *et al*¹⁶ used health policy analysis to examine the rationale for vaccinating male adolescents in Canada.

Case study research

Primary care practitioners may be engaged with unique populations in their communities, work in international projects, develop novel teaching approaches or develop unique clinical practices. These activities and many others can be studied or evaluated using a case study approach.¹⁷ Case studies may use qualitative or mixed-methods data collection.¹⁸ A case study involves forming a research question about a particular phenomenon (the case), collecting and analysing the information, and developing a deep understanding about the phenomenon. There are many different types of case studies (eg, single and multiple) and purposes of case studies.¹⁹ Broadly speaking, case study research may illustrate a unique phenomenon, an intrinsic case, or be used to illustrate a general or typical problem, an instrumental case.²⁰ As in **table 4**, the five major steps have similarities to the other approaches: (1) identifying a phenomenon of study and bounding it; (2) searching for informative literature about the phenomenon; (3) assessing if the case is sufficiently unique and informative for a novel addition or expansion of the literature; (4) collecting information about the case using existing and or new data; and (5) analysing the collected data in response to the question, drawing conclusions and identifying the contribution as part of dissemination. **Table 5** illustrates how Aujo *et al*²¹ used case study research to disprove a cultural resistance to uptake of HPV vaccination stemming from concern that receiving HPV vaccination leads to early sexual debut among Ugandan girls.

Table 6 Writing a title that fits your research methodology

Methodology	Script	Example
Survey	What are (POPULATION) attitudes towards (TOPIC) in (LOCATION): a (METHODOLOGY) investigation.	What are (parent) attitudes towards (vaccination of their 11–12 year olds) in (Haidian District): a (survey) investigation.
Qualitative interviews	What are (POPULATION) perspectives about (TOPIC) in (LOCATION): a (METHODOLOGY) investigation.	What are (parent and adolescents') perspectives on (vaccination of their 11–12-year-olds) in (community health clinics): a (qualitative semistructured) investigation.
Curriculum development	Training (POPULATION) about (TOPIC) during (LOCATION): a (METHODOLOGY) project.	Training (GP residents) about (HPV vaccination to adolescents) during (a community health rotation): a (curriculum development) project.
Quality improvement	Improving (TOPIC) of (POPULATION) in (LOCATION): a (METHODOLOGY) project.	Improving (HPV vaccination) of (eligible adolescents) in (a community health centre): a (quality improvement) study.
Health policy analysis	Assessment of (TOPIC) for (POPULATION) in (LOCATION): a (METHODOLOGY).	Assessment of (HPV vaccination) for (adolescent males aged 11–12 years old) in (Canada): a (health policy analysis).
Case study	(TOPIC) for (POPULATION) in (LOCATION): a (METHODOLOGY).	(HPV vaccination) for (adolescent males aged 11–12 years old) in (a clinic serving Japanese patients): a (case study of responding to culturally driven concerns).

Activity: choosing among the selected research approaches

Having ‘tried on’ different research approaches by completing [table 2](#), section 4, the next step involves reading more about the research approaches you have selected. This special issue of *FMCH* contains ‘how to do it’ articles for each of the six research approaches listed. For the top choices, read more about the approaches and consider reading more indepth references listed in each article. Consider reading the full articles summarised to learn how other authors have used specific approaches. Discussing top choices with a research partner, mentor or advisor may help with choosing an approach. Of course, the choice to use another approach may be relevant should none of these six have sufficient appeal or fit.

Composing the project title

Having identified a research topic grounded in clinical care, and an approach that is practical, feasible and a good fit for the researcher’s interest, the next step involves writing a title for the project. Effective titles generally have four elements: the population, the topic, the location of the research and the methodology.²² [Table 6](#) provides formulas for writing a project title and an example for each type of project. Using [table 1](#), section 5 and [table 5](#) as references, compose a title for your study and record this in section 5 of [table 2](#). In reality, the initial title often gets changed and may require further editing.

Activity: identifying the next steps

Using [table 1](#), section 6 as an example, complete [table 2](#), section 6. This section can be completed based on any

number of concerns or ideas. Perhaps conversing with a research partner, mentor or someone else can move the project along. Would further review of the literature move the project forward? A closer reading of the companion reference articles in this special edition of *FMCH* may clarify the commitment to one or another of the approaches. Would duplicating a previous study with a different population serve as an option? Most important, record which of the approaches look to be the most fun or appealing. This factor cannot be underscored in terms of the prognosis for completion of the project. Additionally, reading the articles in this issue on analytical approaches for quantitative and qualitative data provides guidance about how to approach analysing the data.^{23 24}

DISCUSSION

As research needed in primary care settings differs from other clinical settings, it becomes apparent that family doctors need to conduct the research. This article encourages developing meaningful research questions from clinical stories, considering different approaches for investigating the phenomenon of interest and choosing an approach. A title also can help give a proposal ‘life’ by embodying the essence of the project. For the next step, aspiring researchers may wish to turn to the other articles in this special issue of *FMCH* to fully develop research questions and research plans appropriate for the research approach chosen to pursue the identified topic.

Correction notice This article has been corrected since it published. Several text changes have been made throughout the article.

Acknowledgements William Ventres provided valuable critical feedback on an earlier draft. Lilly Pritula, Lois Phizackea and Rania Ajilat provided technical support in manuscript preparation. I am indebted to Benjamin Crabtree for sharing with me the idea of clinical stories as a fantastic source of research questions. I credit Jennifer Hoock with the parallels between research and clinical care idea as she brought the analogy of the clinical enterprise and the research enterprise to my attention. I gratefully acknowledge Ariana Pancaldo for the enthusiasm about this clinical problem that triggered my interest in researching the topic.

Contributors MDF conceptualised, authored, revised, reviewed and revised the entire content of this submission.

Funding Funding of the Mixed Methods Program by the University of Michigan Department of Family Medicine helped make this research possible.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

Guest Chief Editor Michael D. Feters and Timothy C. Guetterman

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