

INNOVATIONS IN EDUCATION

Practice Inquiry: Clinical Uncertainty as a Focus for Small-Group Learning and Practice Improvement

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PROBLEM: Many primary care physicians in nonacademic settings lack a collegial forum for engaging the clinical uncertainties inherent in their work.

PROGRAM DESCRIPTION: “Practice Inquiry” is proposed as a set of small-group, practice-based learning and improvement (PBLI) methods designed to help clinicians better manage case-based clinical uncertainty. Clinicians meet regularly at their offices/clinics to present dilemma cases, share clinical experience, review evidence for blending with experience, and draw implications for practice improvement. From 2001 through 2005, Practice Inquiry was introduced to sites in the San Francisco Bay Area as a demonstration effort. Meeting rosters, case logs, a feedback survey, and meeting field notes documented implementation and provided data for a formative, qualitative evaluation.

PROGRAM EVALUATION: Of the 30 sites approached, 14 held introductory meetings. As of summer 2006, 98 clinicians in 11 sites continue to hold regularly scheduled group meetings. Of the 118 patient cases presented in the seven oldest groups, clinician–patient relationship and treatment dilemmas were most common. Clinician feedback and meeting transcript data provided insights into how busy practitioners shared cases, developed trust, and learned new knowledge/skills for moving forward with patients.

DISCUSSION: Ongoing clinician involvement suggests that Practice Inquiry is a feasible, acceptable, and potentially useful set of PBLI methods. Two of the Practice Inquiry’s group learning tasks received comparatively less focus: integrating research evidence with clinical experience and tracking dilemma case outcomes. Future work should focus on reducing the methodological limitations of a demonstration effort and examining factors affecting clinician participation. Set-aside work time for clinicians, or other equally potent incentives, will be necessary for the further elaboration of these PBLI methods aimed at managing uncertainty.

KEY WORDS: clinical uncertainty; clinician small group; clinical judgment; practice-based learning and improvement (PBLI).

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PROBLEM

Primary care physicians (PCPs) in nonacademic settings have few safe and reliable forums where they can reflect and learn from the clinical dilemmas inherent in their work. With the collaborative learning of residency training no longer available, clinicians often adopt idiosyncratic approaches when they encounter patient-care situations that cause them to question the limits of their own knowledge, what is knowable, and how to distinguish between their own knowledge limits and that of the medical canon—in short, clinical uncertainty.¹ The methods PCPs have traditionally relied upon to tackle uncertainty include: “curbsiding” colleagues, consulting print and electronic literature, making referrals to specialists, employing “watchful waiting,” and CME courses for generalized updates in knowledge and skills.^{2–4} In addition to questions about method effectiveness,^{5–7} the current era of exponential knowledge growth, expanding patient volume, competing evidence-based care agendas (e.g., acute, chronic, and preventive), and the public’s expectations for health fixes have made dependence on these familiar methods more difficult.^{8–11} Nonetheless, the need for managing case-based dilemmas remains critical as clinical uncertainty affects care outcomes, resource utilization, and patient and physician satisfaction.^{12–15}

Although contexts for coping with uncertainty have changed, most physicians would support Light’s 1979 observation that “regardless how technically developed a professional field is, it will define the treatment of problematic cases as its true work.”¹⁶ Social constructivist learning theorists,^{17,18} medical educators,^{19–21} and primary care researchers²² identify the problematic patient case as a powerful professional learning opportunity. Whether and how one decides to take on these problems in the “swampy lowlands”²³ of practice become, according to Guest, decisions about “deliberate practice.”²⁴ Practitioners develop expertise when they move from their comfort zones to examine problems “at the upper limit of the complexity they can handle;” they learn, and iteratively gain mastery through cycles of reflecting on practice, obtaining feedback, and adjusting performance.^{24,25}

Recent emphasis on “practice-based learning and improvement” (PBLI) provides an appealing framework for learning

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DILEMMA CASE GUIDE

Group Learning Tasks	Clinician/Facilitator Example Responses*
<p>Presenter: (With assistance of facilitator)</p> <ul style="list-style-type: none"> ▪ Describes patient dilemma & provides pertinent data ▪ Solicits colleagues' knowledge/skills, clinical experience ▪ Engages colleagues in collaborative problem-solving: <ul style="list-style-type: none"> • Sharing clinical experience • Offering speculations relevant to case • Addressing knowledge/skill gaps • Finding/ appraising medical literature & other "evidence" • Reconstructing approach to patient 	<p>"I can't understand what is causing this patient to have bilateral leg pain." (42-year-old single mother who also cares for her frail mother.)</p> <p>"What have I overlooked in my investigation so far?"</p> <ul style="list-style-type: none"> ▪ "I hear your concern re pain med abuse. My experience with similar patients..." ▪ "I wonder what <u>she</u> thinks is wrong?" ▪ "What is known re long-acting narcotics?" ▪ "Any good systematic reviews on this?" ▪ "I'm realizing that I know nothing about her the family..."
<p>Facilitator encourages reflection/insights on original dilemma, group discussion; literature review, patient follow-up and thoughts regarding implications for care in clinic/office setting</p>	<p>"We are at the end of the hour. How do things look? What literature review could we do? Can you get back to us with what happens at the next? Are there larger quality issues here?"</p>

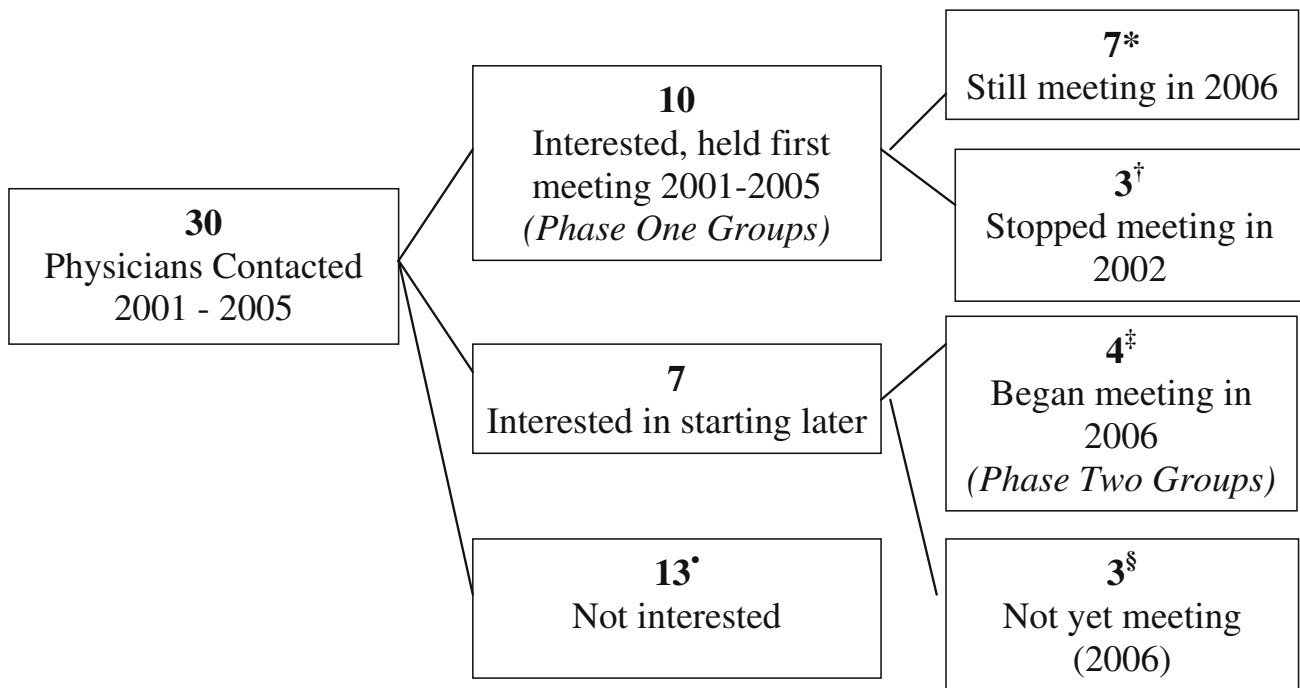
PRACTICE PANEL REFLECTION GUIDE

Group Learning Tasks	Clinician/Facilitator Example Responses
<p>Facilitator asks colleagues:</p> <ul style="list-style-type: none"> ▪ Write down names or phrase descriptions of as many patients as you recall seeing in last 4-5 clinics ▪ By each name, write a word/phrase ▪ Read through phrases to create sort 	<ul style="list-style-type: none"> ▪ Most clinicians write down 10-20 names easily ▪ Examples: "Always enjoy seeing." "Comes with Web pages explaining causes of vague sx." ▪ "Fun-to-see" versus "pain-in-the-neck;" "stable" versus "unstable" versus "unclear status"
<p>Colleagues:</p> <ul style="list-style-type: none"> ▪ Share categorization approaches ▪ Consider re-categorizing patients ▪ Select 1-3 categories similar across colleagues 	<ul style="list-style-type: none"> ▪ "We all have a 'compliant' patient group" ▪ "My categories work better if I use yours as sub-groups." ▪ "Three of us have a group for web-savvy patients with medically-unexplained symptoms."(MUS)
<p>Next Meeting: Each clinician to present 1 patient from "web-savvy, MUS patients" Facilitator to start initial literature review</p>	<p>Key question: "How do we best engage Internet users with MUS?" "What does the literature tell us about management strategies for these patients?"</p>

Figure 1. Case-based learning guides.

from clinical uncertainty. Defined by Moore and Pennington as an approach for "reflection on and appraisal of one's own delivery of clinical care that results in pursuing an opportunity for improvement",²⁶ PBLI encompasses multiple methods that range from individual learning portfolios containing practice question literature searches to virtual clinician groups using interactive methods to discuss real patient cases.²⁷⁻²⁹ Whereas the effectiveness of many PBLI methods is unknown, social interaction, a key element in some PBLI approaches, appears to increase physician satisfaction with learning and improve certain practice and patient outcomes.^{30,31}

A real-time, face-to-face, PCP small group could be an attractive PBLI venue for tackling case-based dilemmas. Small-group sessions recall the tradition of learning medicine at the bedside. In addition, newer methods model the advantages of learning with and from colleagues (e.g., problem-based learning in medical school³² and case-based EBM skill training in resident clinics³³). A PCP office could form the "learning practice" that Rushmer, Cervero, Parboosingh, and Frankford advocate for supporting clinicians over time as they create, take apart, and reassemble strategies for patients whose problems are "not in the book"^{21,34-36} and build a skills repository for



Physicians' Practice Settings

*4 HMOs, 1 faculty practice, 7 small group practices, 1 community clinic

†1 HMO, 5 community clinics, 1 faculty practice

‡1 HMO—2 meetings (stopped; lack of leadership); 1 community clinic—2 meetings (stopped; wanted real-time case support); 1 large group practice—1 meeting (stopped; lack of leadership);

§1 small group practice, 1 community clinic, 1 correctional facility clinic, 1 across-site group

§3 community clinics

Figure 2. Group recruitment and meeting status.

uncertainty management.³⁷⁻³⁹ Engaging the problems of work at work allows for an explicit “integration of clinical judgment with the system dimensions of practice”²¹, making primary care practice both more efficient and personalized.

We wondered whether a PBLI experience focused on case-based clinical uncertainty would generate interest and commitment from PCPs in the Bay Area of San Francisco and designed “Practice Inquiry (PI)” as a set of methods to pilot in the office/clinic setting. In this study, we describe the PI demonstration effort and outline suggestions for future work.

PROGRAM DESCRIPTION

Practice Inquiry. Practice Inquiry (PI) is a set of methods that structure how PCPs could collaborate over time in learning from their patients' case-based clinical uncertainties. They have been derived from the workplace focus of UK GPs' practice meetings,^{40,41} the relationship-centered emphasis of Balint Groups,⁴² and the “EBM-based/reality-based” direction of the Canadian PCPs' small learning groups.⁴³ The PI group

consists of clinician colleagues, each with a patient panel, who work at the same practice site. Group members engage one another through flexible application of a dilemma case guide or a practice panel reflection guide. These guides suggest steps for identifying dilemma cases, exploring causes and consequences of uncertainty, searching for evidence, speculating about intervention options, and articulating new steps for moving forward with patients (see Fig. 1 online). Clinician group members or an invited, external member facilitates by guiding discussion, supporting searches for and appraisals of evidence, and coordinating meeting logistics.

Practice Recruitment. Between fall 2001 and spring 2005, 30 physician practice leaders, known to the authors, were approached about holding initial PI meetings at their sites. Seventeen expressed interest; 13 cited limited time and satisfaction with current CME as reasons for declining. Of the 17 interested practices, 10 held initial PI meetings to introduce methods, and 7 continue to meet regularly (phase-1 groups, 65 clinicians). The remaining 3 discontinued meeting in early 2002. Telephone interviews with these groups' physician contacts regarding reasons for discontinuation

Table 1. Description of Phase-1 Practice Inquiry Groups by Key Characteristics

Group	Location/Site	First Meeting Date; Pre PI, Case-Based CME?	Clinicians Membership; Specialty, Mean Attendance	Meeting Time, Frequency, Length	Facilitator
Group 1*	San Francisco, CA County-funded community health center	October 2002 No	5 FP [§] 4	"Admin" time, 1 h, every other month	Rotated among group members
Group 2*	San Francisco, CA County-funded community health center	December 2002 No	3 GIM [§] , 3 FP 5	"Admin" time 1, 1/2 h, every other month	LS (author)
Group 3	Oakland, CA HMO Medical Center (Department of Medicine)	April 2003 No	6 FP, 7 GIM, 3 med subspecialists 7	Lunch, 1 h, twice monthly	LM (author, physician group member)
Group 4	Oakland, CA Federally funded community health center	July 2004 1/2 h, weekly no case log	11 FP, 8 GIM, 4 Ped, 1 NP, 1 PA 10	Lunch, 1/2 h, weekly	Physician group member
Group 5	Richmond, CA County-funded community health center	February 2005 No	8FP, 2 NP 7	After work, 1 1/2 h, every other month	LS
Group 6	San Francisco, CA University faculty practice	March 2005 No	9 FP 6	Before clinic + "admin time", monthly	LS
Group 7	San Francisco, CA County-funded community health center	June 2005 No	5 FP, 1 GIM, 1 NP 5	"Admin time", 1 h, every other month	LS

*These groups stopped meeting for 18 and 9 months, respectively, because of budget cuts; each resumed meeting in 2005.

§FP = Family practitioner, GIM = general internal medicine, Ped = pediatrician, NP = nurse practitioner, PA = physician assistant

cited lack of committed leadership and need for other types of clinical support. Four of the seven remaining interested practices began meeting in 2006 (phase-2 groups, 38 clinicians), and three have yet to initiate meetings (see Fig. 2 for recruitment detail).

Data Collection and Analysis. With phase-1 clinicians' consent, data from four sources were collected from fall 2002 through summer 2005. These included: (1) *PI Meeting Rosters* with the date, location, attendance, and meeting length for each PI meeting; (2) *Dilemma Case Logs* containing descriptions of case-based clinical uncertainties (coded by facilitators as predominately a diagnostic, therapeutic, relationship, or negative outcome, with validation by presenters at subsequent meetings), pertinent case data (e.g., patient age and current medications), and plans for follow-up (e.g., review specific literature); (3) *Formative Feedback Surveys*, mailed in fall 2003 to all clinicians participating in active groups (see Table 1), which asked: What have you liked about practice meetings? What could make them more worthwhile? Why, or why would you *not* continue to attend meetings? (Survey responses, identifiable only by group, were transcribed and analyzed by each author, as well as a psychologist educator and a family physician educator, expert in qualitative data analysis, using a first-stage "in vivo" coding approach).⁴⁴ The authors met, discussed their coding schemas, compared approaches, selected one schema, and recoded sufficiently to generate

agreed-upon themes. LS recoded all data, refined themes, and circulated them for final approval; (4) *Handwritten Field Notes* describing group discussions transcribed for 64 of the 137 PI meetings: 42 were facilitated or observed and transcribed by LS and 22 by LM. Of those transcripts judged to be most complete, 15 were selected proportionate to the number of meetings each group held. These were reviewed by LS and LM for common themes. Exemplars of each theme were circulated to other authors for approval.

PROGRAM EVALUATION

Meetings and Attendance. The seven phase-1 groups met for periods of 7 months to 3 years as a result of different start dates within the 2002–2005 data collection period (see Table 1). Attendance and group size remained stable over 137 PI meetings despite one- to three-member turnover mostly from job change. For five- to six-member groups, all clinicians working that day attended meetings. For nine-plus-member groups, three to six clinicians attended regularly, with an additional three to six attending on a less regular basis. Beginning in 2005, attendees received category-I CME credit. Authors LS and LM facilitated four groups and one group, respectively; clinician members facilitated two groups.

Table 2. Representative Case Dilemmas Presented at Practice Inquiry Meetings, Phase-1 Groups

Case Dilemma	
Patient-clinician relationship	
#1	This patient, also a friend, wants me to continue being his PCP after being diagnosed with prostate CA (at earlier social gathering, he asked me about difference in testicular size, and I told him not to worry).
#2	I don't know how to work with angry, defeated patient who has fired previous physician, expects same-hour return phone calls, and berates me for lack of improvement in symptoms lacking organic basis.
Treatment	
#1	I am seeing a 53-year-old female with chronic Hep B, HTN, DM, elevated LDL, and slightly elevated LFTs. Should I start her on statins?
#2	I don't know how to proceed with a morbidly obese, developmentally delayed woman of 43 with sleep apnea and presumed right-sided heart failure with pulmonary HTN, who now wants bariatric surgery.
Diagnosis	
#1	This is a 68-year-old female with a history of chemotherapy for lymphoma. She has new symptoms of a "hot feeling in her body"; she is afebrile with normal labs. How should I approach her workup?
#2	Does this 30 year-old Asian female have PCOS and how can I help her become pregnant?
Negative outcomes	
#1	I am hurt and confused regarding what I found out accidentally about a patient. A physician friend in private practice is now seeing my patient; patient left me because I did not prescribe a statin; she blames not being on statin for her subsequent TIA. How could I have worked differently with this patient?
#2	I have male patient in late 1960s with presumptive diagnosis of temporal arteritis; on low-dose steroids for several years; was admitted to the hospital with altered mental status, nausea, vomiting, high white count and sed rate; biopsied for temporal arteritis >> negative; treated with ABX. Hospitalists' new diagnosis: dementia. My realization: missed increasing dementia over time since family members brought him in and answered my questions.

Clinical Dilemma Cases. Across the seven phase-1 groups, we documented 118 dilemma cases discussed in the 64 meetings analyzed. Eighty-five of the cases were presented as individual case dilemmas, and 33 were generated in 10 practice panel reflections; six of the seven groups completed at least one reflection. Of the total dilemma cases, 39% were categorized as predominately clinician-patient relationship, 26% as treatment, 25% as diagnosis, and 10% as negative outcome dilemmas (see Table 2 for representative dilemmas). Recurring relationship dilemmas included negotiating clinician-patient boundaries, aligning patient-clinician expectations, and establishing trust. Recurring treatment dilemmas included decision-making about incidental findings, morbid obesity, developmental disabilities coupled with chronic illness, and nonmalignant chronic pain with/without substance abuse.

A third of individual case discussions produced literature searches done by group members or the facilitator. Systematic reviews and metaanalyses were the most frequent literature formats provided. Approximately one in five cases was discussed in subsequent meetings as "follow-up"; follow-up consisted of 2- to 4-min reports of patient status, literature usefulness, new questions, and/or implications for other patients.

Table 3. Phase-1 Groups' Feedback Survey Responses by Coding Group (N=92)

Coding Groups	N (%) Comments)	Representative Comments
Being with colleagues	51 (55%)	
Gaining renewal through reflection	15	(G2, 2)* Although it was hard to break away from all our work responsibilities, the meetings have forced me to take protected time away from the daily grind to be more thoughtful...
		(G3, 2) I like the idea of reflecting on what we do rather than the daily do, do, do. In addition, to reflect on how what we do affects the patient-physician relationship.
Obtaining colleagues' perspectives	14	(G2, 4) Fresh eyes and ideas on old cases means new ideas...
		(G3, 3) Exposure to a variety of physician/patient encounters and expectations
Developing trust as a group	12	(G2, 3) I learned about my colleagues. I was surprised by some of what was shared in terms of questions they had—I would have thought that I was the only one.
		(G3, 8) Helps develop a feeling of connectedness to peers, which balances out the isolation of clinical practice
Learning new information/skills	10	(G1, 3) Learning efficient ways to deal with complicated but frequently occurring issues
		(G2, 5) Making sure that my knowledge level is not falling too far behind!
Group process/ Meeting logistics	24 (27%)	
More research time	12	(G1, 2) Set aside time to research clinical questions
More case follow-up	4	(G3, 2) Follow-up cases previously discussed in a more "formal" way
Misc	8	(G2, 5) CME would make this more worth my time.
		(G1, 1) Case presentation format all over the map
Role of time	15 (16%)	
Create set-aside time	9	(G2, 3) Meetings come out of clinical time instead of paperwork times.
Time is a problem.	6	(G3, 7) Want to continue but time is always a problem
Not codable in above categories	2 (2%)	(G3, 2) I want to continue.

*G2, 2 = Survey respondent #2 in Group 2

Clinician Feedback. Seventeen of the 23 physicians who returned questionnaires produced 92 comments. Three categories accounted for the majority of comments: the value of "being with colleagues" (55%), group process/meeting logistics suggestions (27%), and "the role of time"(16%).

“Being with colleagues” was further analyzed to yield four subthemes: (1) gaining renewal through reflection, (2) obtaining others’ perspectives, (3) developing collegial trust, and (4) learning specific information/skills (see Table 3 for representative responses). Over half of the respondents commented on time issues related to participation; a third saw time constraints as deterring attendance.

Clinician Group Discussion. Analysis of the 15 PI meeting transcripts yielded four themes: acknowledging uncertainty, receiving validation, generating speculations, and envisioning practice change. In describing dilemmas, clinicians seemed to be willing to reveal knowledge gaps, cognitive biases, and unrealistic expectations: “What should have told me it was temporal arteritis?” “When my gut says cancer, I get a bone marrow biopsy.” “If I had been more aggressive with his cocaine addiction, would this have prevented his hospitalization?” These disclosures appeared to elicit validation from colleagues: “Amazing you got as far as you did... you got the tox screen!” “Patients choose you but you can’t choose them!” “Why in 15 min should we take on more risks?” Such interchanges stimulated speculative thinking as well as metastrategies: “Seems like you could create small successes to build on... like saying, ‘Wow, you took your HIV meds for 4 days!’” “When I have a patient like this, I schedule a special appointment to do a family tree... Then, it all becomes obvious.” Clues that case presenters were thinking aloud, reframing assumptions, and imagining opportunities for change came through statements such as: “You’re suggesting she’s not as worried about herself as I am and, if that’s denial, maybe that’s okay.” “I may not be taking this patient’s depression as seriously as I should.”

DISCUSSION

In this first PI demonstration, as of summer 2006, 11 groups, composed of 98 clinicians, continue to meet on a regular basis. In the seven phase-1 groups, participants willingly presented individual dilemmas, validated each other’s concerns, shared uncertainty management strategies, and responded positively to new clinical perspectives. Despite PCPs’ “beleaguered status” in turbulent times,⁴⁵ these findings suggest the feasibility, acceptability, and potential usefulness of these PBLI methods.

To address PI’s usefulness for practice improvement will require more focused modeling and assessment. Analyses of meeting logs and feedback suggest that participants lacked sufficient opportunities to collaborate in searching for and appraising research evidence, and then blending it with clinical experience to apply to case dilemmas. EBM enthusiasts advocate these skills but provide little guidance for their development.^{46,47} Additionally, limited case follow-up may have truncated the iterative process of integrating feedback and new evidence into changing practice. To better support PCPs in managing uncertainty, more meeting time should be spent on the deliberate practice of blending evidence with experience (e.g., per-case, focused analysis of guideline/relevance⁴⁸) and using case follow-up insights to “reconstruct practice”²⁰ for the individual patient while appreciating implications for the clinic/office as a whole.

Future work must address methodological limitations that threatened this demonstration effort’s external and internal validity. These include a convenience sample from one geographic area lacking private practice PCPs, moderate clinician response to a cross-sectional feedback survey sent to three groups meeting in 2003, and qualitative analyses performed on a small meeting transcript sample and an incomplete dilemma case sample. In addition, limited data collection for achieving theoretical saturation and overlapping datasets hampering data triangulation remain as challenges. Further PI development, undertaken with rigorously designed, coordinated qualitative and quantitative methods,⁴⁹ should examine how contextual variables (e.g., group facilitation) impact case discussion, development of uncertainty management skills, and clinician work-life satisfaction.

Future PI development should not be predicated on the assumption that phase 1 and two groups will continue to thrive, and recruitment of new, heterogeneous groups representing different geographic areas will proceed unabated. Feedback suggests that holding meetings during personal/administrative may be suboptimal and result in even longer workdays. Would the 13 clinician leaders who originally rejected PI have reacted positively if compensated, set-aside time or credits toward board recertification were linked to participation?^{50–53} Because compensating attendance without evidence of impact would be ill-advised, primary care leadership should advocate for studies that examine diverse incentive structures for involvement in PBLI efforts focused on clinical uncertainty and how that involvement affects practice and patient care. Expert management of uncertainty demands no less.

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