

Chapter 9

Practice Inquiry: Uncertainty Learning in Primary Care Practice

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Most primary care clinicians in nonacademic settings lack a practice-based collegial forum for addressing the clinical uncertainty inherent in their work. Practice Inquiry comprises a set of small group methods designed explicitly for engaging case-based clinical uncertainty. Clinical uncertainty is defined as confusion and puzzlement around the diagnostic, management, relationship, prognostic, and/or ethical issues raised by an individual patient case. For the clinician small group that meets over time, these collaborative learning methods offer in-depth facilitated case discussion for addressing real-time patient uncertainties with empathic support, intellectual curiosity, and attention to process.

Practice Inquiry targets clinicians at three levels: practicing primary care clinicians, postgraduate trainees, and medical students. This chapter describes Practice Inquiry for practicing primary clinicians and includes:

- *Beginnings.* This section describes the need for a workplace learning setting where clinician colleagues collaborate to address individual patients' clinical uncertainties (Sommers et al. 2007).
- *Practice Inquiry in the colleague group.* This section illustrates how colleagues collaborate on an uncertainty case. ("Colleagues" refers to physicians, nurse practitioners, and physician assistants in primary care settings who attend Practice Inquiry colleague group meetings and present patients from their own patient panels.)

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- *Conceptual framework.* This section reviews the rationales underlying Practice Inquiry's focus on the colleague group, case-based clinical uncertainty, inputs to clinical judgment, follow-up, and group facilitation.
- An *"inquiry practice."* This section conceptualizes the larger primary care setting within which Practice Inquiry would ideally dwell along with two other forms of collaborative learning under development: *Practice Epidemiology*, a set of strategies for describing patient panels to improve care, and *Practice Mining*, a framework for initiating potentially useful investigations into unexpected and perplexing patient care phenomena observed by clinicians in the course of caring for their patients.

Practice Inquiry as an integral curriculum focus in three US Family Medicine residency programs is described in Chapter 10. A description of Practice Inquiry as a curriculum focus within a longitudinal medical school clerkship is found in [On-line Resource #1](#).

Beginnings

Three events converged in the mid- to late 1990s in San Francisco, California, to provide impetus for Practice Inquiry: the creation of the "Curriculum Template," (Sommers and Marton 2000) a document outlining a novel approach for continuing medical education (CME) in managed care settings; the launch of an office-practice rotation for third year residents at an internal medicine postgraduate training program; and, in the same training program, the initiation of a primary care case conference where residents presented their case-based dilemmas. All three initiatives dealt with preparing clinicians for the twenty-first-century world of primary care medicine in the United States (see Box 9.1).

First, in 1994, a group of California health care policy makers and clinical educators were tasked to assess the CME needs of clinicians in managed care organizations and recommend a comprehensive curricular approach to addressing those needs. The resulting "Curriculum Template" provided a blueprint for a CME curriculum that integrated four core content areas – relationship-centered care, evidence-based practice, team functioning, and reflective practice – and postulated that collegial learning should happen as part of daily practice, "not something occurring outside the routine activities of the physician" (Confessore 1997). The Template outlined a small group learning approach with clinicians meeting in "colleague groups" during set-aside time and using the clinicians' own cases as the substrate for learning. The template writers had been inspired by the Balint group model, a time-honored method for individual case discussion with emphasis on the clinician–patient relationship (see Chapters 4 and 5) and a more recent Canadian

Box 9.1 Primary Care in the United States

Governance of the US Health care System: The US has a market-based health care system largely dependent on the private ownership of health care resources and the purchase of private health insurance. The federal government, through the Department of Health and Human Services and state and local governments, provides public health insurance coverage for the elderly, the disabled, and low income individuals; operates or funds care delivery programs for low-income medically underserved populations, military personnel and veterans, and Native Americans; and monitors, regulates, and evaluates the delivery of health care services. There is no central governing body that manages or otherwise exerts global control of the health care delivery system.

Breakdown of Health Insurance Coverage: In 2010, 64% of individuals reported having coverage through a private health insurance plan, predominantly employer-based; 31% reported having coverage through a government health insurance plan; and 16% reported having no health insurance (*estimates by type of coverage are not mutually exclusive as individuals can be covered by more than one type of health insurance plan during the year*) (DeNavas-Walt et al. 2010).

Primary Care Clinicians: Primary care is provided by physicians, nurse practitioners, and physician assistants. Primary care physicians (PCPs) are doctors of medicine (M.D.) and osteopathy (D.O.) who have completed a 3-year accredited residency program in family medicine, general internal medicine, or general pediatrics. Approximately 30% of US physicians are primary care physicians (COGME 2010), with an estimated 90 PCPs per 100,000 people (GAO 2008).

Nurse practitioners (NPs) are registered nurses who have completed an accredited masters or doctoral level educational program in advanced practice nursing. NPs are certified by an individual state's nurse practice act to either practice independently or through a required collaborative agreement with a physician. Approximately 52% of NPs practice primary care (AHRQ 2011), with an estimated 28 primary care NPs per 100,000 people (GAO 2008).

Physician assistants (PAs) are individuals who have completed a 24–30 month accredited physician assistant education program, generally receiving a master of science degree, and are licensed by states to practice medicine with the supervision of a physician. Approximately 43% of PAs practice primary care, (AHRQ 2011) with an estimated eight primary care PAs per 100,000 people (GAO 2008).

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Box 9.1 (continued)*Organizational Contexts in Which Primary Care Services Are Provided:*

Over 80% of patient visits to primary care delivery sites occur in physician offices (Hing and Uddin 2010). These sites are predominantly independent and physician-owned, small- to medium-sized group practices. Most of these “private practice” PCPs affiliate with networks of independent physicians that contract with managed care health insurance plans offered by employers, unions, and state governments; participating PCPs provide care to individuals and families enrolled in a given health plan, in accordance with a plan’s scope of services and the network’s performance parameters.

Office-based physicians are reimbursed largely through a fee-for-service payment mechanism based on a national fee schedule that reimburses physicians for specific services provided at each office visit; between visit coordination of care functions are not reimbursed. The current fee schedule is weighted disproportionately toward in-hospital and procedural services, resulting in significantly lower overall income levels for PCPs relative to specialist physicians (Berenson and Rich 2010).

Increasingly, PCPs are assuming positions as salaried employees in private and public health care organizations, including group-model health maintenance organizations, hospital system-owned practices, community health center networks, and local government-run integrated delivery systems. In some organizations, salaries are based on incentive-driven compensation formulas.

Health care Reform and the Patient-Centered Medical Home: Recently enacted health care reform legislation is prioritizing the development of large, “accountable,” and integrated health care delivery systems that coordinate health services across the care continuum (Kocher et al. 2010). A new primary care delivery model, the Patient Centered Medical Home (PCMH), is envisioned to serve as a core infrastructure of these systems (Davis et al. 2011). Implementation and evaluation of the PCMH model are currently underway (Grumbach and Grundy 2010).

small group approach to CME incorporating evidence-based medicine (EBM) concepts to address case dilemmas (see Chapter 6).

Second, in 1998, at the internal medicine residency program of St. Mary’s Medical Center in San Francisco, California, my faculty colleagues and I piloted an office-practice rotation that placed residents with general internists who were program graduates practicing in the community. Despite having had initial concerns about seeing fewer patients, these new teachers uniformly gave the pilot rotation high grades. The residents, we learned, provided relief from “hamster care” – each

clinician, following their assigned patients, straightforward and complex, one by one, day after day at a 15-minute clip (Morrison and Smith 2000). When the residents saw patients with them, the clinicians found themselves getting “off the wheel.” They took time to step back, listen and reflect on the resident’s presentation of the clinician’s own patients. In this teaching context, the clinicians reported becoming more deliberate in their assessment of their patients’ problems and relying less on automatic, reflexive habits such as referral to specialists (Barnett et al. 2012). Seeing patients together opened up occasions for sharing how clinicians use a most precious commodity – clinical judgment, what Montgomery defines as “the practical reasoning or phronesis that enables physicians to fit their knowledge and experience to the circumstance of each patient.” (2006). Klass talks about students learning medicine from their teachers and peers, highlighting a critical dimension of this fitting process:

Call it what you will - detailing, apprenticeship, peer mentorship or discussion groups are all different responses to the necessity for judgment to be ‘come upon’ in practice...unlike information and knowledge, the transfer of judgment demands a working collaboration. (2004)

With the license to practice medicine comes the independence from supervision and the opportunity to exercise one’s unique clinical judgment. Is the consequence of this independence the clinician’s virtual isolation from mentors and colleagues whose “working collaboration,” as Klass points out, is critical for honing clinical judgment? The office-practice rotation embedded learning directly into practice, allowing for the kind of informal learning that Coles talks about in Chapter 3. Unfortunately, with more emphasis on productivity coming from integrated health systems that own or contract with primary care practices (Kocher and Sahni 2011), as of 2012, only one of the original seven community-based teachers still welcomes residents in their practice.

Third, in 1998, a “working collaboration” also characterized the focus of a new, one-hour primary care teaching conference held weekly for residents prior to seeing their scheduled continuity patients in the medical clinic. Over the years, the clinic had increasingly enrolled patients presenting with complex medical and psychosocial problems. Struggling to sort out their patients’ diagnostic and management dilemmas and under time constraints to see more patients, the residents had limited opportunity during clinic to “present” their patients for one-on-one teaching. The new teaching conference created a learning space similar to that of traditional bedside rounds where residents could share and discuss specific patients scheduled for that day’s clinic session and put to use their newly-acquired EBM skills. With facilitation by a physician teacher and a behavioral scientist, the residents collaborated in a form of peer mentorship to think through and plan strategies for addressing their patients’ multifaceted dilemmas and acknowledge the clinical uncertainty that Atkinson (1984) and Ludmerer (1999) maintain had been overlooked if not denied during their earlier medical training.

Envisioning life after residency, graduating residents wondered how they would manage in their new practice positions when confronted with case-based uncertainties and 15-minute appointment slots. Would such conferences devoted to actual case dilemmas be available? We reminded them how they had been trained for

“graded and progressive responsibility” with the ultimate goal of becoming independent physicians and “self-directed learners” (ACGME 2009; Slotnick 1999). Once in practice, we assured them they would find resources for coping with and even *tolerating* clinical uncertainty, a well-noted capability of generalist physicians (Thomson 1978; Epstein and Hundert 2002; Ghosh 2004; Mamede et al. 2007a).

Practice Inquiry (PI) in the Colleague Group

The office-practice rotation and the new clinic conference taught us valuable lessons about how clinicians learn together. Keeping in mind the Curriculum Template’s original CME mandate, we decided to ask our community-based teachers and other clinician colleagues in the San Francisco Bay Area to join us in exploring the question that we were now prompted to ask: *What would happen if, once out of training, in their workplace settings, primary care clinicians had set-aside time to meet with their peers in facilitated small groups and discuss patients that stumped them, caused them worry, or for whom what they were doing was not working?*

We wondered whether community-based practitioners, such as our office-practice teachers, would make time for such collegial work given that their practice lives were becoming increasingly constricted due to larger patient loads, proliferating practice guidelines, and administrative hassles (Sommers et al. 2001). In proposing that set-aside time to address uncertainties would benefit primary care clinicians, we were emboldened by Trisha Greenhalgh’s advocacy for an “evidence-based, Balint group” (2002) where clinicians would not have to choose “between evidence-based medicine and old-fashioned clinical intuition,” a setting where uncertainty could be actively *engaged* and not merely *tolerated*.

Box 9.2 The CME Programs

Practice Inquiry: Improving Clinical Judgment and Clinical Practice at the Department of Family and Community Medicine at University of California, San Francisco (UCSF), and at Kaiser Permanente Medical Center Oakland, California

The Practice Inquiry CME Program at UCSF based in the Department of Family and Community Medicine began in 2005 preceded by 2½ years of pilot work. As of Spring 2013, seven PI groups are part of the program. Two PI groups have been meeting in Kaiser Permanente Medical Centers based in the Department of Medicine; one group has been CME-certified since 2005, and the other group is currently applying for accredited CME status. In the US, most states require physicians and mid-level practitioners to obtain “CME credits” in order for licensure renewal.

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Box 9.2 (continued)**Practice Inquiry Groups**

Group site (in Northern California)	Affiliation	First meet- ing	Current members	Meeting frequency/ time	Facilitation
1. Maxine Hall Health Center (San Francisco)	CHC (publicly funded)	2002	6 PCPs 1 NP	Every other month	LS
2. Asian Health Services (Oakland)	CHC (publicly funded)	2004	22 PCPs 1 PA	Weekly	MD member
3. Kaiser Permanente (Oakland)	Private nonprofit HMO	2004	4–7 PCPs 2–3 special- ists	Twice monthly	MD member
4. Lakeshore UCSF FM Faculty Practice (San Francisco)	Private, nonprofit, and university sponsored	2005	6 PCPs 2 NPs	Monthly	LS MD members
5. Potrero Hill Health Center (San Francisco)	CHC (publicly funded)	2006	5 PCPs 1 NP 1 Specialist	Every other month	LS
6. Baywest (San Francisco)	Private practice	2006	3 PCPs 1 NP	Monthly, on hold recruiting members	LS
7. Axis Health Center (Pleasanton)	CHC (publicly funded)	2009	6–8 PCPs 1 NP	Monthly	LS MD member
8. Sutter East Bay Foundation (Albany)	Hospital system- owned PCP group practice	2010	6 PCPs 2 NPs	Monthly	LS
9. Kaiser Permanente (Richmond)	Private nonprofit HMO	2010	5–7 PCPs 2–3 special- ists	Weekly	MD member

PCP primary care physician, *NP* nurse practitioner, *PA* physician assistant, *LS* Lucia Sommers, *CHC* community health center

Practice Inquiry colleague group pilot work began in 2001 in several small group private practices, one large group private practice, three community health centers, and one Kaiser Permanente ambulatory care practice. In 2005, the CME Office of the School of Medicine, University of California, San Francisco (UCSF), accredited PI colleague groups for AMA PRA Category 1 Credit™ for physicians and mid-level practitioners. A similar program was accredited at Kaiser Permanente, Oakland, California. (See Box 9.2 for PI colleague group sites and [On-line Resource #2](#) for CME program details: funding, objectives, participation requirements, key statistics, program evaluation, and the PI Questionnaire, “Your Feedback about Practice Inquiry”).

A Scenario

The colleague group scenario described below uses the *single-case* Practice Inquiry discussion format. (See [On-line Resource #4](#) for multiple-case discussion formats.) The scenario is based on an actual patient case presented in a well-established San Francisco colleague group of seven clinicians (Case details have been modified to safeguard patient confidentiality.). The clinicians work together in the same clinic and meet monthly at noon around a table in the lunchroom. A group member serves as facilitator.

The single case format includes eight phases that, given a moderately complex case, is completed in 50–60 minutes. Experienced colleague groups move more quickly and may discuss two or three cases during one meeting. In this scenario, each group phase begins with a request or question from the group facilitator which starts discussion and guides inquiry, followed by initial responses from the case presenter or colleague group members. Following this initial dialogue, the purpose

The Eight Phases of a Practice Inquiry Colleague Group

- 1. The Uncertainty Statement**
- 2. The Uncertainty Narrative**
- 3. Additional Information**
- 4. Presenter’s Question(s)**
- 5. Inputs to Judgment**
- 6. *the blend***
- 7. Implications for Practice**
- 8. Conclusion**

Fig. 9.1

of each group phase is described and relevant theoretical perspectives regarding clinical judgment, decision-making, clinician behavior and small group process are highlighted, sometimes referencing conversation that occurred later in the group. The eight PI colleague group phases are displayed in Fig. 9.1.

Phase I: The Uncertainty Statement

Facilitator (to the presenter): “Please start our session by telling us about your dilemma.”

Presenter: “I don’t know whether this patient has CHF, may be developing a pulmonary problem, or both. I’ve done what I think is a good initial work-up but maybe I’m forgetting something.”

The colleague presenting the case (case presenter) describes a real-time uncertainty involving the care of a patient. Starting the discussion with an “I don’t know” statement is a bold move and one with which new groups rightfully struggle. The task requires removing one’s “mask of infallibility” and “cloak of competence” (Gorovitz and MacIntyre 1976; Haas and Shaffir 1977). It requires setting aside one’s role as an authoritarian figure that can “mitigate ambiguity and uncertainty” (Rodning 1992) and making a statement about confusion, surprise, or dismay about the care of an individual patient. The task also necessitates that presenters not deny or disregard uncertainties nor should they simply accept and normalize them (Atkinson 1984; Light 1979; Katz 1984).

In making the uncertainty statement, the case presenter foregoes the mantra of the classic patient presentation (e.g., “This is a 60-year-old diabetic female with sudden onset of....”). This formulaic ritual prompts clinicians to present an ordered array of facts about the patient that often delays the unspoken punch line of “I don’t know what is going on here!” Foregoing this ritual allows the case presenter to focus instead on what is important to learn now. This need to learn and to do better for the patient trumps the fear of revealing inadequacy as a clinician, the emotion that Gerrity and colleagues suggest motivates clinicians’ underlying reactions to uncertainty. These reactions express themselves as anxiety, concern about bad outcomes, and reluctance to disclose uncertainty to patients and mistakes to other clinicians (1992; 1995).

For the presenter’s colleagues, seeing one of their own come forward with an uncertainty statement is both disarming (How can I ignore this colleague’s request?) and validating (I’m not the only one who sometimes doesn’t know). Logistically, it announces the topic of initial focus and activates colleagues’ recall of their own experiences with similar patients.

The early research of Renee Fox on medical students offers guidance on how clinicians appreciate the uncertainty statement within the context of a colleague group:

There are three basic types of uncertainty around which the process of ‘training for uncertainty’ in medical school centers is based. There are the uncertainties that originate in the impossibility of commanding all the vast knowledge and complex skills of continually

advancing modern medicine, the uncertainties that stem from the many gaps in medical knowledge and limitations in medical understanding and effectiveness that nonetheless exist, and *the uncertainties connected with distinguishing between personal ignorance and ineptitude and the lacunae and incapacities of the field of medicine itself.* (Fox 1957, italics added)

In the colleague group, the third type of uncertainty expresses itself when the case presenter tells colleagues “I’ve done what I think is a good initial work-up but maybe I’m forgetting something.” They hear their colleague ask, “Is it me? Is it because I don’t have the knowledge to deal with this problem? Then again, maybe I’ve done what I’m supposed to do and should rest easy.” Hearing these concerns, colleagues cannot help but reflect, “If this were my patient, what would I do?”

Phase 2: The Uncertainty Narrative

Facilitator (to the presenter): “Now, tell us what you want us to know about your patient and the uncertainty so that we’re in the best position to help.”

Presenter: “Mr. D is an 87-year-old Latino male, long-time patient who I’ve always enjoyed seeing since he and I love soccer. He is widowed and now lives alone in a studio apartment on a small pension. He has managed to care for himself, takes long walks, and is on meds for hypertension and diabetes. Our clinical pharmacist has been working with him for the past year or so and his diabetes has been in somewhat better control. He also reports that after seeing the nutritionist, he eats less of his beloved chicharrones and pan dulce. Despite all this, he was hospitalized 6 weeks ago for a heart attack. Somehow I hadn’t checked his cholesterol for a while and it was through the roof. I feel really awful about this. In the last month, he has developed wheezing; he is a former smoker and says he quit when he was about 60. I gave him salbuterol and beclomethasone inhalers but I’m not sure it’s helping. Maybe we have to give it more time.... I am wondering if this could be cardiac. I know this sounds strange to say but despite his years and his conditions...oh yes, did I mention, that he also has rheumatoid arthritis? Despite all of this, I really see him as quite vital. But now, I’m worried he seems quite out of it - he’s just not himself. I’m playing telephone tag with the cardiologist and his daughter. His chest x-ray is ambiguous - a slightly enlarged heart, hyperinflation of lungs, and blunting of costophrenic angles bilaterally; the echo is pending.”

To describe the uncertainty, in contrast to how trainees “present” patients to their physician teachers, the clinician tells a story. Past medical history items (e.g., rheumatoid arthritis), for example, are referenced throughout the narrative; other items are left out (e.g., hospitalization details). If the chart is brought to the meeting, it is not passed around. The presenter controls the storytelling.

Recalling what they know about the presenter as a person and clinician, the colleague group’s first task is to listen attentively to the uncertainty narrative. The colleagues listen for how the presenter thinks and feels. They recognize the heuristics based in the intuitive, ‘System 1’ mode of reasoning where

easily-accessed, automatic knowledge is revealed with ease (e.g., “Despite all of this, I really see him as quite vital. But now, I’m worried.....he seems quite out of it – he’s just not himself.”) At the same time they are comfortable with their colleague’s use of the more analytic formulations found in ‘System 2’ thinking (e.g., “His chest x-ray is ambiguous.... a slightly enlarged heart, hyperinflation of lungs....”) (Croskerry 2009). As the colleagues listen to the patient story, they, too, could react intuitively (e.g., “Early dementia?”) Then, more thoughtfully, they might ask themselves, “What are other causes of confusion?”. Dhaliwal describes such back and forth reasoning, stating, “Expert clinical judgment is characterized by an adroit self-regulatory sense of when intuition is insufficient and analysis is necessary” (2011). Alternatively, in mentioning only a small number of potentially correlated cues (e.g., cough, chest x-ray findings), the presenter could be using “fast and frugal heuristics” that adjust reasoning to the specific setting and patient context (Gigerenzer and Gaissmaier 2011).

Phase 3: Additional Information

Facilitator (to colleagues): “What additional information would help you to better understand the uncertainty for this patient? Let’s limit this to 3-4 simple questions.”

Colleagues:

- “What medications is he on?”
- “Does he have clinical signs of CHF, neck veins, or edema?”
- “How functional is he now?”
- “When did his wife die? How is he managing?”

The colleagues actively elicit additional data important to their understanding of the case. To avoid overwhelming the presenter, the facilitator limits the number of questions. Each question posed becomes a window that opens up a potential topic of interest. While listening and responding to these questions, the presenter’s memory of illness scripts/trajectories become activated and updated for “connecting the dots” (Lloyd and Reyna 2009; Hertwig et al. 2013). Could Mr. D’s cardiac status be more compromised than originally thought? Is he still taking long walks with his dog? Feeling more at ease, the presenter mentions, “As I think about it, I’m realizing that possibly Mr. D was more short of breath, maybe even confused, at our last visit.” Colleagues’ simple questions spark new insights that the presenter then articulates. From these insights, colleagues gain better awareness of the presenter’s automatic, tacit knowledge—working knowledge about Mr. D that the presenter has gained over the years but cannot easily put into words. As discussion continues, colleagues give “language to practice” since tacit knowledge is best passed on through social interaction (Mattingly and Fleming 1994; Fenton et al. 2001).

Phase 4: Presenter's Initial Question

Facilitator (to the presenter): “Now that we have additional information about Mr. D, provide us with a question to start discussion.”

Presenter: “I know that other things could be going on here, but I don’t want Mr. D to suffer an acute event at home. How to prevent this?”

The original uncertainty takes on new dimensions as the presenter hears colleagues’ questions, recalls more of Mr. D’s symptoms, and worries how the patient might die alone, suddenly, at home. This is where discussion needs to start. To show respect and offer validation, colleagues exhibit patience. They might want to begin somewhere else (e.g., Mr. D’s cognitive functioning), but they appreciate the value of beginning “where the presenter is.” Increasingly, primary care clinicians are said to be suffering from “information chaos” (Beasley et al. 2011). Smith suggests that just as commonly clinicians’ questions reveal their need for psychological support, affirmation, commiseration, and feedback. He adds, “such ‘information needs’ are never likely to be met by computer or by books or journals and may be one explanation why doctors tend to turn first to colleagues for information.” 1996)

Phase 5: Inputs to Judgment

Facilitator: “We all now know what’s on our presenter’s mind. Rather than answer the question directly, consider asking another question, one that might open a new direction previously not considered. You can also make an observation or request more information.”

Colleagues:

- “I can see why this patient is worrying you.... sorting out the cardiac from the pulmonary issues can be tricky. In residency we ordered a BNP (Brain Naturetic Peptide) to sort it out.”
- “I’ve had a couple of patients where the cardiologist has ordered that test. Since I went to medical school awhile back, I’m not clear how it helps. We should look it up.”
- “Your relationship with him seems really solid. What would it be like to talk with him about missing that cholesterol panel?”
- “You’ve known this patient for a long time. Tell us more about what you mean when you say, ‘He’s not himself.’”
- “I’m curious about his mood. Does he still light up when you talk soccer?”

The facilitator assists the presenter to consider colleagues’ questions and observations at a pace allowing for careful listening and reflection. Colleagues commonly make “inputs to judgment” in five arenas:

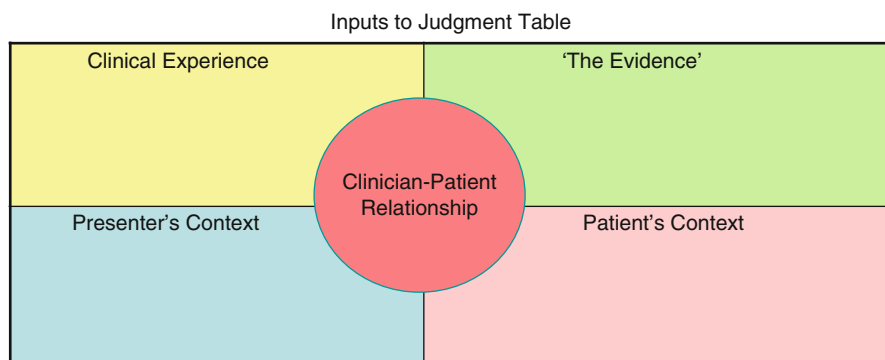


Fig. 9.2

- Clinical experience (e.g., how does heart failure typically present following a heart attack?)
- “The evidence” (e.g., what test characteristics for the BNP test are important to consider in a patient like Mr. D?)
- Clinician context (e.g., what is the impact of the presenter’s regret in making decisions for Mr. D?)
- Patient context (e.g., what is important to know about Mr. D and his worldview?)
- Patient–clinician relationship (e.g., how can “soccer talk” be diagnostic?)

The five arenas are graphically displayed on the “Inputs to Judgment” table that the facilitator draws on a whiteboard and uses to document colleagues’ inputs in the five arenas. (See Fig. 9.2 and [On-line Resource #5](#) for guidance on using the table.)

One or more of these arenas fit prominently in several well-known approaches to clinical thinking. These include patient-centered care (Levenstein et al. 1986), relationship-centered care (Tresolini 1994), evidence-based medicine (Sackett et al. 1991), Balint Groups (see Chapters 4 and 5), and cognitive and affective de-biasing (Croskerry and Norman 2008). In Practice Inquiry, each input arena bears equal scrutiny for its contribution to engaging the case-based uncertainty. The deliberate consideration of these arenas encourages colleagues to access special expertise and offer novel opinion early in the discussion before conclusions are drawn (Christensen et al. 2000).

Covering the above input arenas in this phase is important, but just as valuable is *how* colleagues ask questions and make observations that encourage presenters to think out loud, reveal assumptions, and voice expectations. For this to happen, colleagues refrain from giving straight advice (e.g., If this were my patient, I would...), hidden advice (e.g., How do you think he would do on the Clock Drawing Test?), or offering interpretation (e.g., It seems to me that what is going on here is...).

Useful inquiry modes include reflecting back what the presenter said, being respectfully curious about something the presenter mentions but does not elaborate, and using the presenter’s own words to craft hypotheses about what could be going on. (See Chapter 7, section “Skills for Narrative Interviewing.”) In responding, the presenter makes connections across input to judgment categories

(e.g., the presenter's sense of *this* patient in contrast to colleagues' experiences with older cardiac patients). Colleagues listen for their colleague's assumptions and expectations (e.g., "I was really hoping that the inhalers would fix the cough.") and encourage speculative thinking that gently challenges them. Evidence that colleagues have struck the right tenor in question-asking becomes apparent when the presenter, feeling at ease, offers additional information: "Did I mention? My older brother recently died at home after a heart attack. Maybe this figured more into Mr. D's case than I realized."

Phase 6: The Blend

Facilitator (to the presenter and colleagues): "We've now heard several questions and observations that might be useful to our presenter in thinking about the dilemma."

(And then to the presenter): "How is this sounding to you?"

Presenter: "You're right, my own sense of Mr. D as 'vital' and able to withstand this illness has so clouded my thinking that depression and medication effects didn't cross my mind, or...I hate to think about it, early dementia. I'm now realizing that I haven't had any sort of advanced directives discussion with him."

In this phase the facilitator guides the group in refocusing on the new inputs to judgment that have emerged through discussion. The work from this point on is one of synthesis and integration, a Practice Inquiry process called "the blend." *The blend* involves a synthesis of the inputs, now reconstituted through the group's collaborative reasoning, to form new perspectives on the original uncertainty. Although synthesis work can begin earlier, the group members' reasoning together now focuses explicitly on:

- Reappraising earlier thinking *and* feelings (e.g., the gut reaction of Mr. D. being 'vital') (Stolper et al. 2011)
- Revisiting assumptions (e.g., advocating dietary restrictions to optimize the cardiac status of an 87-year-old who loves his chicharrones and pan dulce)
- Recognizing the impact of affective and cognitive biases on perceptions and actions (e.g., the case presenter's positive feelings toward Mr. D which made the lipid panel oversight that much worse) (Croskerry and Norman 2008)
- Rehearsing how to clarify patient preferences through consulting Mr. D as if he were at the table (e.g., a colleague role-plays Mr. D. complaining about his dietary restrictions)

Seen in this regenerative way, *the blend* presents a significant challenge. For this patient, it constitutes the particular "know-how" to sort out cardiac and pulmonary causes and balance diagnostic and therapeutic strategies with concerns for quality-of-life. *The blend* involves the colleagues in implicitly referencing what Gabbay and May (2010) describe as "mindlines," flexible and internalized concepts about

certain practices or types of patients that have evolved over time within the colleague group (e.g., caring for the older patient with cardiac or pulmonary problems or both). The task becomes one of updating the group's explicit knowledge base (e.g., engage in literature review, "curbside" local experts) and of helping the presenter create an expanded narrative upon which practice is reconstructed (Coles 2002; Carr 1995). Doing *the blend* is also enhanced by the group's "heedful inter-relating," a learned behavior that relies upon "knowledge generated by the richness of the connections between the individuals" and illustrated when one colleague says to the presenter, "Tell us more about what you mean when you say, 'He's not himself.'" (Boreham 2000)

Phase 7: Implications for Practice

Facilitator (to the presenter): "We're almost out of time. Where would you say you are now with Mr. D?"

Presenter: "I'll be thinking a lot about how to sort out Mr. D's cognitive and emotional status. Getting him to talk soccer could help. If he doesn't light up, there's a problem.... I'll be getting in touch with the cardiologist about the echo and find out about a BNP...what else? Oh yes, a review article for us on BNP."

Reflecting upon *the blend* and its implications for practice reconstruction, the presenter considers how to proceed. As colleagues listen to these reflections, they may feel compelled to add something left out. They must do this with great care. The presenter needs time to assess what has been said and consider how the new directions envisioned may prove useful or become blind alleys. Much as in Balint groups, these directions are not directives or action plans to which the presenter must commit. Rather they are options for next steps designed to learn more about the uncertainty by acting on it and seeing what happens next (Rudolph et al. 2009; McKenna et al. 2013). Unlike the solitary deliberations of individual clinicians, this reconstructive work occurs among colleagues who practice their craft in similar workshops using comparable materials.

As a group, the colleagues gain wisdom through wrestling with reducible and irreducible uncertainty and in the process build a collective case repertoire. They become increasingly knowledgeable about each other's strengths and challenges (e.g. who knows about cardiac drugs, who struggles with limit-setting) and become better coaches for each other (Gawande 2011). Together they learn "good-enough holding of anxiety," a valuable skill for engaging clinical uncertainty (Innes et al. 2005). When practiced consistently in the colleague group, the 'good-enough holding' skill can transfer to one-on-one clinician-patient interactions and support the shared decision-making that is particularly useful "when clinical evidence is low" (Han 2013, Politi et al. 2013).

The ultimate value of the group's work on *the blend* becomes clearer when the case presenter returns with follow-up. Was Mr. D depressed or showing early-onset dementia? Was there evidence of heart failure? How is Mr. D doing now? Case follow-up not

only feeds colleagues' curiosity, but the case's denouement or continuing drama adds to its luster as the colleagues' newest 'virtual' patient. Could Mr. D enter their memory banks as a classic cardiac patient at the beginning of a downhill spiral? Then again, 2 months later, the group could learn that he is back taking daily walks.

Phase 8: Conclusion

Facilitator (to the presenter and colleagues): "So, in summary, what have we done together...and where are we now?"

Presenter: "Thank you all for helping me look at Mr. D more realistically. "Heartwarming" patients can be just as tough as the "heartsinks!"

Colleagues:

- "This discussion helps me rethink my assessment of a dear older woman patient who had benefitted from anti-depressants but recently has become a bit befuddled."
- "Talking soccer! Now that's really powerful. Let's make use of these special connections we have with patients when we're stuck."
- "Wouldn't it be great to get an 'App' for our smart phones to alert us to overdue screening tests? But then again..."
- "Our way of working on cases reminds me of the 5 blind men and the elephant; we need each other to put these beasts together!"

Appreciating one's "knowns and unknowns" (Fenton et al. 2009) occurs as colleagues are prompted to reflect on their patient panels in light of Mr. D (e.g., Which of my patients are labeled as depressed who might have early dementia?). How flexible am I as a communicator? (e.g., Do I use patients' hobbies as functional markers?) What knowledge gaps and knowledge stores are realized? (e.g., After some thought, I actually remember how BNP works). Such opportunities for unstructured, shared reflection encourage "reflexivity," the self-conscious account of knowledge production as it is produced (Baarts et al. 2000). Engaging in this collaborative work as the patient case unfolds in real time provides a tangible immediacy to reflexivity and places it in the service of perfecting judgment (Weiner 2004; Epstein et al. 2008).

Equally important in this group phase is the opportunity to reflect upon the group's capacity to formulate and use *meta-level* strategies to engage uncertainty. An example of a meta-level strategy comes from the colleague who refers to making use of "these special connections we have with patients when we're stuck" (e.g., talking soccer). This form of double-loop learning (Rushmer and Davies 2004) involves the group in explicitly keeping track of meta-level strategies that generalize across cases and can be called up for use in future cases. (See [On-line Resource # 6](#) for examples of meta-level uncertainty engagement strategies.)

A related task is the group's careful noticing of how it learns. This triple-loop learning (Rushmer and Davies 2004; Regehr 2010) occurs through paying attention

to the way the group engages in uncertainty work – how, meeting after meeting, as one colleague comments, “We need each other to put these beasts together.”

Conceptual Framework

The scholarship of Renee Fox, Donald Schön, and Karl Weick has been pivotal to the conceptual development of Practice Inquiry. Renee Fox’s understanding of how clinical uncertainty is perceived by clinicians has influenced the expression of uncertainty in the PI colleague group setting. Similarly, the writings of Karl Weick and Donald Schön on the relationship of cognition and action in organizational actors have informed the “uncertainty engagement” aspects of colleague groups, the process by which clinical professionals working in organizations collaborate in addressing and inquiring case-based uncertainty. Both Weick and Schön drew upon a social constructionist tradition that helped them appreciate the problem-setting and sensemaking capacities of individuals and groups (Magala 2002; Kinsella 2006).

We have been drawn to Schön for his celebration of professional practice and see it as the requisite substrate for colleague group work:

Perhaps there is an epistemology of practice that takes fuller account of the competence practitioners sometimes display in situations of uncertainty, complexity, uniqueness, and conflict. Perhaps there is a way of looking at problem-setting and *intuitive artistry* that presents these activities as describable and as susceptible to a kind of rigor that falls outside the boundaries of technical rationality. (1995)

This “way of looking at problem-setting and intuitive artistry” becomes fully manifested in the PI colleague group as clinicians deliberate on case-based uncertainty.

Weick describes key organizational functions in human as opposed to mechanistic terms. His emphasis on the collective aspects of “sensemaking,” “mindfulness,” “improvisation,” and “galumphing” (i.e., purposeful playfulness,) has informed our understanding of how clinicians in a group come together for validation, tangible support, and professional growth (Weick 2001; Coutu 2003). In describing “enactment,” Weick could be referencing the talk – reflection cycles of a colleague group:

At the heart of enactment is the idea that cognition lies in the path of the action. Action precedes cognition and focuses cognition. The sensemaking sequence implied in the phrase, ‘How can I know what I think until I see what I say?’ involves the action of talking which lays down the traces that are examined so that cognitions can be inferred. These inferred cognitions then become preconceptions which partially affect the next episode of talk... (2001)

Colleague group discourse allows for the “seeing of what’s said” by understanding eyes and ears. The group’s sensemaking support becomes relied upon as colleagues collaboratively engage uncertainty cases meeting after meeting.

While Weick and Schön have impacted PI’s development directly, their work has also influenced educators and researchers in medical education, cognitive and social psychology, and organizational development whose scholarship, in turn, is

referenced throughout this chapter. Schön's concept of reflection in and on action has been adapted for clinical contexts by Epstein (1999), Coles (2002), Moulton and colleagues (2007), and Mamede and colleagues (2007b). These educators and researchers explore how the individual clinician, contending with uncertainty, engages in reflective work. Frankford and colleagues (2000), Bleakley (2006), and Mann (2011) have expanded this focus beyond the individual to envision reflection processes in small group settings and organization-wide for both improving patient care and sustaining professional work.

Weick's concepts of collective sensemaking and improvisation become relevant to clinicians in patient care settings through the work of Miller and colleagues (2001), Wears and Nemeth (2007), and Rudolph and colleagues (2009). These educators and researchers explore how interaction through talk and improvisation provide an antidote to practicing medicine by algorithm. Weick and Schön have also provided a substantial platform for Stacey (1995) and Lave and Wenger (1991). Their concepts pertaining to professionals working in "complex adaptive systems" and "communities of practice" have, in turn, enriched PI development through interpretation by Parboosigh (2002), Innes and colleagues (2005), and Greenhalgh and Wieringa (2011). These scholars underscore the knowledge creating capacities (in contrast to knowledge translating ones) unleashed when clinicians interact with patients as well as each other.

To develop the small group as the setting for collaborative engagement of uncertainty, we have been influenced by the focused learning approaches embodied in three, clinician-oriented, approaches to small group work: Balint groups, problem-based small group learning (PBSGL) groups (as described by John Premi in 1988), and narrative-based supervision (NBS) groups. Each approach in its current form is presented in one or more chapters of this book.

Below we describe concepts integral to Practice Inquiry's five core components: the colleague group, case-based clinical uncertainty, inputs to clinical judgment, follow-up, and group facilitation. Each component supports both uniformity of process across groups and individual group uniqueness.

The Colleague Group

Sharing individual uncertainty cases on an on-going, scheduled basis is the essence of Practice Inquiry colleague group work. Despite learning medicine in hospital-based ward teams, US physicians have few formal opportunities after postgraduate training to learn in small group settings. Not so in Western Europe. Michael Balint first introduced Balint Groups in the 1950s in the UK (see Chapters 4 and 5) and Launer and Burton began working with narrative-based supervision groups in the 1990s (see Chapters 7 and 8). Continuing professional development for physicians in Sweden, Denmark, Scotland, and Canada – as well as Ireland (O'Riordan 2000) – has relied heavily on small group learning using a variety of approaches (See Chapters 6, 11, and 12).

In PI, clinicians attend colleague groups voluntarily and consider each other as professional equals. Offering advice and feedback for care improvement, they interact on a routine basis with the express purpose of engaging case-based uncertainty. Colleague groups offer a stark contrast to a health care organization's QI/QA management program that oversees clinician performance by monitoring adherence to screening criteria (Landon 2012; Kizer and Kirsh 2012). While performance monitoring is important for assuring compliance to population-based quality indicators, Parboosingh and colleagues have noted, "Failure to take advantage of practitioner interactivity may explain in part the disappointingly low mean rate of practice improvement reported in studies on the effectiveness of practice improvement projects" (2011).

PI group size is ideally 7–8 members. Age, gender, and physician/mid-level practitioner mix should reflect the clinicians with patients at the practice site. Unlike a health care team where some members have non-fiduciary relationships with patients, colleague group membership is limited to clinicians with full accountability for the consequences of medical error, an attribute that Lester suggests, allows clinicians to identify strongly with one another in the sense of "there but for the grace of God go I" (Lester and Twitter 2001). The "psychological safety" thus created paves the way for collaborative learning (Marold et al. 2012).

Compared with other learning formats such as lecture or performance feedback, small group interaction in some studies has been shown to facilitate practice change (Davis 2011; Forsetlund et al. 2009). This may occur because in these gatherings the stage is set for creating "connexional experiences," interactions that allow participants to go beyond the boundaries of self and feel part of a larger whole. When connexional experiences occur between doctor and patient, as described by Suchman and Mathews, they can "reframe the doctor's task to make clinical uncertainty more tolerable" (1988). Colleague groups, as settings for clinicians to 'bear witness' to each other's worries, misgivings or mistakes (Carmack 2010), hark back to hospital attending rounds and conferences that Bosk detailed as "occupational rituals" for managing uncertainty (1980). More recently, Prasad described the fundamental purpose of mortality and morbidity conferences as ritually anchoring medical professionals through "defining their sense of what it means to be a doctor;" quality improvement, patient outcomes, and systems improvement, he suggests, are secondary issues (2010). When clinicians, thus, share their clinical uncertainties in colleague group settings, could such collaborative engagement lead to effective uncertainty engagement that over time translates into practice change?

Case-Based Clinical Uncertainty

In Practice Inquiry, the combined focus on the *individual patient* and *clinical uncertainty* is unusual given the current structure and focus of both quality assurance/quality improvement (QA/QI) and CME programs in the US. From the 1970s onward starting in hospital settings, QA/QI and CME programs defined their unit of analysis as the patient group as opposed to the individual patient. The medical audit

has been the methodology of choice for connecting knowledge deficiencies to CME solutions and also, along with other tools, for connecting system problems to QI/QA solution processes (Brown and Uhl 1970; Kibbe et al. 1993; Shojania et al. 2012). Although audits with feedback have been a CME mainstay and Continuous Quality Improvement methods have dominated hospital as well as ambulatory care quality initiatives, evidence of clinician behavior change resulting from either modality or in combination with other strategies has often been lacking (Sommers et al. 1984; Bowie et al. 2012; Ivers et al. 2012).

PI, in contrast to a medical audit, or the average QI project or CME program, focuses first on the individual case and second on the implications of the patient case for improving care for other patients. PI functions in ways similar to Tumor Boards in hospital settings where there is high potential to directly impact the care of a specific patient (Gagliardi et al. 2007). In PI, a presenter can put new learning into action almost immediately following a meeting. Furthermore, through virtual contact with colleagues' dilemma patients, clinicians can reflect on their own patient panels with new appreciations that come from incorporating the new case-based learning into their experience base. Most QI/QA programs lack these direct effects, as their objective is to reduce "unwarranted" practice variation through monitoring patient care more globally using evidence-based criteria that vary in relevance to individual patients (Miller et al. 2001; Mercuri and Gafni 2011). As Blumenthal notes,

One reason why some physicians are frustrated with current quality measurement efforts is that they seem not to assess what physicians feel they were trained to do and take the most pride in: to make countless daily decisions about diagnosis and treatment using copious, incomplete, confusing, and changing information, under time pressure and in the face of an ambiguous medical literature. (2004)

To become a PI case, a patient must attract attention as a quandary or a puzzle which resides in the caregiving. It is just such instances of 'not knowing' that all variety of experiential learning theorists – Weick (1969), Schön (1983), Kolb (1984), Mezirow (1990), Eraut (1994) – and the clinical educators influenced by their work – Miller (1967), Knowles (1996), Slotnick (1999), Fish and Coles (1998), Crabtree (2003) – believe are critical for high quality adult learning. The messy indeterminacy of the unscripted, that which is 'not in the book,' is the stock-in-trade for professionals whatever their expertise. As Light points out, "Regardless how technically developed a professional field is, it will define the treatment of problematic cases as its true work" (Light 1979) (See [On-Line Resource #3](#) for representative uncertainty cases and the Practice Inquiry Clinical Uncertainty Taxonomy).

Inputs to Judgment and "the Blend"

According to EBM advocates, good clinicians integrate or blend their clinical expertise with "the conscientious, explicit, and judicious use of current best evidence" in the service of making decisions for the individual patient (Sackett et al. 1991).

While challenging what EBM advocates exclude from this integration (e.g., non-experimental evidence), EBM critics also point out how little guidance is offered for doing this critical synthesis work particularly when faced with clinical uncertainty (Feinstein and Horwitz 1997, Wears and Nemeth 2007, Tonelli 2001). Yet regardless of differences, EBM fans as well as critics do share one belief: the task of integration – that is, *the blend* of clinical experience, evidence, and the unique patient, clinician, and relationship contexts necessary for puzzling through a case-based uncertainty – belongs exclusively to the individual clinician working independently.

First, the clinician must find relevant evidence-based guidelines and decide how to apply them to the individual patient. Second, she should recognize the cognitive and emotional biases that surface when applying evidence to a patient and employ an array of cognitive tools to prevent error caused by these biases (e.g., increase knowledge through simulation exercises, improve intuitive and deliberate decision-making by ‘slowing down,’ selectively get help from others and from decision support tools; Moulton et al. 2007; Graber et al. 2012). Lastly, to prepare oneself for the difficult work of *the blend* and guard against error, the clinician is advised to use mindfulness techniques to develop “resilience,” an antidote to compassion fatigue and burnout (Beckman et al. 2012; Zwack and Schweitzer 2013).

The blend, thus, is viewed as a process that is quintessentially what doctors do alone in their heads (Berg 1995). To suggest otherwise is antithetical to medical education’s training for progressive independence, freedom from supervision, and self-direction in lifelong learning (Kennedy et al. 2009; Bleakley 2010).

How problematic is this notion of the clinician, reasoning alone, for the daily work of primary care? For the majority of patients in a clinician’s patient panel, doing *the blend* by themselves presents few problems. But for 5% or 10% of patients – no one knows for sure – the slowing down and being mindful is not working. Markers such as repeat hospitalizations or frequent emergency room visits indicate problems with *the blend* and signal diagnostic error.

In Practice Inquiry, *the blend* evolves from conversations in which colleagues ask questions that are curious and imaginative while showing concern and empathy (see Chapters 7 and 8). Beyond providing validation and new ideas, colleagues also convey a strong interest in doing something very special – accompanying case presenters to a familiar learning place, a place reminiscent of the best of their training years where they first experienced peers and mentors learning together at the bedside. Premi underscores this value when he notes, “Each individual must make personal contributions to the learning activities of the group” (1988).

The quality of *the blend* may well depend on the group’s ability to use its collective “adaptive expertise” (Mylopoulos and Woods 2009). In meeting over time, colleagues collaborate in engaging uncertainty to both manage the case at hand and make the knowledge created available to other patients. Strategies for managing a chronic pain patient, for example, discussed at one meeting are refined using a second pain case presented at a subsequent meeting. Over the months, a clinic-wide policy for managing chronic pain patients could materialize through what Mylopoulos and Scardamalia would call “collaborative, iterative idea improvement” (2008).

In jointly constructing frameworks for engaging uncertainty as “shared mental models” (Custer et al. 2012), colleagues participate in *knowledge creation* oriented to the patient under discussion but potentially benefiting other patients as well.

Follow-Up

Colleagues in Practice Inquiry do three types of follow-up: follow-up on *patients* discussed (once presented, colleagues want updates on outcomes); follow-up on recurring *topics* that colleagues identify through case discussion via review of case logs; and follow-up on colleagues’ *capabilities* as collaborative learners.

In primary care, systematic, post-visit follow-up of individual patient outcomes is largely non-existent, making it difficult for clinicians to prevent cognitive skill decay and overconfidence (Croskerry and Norman 2008; Weaver et al. 2012). To calibrate decision-making and “educate intuition” (Hogarth 2001), clinicians not only require information on how their patients are doing but how *they* themselves are doing (Schiff 2008). Balla and colleagues’ findings from their qualitative study of GP’s after-hours care decision-making for high-risk patients corroborate the need for case review and feedback. In their interviews of GPs, a key request was for “formal opportunities for reflection in a safe and supportive environment” (2012). In such settings, following up on patient cases reminds clinicians that even the best plans can fail because of what Innes and colleagues call “the unpredictable nature” of consultation outcomes (2005).

Follow-up on recurring topics occurs most typically when, on hearing the uncertainty statement for a new case, the facilitator or a colleague makes a mental note, saying to themselves, “Oh, boy... Another one of these!” Consulting the case log shows that indeed, one of “these” has been presented two or three times previously. (See example of case log in [On-line Resource #2.](#)) Attention to the recurring topic (e.g., “incidentalomas” in asymptomatic patients) could result in inviting an expert (e.g., endocrinologist) to attend an upcoming colleague group meeting; instead of showing slides, the invited guest listens to case summaries, provides advice on specifics, and offers general guidance.

Follow-up on the colleague group’s collaborative learning involves turning its “gaze” upon itself (Iedema et al. 2006). It must make time periodically to (1) explicitly discuss group process (e.g., conversation stoppers and starters); (2) assess relevancy of uncertainty cases presented to health care needs of the community; and (3) review the group’s impact on its practice setting (e.g., value of new clinic policies resulting from presentations of uncertainty cases.)

Colleague Group Facilitation

When facilitating a Practice Inquiry colleague group, it helps to appreciate the group as a “complex adaptive system” (CAS), a dynamic network of relationships which change and adapt with information flow (Miller et al. 1998; Plsek and

Greenhalgh 2001). Guided by CAS-oriented concepts, Kimball and colleagues offer three, general facilitation strategies to assure transparency in facilitation methods, a valuable attribute in adult learning (2005):

- “Engage the whole system first.” (In PI, this translates into focusing on the *whole* patient whose uncertainty could have implications for the *whole* organization.)
- “Use simple rules.” (In PI this translates into gentle reminders such as “listen carefully,” “be curious,” and “reflect first.”)
- “Create an edge.” (In PI this translates into conversation tactics that shift direction, air alternatives and expose dichotomies.)

Colleague groups are encouraged to *deliberately* collaborate in uncertainty engagement, that is, to value the conscious, explicit process of *together* tackling a case. Simultaneously, to prevent an overly rigid practice, groups can learn “improvisation” skills – ways to be imaginative and creative in conversation. Engstrom’s concept of “deliberate practice” (as interpreted in clinical setting by Balla et al. 2009 and Van de Wiel et al. 2011) and Weick’s concept of “improvisation” (as interpreted in clinical setting by McKenna et al. 2013) provide complementary, facilitative guidance when they are combined in the colleague group:

Deliberate practice		Improvisation
Stay focused	< >	Appreciate tangents
Maintain motivation	< >	Engage in play
Practice routines	< >	Value serendipity
Correct via feedback	< >	Explore error

Specific facilitation methods for each colleague group phase are found in [On-line Resource #6](#). These methods can be helpful to deal with group process problems such as ‘group think’ (a result of groups reducing internal conflict through reaching consensus without sufficient analysis of alternatives), and ‘group polarization’ (the tendency for groups, influenced by a subset of members, to make decisions that are more extreme than ones they would make as individuals; Marold et al. 2012; Redelmeier & Dickenson 2012). Most importantly, learning colleague group facilitation skills is best done through observing groups; participating in groups; facilitating groups followed by focused feedback; and attending Balint, PBSGL, or NBS program facilitator trainings (See Chapters 4, 6, and 8.).

Building an *Inquiry Practice*

In this section, Practice Inquiry is placed within an *inquiry practice* – a hypothetical organizational setting that could foster the formal integration and continuing development of collaborative learning and practice improvement in US health care delivery systems.

Inspired by Frankford and colleagues’ concept of a “reflective practice organization,” an *inquiry practice* is a primary care entity (e.g., a large group practice, a health center) in which education and service are explicitly combined to allow clinicians to

learn together from their patient panels and invest that learning directly into improving care for patients (2000). In combining education and practice explicitly, these practices would develop strong links to their individual communities for assuring “responsive medical professionalism” (Frankford et al. 2000; Poses 2003; Elwyn et al. 2010). This concerted commitment to learning would require ongoing vigilance since *inquiry practices* would dwell within quasi-governmental/private entities such as “patient-centered medical homes” (PCMH) and accountable care organizations and operate under payment systems such as the “Physician Quality Reporting System” that reimburses clinicians based on performance measures (Cassell and Jain 2012).

Practice Inquiry, as described above, along with two other collaborative learning methods under development – “Practice Epidemiology” and “Practice Mining” (see below) – are examples of structured opportunities for learning from practice in colleague group settings. All three methods are meant to encourage new approaches to collaborative learning inspired by the innovative, inquiry-oriented concepts of the many educators and researchers cited in this chapter.

Why would a PCMH want an *inquiry practice* within its walls? First, in offering supportive climates for collaborative learning in practice, an *inquiry practice* would attract high-quality primary care clinicians, a treasured commodity in these times of low medical student interest in primary care specialties (Council on Graduate Medical Education 2010). Second, it could help position the larger organization to become a responsive “learning culture.” This entails the development of the survival-enhancing quality of “adaptive reserve” – the capacity to learn from error, reorganize, and keep moving (Miller et al. 2010; Bohmer 2011). Last, an *inquiry practice*’s collaborative learning capacities could provide the missing link between the health care organization’s one-size-fits-all performance monitoring systems (Kizer and Kirsh 2012) and the individual clinician’s discretionary, person-centered practice. (Clinicians may better appreciate these systems if they were charged with studying their patients’ illnesses and care patterns to better inform monitoring criteria).

Specifications for an *Inquiry Practice*

The major reorganizational efforts occurring in US primary care today provide ample opportunities for *inquiry practice* development. PCMH infrastructures under construction could include specifications calling for primary care clinicians to drive the learning culture inherent in an *inquiry practice*. By expanding upon PCMH mission statements, specifications could include:

- *Reaffirming primary care principles as central to health care systems.* Following Loxtercamp’s observation (2001) that professionals publically “profess” their beliefs, an *inquiry practice* would advertise to its patients and community that primary care is essential to a community’s well-being and that the primary care

clinician's task is to provide "person-focused care" using a "generalist approach" (Starfield 2011; Stange 2009). Such care is grounded in the clinician's and patient's long-term relationship through which patient and clinician *together* build knowledge and skills to address new health problems as they arise. Given the challenges of maintaining these relationships over time, an *inquiry practice* sustains its clinicians by nurturing qualities of compassionate witnessing and reflection (Sturmberg and Cilliers 2009).

- *Envisioning health care organizations as complex adaptive systems.* In understanding itself as a dynamic, relationship-oriented entity, an *inquiry practice* would devote significant effort to boundary-spanning through sharing results of case-based work. The patients that come to PI colleague groups often fly under the QA/QI radar and prompt potentially disruptive questions (e.g., What constitutes health maintenance for obese patients? Do higher doses of chronic pain medications show commensurate gains in functioning?) In bringing these cases to other groups within the organization for commentary and exploration, the boundaries of an *inquiry practice* would be expanded to include all clinic staff. Additionally, as Frankford and colleagues propose (2000), in a "reflective practice organization," a variety of heterogeneous small groups would cut across hierarchies and disciplines to engage in collaborative learning. (See Chapter 10, for the New Hampshire Dartmouth Family Medicine Residency's *interdisciplinary* PI groups.) Similar to clinician colleague groups, these interdisciplinary groups would encourage discussion of problematic one-on-one patient interactions, identify types of patients whose behaviors increase health risks, and examine care-related phenomena that surprise or cause concern. Case-based discussion of individual patients and caregiving relationships could help balance the preoccupation many health organizations have with re-engineering care processes.
- *Evolving as a learning community where clinicians have protected time to become students of their patients.* A colleague group's identity in an *inquiry practice* is forged by a dedication to enhance clinical judgment in the service of patient care improvement. Since primary care clinicians' clinical judgment is the foundation upon which the whole primary care enterprise rests, organizations that rely upon primary care clinicians would appreciate this judgment function as integral to the organization's overall success. It would be, thus, in the organization's best interests to create protective time for collaborative learning aimed at enhancing judgment. Although CME educators have advocated "practice-based learning and improvement" (PBLI) as essential for continuing professional development (Moore and Pennington 2003), most PBLI initiatives privilege neither *collegial* learning nor set-aside time for small group work despite evidence of potential value (Owen et al. 1989; Siriwardena et al. 2008; Safran et al. 2006; Davis 2011). Frankford and colleagues' hypothetical collaborative learning groups (2000) and Soubhi and colleagues' proposed learning communities (2010) designed for primary care settings call for organizations to support this collegial work through set-aside time.

- *Facilitating clinician collaboration in the care of complex patients.* The critical need for clinician resource redistribution due to increasing demands for primary care services and the increasing number of complex patients cared for in primary care settings call for clinicians in an *inquiry practice* to collaborate in two additional challenges (Katerndahl et al., 2011; Blumenthal 2012):
 - Devising schemas for differentiating complex patients from the larger patient pool and transitioning them between care-intensity levels (See “Practice Epidemiology” below)
 - Organizing support functions housed in colleague groups for formulating and updating clinical rationales for the care of complex patients

As important as nonclinician care management is for care coordination (Altschuler et al. 2012; Doty et al. 2012), in colleague group settings, colleagues would present individual complex patients for guidance on *clinical* coordination and decision-making that would reflect what Hewson and colleagues described as “strategic medical management” – “a way to deal with uncertainty through deliberate actions that protect against premature closure, misdiagnosis, unnecessary tests, and unnecessary expenses” (1996).

In carrying out a collaborative form of “strategic medical management” review, colleague groups would focus on “high leverage” patient care tasks - ones that Eidus and colleagues (2012) suggest influence short-term and long-term clinical and economic patient outcomes. These tasks could include assessing benefits versus harms of additional diagnostic testing suggested by specialists, considering the significance of clinically occult disease found through preventive testing, and deliberating on quality-of-life considerations for different therapeutic options. This review function would also build in supports such as point-of-care, live consultation with specialists (Lister 2012) and the colleague group, itself, serving as an internal consultant prior to specialist referral (Kinnersley et al. 1999). “Comprehensivist” is the term Tinetti and colleagues use to describe primary care clinicians with skills and expertise required “to supervise care that requires integration across all the patient’s conditions within the context of the patient’s health goals and priorities” (2012). Ideally, in an *inquiry practice*, clinicians would be supported by a payment system conducive to such comprehensivist-directed care (Merrell and Berenson 2010).

Practice Epidemiology

Unlike Practice Inquiry that focuses on the individual dilemma patient, Practice Epidemiology (PE), a second form of learning unique to an *inquiry practice*, directs attention to the patient panels of colleague group members. Provided with reports from automated databases, the colleague group uses PE methods to define across-panel quality of care gaps and oversee *clinically-relevant* panel management.

First, to use PE for addressing quality of care gaps, colleague groups would navigate user-friendly automated databases ideally designed with their input. Having access to patient demographic, clinical, and utilization data, they would review their panels and categorize patients into risk groups. Risk group formation and categorization would entail applying *clinical judgment* designations to define constructs such as “symptom status” (stable/unstable) or “functional capacity” (good/poor). (These are designations that only primary care clinicians can make resulting from long-term, close relationships with patients.) For example, in the colleague group setting, each clinician would reflect on a list of 30 of their patients aged 75 and older and categorize them by both symptom status and functional capacity. Colleagues could focus discussion on patients in the combined “unstable symptoms/poor functional capacity category” and ask questions such as “How well do we understand these patients’ preferences for end-of-life care?”

When PE is carried out over time with different patient groups, the results could provide windows into clinicians’ panels to address important questions and illuminate unrecognized needs. Could clinician-directed PE exercises potentially yield as many if not more actionable quality problems than strategies that rely upon administrative databases with externally derived monitoring criteria? Additionally, compared to reliance on externally designed, performance measurement systems to encourage evidence-based practices, would there be fewer adverse consequences through using PE methods to design clinically relevant, *internal* monitoring processes? (e.g., over-testing coming from “obedience to measures”; Lee and Walter 2011; Powell et al. 2012; Kizer and Kirsh 2012). “*Quality-improving*” work, thus, becomes grounded in colleagues’ clinical observations informed by data from systems they help design.

Second, in the setting of an *inquiry practice*, PE could provide a clinician-centric form of panel management whereby colleagues collaborate in using tools for population-based care (Ibrahim et al. 2001; Neuwirth et al. 2007) at the level of their own patient panels and thus decide how their time should be apportioned based on patient and service complexity. In colleague groups, clinicians would work with similar databases used for identifying quality gaps, but now in the service of guiding resource allocation decisions. In the US, most patients currently receive 15-minute appointments regardless of number and complexity of problems, levels of disability, and utilization patterns. Potentially better ways to spend clinician time could include:

- Participating with a health educator and eight patients who take medication for diabetes and hypertension in a 60-minute group visit
- Telephoning a health aide visiting a homebound patient for medication reconciliation for 15 minutes
- Weekly emailing to patients with asthma in response to symptom diaries

The average primary care setting is not currently financially or administratively capable of supporting an infrastructure to negotiate clinically defined visit needs (Casalino 2010). This should not deter clinicians from trying out PE approaches for defining “share the care” arrangements and determining which types of patients and

services they need to manage versus those nonphysicians could support (Ghorob and Bodenheimer 2012).

Plans are already in place at sites undergoing PCMH transformation efforts, using administrative databases, to “complexity-score” patients and “load-balance” clinician panels accordingly (Santa Clara Valley Medical Center 2011). A study by Grant and colleagues showed how physicians differed from automated algorithms in the way they defined ‘complexity’ in their patients (2011). Freund and colleagues (2012) used both a risk model derived from a database *and* clinician judgment to select patients for case management. Like Grant, they also found little overlap in cases selected by each method. In Coleman and colleagues’ study where physicians were asked to select patients they wanted to retain for continued management in the face of “balancing” their patient panels, those retained were older, sicker, long-time patients (2010).

In contrast to a computerized algorithm for identifying complex patients, a PE process done in a colleague group setting could encourage clinicians to assess patient need for non-clinician case or disease management through using their continuity relationship-derived knowledge of patients, their families and communities. Clinicians would not only select the appropriate case or disease management intervention, but also define their own relationship with the patient in the short term. PE processes could help colleague groups define and work through such clinical management decisions as: Which kinds of patients need a twice-a month, half-hour visit with a physician to closely follow several unstable chronic conditions? Which patients need monthly visits with a non-clinician health coach for monitoring a single stable chronic disease and semi-annual visits with a nurse practitioner?

Practice Mining

Practice Inquiry colleague group discussion over the years has revealed that clinicians provided with set-aside time could use their practices to “pan for gold,” that is, spot phenomena that they alone know to look for and when burnished through study, could inform practice improvement. In these sightings, they recognize events, interactions, and the unfolding of stories potentially important to their patient’s health. Over the years, individual clinician members of SF Bay Area colleague groups have noted several such phenomena:

- Patients spontaneously stop taking antidepressants. What happens to their functioning and quality of life?
- Increasingly more elderly and demented patients have pacemakers. How to manage this given a family’s desire for comfort care?
- Many morbidly obese patients may never lose weight but nonetheless need routine health maintenance. What does “health maintenance” entail for these patients?

“Practice Mining” is a form of collaborative learning that would prepare colleagues to attend critically to what they are experiencing daily: noticing unique or recurring phenomena of potential importance; naming phenomena; using multiple methods (e.g., quantification, description through story or visual arts) to characterize their evolution; and sharing observations within the colleague group to gauge interest, input, and collaboration (White 2000). Phenomena would include patient behaviors (e.g., response to treatment), clinician–patient relationship dynamics (e.g., impact of culture), and clinician behavior (e.g., abilities to vary clinician–patient communication style). The phenomena clinicians choose to observe would determine investigation method; simple investigational methods would be recommended given limited time and resources. To inspire but not intimidate, colleagues would read examples of Feinstein’s “clinimetric” approaches (Sledge and Feinstein 1997), Berger’s portrait of a country doctor (1967), or Hames’ (1971) efforts to describe his practice. Based on colleague group member participation and support, particular questions of interest such as those cited above would be explored by the group for a 6–8-month time period or long enough to see if collaboration with university-based researchers and community organizations could lead to fruitful projects.

Why should an *inquiry practice* engage in Practice Mining? At a time when primary care clinicians risk becoming clinically “deskilled” through increasing use of electronic medical records, clinical guidelines, and decreased contact with hospitalized patients (Hoff 2011), PM would encourage clinicians to refocus on generalists’ traditional expertise – to observe, assess, and exercise judgment in the best interests of individual patients for whom the convergence of lifestyle, pathogens, heredity, and modes of coping result in suffering (Feinstein 1994; Reeve et al. 2011).

Secondly, PM would call on clinicians to pay attention to how medicine’s advances meet the human condition. From their unique vantage point in the life of their patients, primary care clinicians can note symptom expression in medically unexplained, “contested” conditions such as fibromyalgia (Swoboda 2008); gauge usefulness of clinical guidelines in caring for patients, both simple and complex (Lipman and Price 2000; Fried et al. 2011); and catalogue circumstances where “overdiagnosis” could potentiate risk of iatrogenesis (Hoffman and Cooper 2012).

Thirdly, PM could do what Kienle and Kiene describe as “skimming off the knowledge pool that is built up through clinicians’ daily experience” (2011). With a similar goal in mind, it could organize “evidence farming,” Hay and colleagues’ term for gathering results of local communities’ efforts to apply evidence-based guidelines to their own patient populations (2008). Lastly, to counter images of primary care as “boring paperwork and just coordinating care” (Chen 2009), incorporating PM in an *inquiry practice* could help attract intellectually curious, creative young clinicians essential to meeting the twenty-first-century care needs of patients and their communities.

Conclusion

Han and colleagues suggest that “the ultimate challenge for clinical practice and research is to understand more precisely what coping with uncertainty entails and how it can be promoted” (2011). Practice Inquiry is a set of methods that supports primary care clinicians in the collaborative engagement of case-based clinical uncertainty. In the “medical homes” of tomorrow, as described in this chapter, simple architecture could create space for clinician small groups to do this explicit, structured work.

In the San Francisco Bay Area between 2002 and 2012, 220 primary care clinicians have had sustained participation (three or more meetings for at least 1 year) in PI colleague groups. These groups have been based in group practices linked with a nonprofit hospital system, three public-funded community health center networks, a state-run university medical center, and a staff model health maintenance organization. These clinicians’ ongoing commitment to PI work has been supported by the CME program of the Department of Family and Community Medicine at the University of California, San Francisco, and by a similar program at the Kaiser Permanente Medical Center in Oakland, California. Practice Inquiry has been sustained through medical director leadership of these group practices and community health centers and through the volunteer support of physician and non-physician educators who have served as group facilitators. This book has been inspired, in large part, by the dedication of the individual groups in continuing to meet regularly, of the facilitators in continuing to work with their groups and refine their skills, and of the sponsoring organizations in believing in the value of PI.

Renee Fox in her 2000 essay, “Medical Uncertainty, Revisited,” categorizes the 21st century clinical uncertainties primary care clinicians face today and includes, among others, genomic medicine, population-based care models supported by evidence-based guidelines, iatrogenic effects of rapidly expanding technology, and bioethical questions about the definition of life and of death. In completing the annual PI Questionnaire with the question, “What have you liked best about PI colleague group meetings?”, a group member responded by underscoring the reality of today’s uncertainties: “I value the opportunity to critically evaluate cases in the context of the complex primary care environment of NOW” (See PI Questionnaire, [On-line Resource #2](#)). Reengineering primary care practice settings to become more efficient at care delivery and information management is expected to yield clinicians more time to spend with patients in the “primary care environment of NOW.” The PI experience, however, suggests that no amount of individual knowledge management and communications skills training can substitute for collegial collaboration in actively engaging these new (as well as old) uncertainties.

What Practice Inquiry, Practice Epidemiology and Practice Mining have in common is a focus on supporting primary care clinicians in becoming better at what they were trained to do and what they value most – using clinical judgment in the service of addressing individual patient problems. The creation of primary care settings where this can happen ideally would embody *inquiry practice*-like principles.

These include the centrality of primary care in large-scale health care systems; involvement of all providers across disciplines and organization levels in small group learning around the patients they care for; and, very importantly, close primary care clinician collaboration in the care of complex patients. Creating settings where lofty goals such as these are transformed into straightforward, clear realities is the hope and challenge for collaborative engagement of uncertainty.

In responding to the “what-do-you-like-best” item on the PI Questionnaire, another colleague framed this hope and challenge with quiet simplicity: “We have become better colleagues to each other.” Provided with this support, engaging clinical uncertainty could become an “intrinsic motivator” (Cassel and Jain 2012) for clinicians that would strengthen professional responsibility and commitment to patients during these times when accountable care organizations and Physician Quality Reporting are changing the caregiving landscape.

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