Original Articles
4 Introducing the “Teamlet”: Initiating a Primary Care Innovation at San Francisco General Hospital
Special Report
10 Gaining New Insights into Early Abdominal Aortic Aneurysm Disease
15 Implementation of a High-Alert Medication Program
23 Abdominal Liposuction: A Prospective Outcomes Study
28 Prescribers’ and Organizational Leaders’ Preferences for Education about Heavily Marketed Drugs
36 Five-Year Experience: Reflective Writing in a Preclinical End-of-Life Care Curriculum
Review Article
42 Natural Orifice Transluminal Endoscopic Surgery: The Future of Gastrointestinal Surgery
Commentary
73 A Conversation with David Bates, MD, MSc, Chairman of the American Medical Informatics Association
Narrative Medicine
78 Healing the Self Through Self-Portraits—A Drawing Workshop
82 Reflective Writing in the Competency-Based Curriculum at the Cleveland Clinic Lerner College of Medicine
99 Constructing Stories of Past Lives: Cadaver as First Patient: “Clinical Summary of Dissection” Writing Assignment for Medical Students
Dr. Nikravan is a Urologist of the world.

Circulation: 10,000 print readers per quarter, and accessed by 500,000 unique Web readers in 2007 from all 160 countries of the world.

On the cover: “Path: Homage to Edward Hopper” is an oil on canvas (24×36”) by Karmen Nikravan, MD. Edward Hopper painted the original in 1946 during the Depression. Dr. Nikravan changed the “Tourists” coming through the door to an open path to the sky to express my depth and gratitude for all that I have.

Dr. Nikravan is a Urologist at the West Los Angeles Medical Center. Dr. Nikravan credits art with bringing balance to his life.

Dr. Nikravan began his studies in art at the Brentwood Art Center and continues at the Kline Academy of Fine Art, both in Los Angeles, CA. You may see more of his work at his Web site: www.nikravan.com.

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REVIEW ARTICLE
Lee L Swanson, MD, FACS; Yashodan Khajanchee, MD, Maher A Akbash, MD, FACS, FASCRS
Flexible endoscopy, used to perform therapeutic procedures beyond the wall of the gastrointestinal tract, is gaining prominence and application. It could provide all of the advantages of laparoscopic surgery and, with the elimination of all abdominal wall incisions, could completely eliminate the risk of wound infections. This article reviews technology, technique, challenges, and impact.

CASE STUDY
48 Cauda Equina Syndrome—Think of Cancer.
Mohammad Sami Walid, MD, PhD; Mohammad Aijan, MD; Kim W Johnston, MD, FACS; Joe Sam Robinson Jr, MD, FACS
In the presence of the triad: back pain, weakness in the lower extremities, and urinary emergency/incontinence, leptomeningeal carcinomatosis is a serious complication found in approximately 1% to 8% of patients with solid cancer.

CLINICAL MEDICINE
Corridor Consult
53 Informed Consent and Consent Forms.
Paul Deiter, MD, LLB
Informed consent is a process of communication between patient and physician. A completed consent form does not effectively obviate the need for a documented discussion in the medical record of the risks and benefits of the proposed treatment.

SOUL OF THE HEALER
Original Visual Art
52 “Cherry Blossoms”
Sandry Chendra, MD
60 “Fisherman in flooded plain near Mandalay, Myanmar”
Kenneth Gould, MD
72 “St Emilion”
Elizabeth E Willer, RN, MSN, CPNP

What Is Trying to Happen Here? Using Mindfulness to Enhance the Quality of Patient Encounters.
Philip Knowles, PhD
Mindful self-awareness is a disciplined means of directing attention to the thoughts, affect, intentions, and physiologic shifts that occur moment to moment, and is a way of promoting optimal outcomes in patient encounters, such as the formation of an empathetic relationship.

COMMENTARIES
61 The Integral Model: Answering the Call for Whole Systems Health Care.
Marilyn Mandala Schlitz, PhD
Integral Health Care—an emerging new model—acknowledges multiple dimensions of living, healing, and curing that go beyond reduction of symptoms. Tools include: a ten-minute mindfulness break; working together in teams to make shared decisions; expanding to meet your patient’s needs and perspectives; and finding new ways to stay open to new ideas.

69 Caring for the Whole Person with HIV: Mind, Body, and Spirit.
The Very Reverend Father Drew A Kovach, MD, MDiv, ABFM
“When we care for our patients, we care for whole people to make people whole, and meet people on the road where they are, not where we think they should be.” Experienced approaches are offered for issues of finance, job, partners, depression, and relationship.

73 A Conversation with David Bates, MD, MSc, Chairman of the American Medical Informatics Association. Brian Raymond, MPH
In an interview, Harvard Professor of Medicine, David Bates, MD, speaks on recent progress towards widespread health information technology adoption; why decision-support tools are now more important than ever; and the necessity to develop the next generation of health informatics professionals.

NARRATIVE MEDICINE
78 Healing the Self Through Self-Portraits—A Drawing Workshop.
Amy Stein, MFA
During a step-by-step drawing lesson by a portrait artist, participants unconsciously draw their own faces, and explore their drawings through a meditation and visualization exercise.

EDITORIAL
93 From Wolfman to Medicine Man: Podcasting for Clinicians.
Robert W Hogan, MD
If Gen X youth can walk about with tens of gigabytes—thousands of their favorite tunes—stored in MP3 players the size of a short stack of credit cards—could this technology make life better in clinical medicine? Learn how to glimpse the clever, technically sophisticated world of medical podcasting: audio files.

Book Review
Page 100

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<table>
<thead>
<tr>
<th>Article 1.</th>
<th>Article 3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaining New Insights into Early Abdominal Aortic Aneurysm Disease (page 10)</td>
<td>Natural Orifice Transluminal Endoscopic Surgery: The Future of Gastrointestinal Surgery (page 42)</td>
</tr>
<tr>
<td>Article 2.</td>
<td>Article 4.</td>
</tr>
<tr>
<td>Implementation of a High-Alert Medication Program (page 15)</td>
<td>Cauda Equina Syndrome—Think of Cancer (page 48)</td>
</tr>
</tbody>
</table>

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Introducing the “Teamlet”: Initiating a Primary Care Innovation at San Francisco General Hospital

Brian Yoshio Laing
Lisa Ward, MD, MScPH, MS
Thomas Yeh
Ellen Chen, MD
Thomas Bodenheimer, MD

Abstract
Context: The 15-minute office visit to primary care clinicians cannot meet the health care needs of patients. Innovation is needed to address this limitation, but practice redesign is challenging in clinical settings.

Objective: Here we describe the implementation of a practice innovation, the teamlet model, in a San Francisco safety-net clinic. The teamlet consists of a clinician and “health coach” who expand the traditional medical visit into previsit, visit, postvisit, and between-visit care.

Design: Teamlet implementation is occurring in phases. Phase 1 is evaluated using plan-do-study-act improvement cycles and interviews with a few patients, clinicians, and coaches. Phase 2 is evaluated using a pre- and postevent questionnaire, focused interviews, and focus groups with patients, faculty, clinicians, and coaches.

Main outcome measures: Phase 1: Plan-do-study-act cycles generate ideas to improve implementation. Phase 2 evaluation will query demographics, satisfaction, knowledge of self-management support, access, teamwork, and benefits/challenges of the teamlet model. Future research would measure objective clinical outcomes.

Results: Phase 1 of the teamlet project led to useful adaptations, with anecdotal evidence that patients and clinicians were satisfied overall with practice improvements. Logistic problems made implementation of the innovation challenging. Phase 2 is currently underway, with results expected in 2008.

Conclusions: Primary care innovation requires multiple perspectives and constant revision. Traditional randomized controlled trials and quantitative evaluation designs are not appropriate for assessing practice-improvement pilot projects because projects must change and develop in their early stages. Despite numerous challenges, the teamlet practice redesign has the potential for improving on the traditional 15-minute physician’s office visit.

Introduction
Mounting demands on primary care clinicians are about to break the proverbial camel’s back. One study estimates that it would take 7.4 hours per working day for a physician to provide all recommended preventive care to a panel of 2500 patients, plus 10.6 hours to adequately manage all chronic conditions.1,2 Forty-two percent of primary care physicians report not having adequate time to spend with patients.3 In reflecting on these facts, it is troubling but not surprising that 50% of patients leave an office visit without understanding the advice given by their physician.4 Equally concerning is that primary care clinician discontent is growing and the proportion of US medical students entering primary care careers is plummeting.5 Drastic change is needed in the way primary care is delivered—both to improve patient care and to maintain an adequate primary care workforce. In this article, we discuss our experience with a unique innovation in primary care redesign, the teamlet model.

What is Teamlet?
The teamlet model, described in rich detail in the Annals of Family Medicine,6 is offered as a replacement for the inadequate 15-minute physician visit. It is called teamlet because it involves only a small part of the larger primary care team—the clinician and medical assistant or community health worker. This model transforms
the medical assistant or community health worker into a health coach who augments the limited primary care visit by providing previsit, postvisit, and between-visit contact with the patient (Table 1). The immediate focus of the teamlet is to improve delivery of chronic care, particularly in the area of patient self-management support. Health coaches are trained in negotiating the visit agenda, medication reconciliation, “closing the loop,” goal-setting, and self-management support for patients with chronic disease. Currently, health coaches do not constitute a formally recognized category of clinicians with licensure or legally defined duties.

Our Health Care Setting

The Family Health Center is one of several San Francisco safety-net clinics and is organized into five large clinical teams. A teaching clinic for family medicine residents and medical students, the Family Health Center cares for approximately 8000 patients and provides about 40,000 patient visits annually. Most patients receive Medicaid or are uninsured—receiving no-cost or low-cost services. We chose to implement phase 1 of the teamlet pilot in the clinical area specializing in refugee health because of the availability of language-concordant health coaches. Nearly 90% of patients seen by the refugee clinic team do not speak English, with approximately 30% speaking Chinese, 20% Russian, 8% Spanish, 8% Vietnamese, and smaller numbers speaking Bosnian, Cambodian, Laotian, Arabic, or other languages.

Implementation of the Teamlet Model: Phase 1

We launched the teamlet pilot in June 2006. Implementation has taken place in two distinct phases. Phase 1 involved four health coaches and several clinicians (resident physicians and nurse practitioners). The clinic management released the coaches from their other duties for only one clinic session per week, limiting the number of teamlet encounters. Although the full-blown teamlet model envisions a clinician and coach working together every day as a permanent and cohesive dyad, this was not possible during phase 1, resulting in the coaches working with a number of different clinicians. Phase 2 expanded the process to 11 coaches and 13 physicians caring for patients with cardiovascular risk factors.

To begin, it was imperative to gain the support of the nursing staff and the Family Health Center management team, because the innovation affects staff roles, staff training, appointment templates, patient scheduling, clinician communication, clinic flow, and other clinic logistics. Our initial aim was to seek buy-in for the teamlet concept and to negotiate protected time to train health coaches. We held two training sessions for clinic staff for a total of six hours. The curriculum included the collaborative paradigm of providing care; setting agendas with patients; ensuring that patients understood the advice given by the clinician (“closing the loop”); engaging patients in discussions of behavior-change goal-setting and action plans; and basic information about cardiovascular risk factors, focusing on diabetes.

| Table 1. The teamlet health coach functions across four phases of a patient visit |
|--------------------------------|-------------------------------------------------------------|
| Phase of delivery | Health coach functions |
| Previsit | Establish patient agenda, Reconcile medications, Answer patient questions, Orient patient to health care system |
| Visit | Fill out forms, make referrals, and write prescriptions as determined by the clinician, Serve as translator if needed, Document clinician’s findings during medical history and physical examination, Order preventive health screenings/examinations per protocol |
| Postvisit | Review medication instructions, “Close the loop” (make sure patients understand clinician’s advice), Negotiate behavior-change goals/action plans, Answer questions |
| Between-visit | Call patient to follow up on behavior-change action plan and medication changes, Elicit patient concerns and help solve problems, Answer questions, Serve as liaison between patient and physician, Troubleshoot problems accessing the health care system (pharmacy, laboratory, referrals) |
hypertension, and hyperlipidemia. From these training sessions, four health workers demonstrated interest in becoming teamlet coaches. Their language skills included Cantonese, Mandarin, Toisonese, Vietnamese, Laotian, Russian, and Bosnian. Two Spanish-speaking coaches were added later.

We negotiated for each of the four coaches to be freed of other clinic responsibilities one-half day per week. At the beginning of each teamlet session, coaches reviewed the scheduled patients and selected which were most appropriate for teamlet encounters (patients with inadequately controlled chronic disease and language concordant with the coach). Phase 1 did not involve a previsit but rather focused on the visit, postvisit, and between-visit portions of the expanded encounter. During the patient’s visit with the clinician, the coach was present to meet the patient, learn the medical history, and listen to the clinician’s plan. After the clinician left the room, the coach “closed the loop” by asking patients to repeat the clinician’s instructions to assess and correct patient understanding of new medical advice, particularly medication changes. Coaches also worked with patients to develop behavior-change action plans, usually focused on diet or exercise.

For the first several weeks, project leaders mentored the health coaches, observing them during postvisit sessions and providing feedback. Mentoring continued until the coaches had solidified their interpersonal skills and were competent in their skill set. Throughout phase 1, project leaders were present at each half-day clinic to answer coaches’ questions, review their postvisit experiences, and enter information into a database. It became evident that two of the initial four coaches were seeing most of the patients; the other two had too many competing demands or were less enthusiastic. Later in the process, a medical student and premedical student—both Spanish-speaking—were trained and augmented the health coach staff.

Phase 1 of the pilot took place from June to December 2006. Ninety-three patients engaged in teamlet encounters, and health coaches contacted 30% of these patients with between-visit phone calls. One-third of teamlet encounters were conducted in Cantonese, 20% in Vietnamese, 19% in Spanish, 10% in Russian, 8% in Bosnian, 6% in English, and the remainder in a variety of other languages. Seventy-five percent of the patients had diabetes, 48% had hypertension, and 35% had hyperlipidemia.

Because the coaches were engaged in their role for a small proportion of their time, the role change had a minimal impact on overall clinic staffing. A fuller implementation of the teamlet model would require additional staff. To the extent that coaches could offload work from clinicians, allowing clinicians to see one or more extra patients per clinic session, the additional revenue from increased clinician productivity could help finance extra staff.

**Evaluation of Phase 1**

The evaluation of practice change takes place in three stages. Stage 1, involving the initial rollout of an innovation, is evaluated using plan-do-study-act (PDSA) cycles, in which participants in the innovation make changes depending on what is working and what is not working. Because the innovation is constantly changing, formal evaluation methods are not appropriate. Stage 2 continues with PDSA cycles but adds qualitative data collection—open-ended written surveys, individual interviews, or focus groups—to assess the attitudes of the various players (clinicians, clinic staff, and patients) about the innovation. Some preinnovation quantitative data and quantitative data collected after the innovation has been ongoing for 12 months might also be measured. However, the innovation is still changing over time. Stage 3 can take place when an innovation has been tested on a large enough scale that it has become a formal intervention. At this point, the properties of the intervention are locked into place and no further changes are made until the formal evaluation has been performed. Stage 3 consists of a formal quantitative evaluation—randomized controlled trial, controlled clinical trial, or interrupted time series—with well-defined endpoints. For stage 3, a qualitative component that queries all participants adds richness to the evaluation.

To evaluate phase 1 of the teamlet pilot, the health coaches, clinicians, and project leaders held informal meetings to perform the “study” portion of the PDSA cycle and to suggest changes in the structure, logistics, roles, and training to be implemented the following week. Many changes were made from week to week. For example, a teamlet form and phone follow-up form were devised to document patient-coach interactions. Coaches began to print patients’ HbA1c and low-density lipoprotein cholesterol levels graphed over time, using these graphs to give patients clear and powerful messages about their clinical goals.

Phase 1 patient anecdotes motivated the process. One patient had a total cholesterol of 317 mg/dL. The health coach learned that the patient’s family owned a bakery where she ate pastries daily. The patient made an action plan to stop eating pastries, and her cholesterol level dropped to 190 mg/dL. Another pa-
Introducing the "Teamlet": Initiating a Primary Care Innovation at San Francisco General Hospital

A patient had impaired fasting glucose and revealed to the health coach that he drank 12 sodas daily. The patient made an action plan to reduce soda consumption to six, and eventually to three per day. Several patients revealed to their health coach that they had never taken medications their clinician had been prescribing for years. Many of the collected anecdotes demonstrated straightforward patient health issues that could be easily addressed by a health coach.

Semistructured interviews were conducted with a few health coaches, clinicians, and patients at the conclusion of phase 1. Several responses are provided below.

**Patient Feedback**

When asked, “How was the teamlet visit?” one Chinese-speaking patient with hypertension and hypercholesterolemia remarked, “It was very good. I learned a lot that day.” An English-speaking patient with hypertension excitedly shared, “Oh! I remember that visit! It was new to me, but I think it’s a good idea. … I learned so much.”

When queried, “Was it worth the extra time spent at the clinic to complete the teamlet visit?” one patient said, “Oh yes! I like the way the coach taught me about food and blood sugar. I’m doing exactly what my action plan describes, and I’m expecting a better lab result next time.” A Vietnamese-speaking patient with diabetes commented, “Now I know how food is related to my blood sugar. I’m following my action plan [to reduce rice intake by one-third].” Another patient with hypertension made an action plan to reduce salt intake and confided, “Maybe I was told the same thing before by the doctor, but I did not remember. … I understand better now.”

Negative feedback from patients centered on difficulty obtaining follow-up appointments and waiting too long before seeing their clinician. We did not measure if wait times increased for patients during teamlet visits compared with traditional visits. It is not clear whether the extra time required for the teamlet encounter created dissatisfaction.

**Health Coach Feedback**

One health coach reflected, “Teamlet is my most fulfilling working experience ever.” She affirmed that teamlet is “what patients want” and that “they enjoy the attention they receive and become more responsive [to suggested measures to improve] to their health.” When asked, “How does patient care compare between teamlet care and standard care?” one health coach said, “I deeply believe this is very good treatment—an effective way for [delivering] chronic care.” Without prompting, he confirmed the problems that inspired the development of the teamlet model by stating, “Surprisingly, almost all the patients [I’ve had contact with] don’t know what the glucose figure means. … All they know is [that] they took the medicine … and they don’t have any real idea about the relationship of diet and sugar. Lots of them, after I explain it to them, act stunned.”

This health coach described his unique analogy for supporting patients with self-management:

The patient always thinks the doctor is the commander in chief. I try to convince the patient they are the commander in chief and we’re just the support … we’ll give him the plan, but it depends on the patient—if they want to fight or not. They realize … if they give up, we all lose. We put them in the front line—in the position of action.

These comments are consistent with patients’ feedback expressing that they learn more during teamlet visits than during regular primary care visits. It must be noted that these interview findings may be skewed because we interviewed health coaches who stayed involved rather than those who became less active.

The health coaches’ criticisms of teamlet focused on the logistic difficulty of the program. Given the competing demands of a busy clinic, they did not always have sufficient time to complete follow-up phone calls and paperwork. One health coach maintains that “we’re never given time to do [follow-up]” and suggested that health coaches need protected time for phone follow-up with patients. This coach explained, “When I call patients, they say, ‘Hey, I’m doing a lot better!’ After making a few calls, I realized that the patient will treat us like a friend or coach if we follow up with patients closely.”

A coach criticized the lack of integration of teamlet paperwork into patients’ charts, an issue being addressed in teamlet phase 2. One coach also felt that additional training is essential so that health coaches collaborate with patients on action plans rather than ordering patients to make lifestyle changes.

**Clinician Feedback**

Feedback from clinicians included praise as well as constructive criticism. When asked for his overall impression of working in the teamlet model, one resident enthusiastically said, “Wow—this is amazing! This is how [clinical care] could be.” Consistent with patients and coaches, clinicians all commented that patients learn more during a teamlet visit than during a normal primary care visit. A resident physician commented that in the postvisit consultation, coaches repeatedly
Clinicians noted that patients revealed behaviors to coaches that they did not share with their clinician. One clinician commented, “I was shocked because I knew the patient quite well and the patient was telling me she was taking [the medication],” but during the postvisit consultation, that same patient confided to the health coach that she never actually took the medication. Patients may be more embarrassed to admit “failure” to the clinician than to the coach, who shares the patient’s culture.

Several challenges for clinicians were apparent in phase 1. Health coaches were sometimes pulled from teamlet visits when other clinicians required language skills other than English for patients with more urgent health care needs. Scheduling was logistically difficult, especially when trying to pair patients and staff on the basis of language skills. Because there were virtually no support staff for phase 1, one dedicated resident called patients directly to reschedule them on a day when a health coach with appropriate language skills could be present.

One clinician said that she sees definite potential to improve care through the use of teamlets but felt that the program had not yet “offloaded” much work from the clinicians. She suggested that in the future, health coaches could further help clinicians by doing medication reconciliation, setting up patients for examination (eg, shoes and socks off for diabetic foot examinations), addressing health care maintenance needs, and filling out forms, laboratory requests, and explaining common preventive health procedures. One resident also acknowledged that some clinicians may be hesitant to give up some of these responsibilities. One clinician said, “There needs to be a system in place for dealing with frustrations … a channel for staff to say ‘this isn’t working for me.’” Many of these concerns have been addressed in phase 2 of the teamlet innovation.

**Implementation of the Teamlet Model: Phase 2**

After anecdotal success during phase 1, Family Health Center leadership began planning phase 2, an expansion of the model. Phase 1 feedback from clinicians and coaches was integrated to improve logistics. Phase 2, taking place from June 2007 through July 2008, involves 13 first-year resident physicians, 10 faculty physicians, and 11 health coaches. Phase 2 is integrated into the California Academic Chronic Care Collaborative sponsored by the Association of American Medical Colleges and the Improving Chronic Illness Care project led by Ed Wagner, MD.

To launch phase 2, the entire Family Health Center staff participated in six one-hour training sessions, and 11 health coaches were chosen. Training in the teamlet model was also provided for first-year medical residents and faculty mentors. To facilitate immediate feedback from health coaches, residents, and faculty after each phase 2 teamlet session, we developed a short electronic survey on surveymonkey.com (surveymonkey.com, Portland, OR).

Two hundred patients were identified as the population of focus for phase 2. Each patient has two of the following coronary artery disease risk factors: hypertension, hyperlipidemia, diabetes mellitus type 2, obesity, and tobacco use. As much as possible, the health coaches form stable teamlets with the residents. The patients are assigned to language-concordant teams in which their physician and health coach can speak the patient’s primary language (English, Spanish, Cantonese, or Mandarin).

**Evaluation of Phase 2: A Mixed-Methods Approach**

Patients will be administered surveys to assess satisfaction in the following domains: ability to contact health-center staff, self-management support, length of visit, and information about medication and nutrition. Clinical processes and outcomes for the 200 patients will be followed to assess improvement in control of blood pressure, low-density lipoprotein, cholesterol, HbA1C; in documentation of body mass index; in smoking status; and in setting and meeting self-management goals. A disease registry will enable the tracking of these measures.

Staff, residents, and faculty will be surveyed to assess the impact of their training on knowledge of self-management tools, attitudes and skills in working with teams, and job satisfaction. Direct observation with video-stimulated recall, a behavioral education tool currently used with residents, will be used to assess resident and coach skills in communication and self-management support. Semistructured interviews and focus groups of residents, staff, and faculty will evaluate satisfaction of the curriculum learners.
It is hoped that the teamlet model of primary care delivery will be further integrated into the Family Health Center. One can imagine that the clinic could be organized to deliver teamlet care for patients with poorly controlled chronic disease who are seen by all clinicians, including faculty, residents, and nurse practitioners. Further ahead, payment paradigms may be developed to support the intensive patient encounters and training needs offered through the teamlet model.

Conclusion

Implementing and evaluating innovation in a primary care safety-net clinic is no trivial task. For the teamlet model, it took many phase 1 PDSA cycles to work out numerous challenges. After months of persistence and revision, phase 2 teamlet was implemented on a larger scale; it continues to be challenging. Perhaps the major success of phase 1 was the ability of teamlet coaches to act as cultural bridges between clinician and patient. Although primary care improvement may not carry the same academic weight as randomized control trials, the work is necessary to address the difficulties of the 15-minute visit in primary care. One resident imparted particularly wise words: “When you do primary care, you’re not necessarily the best person equipped to do drug trials, but you are the best person to understand the way care is delivered—you are in the best position to be an innovator.”

References


The Sufferer

We were assured, with sincerity, that our task in life was to relieve suffering. But never once did I hear anyone explain that the word patient really means “a sufferer” … Often the suffering was simple fear.

— The Cunning Man, William Robertson Davies, 1913-1995, Canadian novelist, playwright, critic, journalist, and professor
Special Report
Gaining New Insights into Early Abdominal Aortic Aneurysm Disease

Julie J White
Ronald L Dalman, MD, FACS, FAHA

Abstract
Abdominal aortic aneurysm (AAA) disease is a prevalent and highly morbid condition among older people in the US. There are currently no proven methods for reducing or eliminating enlargement in smaller preclinical aneurysms. Given their relatively slow increase in diameter (typically <0.4 cm/year), these smaller aneurysms offer a valuable window into the underlying pathophysiology of AAA disease. Through a Vascular Remodeling Specialized Center of Clinically Oriented Research program funded by the National Institutes of Health, we have established, in conjunction with Northern California Kaiser Permanente, a multidisciplinary research effort to efficiently identify and handicap suppressive therapeutic strategies for early AAA disease.

Background
Abdominal aortic aneurysm (AAA) disease is a prevalent and highly morbid condition among older people in the US. The aorta normally elongates and dilates with age, but when the diameter distal to the renal arteries exceeds 3 cm, it is considered aneurysmal. In the US, AAA disease affects approximately 6% of men and 1% of women older than 60 years, and more than 30,000 people die because of ruptured aneurysms or complications related to surgical repair of the aorta each year.1 Today AAAs are most commonly identified as incidental findings during abdominal imaging examinations. Small AAAs generally enlarge at a predictable rate,2 so patients in whom AAA has just been diagnosed usually enter a “watchful waiting” period before surgical intervention. There are no proven medical therapies for patients with early disease. The lack of nonsurgical therapies to prevent progression of early-stage disease and the absence of validated biomarkers or imaging parameters to monitor disease advancement present major clinical challenges in the management of small aneurysm disease.3–5 We aim to answer these clinical challenges through our study: AAA Disease: Mechanism, Stratification and Treatment, recently funded by the National Heart, Lung, and Blood Institute (NHLBI).

The pathophysiology of AAA disease is defined by transmural inflammation, smooth muscle cell apoptosis, and impaired extracellular remodeling. These events lead to progressive aortic enlargement and eventual rupture. The risk of rupture and sudden death is most closely related to aneurysm diameter. Surgical intervention through open or endovascular repair is presently the only effective method of treatment. At 5.5 cm in men, the risk of surgical repair is outweighed by the risk of aneurysm rupture or aneurysm-related death. For women, the guidelines are less well defined—repair is generally recommended at a diameter between 4.5 and 5.0 cm.6 There are currently no proven methods for reducing or eliminating enlargement in smaller preclinical aneurysms. Given their relatively slow increase in diameter (typically <0.4 cm/year), these smaller aneurysms offer a valuable window into the underlying pathophysiology of AAA disease.

Although AAA was once a relatively obscure and uncommon premortem diagnosis, AAA awareness among patients and physicians has increased significantly since 2004, meaning that patients who are otherwise quite healthy are becoming aware of their early AAA disease at relatively younger ages than ever before. In 2004 the Wall Street Journal received a Pulitzer Prize for its reporting on the growing health risks of AAA disease and its increasing impact on the aging baby-boom demographic.7 Shortly thereafter, the United States Prevente...
Gaining New Insights into Early Abdominal Aortic Aneurysm Disease

Physicians are “What’s next?” for many of these patients and their small AAA, the obvious question defined treatment guidelines for respectively. In the absence of clearly eligibility for men and women, recommended for elective surgery 5.5- or 4.5-cm threshold currently screening programs fall below the percent of AAAs detected through (for more information, see www. vascularweb.org/patients/medicare/screening/index.html). Ninety percent of AAAs detected through screening programs fall below the 5.5- or 4.5-cm threshold currently recommended for elective surgery eligibility for men and women, respectively. In the absence of clearly defined treatment guidelines for small AAA, the obvious question for many of these patients and their physicians is “What’s next?”

Current Research

The NHLBI initiated a AAA-specific research effort in 1999, funding 11 collaborative R0-1 research grants in seven different institutions, including Stanford University. Although initially limited to basic cellular, animal modeling, and genetic linkage studies, these programs proved quite productive in defining the mechanisms responsible for AAA pathogenesis and outlining potential translational research strategies.

This was followed in 2004 by an NHLBI Request for Applications (RFA) for Specialized Centers of Clinically Oriented Research (SCCOR) programs in vascular injury, repair, and remodeling, which specifically solicited proposals to move AAA research squarely into a clinical framework. With the help of resources obtained through the Vascular Remodeling SCCOR, we have established, in conjunction with Kaiser Permanente Northern California (KPNC), a multidisciplinary research effort to efficiently identify and handicap suppressive therapeutic strategies for early AAA disease. Our program, AAA Disease: Mechanism, Stratification and Treatment, includes 28 investigators or coinvestigators, including Bradley B. Hill, MD, Chief of Vascular Surgery at the Santa Clara Medical Center, and statisticians, study coordinators, engineers, physicians, exercise physiologists, technicians, and medical science graduate students. Together, our multidisciplinary team will develop an integrated approach to analysis, stratification, and treatment of AAA disease.

Our program includes three related projects and four support cores. The first project uses proteomic tools to improve diagnosis of early AAA disease, to identify disease-specific predictors of expansion, and to monitor response to potential medical therapies. The second project analyzes the influence of hemodynamic variability on AAA pathophysiology and disease progression. The third project examines the relationship between physical activity and AAA disease risk, including both the analysis of lifetime physical activity vis-à-vis aortic diameter and a randomized clinical trial testing the ability of supervised exercise training to modify AAA disease progression. The support cores provide histology, bioimaging, and clinical skills development training, as well as administrative support. The exercise trial described above anchors and connects the projects and supportive core units of this comprehensive translational research program.

Substantial evidence links sedentary existence and resulting proinflammatory aortic conditions to the pathogenesis of AAA disease. For this cross-sectional correlation study to determine whether lifetime physical activity and measured exercise capacity represent independent risk factors for AAA disease, 1,400 participants will be recruited. In addition, a subset of 340 study subjects with small AAAs will participate in a prospective, randomized, controlled longitudinal trial of exercise to suppress small AAA progression. The impact of exercise training will be monitored by ultrasound imaging surveillance.
and surrogate serum markers.

Defining the exact nature of those surrogate serum markers is the purpose of the proteomic project. In view of similar observations of patients with atherosclerotic occlusive disease, it is likely that AAAs produce unique signature profiles of proteins that include aspects of inflammation, apoptosis (programmed cell death), extracellular matrix breakdown, and thrombosis. In this project, transcriptional profiling of human AAA tissue, database mining for patterns of protein expression and serum multimarker assessment of experimental models will be used to develop proteomic profiles (simultaneous expression of disease-specific mediator proteins in serum) of AAA disease. Our expectation is that these proteomic profiles would not only provide insight into the AAA disease process but also enable serologic monitoring of aneurysm expansion and response to novel therapies.10,13

Aneurysm expansion and rupture are dynamic processes driven by luminal pressure, wall shear, and strain forces. The hemodynamic project will employ novel imaging and computer modeling techniques to quantify the biomechanical forces acting in AAAs during resting and exercise conditions. After refining our ability to quantify abdominal aortic blood flow at rest and during exercise, we will develop and validate computational methods to model blood flow, pressure, and wall motion in patient-specific reproductions of the abdominal aorta16 (Figure 1). This project will image and model blood flow in approximately 100 patients from the sustained exercise or usual activity arms of the clinical trial.

In addition to KPNC, Stanford University is collaborating with the Palo Alto Institute for Research and Education and the Veterans Affairs Palo Alto Health Care System (VAPAHCS) through consortium agreements on this study. The program was initiated in May 2006, with human subjects approval through Stanford University, VAPAHCS, KP, and the NHLBI Data Safety Monitoring Board finalized in November 2006. Recruitment began in late November 2006 for the prospective cross-sectional correlation study to determine whether lifetime physical activity and measured exercise capacity represent independent AAA risk factors. For this specific aim 1 (SA 1), a prospective cross-sectional study of lifetime physical activity as an independent risk factor for AAA disease, study subjects with small AAAs (<5.5 cm) complete the protocol shown in Table 1.

After initial screening, the participant completes these procedures

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**Table 1. Protocol for specific aim 1a**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Telephone or in-person screening consent, followed by the research consent.</td>
</tr>
<tr>
<td>2.</td>
<td>Collection of medical history information from medical records, including current medications.</td>
</tr>
<tr>
<td>3.</td>
<td>Directed physical examination.</td>
</tr>
<tr>
<td>4.</td>
<td>Completion of two questionnaires regarding lifetime physical activity and a health history questionnaire.</td>
</tr>
<tr>
<td>5.</td>
<td>Abdominal ultrasound imaging to measure aortic diameter.</td>
</tr>
<tr>
<td>6.</td>
<td>Blood draw for lipid panel, hs-CRP, MMP-9, fasting insulin and glucose levels, and protein profiles.</td>
</tr>
<tr>
<td>7.</td>
<td>Urine sample for cotinine analysis.</td>
</tr>
</tbody>
</table>

*A prospective cross-sectional study of lifetime physical activity as an independent risk factor for abdominal aortic aneurysm disease. hs-CRP = high-sensitivity C-reactive protein; MMP-9 = matrix metalloproteinase-9.

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**Table 2. Protocol for specific aim 2—exercise group**

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>1.</td>
<td>Assessment of maximum exercise capacity, performed at the beginning of the study as well as every six months until completion. HR, BP, electrocardiograms, and exercise tolerance are monitored throughout the test by medical personnel.</td>
</tr>
<tr>
<td>2.</td>
<td>Supervised outpatient exercise training three days per week for participants living within 15 miles of the VAPAHCS. Exercise sessions include five-minute warm-ups and cool-downs and 40–48 minutes of continuous aerobic exercise (treadmill walking, cycle ergometry, step bench). Electrocardiographic, HR, and BP responses are monitored throughout the test period. Study subjects living &gt;15 miles from the VAPAHCS are provided with a detailed exercise prescription (treadmill walking, cycle ergometry, step bench). Electrocardiographic, HR, and BP responses are monitored throughout the test period. Exercise staff routinely contact study subjects and monitor progress.</td>
</tr>
<tr>
<td>3.</td>
<td>In addition to being prescribed exercise regimens, all study subjects are encouraged to increase daily exercise levels and will wear a pedometer every day and a GPS/HR monitor twice a month.</td>
</tr>
<tr>
<td>4.</td>
<td>Participants with AAAs of &lt;4 cm undergo abdominal ultrasound imaging, blood draw (for lipid panel, hs-CRP level, MMP-9 protein profiles, and fasting insulin and glucose levels), and urine sample (cotinine analysis) annually.</td>
</tr>
<tr>
<td>5.</td>
<td>Participants with AAAs ≥4 cm undergo abdominal ultrasound imaging and blood draws (lipid panel, hs-CRP level, MMP-9 protein profiles, fasting insulin and glucose levels) and provide urine sample (cotinine analysis) biannually.</td>
</tr>
</tbody>
</table>

* A prospective evaluation of the ability of exercise training to reduce AAA progression. AAA = abdominal aortic aneurysm; BP = blood pressure; HR = heart rate; hs-CRP = high-sensitivity C-reactive protein; MMP-9 = matrix metalloproteinase-9; VAPAHCS = Veterans Affairs Palo Alto Health Care System (in California).
Gaining New Insights into Early Abdominal Aortic Aneurysm Disease

Table 3. Protocol for specific aim 2—usual activity group

1. Wear pedometers and continue usual level of activity.
2. Participants with AAA <4 cm undergo abdominal ultrasound imaging and blood draw (lipid panel, hs-CRP level, MMP-9 protein profiles, fasting insulin and glucose levels) and provide a urine sample (cotinine analysis) biannually.
3. Participants with AAA ≥4 cm undergo abdominal ultrasound imaging and blood draws (lipid panel, hs-CRP level, MMP-9 protein profiles, fasting insulin and glucose levels) and provide a urine sample (cotinine analysis) annually.
4. Patients are asked about level of activity every 6–12 months when they undergo blood draws.

Prospective evaluation of the ability of exercise training to reduce AAA progression.
AAA = abdominal aortic aneurysm; hs-CRP = high-sensitivity C-reactive protein; MMP-9 = matrix metalloproteinase-9.

During a half-day visit to the VAP-AHCS exercise physiology laboratory. When this article was written, we had screened and enrolled 146 patients into this aim, at an average of 25 per month. Currently, there are no additional study requirements necessary for participation in SA 1; plans are underway, however, to modify the protocol to include one additional one-half day visit for ultrasound and serum marker testing at the end of the study.

A subset of patients with small aneurysms identified in SA 1, who qualify and are interested in participating, have the opportunity to enroll in the prospective evaluation of the ability of exercise training to reduce AAA progression (SA 2). Participation in SA 2 is clearly limited to highly motivated individuals with the highest level of commitment to the study. By the end of the second year of the study, we hope to randomize 170 patients to the exercise group and 170 to usual activity. Patients assigned to the exercise group participate in a three-year protocol outlined in Table 2.

At the time of the baseline exercise test visit, study subjects are counseled regarding the identification of signs and symptoms of exertional intolerance and the need for medical attention. Patient progress, symptoms experienced, and compliance are monitored closely throughout the course of the study. Study subjects in the home program are also asked to return to the hospital monthly for maintenance counseling, to update questionnaires on physical activity patterns, and to download accelerometer (a device to measure displacement activity) data. Maximal exercise testing is repeated after the initial two months and at six-month intervals thereafter, providing ample opportunity to monitor training effects, ensure patients’ medical stability, and update the exercise prescription (Figures 2 and 3).

Patients randomly assigned to the usual activity group complete the protocol in Table 3 over a three-year period. Forty-two patients have enrolled in SA 2. As noted above, participation is limited to highly motivated study subjects who are committed to completing the entire period of the study. One patient remarked that “the opportunity to participate in an exercise program has been delightful and having the results contribute to useful medical knowledge is a bonus. I am an 80-year-old widower who had been degenerating physically from simple lack of ambition and motivation. This opportunity to learn proper exercise and enjoy some social life with fellow participants has been enjoyable.”

Recruitment for both aims is ongoing through vascular and primary care clinics throughout the consortium hospitals, including all 14 KPNC facilities. We have also recently added significant resources to our KP affiliation by upgrading and expanding our contract with the KP Division of Research (DOR) in Oakland, CA. DOR personnel, led by Alan Go, MD, and Carlos Iribarren, MD, MPH, PhD, are collaborating on the scientific direction of the study and helping catalyze its successful completion.

Several thousand KPNC patients are already aware that they have small AAAs and will ultimately need surgical repair. Many, if not most, of these patients may be interested in learning more about their disease through participation in this important study, which is called Abdominal Aortic Aneurysms: Simple Treatment or Prevention (AAA: STOP). Should the opportunity arise, please consider mentioning AAA: STOP to your patients who have small aneurysms. Study personnel from Stanford are available to provide on-site education programs about AAA disease and current management options, as well as study-related information. Study contact informa-
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Gaining New Insights into Early Abdominal Aortic Aneurysm Disease

Figure 3. A study participant exercises on a treadmill at the lab in the Veterans Affairs Palo Alto Hospital.

References

Disclosure Statement
The author(s) have no conflicts of interest to disclose.

Acknowledgment
Katharine O’Moore-Klopf of KOK Edit provided editorial assistance.

Gaining New Insights into Early Abdominal Aortic Aneurysm Disease

Research Outcomes
Ultimately, we hope that when patients in Northern California ask the question “What’s next?” the answer will be an introduction to AAA: STOP by their primary care physician or vascular surgeon. In the near future, we anticipate that the answer will include a specific treatment recommendation enabled by the natural history information collected from this important study.

References
Implementation of a High-Alert Medication Program

Suzanne Graham, RN, PhD
Molly P Clopp, RN, MS, MBA
Nicholas E Kostek, RPh, MS
Barbara Crawford, RN, MS

Abstract

Introduction: Greater than 500,000 doses of high-alert medications are administered throughout the Kaiser Permanente Northern California (KPNC) Program on an annual basis. High-alert medications (HAM) carry a higher risk of harm than other medications and errors in the administration of HAM can have catastrophic clinical outcomes. The purpose of this project is to ensure safe medication practices and to eliminate medication errors that cause harm to our patients.

The Program: KPNC leadership, physicians, nurses, pharmacists, quality leaders, and labor unions worked with regional and local medication safety committees to: 1) standardize high-alert medication-handling practices; 2) enhance education programs related to medication practices, embedding these into annual core competencies of all staff who handle high-alert medications; 3) develop monitoring functions at both the regional and local levels to ensure sustainability and ongoing systems improvements. Begun in December 2005, this program covers the delivery of high-alert medications across the continuum of care and affects all patients receiving HAM.

Measures: The initial phase of the monitoring process was put in place to measure compliance with implementation. Over the first few months of the program the 90% minimal threshold was surpassed with regional overall compliance of 95%. Following this initial process, the Regional Medication Safety Committee developed monitoring tools. Department managers carry out these concurrent observational audits at the medical centers with oversight by the Assistant Administrators for Quality and Service. These audits are designed to measure whether or not all medications on the HAM list are handled specifically to policy requirements, eg, independent double-checks, HAM stickers, etc. Audit specifications are provided for each audit tool. Medical Center audit results from the third quarter of 2006 through the third quarter of 2007 have shown a regional aggregate of 97.7% compliance. As the high percentages of compliance have held constant over time, more actionable metrics are being put in place for 2008.

To determine whether or not the program is reducing HAM errors, data from the regional Quality and Risk database (MIDAS) related to all high-alert medication errors was reviewed. Two interventions were of note: in July of 2005, there was a renewed effort to educate leaders, managers, physicians, and staff on responsible reporting in a “just culture” and the introduction of the new Responsible Reporting Form. An increase in reporting was noted at this time. In December 2005, the HAM program was introduced. There is a statistically significant drop in errors reported for 23 consecutive months following this program. These findings were similar for all phases of the delivery process. A powerful indicator of improvement is the average days between major injury and death. As of November 30, 2007, it has been 232 days since the last significant negative event was reported due to a HAM.

Conclusion: This program has been implemented in all of the KPNC Medical Centers and is in the process of being implemented in all KP regions. This spread has been endorsed by the Medical Directors Quality Committee and by the KP Boards of Directors. The Interregional Medication Safety Committee is overseeing the spread process. A toolkit containing all of the required tools plus additional materials and information has been developed and made available throughout KP. The program is the recipient of the 2007 Lawrence Patient Safety Award.
**Introduction**

According to the Institute of Medicine's report in 2006, *Preventing Medication Errors*, an estimated 380,000-450,000 preventable adverse drug events (ADEs) occur in hospitals each year. These errors most frequently occur in the prescribing and administering stages. Medication errors are a significant and often preventable health care problem. Although many medication errors may not cause grave harm to patients, some medications are known to carry a higher risk of harm than other medications and errors in the administration of these medications can have catastrophic clinical outcomes. These medications are identified as high-alert medications (HAM) and require special considerations. One of the National Quality Forum’s 30 Safe Practices for Better Healthcare is to “identify all high-alert drugs, and establish policies and processes to minimize the risks associated with the use of these drugs.”

Greater than 500,000 doses of HAM are administered throughout Kaiser Permanente Northern California (KPNC) on an annual basis. Following three major adverse medication safety events, it was determined by KPNC leadership that there must be a more focused approach for HAM. To ensure safe medication practices and to eliminate medication errors that cause harm to our patients, KPNC implemented the High-Alert Medication Program (HAMP) in December of 2005.

**Table 1. High-Risk Medication Safety Task Force**

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
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<tbody>
<tr>
<td>Current:</td>
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<tr>
<td>David Campen, MD</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Molly Plau Clopp, RN</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Suzanne Graham, RN, PhD</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Nicholas E Kostek, RPh</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Rich Levy, PharmD</td>
<td>Southern California Regional Offices</td>
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<tr>
<td>Julie Nunes, RN</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Maryjo Williams, RN</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Original:</td>
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<tr>
<td>Emma Baron, RN</td>
<td>formerly Northern California Regional Offices</td>
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<tr>
<td>Lynda Bayless, RN</td>
<td>Santa Rosa Medical Center</td>
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<tr>
<td>Kathy Brown, RN</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Eric Enders</td>
<td>Northern California Regional Offices</td>
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<tr>
<td>Suzanne Graham, RN, PhD</td>
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<tr>
<td>Karen Grisnak, RN</td>
<td>Vallejo Medical Center</td>
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<tr>
<td>Terry Heywood, MD</td>
<td>Walnut Creek Medical Center</td>
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<tr>
<td>Pat Irving, RN</td>
<td>Santa Clara Medical Center</td>
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<tr>
<td>Jackie Killeen, RN</td>
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<td>Mary Kirkwood, RN</td>
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<td>Mary McFadden, RN</td>
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<td>Doug O’Brien, PharmD</td>
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<tr>
<td>Lynn Paulsen, PharmD</td>
<td>formerly San Francisco Medical Center</td>
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<tr>
<td>Kimberly Powell, RN</td>
<td>Cross Regional Patient Care Services</td>
</tr>
<tr>
<td>Julie Reed, RN</td>
<td>Hayward/Fremont Medical Center</td>
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<td>Vincent Reed, RN</td>
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<td>Becky Richards, RN</td>
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<td>Michael Rubino, MD</td>
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<td>Anita Zuniga, RN</td>
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In July of 2005, a 21-year-old patient was admitted to the hospital for lymphoma. This patient began receiving chemotherapy and was responding well to the treatments. On August 26, 2005, the patient received what was to be the fourth chemotherapy treatment, injected intrathecally. Three days later, this 21-year-old died from a lethal medication error. What had been injected in the patient’s spine on August 26 was not the prescribed treatment but rather vincristine, a chemotherapy medication intended for another patient, that is lethal when administered intrathecally.

Multiple system failures and human errors led to this tragic incident. Although the pharmacist noted that there were four chemotherapy medication orders for two patients that day, the medications were mixed up and delivered to the incorrect nursing units. When delivering the medication, the pharmacist placed the syringe directly in the refrigerator rather than performing face-to-face delivery to explain safety precautions necessary with this drug. Additionally, the vincristine was not labeled and packaged according to the manufacturers’ recommendation and did not display the warning, “Fatal if given intrathecally. FOR IV USE ONLY.” Neither the nurse nor the physician checked the label on the syringe with the patient’s name or used the “five rights” (5Rs) right drug, right dose, right time, right route, right patient—of medication administration before administering the medication. The nurse removed the medication label before handing the syringe to the physician so as to see the graduations clearly. Thus, the physician had an unlabeled syringe. This series of errors was preventable if better systems had been in place to prevent this tragic occurrence.
Objectives

The outcome of this event was the creation of the HAMP in the Northern California Region. The overall purpose of the HAMP was to ensure safe medication practices and to eliminate medication errors that cause harm to our patients. These goals were to be achieved by:

- Identifying high-risk and problem-prone medications as HAM
- Standardizing HAM handling practices
- Enhancing education programs related to HAM practices, embedding these into annual core competencies of all staff who handle medications
- Developing monitoring functions at both the regional and local levels to ensure sustainability and ongoing systems improvements.

Approach

In November of 2005, under the direction of Northern California leadership, the Regional Medication Safety Committee (RMSC) chartered the High-Risk Medication Safety Task Force (Table 1) for the purpose of drafting a proposal for standardizing the handling of HAM throughout KPNC. This core multidisciplinary group included Kaiser Foundation Hospital, the Permanente Medical Group and the California Nurses Association (CNA). Membership was brought together for a full-day, intensive decision-making event to establish a plan, determine the working groups, define the scope, and establish the limited list of HAM, processes, and patient types that would form the program for KPNC.

Using the current literature, recent medication-related events in KPNC, and the expertise of the participants, the High-Risk Medication Safety Task Force broke down into working groups to develop the HAM list. Each group had content and experience experts and was charged to bring forth the listing of drugs, methods of administration and patient-specific requirements that the large group would evaluate. Decision making was by consensus and the HAM list and management requirements were established. (See sidebar for list of HAM.)

The Task Force then determined that the HAMP would have the following requirements:

- The HAM list, drug concentrations, and management requirements would be standardized at all facilities throughout the region
- Any change to the list would require approval by the RMSC
- The HAMP would apply across the continuum of care, including specialty areas
- Senior leadership would ensure the appropriate resources were available for design, implementation, and equipment requirements.

A team of pharmacists, nurses, and quality practitioners, with the guidance of physician partners, developed the policies and procedures of the HAMP (Table 2). During a period of two months, these were sent to subgroups of staff for comment and through a dynamic change process the policies and procedures were finalized into a working document. These received final approval from leadership and the RMSC.

A communication plan was developed to ensure that the message of medication safety would be consistent and that everyone in KPNC would be aware of the program. Support for the program at the facility level was critical and specific communication steps were taken to enlist the support of local leadership to ensure success.

An education plan was established to accomplish the goal of training all pharmacy, nursing, and medical staff within a very short time frame. Standardized education tools were developed for use across the region. Training was accomplished in less than two months.

An audit subgroup of the RMSC was established to design monitoring tools and procedures to ensure complete implementation, staff competency training and the consistent application of the requirements of the program. Regionally, reporting was to be ongoing, using the regional quality and risk database (MIDAS; MIDS, Inc; Tuscon, AZ) to track the trends in HAM involved in adverse events.

### Kaiser Permanente Northern California High-Alert Medication List (November 2007)

1. Continuous IV heparin infusions
2. Continuous IV insulin infusions
3. Neuromuscular blocking agents
4. IV cytotoxic chemotherapy infusions
5. Sodium chloride infusion >0.9%
6. Potassium injection (chloride, acetate, and phosphate) >0.4 mEq/mL
7. Magnesium sulfate infusions >100 mL
8. Alteplase (t-PA, Activase) infusions
9. Tenecteplase (TNKase) injections
10. Vinca alkaloids (VinCRIStine, VinBLAStine, Vinorelbine)
11. Narcotic/opioid infusions, including PCA
12. Epinephrine, norepinephrine, isoproterenol infusions
13. All medications administered via intrathecal route
14. All medications administered via epidural route
15. NICU: All doses of IV and oral medications (except for oral vitamins or iron)
16. Pediatrics (Ages 0-13): All medications on the ADULT HAM list; all doses of IV medications given in critical care areas, including Emergency Department; all medications used for procedural sedation (except when administered by anesthesia provider); digoxin (all routes); and chloral hydrate (all routes)
Table 2. Kaiser Permanente Northern California High-Alert Medication (HAM) Policy abstract

<table>
<thead>
<tr>
<th>High-alert medications</th>
<th>Management requirements</th>
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| All HAM and routes      | • Independent double-check in the pharmacy for all pharmacy-prepared IV infusions of HAM and documentation on IV compounding profile/log book  
• Require independent double check at the bedside by two appropriate persons and documentation on medical record at initiation of administration, at bag change, at dose change, and at transfers/handoffs  
• Includes inpatient and outpatient settings  
• All physicians, nurses, and others who administer HAM will have medication administration training and will comply with regional policy  
• HAM will have red “high-alert” stickers  
• Anesthesia providers comply with the HAM list Policy and Procedure for Anesthesia  
• “Clinical Data Category” warning in Pyxis (eg, Caution: High-Alert Drug)  
• Use of “smart” pumps with patient safety software required when available  
• Emergency situations (eg, Code Blue) are excluded |
| Critically ill neonates | • All IV and all oral medications except oral vitamins and oral iron |
| Pediatrics (0-13yr)     | • All medications on adult HAM list  
• All doses of IV medications in critical care areas, including Emergency Department  
• All medications used for procedural sedation except anesthesia provider  
• Digoxin (all routes)  
• Chloral hydrate (all routes) |
| All intrathecal medications | • Requires a “time out” in pharmacy and at medication administration |
| All epidural medications | • Use standard concentrations for infusions  
• Use color-coded or labeled tubing without injection ports, where feasible  
• Special labeling for containers |
| High-alert medications | Management requirements |
| Heparin infusion        | • Do not use unapproved abbreviations, ie, “m,” in orders  
• Store vials separately from insulin  
• Standard concentration of 100 units/mL  
• Independent double-check at rate change required |
| Insulin infusions       | • Do not use unapproved abbreviations, ie, “m,” in orders  
• Infusions compounded and dispensed by pharmacy  
• Standard concentration 1 unit/mL |
| Neuromuscular blocking agents | • Restrict floor stock to Emergency Department, Operating Room, Postanesthesia Care Unit, Critical Care and Cath Lab  
• Store separately with special labeling to differentiate from other meds  
• Use identification techniques (eg, labels, etc); shrink wrap not required  
• Confirm intubation status prior to administration |
| Cytotoxic chemotherapy infusions | • Independent double-check in pharmacy process  
• Use special packaging and labeling  
• Verbal orders not accepted  
• No dosing by course of treatment  
• Minimum set of information in medication orders  
• Verification of scheduled date and time of dose prior to administration |
| Vincristine, vinblastine and vinorelbine | • Dispensed in mini bag, rare exception for pediatrics, noncentral line  
• Requires a “time out” and independent double-check immediately prior to administration |
| Concentrated electrolytes | • Sodium chloride >0.9% infusion  
• Potassium infusions (chloride, acetate, phosphate) greater than 0.4 meq/mL  
• Restrict storage to pharmacy  
• Use premixed products when available |
| Magnesium sulfate infusion | • Bag volumes greater than 100 mL are high alert  
• Use premixed products when available  
• Standard concentration 40 mg/mL |
| Alteplase (t-PA, Activase) infusion | • Infusions compounded in pharmacy, emergency exceptions will be tracked  
• “Clinical Data Category” in Pyxis to differentiate product from tenecteplase (TNKase)  
• Special labeling requirements |
| Tenecteplase (TNKase) injection | • Independent double-check prior to administration  
• “Clinical Data Category” in Pyxis to differentiate product from alteplase (t-PA) |
| Narcotic/opiate infusions including patient-controlled analgesia | • Use standard concentrations for morphine, meperidine, and hydromorphone  
• Programming of pumps in process  
• Labeling to show “high-concentration” product to differentiate from standard concentration |
| Epinephrine, norepinephrine, isoproterenol infusions | • Standard infusion concentrations for all continuous infusions  
• Independent double-check at rate changes not required |
HAMP relies on consistent practices throughout KPNC, use of state-of-the-art technology such as smart pumps for medication infusions, and thoughtful design and implementation of sound safety practices such as independent double-checking and hand-off communication skills such as the Nurse Knowledge Exchange.

**Data Collection and Analysis Process**

The first phase of the facility monitoring process was checking for compliance with implementation of the program. The implementation threshold was set at 90%. Four out of 18 facilities reported below threshold results. Corrective action plans were implemented and three of the four facilities subsequently reported results of greater than 98% compliance, bringing the regional overall compliance result to 95%.

Following this initial process, observational audit monitoring tools were developed (Figure 1). Department managers carry out these observational audits at the medical centers with oversight by the Assistant Administrators for Quality and Service (AAQS). These audits are designed to measure whether or not all medications on the HAM list are handled specifically to policy requirements. Audit results (regional averages) for the third quarter of 2006 were 97.3%; for the fourth quarter were 98%; for the first quarter of 2007 were 98.2%; for the second quarter were 97.2%; and for the third quarter 97.8%. The audit subgroup surveyed facilities regarding their experience of the audit process. Most respondents felt that the audits had been effective in monitoring the initial implementation of the HAMP policy, but that it was time to explore more actionable metrics that would support continued performance improvement.

The Institute for Healthcare Improvement (IHI) developed a trigger tool for measuring ADEs, as well as a set of global trigger tools to provide an easy-to-use method to accurately identify adverse events and to measure the rate of adverse events over time. Tracking adverse events over time is an important tool in determining if changes made result in improvements. The High-Risk Medication Safety Task Force worked with IHI to modify the trigger tool and, through small tests of change, piloted its use. In the first quarter of 2007, two facilities volunteered to pilot the use of the trigger tool methodology to focus on the care experience of patients receiving certain HAMs. The San Rafael Medical Center reviewed care of patients receiving opiates via patient-controlled analgesia (PCA) pumps and the San Francisco Medical Center reviewed care of patients receiving intravenous heparin. The trigger tools were designed to collect demographic, clinical process, compliance with policy, and outcome (harm) data. Twenty charts of patients from the respective populations were reviewed each month with review time intentionally limited to no more than 20 minutes per chart. Auditors worked together representing the following disciplines: pharmacy, quality, risk/patient safety and nursing. The results of the focused trigger tool pilot project on IV-heparin therapy at the San Francisco Medical Center revealed several opportunities for improvement that may not have been identified by other methods. On the basis of these findings the Medical Center was able to take steps to further improve processes in the delivery system for IV-heparin.

The Quality Liaisons (QLs) (CNA staff nurses mutually appointed by the CNA and KPNC) played a large role in determining areas of concern and creating solutions. When data showed that nurses were still not doing the 5Rs, a workshop was held with the QLs to determine the reasons. Through a Delphi process—a process of reducing ideas from brainstorming to key elements—the three major reasons were identified: interruptions, distractions, and rushing. The QLs then helped design small tests of change to rectify these areas. For example, the South San Francisco Medical Center...
Center piloted the use of yellow medication vests as a sign that a nurse was not to be interrupted because s/he was in the process of administering medications. A reduction in medication errors was noted as a result of this program. This vest program was presented at the California Nursing Outcomes Coalition Conference in Anaheim, CA, November 8, 2006, and discussed in the Advance for Nurses May 2007 publication. An article on the successes of these initiatives appeared in the Fall 2006 STEPS. Regional data was collected through the Responsible Reporting Form (RRF). KPNC employees use the RRF to identify any medication events—near-misses and ADEs. This data, with supplemental information when necessary, was imported into MIDAS. In January of 2006, the data collection process for HAM events was standardized in MIDAS to allow for tracking and trending of HAM events. The categories of data for medication events include: demographics of patient, time, unit, diagnosis, type of medication event, name of medication, HAMP type, outcome, including near miss (those events that do not reach patients), and other parameters associated with the event, including human factors.

**Implementation Considerations**

**Leadership Endorsement**

Key physician and nursing leaders from both the hospital and the Medical Group endorsed the program and created visible support through the use of e-mail communications and direct communication with Medical Center leadership. They worked with the established Regional HAMP Committee, the RMSC, and a small workgroup, nicknamed the HAMPsters, to create the policy and procedures and to establish the implementation plan. Weekly phone calls with the HAMPster group and the medical centers were implemented to ensure sustainability, lending their support to address barriers, and offering in-person presentations to the facility leadership team as needed.

**Communication and Education**

Routine phone calls were held with the medical center leaders accountable to implement the HAMP policy and procedure, to answer questions, to clarify misunderstandings, and to continue to communicate the consistent message. For the first few months of the program these calls were weekly. The calls are now monthly. The Task Force met with department chiefs, nursing leadership groups, and staff nurse leadership groups to convey the need for a consistent program approach. In addition, all nursing staff and others who give medications, such as radiology technologists, completed a self-study module and brief test on the 5Rs (five rights) of medication administration.

**Feedback Loop**

A process was established to allow medical centers to request changes to the policy. Those change requests...
Implementation of a High-Alert Medication Program

were reviewed and decisions made regarding the requests at the RMSC meetings. Subgroups were chartered to focus on specific areas—e.g., anesthesia and pediatric oncology—to ensure that consideration was made for the special needs of those specialties while adhering to the HAMP principles.

Local Accountability
Each medical center has a Medication Safety Committee. The committee’s responsibility is to ensure HAMP is in place locally and to review trends and local issues for course correction and action. The local committee chairs are invited on a rotational basis to present their local initiatives and issues to the RMSC.

Measurement
Initially, the Task Force tracked the percentage of nurses who completed the self-study modules and used observational audits to monitor the implementation of the key HAMP features of independent double-check, use of HAM stickers, special labeling, etc. The Task Force continues to audit but has begun using different methodologies, such as trigger tools, to determine the best way to ensure compliance and identify areas of concern.

Results
Outcomes from the regional RRF data have shown meaningful improvements. RRF data was analyzed using the control chart methodology in which one determines whether variations from the mean are caused by a “special cause,” in this case, the implementation of HAMP. The RRF data showed 23 favorable special causes that indicate substantial improvement in our volumes of employee-reported medication events and HAMP events (Figure 2). A powerful indicator of improvement is the Days between Major Injury and Death from All Medication Events control chart. Through these measurements, we know we have sustained a new and improved process with a new mean. Before July of 2006, events were identified on the average every 13.2 days (Figure 3). As of November 30, 2007, it has been 232 days since an adverse medication event that caused harm.

Conclusion
When displaying the data for 2006 forward, a clear trend emerged. The control chart for Days between Major Injury and Death from All Medication Events showed a mean of 13.2 for the first six months and increased to 232 days as of November 30, 2007 between event-related major injury and death. A limitation of this data is that this dramatic improvement conclusion is dependent on ensuring that there are no changes (such as reductions) in reporting practices at our 19 medical centers and that the data entry for this time period is complete.

The HAMP uses standardization as the keystone to implementation, maintenance of patient safety gains, and monitoring of policies, procedures, and staff practice. Inpatients, outpatients, and home health patients are all protected under the policy and each practice area is monitored for compliance on a regular basis. The standardized HAM list is the same for all areas of practice and it is mandated that all additions and changes to the program be facilitated through the KPNC RMSC. This standardization is being carried forward by its incorporation into KP HealthConnect, the electronic medical record system. Work with KP HealthConnect teams continues to bring the standardization of medications and documentation strategies to the electronic medication administration record.

Because the ability to transfer practices within and across regions is of such importance for KP facilities, regional toolkits were a major design factor in planning and implementing the HAMP activities to our local medical centers. These kits contain administrative policies and procedures, education and training materials and validation tools, staff competencies and documents with frequently asked questions. Standardized monitoring tools with consistent reporting templates continue to be used to ensure that progress is consistent across the region and outcomes can be measured accurately. These toolkits and monitoring guidelines are a primary driver to ensure the portability of HAMP practices across KP. HAMP has been implemented in all of the KPNC medical centers and is in the process of being implemented in all regions. There is a very strong commitment by the members of the HAMP leadership team to provide help and guidance to other regional HAM groups.

Key Success Factors
As the Northern California HAMP program is spread to other regions it is important to keep in mind several factors that were key in the success of the program. These include:
• Top leadership support including visible articulation of the importance of the program and active participation in planning meetings
• Involvement of labor partners and CNA
• Standardized HAM list, education/training, measurement, and tools
Next Steps for KPNC

Sustaining the program over time is of utmost importance. A proposal has been developed for 2008 that includes further involvement of the Medical Center Medication Safety Committees in maintaining the program. We are working with the IHI to customize trigger tools for those HAM that have been identified as the most prone to error. These include heparin, insulin, and opiates. A video has been developed through collaboration with the QL nurses that includes the appropriate methods for performing independent double-checks. This has been identified as a particularly difficult issue in implementation. This video will be utilized for training purposes throughout KPNC as will an updated standardized tool for assessing nursing competencies.

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

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The Right Dose

All substances are poisonous, there is none which is not a poison; the right dose differentiates a poison from a remedy.

— Paracelsus (Theophrastus Philippus Aureolus Bombastus von Hohenheim), 1493 – 1541, Swiss alchemist, physician, astrologer, and general occultist
Abdominal Lipectomy: A Prospective Outcomes Study

Abstract
Context/objective: Abdominal lipectomy is performed by plastic surgeons to provide symptomatic, functional, and cosmetic relief for patients with excess abdominal tissue. However, there are few clinical outcome studies looking at the utility of this procedure: this is the first prospective outcomes study.

Design: Patients who underwent abdominal lipectomy at the Bellflower Medical Center during a 12-month period (September 2004 through September 2005) were prospectively studied. Data were collected at the preoperative visit, during surgery, and at the one-week, one-month, and six-month postoperative visits.

Outcome measures: Complications, both major (requiring rehospitalization or reoperation) and minor (requiring local outpatient care) were identified. To evaluate the impact on our patients’ perceived health and well-being as well as body image, we administered the Short Form–36 Health Survey (SF-36) and the Multidimensional Body-Self Relations Questionnaire (MBSRQ) to participants at their preoperative and six-month postoperative visits.

Results: For the 72 patients enrolled in the study, the postoperative major complication rate was 5.6% (four patients) and the minor complication rate was 27.8% (20 patients); 98.3% were happy to have had the surgery. Two components of the MBSRQ, feelings of attractiveness and body area satisfaction, showed significant improvement (p < 0.0001 for each) at six-month postoperative testing. No component of the SF-36 reached statistical significance between pre- and postoperative testing.

Conclusion: Because the complication rate for cosmetic abdominoplasty in our study did not significantly differ from rates reported for other studies, and given our data on perceived patient satisfaction and improvement in outcomes, our study validates the utility of abdominal lipectomy for patients with symptomatic lower abdominal pannus.

Introduction
Abdominal lipectomy is performed by plastic surgeons to provide symptomatic, functional, and cosmetic relief for patients with excess abdominal tissue. The excess abdominal pannus may be the result of significant weight loss or may be due to obesity. Abdominal lipectomy is different from a cosmetic abdominoplasty in that there is minimal or no abdominal wall undermining and, unless there is a ventral hernia, no abdominal muscle pllication is performed. Additionally, the skin excess over the hips is not addressed, which may leave the patient with significant excess in these areas after surgery. There is concern over the utility of this procedure, with some plastic surgeons advocating for the more extensive abdominoplasty/body lift procedures for these patients and others in favor of this more limited procedure.

The patient population undergoing this procedure is heterogeneous. Some patients are morbidly obese and have never lost any significant amount of weight, whereas others have lost a large amount of weight but by body mass index (BMI) are still considered obese. Still other patients are no longer obese because of weight loss due to either prior bariatric surgery or dietary changes and exercise. Comorbidities also are varied.

The increasing prevalence of obesity in the US, coupled with the increasing availability of bariatric surgery, may lead to a dramatic increase in the demand for abdominal lipectomy. These patients have a significant emotional investment in their weight loss and are vocal in demanding the surgery. However, neither the patient nor the plastic surgeon has any objective data on which to evaluate the overall effectiveness of this surgery, as

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no prospective outcomes studies have been reported. Abdominal lipectomy, as is cosmetic abdominoplasty, is fraught with complications such as hematoma, infection, wound dehiscence, and skin loss. Reported complication rates range from 15% to 80%. Despite these high rates, plastic surgeons believe they are helping their patients by performing this procedure, but are they?

This study was designed to prospectively measure outcomes of abdominal lipectomy performed by participating plastic surgeons of the Southern California Permanente Medical Group. We report here our evaluation of complication rates and patients’ stated satisfaction with abdominal lipectomy. In addition, we analyze outcomes data to evaluate the effect of the procedure on quality of life.

**Patients and Methods**

Approval for this study was obtained from the Southern California Permanente Institutional Review Board. All procedures were deemed reconstructive in nature and covered by the patients’ medical insurance. Patients were enrolled in the study during a 12-month period and monitored postoperatively for 6 months.

For this study, abdominal lipectomy was essentially an excision of the redundant lower abdominal pannus. Need for repositioning of the umbilicus was determined on an individual basis. When this was deemed appropriate, on the basis of patient preference and body habitus, minimal undermining of the superior abdominal wall was done to facilitate repositioning of the umbilicus and minimize risk of ischemia to the superior abdominal skin flap. Unless a concomitant hernia repair was required, no tightening of the abdominal wall musculature was performed.

A secure Web site was created using the WorkMovr (WorkMovr Corporation, Sebastopol, CA) business processing software package, allowing all data collection to be done in real time, with data elements directly input into the database. During the study period, all English-speaking patients scheduled to undergo abdominal lipectomy were offered the opportunity to participate in the study. Only English speakers were included to ensure that there were no biases introduced into the outcomes instruments because of translation difficulties. Data were collected during preoperative, surgical, one-week postoperative, one-month postoperative, and six-month postoperative visits, looking at reasons for surgery, prior surgery, comorbidities, surgical intervention, postoperative regimen, and complication rates. More than 100 data elements, excluding the questionnaires, were collected for each patient.

Two instruments were selected for health-related quality-of-life measures. The Short Form–36 Health Survey (SF-36) was selected because it is a well-validated tool “designed as a generic indicator of health status” that can “be used in conjunction with disease-specific measures as an outcome measure in clinical practice and research.” The Multidimensional Body-Self Relations Questionnaire (MBSRQ) was selected to evaluate measures of body image because body image is a dominant issue for patients undergoing abdominal lipectomy. Both of these instruments have been used in plastic surgery outcomes studies for a variety of conditions.

The SF-36 and the MBSRQ were administered at the preoperative visit to establish a baseline; it was administered again at the six-month postoperative visit to access outcomes.

**Results**

The average age of the 72 patients enrolled in the study was 47 years (range, 21–68), and there was a preponderance of women (women: 63; men: 9). As previously mentioned, this was a heterogeneous group in terms of BMI (Table 1). Fifty-eight patients had significant weight loss before consultation for surgery (average weight loss, 42.6 kg; range, 13.6–98.4 kg). Of these patients, 14 lost weight through diet and exercise alone, and 44 patients lost weight because of...
prior bariatric surgery. The patients’ preoperative BMI ranged from 22.8 to 53.2 kg/m² (average, 33.3 kg/m²). All patients were at a stable weight for a minimum of six months before surgery. The most common associated medical diagnoses were hypertension and depression (21 and 16 patients, respectively). There were no active smokers in the study group.

Abdominal lipectomy was done as a wedge excision alone in four patients. Minimal undermining of the superior abdominal wall skin to facilitate repositioning of the umbilicus was done in 68 patients. Twelve patients had planned concomitant ventral hernia repair. The specimen (the excised skin from the abdominal wall) weight averaged 3.5 kg (maximum weight, 10.3 kg). Average duration of surgery was 156 minutes (range, 70–240 minutes), and average estimated blood loss was approximately 200 mL (range, 75–750 mL). No intraoperative transfusions were required. All patients had at least two drains placed at the time of surgery (range, two to three). Lower-extremity compression pumps were used for all patients.

All patients were observed overnight in the hospital. Only four patients stayed in the hospital for more than the planned overnight stay. One patient had persistent hypotension. Although she was clinically asymptomatic with no evidence of bleeding, she was kept an extra 24 hours in the hospital for observation. No cause for the hypotension was found, and it resolved without intervention. Three patients developed acute postoperative bleeding while in the hospital, necessitating urgent return to the operating room for evacuation of hematoma and control of bleeding. One additional patient required readmission to the hospital for surgery during the first postoperative week because of wound breakdown with infection. These four reoperations (4 of 72 patients) constituted the major complications, for a rate of 5.6%, encountered during this study.

No patients were found to have deep venous thrombosis or pulmonary embolism. One patient did have symptoms of calf pain at the one-week follow-up visit, but a blood test and duplex scan showed no thrombosis. No patients required reoperation because of complications after the one-week postoperative examination.

Minor complications affected 20 patients (Table 2). These included seroma requiring aspiration alone (7 patients), infected seroma requiring a course of oral antibiotics and aspiration (4 patients), and localized infection requiring oral antibiotics/localized wound separation/breakdown necessitating minor debridement or dressing changes (9 patients). Of 72 patients, 20 (27.8%) developed one or more minor complications. There was no correlation between preoperative BMI and postoperative complications. The average BMI with any postoperative complications was 35.0 kg/m², similar to average BMI of 33.3 kg/m² in patients without complications. Concomitant hernia repair was not associated with a higher postoperative complication rate.

### Table 2. Complications

<table>
<thead>
<tr>
<th>Major complications</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematoma requiring reoperation</td>
<td>3</td>
</tr>
<tr>
<td>Wound breakdown/infection requiring reoperation</td>
<td>1</td>
</tr>
<tr>
<td><strong>Minor complications</strong></td>
<td></td>
</tr>
<tr>
<td>Seroma</td>
<td>7</td>
</tr>
<tr>
<td>Infected seroma</td>
<td>4</td>
</tr>
<tr>
<td>Localized infection/minor wound breakdown</td>
<td>9</td>
</tr>
</tbody>
</table>

### Table 3. Patients’ perceived satisfaction at the end of the six-month follow-up period

<table>
<thead>
<tr>
<th>Satisfaction rating</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy to have had the surgery</td>
<td>59</td>
</tr>
<tr>
<td>Overall happy but would have preferred to have undergone a more extensive “cosmetic” procedure</td>
<td>1</td>
</tr>
<tr>
<td>Unhappy to have had the surgery</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
</tr>
</tbody>
</table>

During the six-month follow-up period, two patients underwent secondary procedures because of difficulties from significant lateral “dog ears.” One procedure was done in the office; the second required use of the operating room for intravenous sedation.

Six-month follow-up data (excluding data from the questionnaires) were available for 60 patients. Of these patients, 59 reported that they were happy to have had the surgery, with only one patient wishing she had had a more extensive body-lift procedure (Table 3). Since the procedure, 41 patients (68.3%) had lost additional weight (range, 1.4–15.4 kg) and 19 (31.7%) had gained weight (range, 2.3–13.6 kg).

In terms of health-related quality-of-life outcomes and body image measures, the MBSRQ identified two indicators for which there was statistically significant improvement after surgery: feelings of physical attractiveness (2.39–3.08; p < .0001) and body area satisfaction (2.72–3.10; p < .001). The scores were patient-chosen responses on a scale of 1 to 5, with 1 indicating the lowest ranking and 5 being the highest. There were no statistically significant differences in the SF-36 indicators before and after surgery.

Since the procedure, 41 patients (68.3%) had lost additional weight ...
Discussion

The impetus for undertaking this study was our belief, based on anecdotal evidence, that we were seeing a high major complication rate for this procedure, especially in patients who had already had bariatric surgery. However, the data do not support this belief.

Four patients had major complications requiring reoperation. Of these four patients, two had undergone bariatric surgery before entering our study; two had not, which was of no statistical significance. In addition, we compared this study group with our group of 75 patients who underwent free–transverse rectus abdominis myocutaneous (TRAM) flap breast reconstruction by our surgeons between 2001 and 2005. The free-TRAM flap procedure involves a more extensive abdominal wall dissection, and the average BMI (28.4 kg/m²) of those patients was less than that of our study group. The postoperative major complication rate with respect to the abdominal wall was 0/75 for the free-TRAM flap group. Although our lipectomy study group had a higher major complication rate (5.7% vs 0% for the TRAM flap group), this did not achieve statistical significance by Fisher’s exact test (p = .1174).

Our study population had similar rates of major and minor complications to those reported in the literature for obese patients as well as for patients who have undergone cosmetic abdominoplasty.1,3–9

Studies have documented the association of increased postoperative complication risk with increased BMI.9,20 In our population, with an overall 33% complication rate, there was no association of increased complications in the patients with higher BMI. This might have been caused by the relatively low number of patients stratified to various BMI categories.

The major concern that prompted undertaking this study was whether patients benefited from the procedure. The procedure offered in this study was purely for reconstructive and health purposes—to prevent rashes and remove skin excess that covered the mons pubis, making personal hygiene difficult. As such, the extensive undermining and abdominal wall plication typical of a cosmetic abdominoplasty was not done. Additionally, cosmesis of the hips was not dramatically improved with this procedure. Despite these cosmetic limitations, 59 of 60 patients expressed happiness with the results, with only one patient wishing that she had had a body lift instead. These results reflect the utility of the procedure and the extensive patient counseling done preoperatively. Care was taken to thoroughly explain the differences between a cosmetic abdominoplasty and the planned reconstructive abdominal lipectomy so that patient expectations for the procedure were realistic.

This is the first prospective outcomes study of patients who have undergone reconstructive abdominal lipectomy rather than patients who have undergone cosmetic abdominoplasty. The study by Bolton et al.13
of outcomes in abdominoplasty found improvement in body image, but the procedures were cosmetic. Our patients underwent reconstructive abdominal lipectomy, which does not usually result in as dramatic a cosmetic improvement as abdominoplasty (Figures 1–3). Nonetheless, the MBSRQ survey results showed definite improvement in terms of feeling of physical attractiveness and body area satisfaction, which validates the patients’ perceived happiness with the procedure.

We found no significant changes in the scores on the physical or mental components of the SF-36. This is probably a reflection of the wide variation in the characteristics of patients undergoing lipectomy. We looked at the averages for the entire group, but it would probably be more accurate to compare the subgroups (ie, those patients who had undergone bariatric surgery and who have a BMI <30 kg/m², those who had undergone and who have a BMI >30 kg/m², those who lost weight without bariatric surgery, etc) and look for change. However, we did not have sufficient numbers of patients in each category to allow evaluation of differences in any meaningful way.

Conclusion

Our concerns about abdominal lipectomy were unfounded. Our patients did not have a higher-than-expected complication rate compared with either other studies’ results or a similar patient population undergoing free-TRAM flap breast reconstruction. Patient satisfaction was high, and this was corroborated by the postoperative improvement in feelings of physical attractiveness and body area satisfaction. Abdominal lipectomy, in well-counselled patients with realistic expectations, is a safe, efficacious procedure for treatment of symptomatic lower abdominal pannus.

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References

Prescribers’ and Organizational Leaders’ Preferences for Education about Heavily Marketed Drugs

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Douglas A Conner, PhD
Leslie A Wright, MA

Abstract
Objective: We conducted a study to assess the educational needs and interests of medication prescribers and organizational needs regarding heavily marketed drugs.

Study design: We used an Internet and paper-based educational needs assessment survey to gather data.

Methods: Approximately 1000 Denver-area Kaiser Permanente Colorado (KPCO) physicians, nurse practitioners, and physician assistants (“health maintenance organization [HMO] prescribers”); 780 Colorado Springs KPCO network preferred provider organization [PPO] prescribers; and 36 Denver-area KPCO pharmacy leaders were surveyed. Prescribers were asked about interest in pharmaceutical development, approval, and marketing processes and interest in learning about accessing and using drug information in practice. They were also asked to identify areas in which they would like to improve prescribing practices. Organizational leaders were asked about areas in which curricula could assist current cost-effective prescribing efforts. HMO prescriber and leader surveys were conducted via the Internet. PPO learner surveys were conducted by mail.

Results: Responses were collected from 127 (13%) HMO and 70 (9%) PPO prescribers. Top interest areas in both groups were accessing unbiased drug information, comparing evidence about drugs within class, critical appraisal of drug information, off-label drug use, and addressing patient medication inquiries. Pharmaceutical industry marketing practices, roles and responsibilities of the US Food and Drug Administration, and the US drug development and approval process were rated lowest. HMO prescribers most wanted to improve prescribing for bacterial infections, depression, and diabetes; PPO prescribers also wanted to improve prescribing for migraine headaches. Highest organizational priority drug classes were those for depression and asthma.

Conclusions: Prescribers are interested in areas of pharmaceutical development and marketing that relate closely to providing patient care, especially in commonly seen clinical conditions. They are less interested in regulatory or policy aspects of the process.

Background
Pharmaceutical expenditures were responsible for 10% of all health care spending in the United States in 2004. Medications are marketed by the pharmaceutical industry to prescribing clinicians and consumers. Contrary to published evidence, clinicians and students believe that they are not influenced by pharmaceutical industry marketing techniques. Medication marketing can lead to increased prescribing (and presumably consumer use) of newer, often more expensive, medications. However, many newer agents do not offer therapeutic advantages over older agents. Given discrepancies between costs and quality of medical care in the US and given that yearly medical cost increases continue to outpace general inflation, pharmaceutical company marketing practices are receiving increased attention. From a health policy standpoint, it is appropriate to attempt to decrease prescribing of selected newer, heavily marketed medications that offer little therapeutic advance over existing medications.

The US Food and Drug Administration (FDA) works with pharmaceutical companies to de-
Prescribers’ and Organizational Leaders’ Preferences for Education about Heavily Marketed Drugs

termines labeled indications for prescription medication use. The FDA also regulates prescription marketing practices. Pharmaceutical companies are allowed to promote medications only for labeled indications, but off-label promotion occurs. Between 2001 and 2006, the FDA sent 190 warning letters to approximately 100 pharmaceutical companies about false or misleading advertising of more than 160 medications; 26 companies received repeat warnings about the same medication.4

In 1996, a consortium of 50 US attorneys general filed suit against Warner Lambert (now a division of Pfizer) alleging promotion of the antiepileptic drug Neurontin (gabapentin) for up to 12 off-label uses. In 2004, Pfizer paid $430 million to settle civil and criminal Medicaid fraud and other claims.5 The attorney general earmarked a portion of settlement funds for grants to develop curricula to 1) educate health care professionals about the drug development and approval process; 2) increase health care professionals’ awareness of, and ability to evaluate, pharmaceutical industry marketing techniques; and 3) provide strategies for accessing and evaluating drug information. The overall intent was to improve the cost-effectiveness of prescribing practices.6

Along with expert- and evidence-defined needs, assessment of needs from the prescriber’s perspective helps prioritize learning objectives. This is especially important regarding marketing influence on prescribing practice, because clinicians often deny that an association exists; this topic might not be identified as a high priority unless it specifically addresses a perceived need. Additionally, given the rapidly expanding amount of medical knowledge and limited available time for continuing education, clinicians must prioritize the educational topics they want to pursue. As one of 24 grantees in the Attorney General Prescriber Grant Program, we were concerned that a “predetermined curriculum” focusing on the US drug development and approval process and/or pharmaceutical industry marketing practices might not be appealing to prescribing clinicians. We therefore developed and conducted an educational needs assessment of clinician prescribers and organizational leaders to help guide development of curricular content. The needs assessment covered the pharmaceutical process from development to approval to marketing (both to clinicians and consumers) and the evaluation of available data to select pharmacotherapeutic options in practice. Development and results of this needs assessment are described here. Evaluation data on the extent to which the continuing medical education (CME) modules met their stated learning objectives, participant-intended and self-reported changes in prescribing practices, and data comparing prescribing of heavily marketed medications before and after participation in the CME program will be available in the future.

Methods

Kaiser Permanente Colorado (KPCO) is a group-model health maintenance organization (HMO), consisting of the Kaiser Foundation Health Plan of Colorado and the Colorado Permanente Medical Group. KPCO has approximately 440,000 members in the Denver-Boulder, CO, metropolitan area. Additionally, KPCO operates a network model (preferred provider organization [PPO]) in the Colorado Springs and Pueblo, CO, metropolitan areas with approximately 45,000 additional members.

The multifaceted needs assessment for our curriculum sought primarily to identify self-perceived learning needs of prescribing clinicians (physicians, nurse practitioners, and physician assistants). It also sought the perceptions of KPCO pharmacy experts about areas where current cost-effectiveness prescribing initiatives could be assisted by our curriculum. Because

<table>
<thead>
<tr>
<th>Table 1. Topics included in the learner needs assessments about the medication development, marketing, and approval process</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The US drug development and approval process</td>
</tr>
<tr>
<td>• Roles and responsibilities of the US Food and Drug Administration</td>
</tr>
<tr>
<td>• Pharmaceutical industry marketing practices</td>
</tr>
<tr>
<td>• Influence of pharmaceutical industry marketing practices on prescribing behaviors</td>
</tr>
<tr>
<td>• Role/influence of the pharmaceutical industry in CME</td>
</tr>
<tr>
<td>• Role/influence of the pharmaceutical industry in research</td>
</tr>
<tr>
<td>• Pros and cons of direct-to-consumer advertising</td>
</tr>
<tr>
<td>• Evaluation of pharmaceutical marketing claims</td>
</tr>
<tr>
<td>• Comparison of evidence for medications within specific drug classes</td>
</tr>
<tr>
<td>• Critical appraisal of drug information (eg, journal articles, CME or non-CME presentations, professional publications, advertising, pharmaceutical representatives, advice from “experts,” etc)</td>
</tr>
<tr>
<td>• How to access unbiased drug information</td>
</tr>
<tr>
<td>• How to address patient inquiries about specific medications</td>
</tr>
<tr>
<td>• Identification of circumstances for off-label use of medications</td>
</tr>
</tbody>
</table>

CME = continuing medical education.
were asked to rate their interest in topics related to the pharmaceutical development, approval, and marketing process (Table 1). To help frame the curriculum in a context relevant to prescribers, we asked respondents to identify up to five classes of heavily marketed medications (Table 2) that most applied to their practices and to identify up to five medication classes for which they most wanted to improve prescribing.

At KPCO, clinical pharmacy specialists help coordinate efforts to improve the quality, safety, and cost-effectiveness of clinical prescribing. We therefore also developed an organizational needs assessment in an attempt to align our curricular efforts with organizational prescribing initiatives. The organizational needs assessment was distributed to clinical pharmacy specialists, pharmacy operations leaders, and chiefs of medical services. They were asked to indicate up to five classes of heavily marketed medications for which our curricular efforts could help narrow gaps between current and optimal prescribing or could complement organizational prescribing initiatives.

All needs assessments were initially conducted over the Internet, using SelectSurveyASP Advanced 8.1.10 (ClassApps.com, Overland Park, KS). The survey was conducted anonymously, but we requested information on respondents’ academic degrees, specialties, and years in practice. As an incentive to participate, respondents including their names on their response were entered into a drawing for a $25 gift certificate. Links to the needs assessments were e-mailed to prescribers; survey links were also placed on HMO and PPO Web site home pages. Because no Internet-based surveys were completed in the initial PPO sample, we subsequently mailed hard copies with a fax-back option to PPO prescribers.

One curricular topic area and three drug classes were inadvertently omitted from the PPO prescribers' hard-copy assessment. After preliminary analysis, we determined that the omitted drug areas were not likely to change the overall survey results, but the missing data on the curricular topic area was potentially consequential. We therefore mailed a follow-up one-question survey to the PPO sample, again with fax-back option, to assess interest and need in that curricular topic area.

Responses were imported from SelectSurveyASP or hand-entered into Excel (version 2003) spreadsheets (Microsoft, Redmond, WA) and imported into SAS 9.1 (SAS Institute Inc, Cary, NC) data sets for descriptive analysis. Responses are described separately for HMO and PPO prescribers. The study was approved by the Kaiser Permanente Colorado Institutional Review Board.

Results

Needs assessment invitations were sent to approximately 1000 HMO and 780 PPO prescribers. Responses were received from 127 (13%) HMO and 70 (9%) PPO prescribers, including 23 responses to the curricular area inadvertently omitted from the original survey (Table 3). On the basis of estimated sample size and return rate, preference of KPCO physicians was determined (95% confidence level) to within ±4.1% (Raosoft Sample Size calculator, www.raosoft.com/samplesize.html).

Compared with HMO responders, a greater percentage of PPO responders were physicians; PPO physician responders were in practice longer. Specialty areas of
respondents in both cohorts were similar, with proportionally fewer primary care and slightly more medical subspecialty responders compared with US physicians overall. Thirty-six clinical pharmacy leaders and medical chiefs of service completed the organizational needs assessment.

Top interest areas among HMO respondents (percentage very or moderately interested) were: accessing unbiased drug information (92%), comparing evidence about drugs within classes (87%), critical appraisal of drug information (82%), off-label drug use (82%), and addressing patient medica-

### Table 3. Characteristics of needs assessment respondents

| Characteristic                              | Number (%) of Denver–Boulder HMO respondents (n = 127) | Number (%) of Colorado Springs–Pueblo PPO respondents (n = 70) | Number (%) of comparison group from the American Medical Association, 2006

<table>
<thead>
<tr>
<th>Prescriber type</th>
<th>Physician</th>
<th>Nurse practitioner/physician assistant</th>
<th>Did not indicate</th>
<th>Primary care</th>
<th>Medical subspecialty</th>
<th>Surgical subspecialty</th>
<th>Years in practice</th>
<th>Years practicing as part of Kaiser Permanente HMO or PPO</th>
<th>Primary care</th>
<th>Medical subspecialty</th>
<th>Surgical subspecialty</th>
<th>Years in practice</th>
<th>Years practicing as part of Kaiser Permanente HMO or PPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescriber type</td>
<td>Physician</td>
<td>67 (52.8)</td>
<td>49 (38.6)</td>
<td>10 (8.7)</td>
<td>55 (43.3)</td>
<td>50 (39.3)</td>
<td>22 (17.3)</td>
<td>8 (6.3)</td>
<td>15 (11.8)</td>
<td>28 (22.1)</td>
<td>34 (26.8)</td>
<td>8 (6.3)</td>
<td>3 (3.1)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Primary care</td>
<td>28 (22.1)</td>
<td>9 (7.1)</td>
<td>16 (12.7)</td>
<td>22 (17.3)</td>
<td>18 (25.4)</td>
<td>2 (1.6)</td>
<td>0 (0.0)</td>
<td>1 (1.6)</td>
<td>1 (1.6)</td>
<td>1 (1.6)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Medical subspecialty</td>
<td>30 (23.6)</td>
<td>12 (9.5)</td>
<td>18 (14.5)</td>
<td>24 (18.5)</td>
<td>6 (8.6)</td>
<td>1 (1.6)</td>
<td>0 (0.0)</td>
<td>6 (8.6)</td>
<td>12 (17.1)</td>
<td>12 (17.1)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Surgical subspecialty</td>
<td>13 (10.3)</td>
<td>1 (0.8)</td>
<td>1 (0.8)</td>
<td>6 (4.7)</td>
<td>1 (1.4)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years in practice</td>
<td>&lt;2</td>
<td>8 (6.3)</td>
<td>1 (1.6)</td>
<td>2 (1.6)</td>
<td>1 (1.6)</td>
<td>2 (1.6)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years in practice</td>
<td>2–5</td>
<td>15 (11.8)</td>
<td>28 (22.1)</td>
<td>34 (26.8)</td>
<td>42 (33.1)</td>
<td>42 (33.1)</td>
<td>34 (26.8)</td>
<td>42 (33.1)</td>
<td>42 (33.1)</td>
<td>42 (33.1)</td>
<td>42 (33.1)</td>
<td>42 (33.1)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years in practice</td>
<td>6–10</td>
<td>28 (22.1)</td>
<td>12 (18.5)</td>
<td>18 (27.7)</td>
<td>25 (38.5)</td>
<td>25 (38.5)</td>
<td>18 (27.7)</td>
<td>25 (38.5)</td>
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<tr>
<td>Prescriber speciality</td>
<td>Years in practice</td>
<td>11–20</td>
<td>34 (26.8)</td>
<td>18 (27.7)</td>
<td>16 (23.5)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
<td>16 (23.5)</td>
<td>23 (33.1)</td>
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<td>23 (33.1)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years in practice</td>
<td>&gt;20</td>
<td>42 (33.1)</td>
<td>25 (38.5)</td>
<td>16 (23.5)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
<td>16 (23.5)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
<td>23 (33.1)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years practicing as part of Kaiser Permanente HMO or PPO</td>
<td>&lt;2</td>
<td>20 (15.8)</td>
<td>11 (17.5)</td>
<td>12 (17.9)</td>
<td>12 (17.9)</td>
<td>12 (17.9)</td>
<td>12 (17.9)</td>
<td>12 (17.9)</td>
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<td>12 (17.9)</td>
<td>12 (17.9)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years practicing as part of Kaiser Permanente HMO or PPO</td>
<td>2–5</td>
<td>27 (21.3)</td>
<td>23 (36.5)</td>
<td>17 (29.8)</td>
<td>17 (25.4)</td>
<td>17 (25.4)</td>
<td>17 (29.8)</td>
<td>17 (25.4)</td>
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<td>17 (25.4)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years practicing as part of Kaiser Permanente HMO or PPO</td>
<td>6–10</td>
<td>28 (22.1)</td>
<td>22 (34.9)</td>
<td>17 (29.8)</td>
<td>24 (42.1)</td>
<td>24 (42.1)</td>
<td>17 (29.8)</td>
<td>24 (42.1)</td>
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<td>24 (42.1)</td>
<td>24 (42.1)</td>
<td>24 (42.1)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years practicing as part of Kaiser Permanente HMO or PPO</td>
<td>11–20</td>
<td>38 (30.0)</td>
<td>6 (9.5)</td>
<td>16 (26.7)</td>
<td>22 (34.9)</td>
<td>22 (34.9)</td>
<td>16 (26.7)</td>
<td>22 (34.9)</td>
<td>22 (34.9)</td>
<td>22 (34.9)</td>
<td>22 (34.9)</td>
<td>22 (34.9)</td>
</tr>
<tr>
<td>Prescriber speciality</td>
<td>Years practicing as part of Kaiser Permanente HMO or PPO</td>
<td>&gt;20</td>
<td>14 (11.0)</td>
<td>1 (1.6)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
<td>7 (10.5)</td>
</tr>
</tbody>
</table>

*Family medicine, general internal medicine, general pediatrics.
*The percentage of primary care, medical subspecialty, and surgical subspecialty respondents in the Denver–Boulder HMO was similar to the overall distribution of physicians in the entire medical group (47% primary care, 21% medical subspecialty, 22% surgical subspecialty).

HMO = health maintenance organization; PPO = preferred provider organization.
Prescribers’ and Organizational Leaders’ Preferences for Education about Heavily Marketed Drugs

Discussion

Multifaceted needs assessment (assessment of learner self-identified needs; organizational leader needs based on practice gaps; and gaps in knowledge, competence, skills, and performance) is the expected norm under the new Accreditation Council for Continuing Medical Education criteria for accreditation. The results of our needs assessment showed that prescribers are interested in aspects of pharmaceutical development as well as the approval and marketing processes that directly relate to providing patient care. They were less interested in regulations, policy, and marketing techniques. Given the plethora of available continuing education opportunities and the

Figure 1. Curricular areas of interest among Denver–Boulder health maintenance organization (HMO) and Colorado Springs–Pueblo preferred provider organization (PPO) physicians, nurse practitioners, and physician's assistants. Percentages are of respondents who were "very interested" or "interested," as indicated on a six-point Likert scale. See Table 1 for full names of curricular topics. DTCA = direct-to-consumer advertising.
need to maintain currency of medical knowledge, it is not surprising that clinicians would prioritize areas most directly applicable to their practices. However, a substantial minority of respondents did indicate interest in regulatory aspects of the process. Other items that could be added to future needs assessments include: 1) the role/influence of the pharmaceutical industry on FDA and governmental policy making and 2) the “orphan drug industry” (ie, why some drugs never come to market).

Prescribing clinicians indicated the desire to improve their prescribing for common conditions for which medications are heavily marketed, such as bacterial infection, depression, and diabetes, and/or for difficult-to-manage conditions such as depression and migraine headaches. These topic selections reflect not only the large proportion of respondents practicing in primary care settings but also that these conditions are common (or chronic) and potentially are treated by multiple prescriber types. There were similarities in the top-ranked areas of interest for improved prescribing in the HMO and PPO cohorts. (Bacterial infections, depression, and diabetes ranked in the top four in each cohort.) However, there were differences in the percentage of respondents indicating interest in each category, and there were differences in rankings of other drug classes, such as those for migraine headaches, contraceptives, and bladder control. This may be due, in part, to differences in the response rate and sample size in the two cohorts. It may also be due to differing HMO and PPO formularies, access to clinical pharmacy specialists and exposure to target prescribing initiatives (more exposure in the HMO cohort), and differing exposure to pharmaceutical industry representatives (who are not allowed to make sales calls in HMO clinical offices).

Despite this difference in exposure, however, we believe that these topics are relevant to clinicians practicing in group-model HMO, or other settings, “closed” to pharmaceutical company sales calls, because clinicians are still exposed to marketing at hospitals, at medical society meetings, in medical journals, and through mass media.
Prescribing clinicians indicated the desire to improve their prescribing for common conditions for which medications are heavily marketed, such as bacterial infection, depression, and diabetes, and/or for difficult-to-manage conditions such as depression and migraine headaches.

The medication class preferences expressed on the organizational needs assessment align with ongoing KPCO initiatives. In some instances, the expressed preferences are driven primarily by quality-improvement efforts (eg, improving use of inhaled steroids in patients with asthma who frequently refill β-agonist prescriptions) rather than a response to decreasing use of heavily marketed medications. In other conditions, quality and cost-effectiveness both drive the organizational initiatives (eg, use of thiazide diuretics to treat hypertension).

The major limitation of this evaluation is the low response rate and possible self-selection bias to the needs assessment. Our final sample size was also too small to draw meaningful conclusions about differences between specialties and differences between physicians and nurse practitioners and physician’s assistants. In our experience, however, response rates of 10% to 20% for broadly distributed educational needs assessment surveys are not unusual, and we believe we have an adequately representative sample for assessing potential learning needs and developing educational curricula of interest to a broad array of medication prescribers. The specialty distribution of Denver–Boulder respondents is similar to the specialty breakdown of all Denver–Boulder HMO physicians (Table 3, footnote c) and somewhat similar to specialty characteristics of US physician characteristics, although primary care physicians are slightly underrepresented in the latter comparison. Despite differences in practice arrangements between the HMO and PPO prescriber cohorts (multispecialty group-model practice among the Denver–Boulder HMO prescribers, compared with small private practices among the Colorado Springs–Pueblo PPO prescribers), we noted similar interest in curricular topics and areas of desired prescribing improvement. These commonalities should make it possible to develop curricula on the pharmaceutical development, approval, marketing, and use process that appeal and apply to prescribing clinicians in multiple practice settings.

Conclusion

Educational programs for prescribing clinicians on pharmaceutical development, approval, and marketing should, to maintain relevance for busy clinicians, focus on aspects of the process closest to the issues that they face daily. Group- and network-model prescribers are similar in desired curricular topics and areas of desired prescribing improvement; curricula can be developed that meet the self-identified needs of both prescriber cohorts. Examples and case studies in areas of desired improvement in medication prescribing can help frame curricular content in relevant contexts for participants. To the extent possible, using medication classes where both learners desire to improve their prescribing and organizations have existing prescribing initiatives can create linkages and synergies between continuing-education and quality-improvement efforts.

We believe that others can apply the methodology used to develop this curriculum (the needs assessment) to develop and tailor curricula on this topic to local settings. We believe that the methodology could be useful for single-specialty CME providers (ie, medical specialty societies) or, with a large enough sample size, for multispecialty or multidisciplinary (physician, nurse, etc) CME providers. We further believe that our findings are relevant to medical schools, graduate and postgraduate medical educators, policy makers, hospitals, health care delivery systems, and others interested in funding, developing, and promulgating interventions to improve the cost-effectiveness of pharmaceutical prescribing.

This work was made possible by a grant from the Colorado Attorney General Consumer and Prescriber Education Grant Program, which is funded by the multistate settlement of consumer fraud claims regarding the marketing of the prescription drug Neurontin. The grantors had no involvement in the design and conduct of the study, collection, management, analysis, and interpretation of the data; or preparation, review, or approval of the manuscript.

These findings were presented at the HMO Research Network Conference in Portland, OR, in March 2007.

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

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Follow the Prescription
Sir Richard Nash was once asked by his physician
if he had followed his prescription.
“If I had,” said Sir Richard,
“I should certain have broken my neck,
for I threw it out of my window.”
— Benjamin Rush, 1745-1813, a Founding Father of the United States, physician, writer,
educator, humanitarian. From Briefer G. Medical American in the 19th Century: Readings
from the Literature. Baltimore (MD): The Johns Hopkins University Press; 1972
Five-Year Experience: Reflective Writing in a Preclinical End-of-Life Care Curriculum

Marcy E Rosenbaum, PhD
Kristi J Ferguson, PhD
Ann Broderick MD, MS

Abstract

Introduction: This paper examines the use of reflective writing in a preclinical end-of-life curriculum including comparison of the role and outcomes of out-of-class (OC) versus in-class (IC) writing.

Methods: Learners were required to complete one-page essays on their experiences and concerns about death and dying after attending a series of end-of-life care lectures. From 2002-2005, essays were completed OC and in 2006 and 2007 essays were completed during the first ten minutes of small group discussion sessions. Essays were collected and analyzed for salient themes.

Results: Between 2002-2007, reflection essays were gathered from 829 learners, including 522 OC essays and 307 IC essays. Essay analysis identified four major themes of student concerns related to caring for dying patients, as well as student reactions to specific curricular components and to the use of reflection. IC essays were shorter and less polished than OC essays but utilized a wider variety of formats including poems and bulleted lists. IC essays tended to react to lecture content immediately preceding the writing exercise whereas OC varied in curricular components upon which they focused. OC essays have the advantage of giving learners more time to choose subject matter, whereas IC essays provide a structured time in which to actively reflect. Both formats served as catalysts for small group discussions.

Discussion: Writing exercises can effectively provide an important opportunity and motivation for learners to reflect on past experiences and future expectations related to providing end-of-life care.

Introduction

To compel learners to examine past experiences with death and address future concerns and expectations regarding caring for dying patients the University of Iowa Carver College of Medicine incorporated reflective writing into a primarily didactic preclinical curriculum. Details of the complete curriculum were published in the Journal of Palliative Medicine in 2005.1 In the current paper, we present five years of experience using reflective writing exercises as part of the end-of-life curriculum for second-year medical students and physician assistant students. Discussion focuses on the role and outcomes of the reflective writing exercises to understand its value, with a specific focus on comparison of “out-of-class” (OC) versus “in-class” (IC) reflective writing to enhance educators’ understanding of the most effective writing situation and tools.

Several reviews of the literature noted the importance of incorporating curricula on end-of-life care into medical education.2,3 As part of this training, it has been argued that learners need to be aware of their own attitudes about death and caring for patients at end of life.3 Reflection can be an especially useful tool as it compels learners to examine the context, the meaning, and the implications of their attitudes and experiences about death.2,4

Methods

Since 1998, the University of Iowa, in Iowa City, has provided a required ten-hour didactic education module (reduced to 6.5 hours in 2004) for second-year medical learners and physician assistant learners on end-of-life care as part of their fourth semester Foundations of Clinical Practice course. During the didactic sessions, in this education module, learners are exposed to central concepts of palliative and end-of-life care, including: management of pain and nonpain symptoms, hospice and palliative...
Five-Year Experience: Reflective Writing in a Preclinical End-of-Life Care Curriculum

care approaches, bereavement and physician self-care. A variety of evocative materials are incorporated into the lecture sessions—videos of patients and parents dealing with end-of-life issues, poems, and stories conveying positive and negative experiences of healthcare providers caring for dying patients, a panel of learners who have been hospice volunteers, and an exercise in which learners are asked to visualize their own deaths. In addition, as an out-of-class assignment, learners complete a “Personal Death History” (PDH), which asks learners to inventory their first and most significant experiences with death, and their feelings during these experiences. Learners also participate in small group sessions in which a physician facilitator reflects on his or her own experiences providing care to dying patients, and facilitates a discussion of student experience and concerns about their role in the care of the dying.

Beginning in 2002, we asked learners to: Write a one-page reaction essay addressing issues raised for you by this class in terms of your feelings about death and caring for the dying? This assignment, given after the majority of in-class lectures, was due at the time of the small group sessions. The assignment’s purpose was for learners to actively reflect on experiences, module content, and future concerns in preparation for small group discussion. In 2006-2007, we shifted the writing assignment from immediately before the sessions—either handed-in or completed online—to the first ten minutes of the group sessions, as a more immediate catalyst for discussion.

The essays were then collected after the group session. Responses were transcribed verbatim and entered into an Atlas.ti (Version 4.1, Scientific Development Software; Berlin, Germany, 1997) qualitative analysis software database. Each set of essays was read several times and a coding scheme was developed on the basis of predominant themes and topics discussed. Subsequently, transcripts were coded using the scheme, identifying both the quantity and quality of student essay content. Similarly, learners’ open-ended comments on the small group evaluations were aggregated and coded for salient, recurring themes. For the purpose of the current paper, a subset of evaluation comments—related specifically to the reflective writing exercises—was also examined.

Student essays and comments were submitted as a standard part of the course curriculum. Because of this, the Institutional Review Board at the University of Iowa approved analysis of these materials as exempt.

Results


Overall Content of Essays

Across all years, the majority of learners chose the essay format to reflect on personal experiences with death. This recounting took many forms: 1) in-depth description of a significant death experience and the student’s reaction to it; 2) a chronological inventory of a variety of experiences losing loved ones or friends, or being around patients at the end of life—mirroring information they would have provided in their PDH; or 3) an identification of students’ lack of significant exposure to death and the implications of this for their practice as physicians.

The second most common use of the reflection essay was to describe concerns about future encounters with end-of-life issues. These essays focused on contemplation of the student’s own death (and the fears and needs at that time) or the death of loved ones and/or patients at the end of life.

The third most common focus of the essays was to address or respond to issues raised in the course lectures, either by recounting their importance and/or reacting to concepts as affirming, new, or controversial. Many of the essays combined all three of these elements recounting personal experiences, describing future concerns and tying it directly to lecture content.

Major Themes in Student End-of-Life Concerns

Analysis of the content of the essays was condensed to four major themes, described below with representative student examples. (See sidebar: Themes and Concerns.)

Themes and Concerns

Emotional responses to caring for the dying
- Own emotional response
- Appropriate emotional sharing and connection
- Failing to portray, or even feel, enough emotion or empathy
- Communicating support
- Shifting emphasis from curing to caring
- Feeling ill prepared
Emotional Responses to Caring for the Dying

One of the most common student concerns was their own emotional response to involvement with dying patients and their families. These responses fell into three categories. The primary category was personal grief and discomfort about a patient’s death. Their concern was both about “losing one’s composure” or “crying” in front of patients, family members, even medical colleagues, and how to protect oneself from the pain of grief that could accompany a patient’s death.

I will be on the wards in a few months, and somebody might die. Somebody might cry while I interview her. I might cry. What will I do? How will I respond to these things? Will I give the wrong response? I have felt a significant amount of anxiety over these issues in the last year. Last week during the end-of-life care lectures, though, I felt a subtle wave of reassurance come over me.

Learners expressed, as a second category of concern: their struggle to understand the amount of emotional sharing and connection appropriate in end-of-life situations—trying to keep a balance between being emotionally involved and supportive, while maintaining enough objectivity to accomplish the necessary clinical tasks in the context of end-of-life care.

I’ve heard that you can go into the room of a patient, look her in the eye and tell her she is going to die, and then you can leave the room and go see your next patient and smile at them. How can this be done? How can you not leave part of yourself in that room, in every room, until there is nothing left? And if it is in fact feasible to be caring and compassionate and human while still performing as a physician, how long does it take to get there? How do you protect your soul while you are learning how to master this awful skill? These are not things we learn as part of the core physical. And I am scared they are things I will never learn. That I will try and try, until I get tired of practicing. Then I will numb myself to the pain of others because I cannot handle the learning curve of this job requirement.

The third major theme in learners’ essays was when curative therapy is no longer a viable option, examining the clinician’s role in providing both physical and emotional support to patients. Thus far through medical school many learners noted that they had thought little about dealing with dying patients, since the curricular emphasis had been on diagnosis and treatment.

I am worried about caring for dying patients. I haven’t worked out my own feelings about death and am unsure how to deal with dying patients. Most of my experiences with death have been with quick deaths. If I were more confident about my own beliefs about death and dying, I think I would be more confident with those patients. I am also worried about seeing death as a failure to help/cure the patient. Whenever I thought of medicine, I always pictured treating and healing patients. End-of-life scenarios were not part of my visualized medical career. I now know that is not the reality, but I am still concerned about how I will deal with death and dying.

Communicating Support

Many of the essays contained learners’ worries about their ability to provide effective and supportive interactions with patients and families.

I think one of the more difficult challenges I will face in dealing with end-of-life issues as a physician will be knowing how best to provide my support for the family and to find the best way to help them through their grief. It will be hard for me to tell the family that their loved one is gone, partly because I’ll be frustrated with the limitations of medicine and I don’t like the idea of someone dying under my care: almost as if my death is my failure as a physician. It will take me some time to work through this frustration and realize that not everybody is going to live and I must do all that I can to help them, but it’s not necessarily a shortcoming if they do die.

The majority of these statements include concerns about being able to “say the right thing” both to patients and to families. As major concerns, essays addressed not only grief at the loss of a loved one, but also delivering bad news.

Shifting Emphasis from Curing to Caring

The third major theme in learners’ essays was when curative therapy is no longer a viable option, examining the clinician’s role in providing both physical and emotional support to patients. Thus far through medical school many learners noted that they had thought little about dealing with dying patients, since the curricular emphasis had been on diagnosis and treatment.

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Learners come to recognize the need to shift from curative to palliative care, many acknowledging the personal discomfort of grappling with it.

Feeling Ill Prepared

Many of the learners expressed, as the fourth theme, feeling unprepared to deal with end-of-life issues, not only in relation to patients, but also in regard to the eventual loss of loved ones and—even facing their own deaths. For many, the PDH was a catalyst and premise for their conclusion that they have had little preparation.

I have concerns about dealing with patients as they die. I have had very little personal experience with death and I am unsure how to comfort someone or his or her family as that patient dies. I also wonder how my first patient death will affect me. I’ve never been present for someone’s death and I don’t know how it may change my feelings on mortality and treating patients. It’s difficult to know any strong feelings that I have with death because I have never been close to anyone who has died.

Many of these four themes were expressed as interrelated. For example, learners who had little experience also expressed concern about balancing their own emotional responses, about providing appropriate support to patients and their families, and being able to properly shift their emphasis from caring to curing.

Responses to the Curriculum

In addition to identifying areas of student experience and concerns, reflection essays provided an opportunity for learners to directly react to the end-of-life curriculum, positively or negatively, which some chose to do.

To have the end-of-life module built into the first two years of medical school is a privilege. Many of my friends at other medical schools don’t have this opportunity to openly discuss and acknowledge the difficult challenges health care professionals and their patients face when confronted with end-of-life issues. I think that it’s assumed if you embark on the career of doctoring, that you somehow integrally know how to handle difficult situations, how to protect yourself and your patients and patients’ families from the rawness of death. I think that’s an enormous leap from what’s actually true. I personally have never dealt with the death of a loved one or anyone close.

The Value of Reflection

In some essays, the value of, and opportunity for, reflection on end-of-life issues was directly addressed—most commented on the opportunity for reflection on issues, while a small number commented directly about the value of the reflection essays.

The most important aspect of this lecture series for me was the emphasis on reflection on personal experiences. I find this to be especially important because it would be very difficult to be an effective part of a health care team serving a dying patient and his or her family if you tried to remain entirely objective. To serve your role as a healer you must use personal experience to provide the best possible care.

This probably wasn’t the purpose of this assignment but you have no idea how much this has helped me to put down on paper at least a little bit that I went through that has been bottled up. I think these classes are essential to our training. I’ve found that medical school and our hectic world make it easy to slip into a routine that makes self-reflection next to impossible. I appreciate the chance to take a moment to recalibrate myself and realize that I haven’t strayed too far from the person that I was before I got here.

Out-of-Class versus In-Class Reflective Writing

We discovered differences in the overall content of essays between the subset of OC essays compared to IC essays. Although the number of learners discussing personal experiences and future interactions was essentially the same in both formats, more of the IC essays directly responded to lecture content. This appears to be an artifact of the little time to contemplate. Overall, most IC essays were shorter and less polished than OC essays. The OC essays recounting a personal experience had a polished story format—rather than a rough recounting of incidents—and more were written in third person. Conversely, alternative formats to a prose essay were more prominent in the IC writing including bulleted lists of concerns and/or questions, poems, cartoons and even concept maps. The latter two more creative formats were constrained during the required OC online submission process.

Small group evaluation comments revealed that some found the IC writing exercise helpful and even fun; others found it less useful and felt that it limited time for important group interaction. Several learners questioned the utility of the IC and/or the PDH when they were not incorporated into the discussion by individual facilitators. Learners especially appreciated hearing other learners’ experiences and concerns. One of the purposes of the reflective writing exercise was to prepare learners for identification and discussion of issues in the small group sessions.
Discussion

Reflective Writing

Without formal inclusion of reflective writing in our end-of-life curriculum, it is not clear how many learners would have spent much time reflecting on their experiences and concerns related to death and dying. The reflective writing process caused them to personalize both the experiences and the information provided in lectures. Especially telling, regarding the value of reflection, is that more than half of the essays began with a reference to having thought little about caring for dying patients—as a major aspect of their role as health care professionals—prior to the end-of-life module. They attributed this to either consciously avoiding the topic, or their emphasis on treatment and curing as best actualizing their motivation to pursue a medical career.

Use of reflective writing served several purposes in our end-of-life curriculum. First and foremost, it provided an opportunity for learners to more seriously think about both past experiences and issues being presented in lectures. We believe that the reflective writing process assists learners to internalize new information about caring for dying patients, similarly to, personalize what otherwise might be abstract concepts. Second, the reflective writing exercises provided learners an opportunity to consider their experiences and concerns prior to participating in small group discussions, where they verbalized these issues. Third, reflective writing provides insight for course instructors regarding student concerns, needs and expectations to guide curriculum revisions. These essays also provide evaluation of the impact of end-of-life issues. Learners’ consistent references to having thought little about caring for dying patients and families who are suffering in the context of illness and death. Learners’ consistent references to having not considered these issues during their medical training points to the purpose that reflective writing can serve: compelling and empowering learners to confront emotionally challenging issues in patient care. Our findings also point to the importance of discussion, however, this could inhibit what learners choose to write about.

As the essays demonstrated, requiring reflective writing resulted in acknowledgement and sometimes discovery by learners of the conflicting and poignant emotions that can arise in contemplating caring for patients and families who are suffering in the context of illness and death. Learners’ consistent references to having not considered these issues during their medical training points to the purpose that reflective writing can serve: compelling and empowering learners to consider the complexities of their transition to their roles as medical professionals who will and do confront emotionally challenging issues in patient care. Our findings also point to the importance of not only requiring reflective writing but also creating time for these reflections to occur. Whereas IC writings revealed similar issues of concern to learners, OC writings often had more depth and breadth in learners’ descriptions of issues they considered both challenging and salient. On the basis of our experiences with one simple and time-limited reflective writing

Timing of Reflective Writing

There are advantages and disadvantages to using either format for reflective writing—OC or IC. OC reflective writing allows learners time to reflect and then better choose what to write about, which results in more elaborate and polished examination of their concerns and, in some instances, they become more creative in prose and storytelling. Specifically in relation to end-of-life issues, writing alone permits more introspection and more comfortable emotional expression. Disadvantages include less spontaneity in reaction to issues that are most salient for the student and perception of burdensome homework assignment robbing time from something else.

In addition, because the OC reflection assignment could be completed any time prior to small group sessions, learners are less likely to base small group discussions on what they had written. Advantages of writing in-class include reacting to what comes immediately to mind and allows room for alternative and freeform expressions such as cartoons, concept maps, and bulleted lists. Because it is time limited, the activity is not perceived as additional homework. Finally, in the context of small group discussions, learners easily access experiences and concerns they just wrote about. Disadvantages to IC writing include shorter responses with less thought and polish, and potential inhibition in learners’ exploration and expression of emotions about their reflections.

Regardless of the format used—IC or OC—promoting future use of reflective writing among medical learners is best facilitated if the purpose of these types of reflection exercises is made explicit. As noted, learners who felt their reflections were not explicitly or implicitly incorporated into the small group sessions perceived them as less valuable. When reflective writing exercises occur in class, small group facilitators have no opportunity to read these reflections. Learners are informed that their writing will not be read by their facilitators, but that the course directors remove all identifying information and read all of them to guide future curricular activities.

We considered having learners write reflection essays before group so that facilitators could read them prior to discussion, however, this could inhibit what learners choose to write about.

As the essays demonstrated, requiring reflective writing resulted in acknowledgement and sometimes discovery by learners of the conflicting and poignant emotions that can arise in contemplating caring for patients and families who are suffering in the context of illness and death. Learners’ consistent references to having not considered these issues during their medical training points to the purpose that reflective writing can serve: compelling and empowering learners to consider the complexities of their transition to their roles as medical professionals who will and do confront emotionally challenging issues in patient care. Our findings also point to the importance of not only requiring reflective writing but also creating time for these reflections to occur. Whereas IC writings revealed similar issues of concern to learners, OC writings often had more depth and breadth in learners’ descriptions of issues they considered both challenging and salient. On the basis of our experiences with one simple and time-limited reflective writing...
activity, we encourage more consistent incorporation of time and purpose for reflective writing throughout the medical school curriculum. Beyond the focus of end-of-life care, encouraging reflection throughout training can lead to a more considered practice in interactions with patients, colleagues, and balancing of personal and professional lives.

The potential importance of incorporating opportunities for student reflection on their reactions to difficult patient care and particularly end-of-life care issues cannot be understated. Studies by Wear and Rhodes-Kropf with third- and fourth-year medical students revealed that learners experience complex and longstanding emotional reactions to patient deaths and often receive no support or role modeling from clinical faculty and residents in processing these strong reactions. As Wear argues, end-of-life care can provide a significant curricular opportunity for faculty to examine and role-model self-reflection as a coping tool for medical professionals and has a particularly important role in the clinical curriculum where learners are experiencing these patient care encounters.

In summary, regardless of whether it is conducted in or out of class, reflective writing provides instructors information about student experiences and concerns, reactions to the curriculum, and insight into the reflection process itself. More importantly, reflective writing early in medical school experiences has the potential to motivate learners to be more reflective practitioners throughout their medical training. Finally, reflective writing and promotion and modeling of self-reflection should be considered as important elements to be incorporated into physician training not only in preclinical curriculum but throughout medical school and residency training.

Editor’s note
The University of Iowa Writers’ Workshop was the first creative writing degree program in the United States and is the model for contemporary writing programs. It has produced Pulitzer Prize and National Book Award-winning authors.

References

Fear of Death
Most doctors are frightened of death and the dying.
People need an incredible amount of support when they die.
And the doctor who is frightened can’t give it to them.
— The Anatomy Lesson, Philip Roth, b 1933, American novelist
Natural Orifice Transluminal Endoscopic Surgery: The Future of Gastrointestinal Surgery

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Yashodan Khajanchee, MD
Maher A Abbas, MD, FACS, FASCRS

Introduction

Considering the continued evolution of flexible endoscopy into more of a therapeutic tool and, at the same time, the growing awareness that the degree of invasiveness of surgery has a large impact on patient outcomes, it was perhaps inevitable that endoscopy and surgery would eventually work together (Figure 1). Accelerating technologic developments mean that this theoretic point of fusion has a potential clinical ap-

Table 1. NOTES procedures described to date

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<tr>
<th>Laboratory reports</th>
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<td>Splenectomy</td>
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<td>Tubal ligation</td>
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<td>Distal pancreatectomy</td>
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<td>Ventral hernia repair</td>
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<td>Gastric sleeve resection</td>
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<td>Colectomy (right and left)</td>
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<td>Human cases</td>
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<td>Transgastric appendectomy</td>
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<td>Transgastric cholecystectomy</td>
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<td>Percutaneous enteral gastrostomy salvage</td>
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NOTES = natural orifice transluminal endoscopic surgery.

plication. It is conceivable that the current generation of surgical endoscopists is on the verge of witnessing a true paradigm shift, which is being referred to as Natural Orifice Transluminal Endoscopic Surgery (NOTES). The potential of flexible endoscopy to perform therapeutic procedures beyond the wall of the gastrointestinal tract was recognized as early as 1980 when the first transluminal feeding gastrostomy was described by Gauderer et al.1 Kozarek et al2 published the first report of successful endoscopic drainage of pseudocyst in 1985. On the surgical side, the established benefits of laparoscopic procedures over conventional laparotomy in terms of patient recovery and perioperative morbid-

Figure 1. Merging of surgery and therapeutic endoscopy
feasibility of NOTES, the transluminal approach appears to have tremendous potential. However, several important issues, including the safety of this approach and whether it will provide significant patient benefit in terms of postoperative recovery compared with laparoscopy, must be resolved before the new technique is widely introduced into clinical use. Additionally, it is recognized that early use of this approach by surgeons or gastroenterologists who might be relatively inexperienced in the particular skill sets required might lead to serious complications, which should definitely be avoided during the infancy of this concept.

To head off such errors and to develop NOTES in a responsible and safe manner, a working group of 14 leading laparoscopic surgeons and endoscopists from the Society of American Gastrointestinal Endoscopic Surgeons (SAGES) and the American Society for Gastrointestinal Endoscopy (ASGE) met in July 2005. The working group was named Natural Orifice Surgery Consortium for Assessment and Research (NOSCAR). The prime goal of the meeting was to produce a document that would serve as a guide for responsible development of NOTES. In the white paper that the group subsequently published, NOSCAR discussed in detail the potential challenges to safe use of NOTES in clinical practice and outlined guidelines for investigators working on NOTES and criteria for expanding participation in NOSCAR.

Will Natural Orifice Transluminal Endoscopic Surgery Offer Advantages Over Current Surgical Techniques?

When the laparoscopic approach was introduced, it was initially argued that it might not provide any benefit to the patient other than better cosmesis. Since then, multiple benefits of laparoscopic surgery, including a decreased neurohumoral stress response, decreased immunosuppression, less pain, faster recovery, and a decreased incidence of wound-related and pulmonary complications, have been recognized. In spite of initial skepticism then, today laparoscopy has become a standard approach for most general surgical, gynecologic, and urologic procedures and has been widely accepted for several oncologic procedures as well. NOTES should provide all of the above-mentioned advantages of laparoscopic surgery. In addition, the elimination of all abdominal wall incisions might have several potential benefits. Wound infection is a common surgical complication, with a reported incidence ranging between 2% and 25%, depending on the type of surgery performed. This has a tremendous adverse impact on patient recovery and health care costs. Eliminating all skin incisions would completely eliminate this risk. Incisional hernias and increasing rates of postoperative adhesions are thought to correlate with the size of abdominal wall incision. The incidence of incisional hernia is substantially lower with laparoscopic procedures, where incision size is much smaller than for open surgery, and should be eliminated with NOTES (4%–18% with open surgery vs 0.2%–3% with laparoscopic surgery). Similarly, the reported rates of small-bowel obstruction due to adhesions are also significantly lower after laparoscopic surgery compared with open surgery (3.3% vs 7.7%) and will perhaps be further decreased with NOTES.

Reducing or eliminating these complications would be an important improvement in patient care as well as a major cost savings to society as a whole. Other potential benefits that NOTES has been theorized to offer are decreased postoperative pain, less need for postoperative analgesia, shorter hospital stay, and faster recovery. Additionally, NOTES may have several advantages in specific subpopulations. It may provide an easy alternative access to the peritoneal cavity in morbidly obese patients, in whom traditional open or laparoscopic access can be difficult because of abdominal wall thickness, and could possibly reduce the lifetime risk of incision-related complications in children.

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<th>Table 2. Potential challenges to clinical application of NOTES</th>
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<tr>
<td>Peritoneal access</td>
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<td>Gastric closure</td>
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<td>Prevention of infection</td>
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<td>Suturing and anastomosing devices</td>
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<td>Spatial orientation</td>
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<td>Developing a multitasking platform</td>
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<td>Management of complications</td>
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<td>Understanding untoward physiologic consequences</td>
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<td>Training</td>
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NOTES = natural orifice transluminal endoscopic surgery.

Current Challenges

Although NOTES appears to offer definite patient benefits, several critical issues must be resolved before it can be successfully and responsibly used in clinical care. NOSCAR has identified several potential challenges to safe introduction of NOTES (Table 2). Although the relative importance of these challenges is debatable, there is unanimous consensus among experts regarding the critical nature of the need for secure enterotomy closure, understanding the physiologic consequences of NOTES, and the need for adequate training. In the vari-
ous animal experiments, several different techniques, such as suturing, clips, T-fasteners, and novel closure devices, have been employed by different investigators to obtain a secure closure of the enterotomy. It is very important that the closure device and the technique be easy to use and provide a nearly 100% secure closure of the enterotomy site. Complications of enterotomy leakage will create a big hurdle to the safe clinical use of NOTES. It is widely accepted that given the safety of laparoscopic approach, an enterotomy leak rate of even 1% would be unacceptable.

The physiologic consequences of pneumoperitoneum for various organ systems have been extensively studied in laparoscopic surgery. However, it is not known whether the pneumoperitoneum created during NOTES will behave in the same fashion. Initial reports suggest difficulties maintaining a controlled pressure or required flow rates through flexible endoscopes. Investigators have reported difficulties in maintaining tight seals around the enterotomy that can effectively prevent backflow of carbon dioxide into the stomach. Additionally, leakage of gas into the gastrointestinal tract can lead to loss of domain within the peritoneal cavity. Finally, there is the danger inherent in using current flexible endoscopic insufflators, which are not pressure regulated. These technologic hurdles must be resolved before NOTES can be successfully used in clinical practice.

A third, and perhaps the most important, challenge for safe clinical use of NOTES will be the development of effective training programs and credentialing guidelines. Because NOTES requires surgeons to be adept in both minimally invasive surgery as well as advanced flexible endoscopy and therefore may involve both surgeons and gastroenterologists, multidisciplinary training programs will be necessary. NOSCAR has taken an initial step to expand participation of investigators interested in or already working on NOTES from around the globe and have outlined criteria for who can participate (Table 3). Eventually, as the safety and efficacy of NOTES are established for various procedures, guidelines for training and credentialing can be developed.

**Current Technologic Developments**

Currently available flexible endoscopes are inadequate for performing complex transluminal surgical procedures. Issues with current flexible scopes include the lack of a multitasking platform, the number and size of access channels, the inability to position and then fix or “stiffen” the endoscope to allow robust retraction and exposure, the inability to control inflation pressures, fixed visual horizons that force the surgeon to adjust to tilted or inverted views, and inadequate suction/irrigation capabilities. These problems can be resolved to some extent with scope-handling expertise and by altering the surgical approach. However, a better long-term solution will be to redesign the endoscopic access device itself. Several prototype endoscopes are being tested, including the Transport and Cobra (USGI Medical, San Juan Capistrano, CA), the R scope (Olympus, Center Valley, PA), and the robotic Endovia (Hansen Medical, Mountain View, CA), all designed to resolve these issues. The Trans-
port and Cobra devices adapted an existing design of a locking overtube (ShapeLock, USGI Medical), adding independent steering of the tip, four channels and an insufflator connection. The Transport (Figure 2) is a 16-mm flexible device with four large channels. One of the channels is designed for a standard 6-mm flexible endoscope, which can be locked into position but also can be torqued independently to correct the horizon. The Transport is capable of 180° retroflexion as well as lateral movements and can be frozen in place by closing a lever, whereas the tip still has independent four-way movement for fine surgical maneuvers. It also provides connection to a standard laparoscopic insufflator for an effective, controlled carbon dioxide pneumoperitoneum. The large 4- and 6-mm channels allow passage of the new stronger and flexible surgical tools. The Cobra and Endovia devices both are designed to provide triangulation, thought by many surgeons to be an essential feature (Figure 3). The R scope (Figure 4) is a traditional-size scope with an extra flexion point to better position the tip and with two access channels (3.8 mm) with horizontal and vertical lifters, which offer a reasonable simulation of triangulation. There is also a need to design more aggressive instrumentation. At present only a limited number of flexible endoscopic instruments are available. Owing to the small channel size of currently available endoscopes, the end effectors of most of these instruments are small and feeble. This makes tissue grasping and manipulation challenging. Ideally, instruments for flexible endoscopic surgery should replicate the designs of laparoscopic instruments to permit true surgeries. The newer prototype scopes (Figure 5), which have large working channels and are being tested, have allowed the creation of 4.5-mm graspers with 2.5-cm jaws that are similar to laparoscopic tools. There is need for further development of improved energy sources for dissection and hemostasis in a flexible format, including some that would be an alternative to bipolar circumactive probe cautery, the needle knife, and the sphincterotome. Of primary importance is the need for easy-to-use tissue approximation devices that can provide secure full-thickness closures of inadvertent perforations or intentional enterotomies, as well as anastomosis and bleeding control. Many devices designed to achieve these goals and to enable the use of NOTES are in development. The Eagle Claw (Olympus) and the Swain closure system (Ethicon, Cincinnati, OH) seem to answer many of these requirements and are nearing commercial readiness. The Eagle Claw (Figure 6), developed in collaboration between the Apollo Group and Olympus, is a simple grasping and needle-driving device that fits on the end of a standard endoscope. It is capable of grasping large amounts of tissue and taking substantial bites with the needle. The needle delivers a pretied monofilament suture with a sliding lock that can be cinched down with a separate device. The Swain system (Figure 7) has two T-fasteners attached together with a sliding lock on the connecting suture. This system is flexible and easy to apply but has been associated with risk of injury to adjacent structures because the extramural deployment is blind. The g-Prox Tissue Grasper from USGI Medical allows the surgeon to grasp a full-thickness bite of tissue and then perforate it perpendicularly with a 19-gauge needle. The needle is preloaded with a suture with two expandable baskets. The first basket is expelled on one side of the grasped tissue, which is then released, allowing the grasper to either be reversed for a figure-of-eight suture or used again the same way for a simple stitch. The second bite is pierced again with the needle and the second basket is deployed. A one-way cinching device approximates the two baskets, creating a tight, imbricated closure of the enterotomy edges (Figure 8). In our laboratory, this device has achieved closure of gastrostomies as securely as hand sutures.
Potential Impact of Natural Orifice Transluminal Endoscopic Surgery on Health Care Systems

The mission of Kaiser Permanente (KP) is to provide high-quality, affordable health care services to improve the health of its members and the communities it serves. To achieve this mission, KP strives to raise the standard of care through promotion of best practices and integration of new beneficial technology. Teamwork, collaboration, and a multidisciplinary approach to the care of the patient are hallmarks of the KP practice. What impact might NOTES have on the practice of medicine and health care systems such as KP in the 21st century? Undoubtedly the technology and data needed to support the practice of NOTES will continue to evolve, driven by innovation, a rapid growth in animal experimentation, and human clinical trials to investigate the benefits, physiologic impact, complications, safety, cost, widespread feasibility, training, and long-term outcome of NOTES. This new experimental field may, in the near future, establish itself as a viable alternative to open and laparoscopic surgery for the treatment of many gastrointestinal and abdominal conditions. When and if this occurs, the implementation of NOTES will have numerous ramifications at several levels, including those of the patient, health care systems, insurance companies, state and national governments, legislative organizations, and professional societies.

Recognizing the benefits and advantages of laparoscopic surgery, KP was one of the first large health care organizations to adopt minimally invasive procedures in the fields of gastrointestinal, gynecologic, and urologic surgery. Because of its large patient population, integrated multidisciplinary practice, and a high degree of subspecialization within its ranks, KP can potentially play an important role in the evolution and growth of NOTES procedures. In addition to the potential benefits to the patient, NOTES can positively affect the organization as a whole. KP physicians will remain at the forefront of clinical medicine. Although the cost-effectiveness of NOTES is yet to be demonstrated, it is conceivable that it might yield significant cost savings by shifting some inpatient care to the outpatient setting, decreasing pharmacy cost, and reducing the cost of care related to short- and long-term postoperative complications (ie, wound infection, intestinal obstruction, and hernia). The practice of some surgical fields might be redefined, with a potential restructuring of the complex and expensive traditional operating-room settings and relocation of a new generation of interventional procedures to less costly therapeutic and interventional endoscopy suites.

Conclusions

Surgery is evolving beyond current flexible endoscopic and laparoscopic approaches. NOTES may represent the next phase of minimally invasive surgery, and early clinical experience shows that intra-abdominal surgery using flexible endoscopes is indeed possible. Because of the immaturity of the instrumentation, early cases demand a technical virtuosity that probably precludes a widespread application of this approach. This balance will shift as enabling technologies are developed. Nevertheless, NOTES will always be more technically demanding than open or laparoscopic surgery. If definite patient benefits are documented, if the public begins to demand “incisionless” surgery, or if both are the case, practitioners will need to master these techniques. Yet to be resolved is who will perform NOTES—gastroenterologists or surgeons versus a new breed of surgical endosco-
Natural Orifice Transluminal Endoscopic Surgery: The Future of Gastrointestinal Surgery

Disclosure Statement

Dr. Swanstrom discloses that he is a consultant for USGI and Boston Scientific and that he receives research funding from USGI Medical and Olympus. The coauthors have no conflicts of interest to disclose.

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References


Leptomeningeal carcinomatosis (LC), the multifocal seeding of the leptomeninges by malignant cells, is a serious complication found in approximately 1% to 8% of patients with solid cancer and carries substantial rates of morbidity and mortality. Up to 48% of patients may present with LC before the presence of systemic cancer is known. We present the case of a patient who presented with symptoms of cauda equina syndrome and for whom subsequent investigations revealed intrathecal metastases and locally advanced lung cancer without respiratory symptoms or brain or bone metastases. The case emphasizes the need for thorough investigation in the presence of the triad: back pain, weakness in the lower extremities, and urinary urgency/incontinence. Cauda equina syndrome due to intrathecal metastases should always be considered. Spine MRI with contrast is the most informative investigative study for these patients, and myelography remains an important diagnostic method.

**Abstract**

Leptomeningeal carcinomatosis (LC) is a serious complication found in approximately 1% to 8% of patients with solid cancer and carries substantial rates of morbidity and mortality. The most frequent sources of such metastases are the lungs (30%–70%), breasts (10%–30%), gastrointestinal tract (2%–20%), and malignant melanomas (2%–15%). However, in 2% to 4% of cases, the primary tumor is not identified. Small-cell lung cancers spread to the leptomeninges in 9% to 25% of cases, melanomas in 23%, and breast cancers in 5%. Intrathecal extramedullary (intravascular or intradural) metastases—a subtype of LC—constitute approximately 4% of spinal metastases. They most commonly represent tertiary drop metastases from concomitant intracranial secondary lesions that become entangled within the nerve roots of the cauda equina. They may occur either as the presenting sign or as a late complication. Without appropriate therapy, the outlook is poor, and untreated patients are unlikely to survive more than four to six weeks.

We present the case of a patient who presented with symptoms of cauda equina syndrome and for whom subsequent investigations revealed intrathecal metastases and locally advanced lung cancer without respiratory symptoms or brain or bone metastases.

**Case Report**

A 53-year-old Caucasian man presented with back pain and progressive weakness in the legs that he said had begun six to eight weeks earlier. He was unable to walk for the preceding two weeks and had to use a walker. He reported that his right leg felt dead to touch and that his left leg was numb. His feet flapped down when he attempted to walk, and he had had several falls. He is an electrician with a 40 pack-years (20 cigarettes per day, per year) smoking history, diabetes mellitus, and depression. The patient’s father died at age 69 because of lung cancer, and his mother had diabetes and died at age 77. He said that he had lost 18 pounds over the last two months because of poor appetite. Recently he noticed swelling of the lower right side of his neck. He denied any seizures. He reported urgency in urination but not urinary incontinence. Physical examination revealed a confluent, 3-cm, irregular, nodular, minimally tender mass in the lower right side of his neck suggesting adenopathy. Spinal MRI with contrast was performed.

Spinal cord imaging revealed a confluent, 3-cm, irregular, nodular, minimally tender mass in the lower right side of his neck suggesting adenopathy.
a strength of $4.4 \pm 5$. When he was admitted, his white blood cell count was $8.35 \times 10^9$ cells/L, his hemoglobin was 13.9 g/dL, his hematocrit was 40.2%, and his platelet count was $371 \times 10^3 \mu L$.

Magnetic resonance imaging (MRI) without contrast of the lumbar spine revealed mild degenerative changes (Figure 1). After a one-week interval because of urinary urgency, lumbar myelography was done. This demonstrated numerous abnormal nodular densities within the thecal sac that appeared to be abutting from the nerve roots of the cauda equina (Figure 2). These extended at least from the level of T12 down to the level of L5. A relative paucity of contrast below the level of L5 was worrisome because it indicated the possibility of additional soft-tissue lesions filling or compressing the thecal sac. Because of these extensive abnormal findings, a complete computed tomography (CT) lumbar myelogram (with contrast) was obtained. This showed numerous nodular lesions within the thecal sac that were arising from the nerve roots of the cauda equina. These appeared increasingly enlarged along the lower lumbar canal and into the upper sacral canal, where the thecal sac was almost completely filled with soft-tissue masses. There were abnormal soft-tissue mass lesions involving both adrenal glands. On thoracic CT myelography, there was developing nodularity on the surface of the thoracic cord starting at the level of T11, and by the level of T12–L1, several nodular lesions abutted from the nerve roots of the conus. On cervical CT myelography, only abnormal cervical lymph nodes (lymphadenopathy) were seen. MRI of the lumbar spine with contrast clearly showed extensive intrathecal metastases (Figure 3). CT of the thorax with contrast revealed a very large mediastinal mass and a right hilar mass (Figure 4). At the level of the right hilum, this mass measured approximately $6.4 \times 4.2$ cm. There was irregularity on the anterior aspect of the right main stem bronchus and occlusion of the right upper lobe bronchus with right upper lobe emphysematous changes, consistent with bronchial airway involvement. There were also multiple enlarged mediastinal lymph nodes, consistent with metastases. The large right paratracheal mass produced significant narrowing of the mid-superior vena cava (SVC), raising the possibility of incipient SVC occlusion. Brain CT showed no masses or abnormal enhancements. There were no significant findings on whole-body bone scan. Chest radiographs showed nothing remarkable. Bronchoscopy was done, and examination of the biopsied tissue demonstrated small-cell carcinoma. The patient had placement of an Ommaya reservoir for intrathecal chemotherapy. The reservoir was used four times for the administration of methotrexate. This therapy in combination with spinal radiotherapy did not produce significant improvement in his lower extremities. The patient presented to the Emergency Department two months later with headache and 103°F fever. The Ommaya reservoir was tapped, and culturing of the cerebrospinal fluid (CSF) revealed gram-positive cocci of the *Staphylococcus* species. CT of the brain with contrast showed vasogenic edema in the right frontal lobe but did not reveal any evidence of abscess. The Ommaya reservoir was removed. After the second round of systemic chemotherapy (with carboplatin and etoposide) CT of the thorax.
showed partial response, with >50% reduction in the size of the lung tumor. Ten months after the initial presentation, the patient is alive and receiving chemotherapy.

Discussion

Leptomeninges consist of the arachnoid and the pia mater; the space between the two contains the CSF. The pathophysiologic mechanism of intrathecal metastases is thought to involve CSF spread.\(^1\) When tumor cells enter the CSF (either by direct extension, as in primary brain tumors, or by hematogenous dissemination, as in metastases and leukemia), they are transported throughout the nervous system by CSF flow, causing either multifocal seeding of the leptomeninges or diffuse infiltration in a sheetlike fashion along the surface of the brain and spinal cord (leukemic meningitis). Patients with brain metastases located in the posterior fossa are at a higher risk of developing LC compared with patients with cerebral brain metastases.\(^1\) Our case was unusual for the absence of evident brain metastases on MRI. However, in a series reported by Chow and McCutcheon,\(^5\) in which only intrathecal metastases of non-neurogenic origin were examined, 80% of patients also harbored intracranial metastatic foci, also suggesting drop metastases as the most common mechanism of spread. In that series, the most frequent histologic subtype was adenocarcinoma, and the most frequent primary source was the lung. Yet, in the Pavlidis review,\(^7\) breast cancer was found to be the most common solid tumor complicated by LC.

Up to 48% of patients may present with LC before the presence of systemic cancer is known.\(^6\) In a series of 126 patients with LC from the Mayo Clinic,\(^9\) 84% were found to have advanced malignancy at the time of diagnosis. Patients with small cell lung carcinoma have a two-year cumulative incidence of LC of 10%, with a prevalence of 2%.\(^4\) A typical clinical syndrome is caused by intrathecal metastases—the cauda equina syndrome—which is characterized by low back pain, unilateral or usually bilateral sciatica, saddle sensory disturbances, bladder and bowel dysfunction, and variable lower extremity motor and sensory loss.\(^3,10\) Pain is the initial symptom in 90% to 95% of patients. This pain is usually local and associated with tenderness elicited by palpation over the spinous process at the level of involvement. On occasions, a component of radicular pain, radiating in the distribution of the nerve root at the involved level, may accompany neck or back pain. Pain of a severe, burning, dysesthetic nature is often associated with intrathecal metastatic lesions,\(^3\) whereas pain that is aggravated by movement and alleviated by immobility should raise suspicion of spinal instability and pathologic fracture-dislocation.\(^11\) In general, myofascial, discogenic, and spondylytic pain are more common in the cervical and lumbar spine and are relieved with rest. On the contrary, pain induced by spinal metastasis most commonly localizes to the thoracic segments and is often worse with rest and at night.\(^10\) Local back or neck pain can be present for a significant duration before a correct diagnosis is reached; the median time to diagnosis is two months.\(^10\)

Neurologic compromise in the form of weakness, sensory loss, and sphincter disturbance usually occurs after the onset of pain. At the time of diagnosis, sensory or motor deficits are present in 38% to 76% of patients, and 50% of patients are nonambulatory (secondary to pain and/or neurologic deficit).\(^10,12\)

Sphincter disturbance is also common, with 37% of patients in one series\(^13\) requiring placement of a urinary catheter. Urinary urgency/incontinence, is a symptom of hyperreflexic bladder due to irritation of the autonomic nerves by infiltrating metastases. Unfortunately, the correct diagnosis of intrathecal metastases is often not made until signs and symptoms of spinal cord compromise have manifested and disease is advanced.

Our patient noticed a recent swelling in the right lower part of his neck. CT of the thorax with contrast showed SVC compression and collateral circulation. The SVC, which drains into the right atrium of the heart, can become compressed by a tumor or enlarged lymph nodes inside the thorax. SVC syndrome is usually a sign of locally advanced bronchogenic carcinoma or the result of nonHodgkin lymphoma.\(^14\) Enlarged lymph nodes compress the vein and forces the blood into collateral circulation. The 24-month survival rate is 9% in patients without SVC syndrome and 3% in those with the syndrome.\(^15\)
Treatment of patients with symptomatic secondary spinal lesions is aimed at relieving the pain and preserving/restoring neurologic function. Cure is not a realistic target in patients with metastatic spinal tumors, but palliation is a reasonable expectation. These modest goals contribute immeasurably to the quality of life and decrease the burden of care. Life expectancy is often relatively short. Pavlidis stated that even with treatment, the median survival for these patients is about eight weeks. By the time of preparation of this paper, the patient has survived ten months, but the prognosis is still poor.

**Conclusion**

Although LC is not unusual in patients with small-cell carcinoma of the lung, this case report points to very important moments. It demonstrates the need to be thorough in the investigation of the triad: back pain, weakness in the lower extremities, and urinary urgency/incontinence. It should be axiomatic that cauda equina syndrome in a patient with a recent history of weight loss is due to spinal metastases until proven otherwise. Spine MRI with contrast is the most informative investigative study for these patients, and myelography remains an important diagnostic method.

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**References**

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**Two Things**

Declare the past, diagnose the present, foretell the future; practice these acts.

As to diseases, make a habit of two things—to help, or at least to do no harm.

— Hippocrates of Cos II, 460-375 BC, Greek physician in the Age of Pericles
Dr Chendra is an Internist from San Diego who enjoys traveling to sample different cultures. She feels at home in the tranquility of the expansive Imperial Garden of Tokyo.
Informed consent is not often a significant part of a malpractice claim. To prevail on this issue, a jury or arbitrator must be convinced that the claimant would not have agreed to undergo the procedure if the possibility of occurrence of the complication that ultimately occurred, no matter how rare, had been disclosed. However, failure to obtain informed consent can be the basis for a successful claim when the care was otherwise within the standard of care.

A Finger Mass
For example, a surgeon met with a patient with a painful mass on the dorsum of her left ring finger that the surgeon thought was most likely a fibroma. In the operating suite after the patient was sedated, prepped and draped, the surgeon again inspected the planned surgical site on the dorsum of the patient’s left ring finger. He found a similar mass on the palmar aspect of the same digit. Both masses were similar in character, fibrous, firm, and round, although the palmar mass was not yet as large. The doctor thought that the patient would be appreciative if the palmar mass was also removed at that time, avoiding a second operation, because palmar masses can be painful during activities involving gripping. The surgeon removed both masses without incident.

When the surgeon later discussed with the patient what had happened, she appeared grateful that the surgeon had noticed and removed the other mass. However, she was not; later on, he was quite surprised to hear that the patient sought a second opinion. Shortly thereafter, the surgeon was notified of the patient’s claim alleging absence of informed consent for removing the palmar mass.

Frequently, there is confusion about whether signed consent forms constitute informed consent. This article explains the differences and the relationship between informed consent and consent forms.

Informed Consent
Informed consent is a process of communication between patient and physician. The physician gives the patient enough information so that the patient can make an informed decision on whether to go forward with the proposed procedure, test, or examination; the patient makes an informed decision about whether or not to proceed.

Cobbs v Grant
18 Cal.3d 229 (1972) made obtaining informed consent a nondelegable duty of the surgeon or other health care professional performing a procedure. The court determined that this allowed the physician to arrogate the decision of what to disclose to the physician alone. The court found that “unlimited discretion in the physician is irreconcilable with the basic right of the patient to make the ultimate informed decision regarding the course of treatment to which he knowingly consents to be subjected.” Rather, the court said, “… the decision whether or not to undertake treatment is vested in the party most directly affected: the patient.” The physician has a duty to make certain that “the patient possesses adequate information to enable an intelligent choice.”

Consent Form
A completed consent form is not the same as informed consent, and consent forms do not effectively obviate the need for a documented discussion in the medical record of the risks and benefits of the proposed treatment. Consent forms are one type of evidence that informed consent has been obtained. A better type of evidence that informed consent has been obtained is documentation in the patient’s medical record of a discussion between the physician and patient.

Consent forms are required by regulators, are easy for staff members to find, and it is easy to confirm that they have been completed. A note written by the physician documenting that the
informed-consent process has been completed and that the patient’s informed consent has been obtained is more difficult for staff members to find and to verify before a medical procedure has been performed. However, such a note has at least equal and usually greater evidentiary effect than does a completed consent form.¹

Anytime a physician does anything to a patient, informed consent must be obtained. The crucial issue is whether and how it is to be documented in the particular case. For example, every time a physician examines a patient, the patient must consent. For a physical examination, the patient’s allowing the examination without objection is sufficient evidence of consent.¹ The same applies to injections, the drawing of blood, most imaging studies, electrocardiograms, and many other examinations. When there is a major invasive procedure, however, the consent process is formally documented.¹ Ideally, documentation is provided by both a consent form and a note in the patient’s medical record written or dictated by the physician, describing the manner in which informed consent was obtained.

A Continuum

There is a continuum between these two poles. In the past, we have tried to define where on the continuum formality must begin. Not surprisingly, this beginning point is inconsistent and arbitrary between medical offices and medical centers and even between different departments in the same medical center and between the same department in different medical centers. For example, lumbar puncture may require consent forms in pediatrics but not in internal medicine in the same medical center, just as consent forms may be required in some medical and pediatric departments but not in others.

What we are left with regarding when more formal consent is required is judgment as to the risk of the particular procedure. The general interpretation of the law is that patients must be warned of insignificant risks, if frequent, and of significant risks, even if uncommon. However, very rare and unusual risks need not be mentioned.¹

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References


Survival

Protecting our ethical heritage is not an abstract, pious counsel of perfection. It is the key to our profession’s survival.

— Frederick Lowy, b 1933, Canadian medical educator and former President and Vice-Chancellor of Concordia University in Montreal, Quebec
What Is Trying to Happen Here? Using Mindfulness to Enhance the Quality of Patient Encounters

Philip Knowles, PhD

Abstract

Mind can be considered as a process that regulates the flow of sensory inputs and information, much of it largely unobserved. Mindful self-awareness is a disciplined means of directing attention to the thoughts, affect, intentions, and physiologic shifts that occur moment to moment. These, along with the perception of signals observed from another person, shape behavior in an ongoing interaction. The flow of inputs and information has implications for the formation of an empathetic relationship. Empathy is known to be an essential aspect of successful clinician-patient communication. This article describes the characteristics and practices of mindful self-awareness as a way of promoting optimal outcomes in patient encounters.

What is Trying to Happen Here?

Clinicians know from experience how difficult it is to be fully attentive to a patient during an encounter. Attention is challenged by many things, including overloaded schedules and time limitations, patients poorly prepared to provide information or unable to provide information, patients presenting a plethora of detail and complications requiring more time than has been allotted, and patients consistently noncompliant. Often these are viewed as obstacles to quality care over which clinicians have no control. They are clearly factors in the patient-clinician encounter and cannot be ignored. Rather than viewing these as problems that negatively affect the encounter, it is valuable to develop the skill of attending to them and, more importantly, to the impact they have on our own internal states, in a way that shapes better outcomes.

Self-Awareness in Patient Encounters

Mindfulness is a disciplined form of self-awareness and has been described as a key method both for increasing competency in connecting with one’s inner life and for developing compassion for others.1,2 In any given moment of activity, action, cognition, emotion, and memory are present and interdependent. Being mindful allows an individual to actively observe these interdependent states and make behavioral adjustments in real time. A goal of making such adjustments in a patient encounter is to create an attuned communication with another so that a more compassionate, informed way of interacting is possible. When two people are effectively interacting with each other, their mental states are brought into resonance with one another. For this to happen, it is important to be sensitive not simply to signals from the other but also to the internal signals that represent one’s own mental state as the encounter proceeds.

Mindful awareness is one means to achieve better communication competency in a patient encounter that is crucial both to the processes and outcomes of medical care.3-6 Evidence has demonstrated that such competency can be taught in the form of skill sets. The Four Habits model is one example. In this model, skills are nested and interrelated, starting with eliciting and prioritizing the patient’s concerns and demonstrating appropriate empathy to encourage the patient’s participation in decision making and education. Empathy is a key element in that it represents attunement to another. An empathic relationship may be disrupted by a person’s unobserved flow of thoughts, feelings, intentions, and physiologic change, typically running unchecked and at the same time guiding their action. The Four Habits model appropriately directs a clinician to monitor the effects of external behaviors directed toward the patient. Mindfulness builds on this as a way to monitor internal states, as these vary in an encounter.

Mindfulness has emerged as an important approach in psychologic treatment for a range of problems, from negative mood syndrome to the reduction of suffering that accompanies chronic pain and/or disease.7-11 Patients who effectively practice this skill can derive benefits in several domains, including mental coherence, physical health, and interpersonal functioning. Furthermore, treatment outcome studies show that empathy, interpersonal sensitivity, and compassion can be improved with consistent practice of mindful awareness.12 For clinicians, such disciplined self-
awareness is a logical extension of a reflective practice.

**Mindfulness Illustrated**

Before considering the elements of mindfulness, consider this brief scenario:

Ms Smith comes to the clinic, again complaining of vague abdominal pains. She will be seen by Dr Turner, who has dealt with her and this complaint on numerous occasions in the past. On the way into the room, Dr Turner thinks, “Here we go again. I don’t know how many times I have gone over this with her and explained that there is nothing wrong. It is all in her head.” Soon after Ms Smith begins to describe her symptoms to Dr Turner, she begins to cry. Dr Turner hands her a box of tissues and thinks, “I don’t do tears.”

Two aspects of this scenario are important to consider: First, Dr Turner is making predictions about the outcome without data. Nothing has happened yet. Second, he is focused on his own discomfort and annoyance with his patient’s emotional expression. Dr Turner may think that he is responding to the observable aspects of the encounter—the history with the patient and the patient’s presentation. Also present are his thoughts, affect, physiologic arousal, and intentions, and he reacts automatically as these change. Because he is not mindful of his internal states, he is largely inattentive to the flow of this encounter as it is happening. He is poorly attuned to his patient.

Mindfulness involves an awareness of experience that is accepting rather than focusing on suppression of unwanted thoughts or feelings. Learning first to recognize thoughts as thoughts, and then, having recognized them, learning to accept them, can free a person from a distorted sense of reality. It can allow for greater clarity about a context within which we find ourselves and can provide a basis for a more flexible, values-driven approach to problem solving. Extending this to a patient encounter, good outcomes depend in part on focused, nonjudgmental attentiveness to the complexity the patient brings interacting with the complexity the clinician brings. Langer has described mindfulness as a state of “could be,” of holding onto uncertainty rather than trying to avoid it. Thus, patients who could be viewed as difficult could just as well be seen as interesting, challenging, or provocative. Issues that remain unresolved at the encounter's end could as well become research questions or opportunities for growth. Here is a revision of the scenario presented above:

Dr Turner breathes deeply before entering the room to see Ms Smith. He notes that the patient is here for vague complaints of abdominal pain. Dr Turner acknowledges having the thought of having been in this situation before with Ms Smith, and then focuses his attention on this encounter. As Ms Smith begins to cry during the encounter, Dr Turner acknowledges his own feeling of discomfort. He accepts that in this moment she feels discomfort, and he does not react to it by trying to control the situation to make his own unpleasant feeling go away. Rather than try to stop Ms Smith’s crying, he acknowledges that this seems very important to Ms Smith and asks if she would like to have a tissue before they continue.

Focused attention to experiences that occur from moment to moment gives an unfinished quality to encounters as we discover that in each moment, things are changing and that stability is a construct of the mind. It is for that reason that thoughts such as “Here we go again” or “It’s the same thing again” are erroneous. It is efficient to detect aspects of a situation that appear similar to previous situations and that allow for routine or automatic responding. Automatic responding biases cognition and saves time, in large part because we do not focus on detail but can quickly call on stored routines appropriate to the situation. To be aware of the features present and how they change through an encounter takes more time and energy and may therefore be considered inefficient. However, to impose stability is to fall prey to a mental habit that attempts to force control on a field in flux. Most people who begin to develop a habit of mindful attention report that it is a difficult practice to maintain. This is so not because it is intrinsically hard or complex but because it is elusive. Here is a third illustration:

Dr Menendez is aware that she is not paying attention to Mr Jones, having already reached a conclusion about his complaint today and what to do about it. Rather than reacting to that thought and pushing the encounter to an end, she tells herself, “That’s a thought.” She refocuses on her breathing and returns her full attention to what is happening in front of her. In the remainder of the exchange, the two agree on what the next appropriate steps would be, and she is able to secure Mr Jones’s agreement to implement them.

Attention shifts rapidly and must be actively returned to the thing we have chosen to attend to—in this case, the patient. This is best accomplished not by fighting to push competing stimuli
away but rather by acknowledging the thought that is interfering and that it is something we could be paying attention to but are not and by refocusing on the original target.

**Developing the Habit of Mindful Attention**

Mindfulness is a skill that requires practice, and meditation is an effective means of practice. Breath meditation, for example, provides a target that attention can always be returned to. When doing breath meditation, the practice is to observe your breathing without trying to do anything, accomplish anything, or go anywhere. It is the challenge of simply being an observer in that event. Intrusions, in the form of thoughts and environmental stimuli, will compete for attention. These can be reacted to in a mindless manner, by trying to push them out of focus or by losing focus by following the new input. To attend mindfully, however, means to acknowledge these intrusions and return attention to the original target.

Several ways of practicing mindfulness have been described for physicians. Hayes and Spencer emphasize the importance of daily practice, suggesting that one:

1. Set aside the time for practice and keep it. You will never find time to practice; you must make the time.
2. Avoid confusing the practice with relaxation or distraction. Tension, stress, and distractions are as appropriate to observe as are relaxation and focus.
3. Avoid using feeling too bad (or too busy or too distracted, etc) as a basis for letting the practice go. These too are all things to notice.

It is easy to be drawn into our predictions and evaluations and fall back to mindless, reactive responding guided by habitual patterns of thinking.

Practice should be for some extended period, such as 45 minutes daily, and many find that it is also helpful to include shorter periods of practice in the day as a means of fostering a sense of well-being and mental coherence.

**Table 1. Attitudes characteristic of mindful behavior**

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**Attitudes of Mindfulness in Clinical Practice**

How can this practice be applied to encounters with patients? Kabat-Zinn described seven attitudes that inform a mindful approach to experience. These are summarized in Table 1 and described separately here with reference to clinical practice:

1. **Nonjudging** means to be an impartial witness to your own experience and, in the process, to notice the never-ending stream of evaluating and reacting to experiences that you engage in. When we are unaware of how automatically this happens, it is easy to get locked into reactions that often have no objective basis. We assume that “this is the way things are supposed to be.” Evaluation typically makes things worse. An encounter that begins with the provider thinking that “this patient is always so difficult” will probably not end well. It is likely that the patient will leave unsatisfied, thinking that they have not been heard this time.

2. **Patience** is the knowledge that things unfold in their own time. Instead of listening for a few key words that “tune us in” and then reacting, patience is the wisdom to listen actively to what the patient is saying without pushing to get through the encounter quickly and efficiently. Patience develops from recognition that this encounter is going somewhere and that we will know where it is going when we get there. Certainly it is helpful to initially frame the encounter by jointly agreeing what issues will be attended to during that time. Once that is accomplished, patience is reflected in the awareness that you do not need to control the duration, flow, or direction of the encounter, because that will be accomplished jointly.

3. Cultivate **beginner’s mind**. Clinicians accumulate a great deal of knowledge through formal learning, observation, and experience. This is what makes for experts, and they are consulted because of that expertise. Instead of thinking as an expert, train yourself to consider the situation as a novice: to hear and see everything fresh for the first time. How clinicians respond to their patients and how they reach a treatment decision are typically overlooked because so much experience has preceded any particular encounter. A disadvantage of expertise is that to know something is to exclude something else. Studies show that physicians are more accurate at making diagnoses than are third-year interns, but they are worse at recalling the information that they used to reach the diagnosis. Because no moment is the same as any other moment, beginner’s mind helps you to stay alert to the unique possibilities that each moment presents. Are you really encountering this patient in an active manner, or is the encounter a reaction to your
thoughts about the history of this person or the problem.
4. **Trust** means that you learn how to honor your own feelings rather than to distrust or suppress them. “I hate it when patients cry” is a thought that typically produces discomfort and effort on our part to stop the crying, thereby ending our discomfort. Alternatively, this is an opportunity to increase responsibility for yourself because you are listening to and trusting yourself to have those thoughts as thoughts, and the feelings that come with them as feelings. As we learn to trust ourselves, we are able to trust others more as well and to recognize the basic goodness in them, fostering an empathetic relationship.

5. **Nonstriving** shifts focus away from imposing goals on an encounter. Rather than striving for a predetermined outcome, we shift our focus, seeing and accepting what is happening in that moment. In practice, that is attending to the question “What is trying to happen here?” by being open to the many possible answers that can emerge during the encounter. It is not uncommon that we tell patients what they should do or what would be good for them, only to later become frustrated that they do not do it: “You need to lose weight.” “You need to stop smoking.” “You should exercise daily.” Movement toward quality outcomes, articulated out of values (for example, to live a healthy, balanced life) will occur as you open yourself to all of the possibilities present in a patient encounter rather than narrowly pursuing a specific outcome because it is consistent with your goal. Work with the patient to understand where both of you are going and what path you are taking to get there. When the focus is broadly directed toward possibilities rather than on a goal, you become aware of the many ways of achieving a quality outcome for the patient encounter.

6. **Acceptance** is not a passive response to the conditions you encounter but a willingness to see things as they actually are, in that moment, not as you wish or expect them to be. Acceptance does not imply that you like the way things are. For example, you could have the thought “This patient will never get better because s/he always refuses to follow my recommendations.” Aware of that thought, you could bring the patient into problem solving. “I have suggested one way we could solve this problem. How do you see that working for you?” If the patient does not see it working, it won’t. In that moment, that is real, and to accept it is to move on to other possibilities. Each moment creates new opportunities to see and hear things freshly and work together with the patient toward high-quality outcomes.

7. **Letting go** occurs when you neither try to hold on to nor to reject your experience. It is the skill of letting the experience be what it is and observing it. It is the wisdom that comes from recognizing that you are not stuck. Becoming mindful is a process, and as your practice deepens, greater levels of mindfulness can be achieved. Epstein described six levels of mindful practice that may be observed in clinical settings (Table 2). At level 0, there is no mindful awareness. Attention is on external conditions. At level 1, a clinician is likely to view problems as external and be detached from them so that it is easy to avoid responsibility and self-reflection while assuming some degree of responsibility. Level 2 is the result of a transfer of information to guide the practitioner. Reflective knowledge is less important than are explicit cognitive models that can be learned and implemented. At level 3 greater curiosity about one’s internal activity is developed without a reaction to suppress these activities or to label them as good or bad. Level 4 has the component parts of understanding of the nature of the problem, understanding how to solve the problem, and understanding the interconnection between the clinician and the knowledge that s/he possesses. At level 5, the clinician has learned to generalize insight and use it to overcome other challenges similar to challenges previously encountered. New behaviors and attitudes are incorporated into one’s repertoire. Compassion is authentic and the practitioner has a full presence in patient encounters.

**Future Considerations**

Mindfulness is a disciplined form of awareness that can help a practitioner be a more fully active participant in a patient encounter in that moment. Rather than reacting in an automatic, habitual way to the encounter, the clinician focuses greater attention on internal and external aspects of the encounter to resonate with the patient, promoting empathy and a more effective attenuation to them. A mindful clinician can demonstrate this to patients as one way of encouraging them to use active awareness to produce flexible, adaptive, and values-based solutions to problems. Much suffering is the
What Is Trying to Happen Here? Using Mindfulness to Enhance the Quality of Patient Encounters

result of a rigid, habitual approach to a problem derived from the false belief that control and avoidance will protect us from discomforting thoughts and feelings.

Advances in social neuroscience have implicated neural pathways that may be involved in an empathetic understanding of another and the possible ways that the practice of enhanced awareness may affect neural plasticity. The human brain is markedly social. Building on this idea, Siegel proposed the “Mirror Neuron-Mindfulness Hypothesis.” Mindfulness promotes nonjudgmental attention to internal states of affect, thought, intention, and physiologic arousal to promote well-being. Mirror-neurons integrate perceptual learning, with motor responding creating an internal representation of the intentional states of others. When this system functions effectively, it facilitates effective participation in rapid social interactions that depend on shared sets of neural profiles that contribute to the meaning of the interaction. Siegel suggested that being empathic with patients may do much more than make them feel better at that moment. It may help stimulate neural activation with a coherence that helps patients improve their capacity for self-regulation. This hypothesis suggests intriguing research possibilities that could help us better understand how to work with patients in ways that promote optimal outcomes.

Mindfulness awareness facilitates flexibility and adaptation in a social encounter. There is an increased awareness of new possibilities as they arise in thought. Clinical experience indicates that it is not enough to tell someone that attention to their own thoughts and feelings is good for them. A practitioner must also be able to demonstrate ways in which patients can develop this skill, and remaining mindful in an encounter is an effective demonstration of the skill. It provides a way for a practitioner to become more attuned to a patient during an encounter. The enhanced self-awareness that comes through a habit of mindfulness represents empirical practice at its best. When mindful, you are observing your thoughts and feelings and as the signals come from the patient, adjusting your behavior as the encounter proceeds.

These are all valid data to observe and contribute to the likelihood of reaching an optimal outcome in each patient encounter.

Acknowledgment

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References

soul of the healer

“Fisherman in flooded plain near Mandalay, Myanmar”

photograph

By Kenneth Gould, MD

Dr. Gould is a retired Infectious Diseases Specialist from the West Los Angeles Medical Center in Los Angeles, CA. He enjoys exotic travel and took this photo during a recent trip to Myanmar and Vietnam.
There has been a revolution in medicine over the past century. Enormous successes can be heralded, from advances in public health to the recent developments in molecular biology, neuroscience, biomedical engineering, and pharmacology. Of course, not all the changes have been good. Indeed, there are many indications that medicine in the 21st century is in crisis. Millions of Americans are without medical coverage and the costs associated with health care continue to spiral upward, making it harder and harder for people to get the help they need. Iatrogenic (medically induced) illness is another significant challenge with the large number of new treatments, resistant strains of microbes, and work overload of many health professionals. Economic pressures reduce the amount of time clinicians can spend with patients, which also contributes to burnout among many on the front lines.

It is clear that science and technology have resulted in vastly improved understanding, diagnosis, and treatment of disease. But the emphasis on science and technology to the exclusion of other elements of healing has also served to limit the development of a model that humanizes the health care encounter. Far too often, modern medicine ignores the importance of the personal and interpersonal dimensions of our experience. Compassion is rarely a selection criterion for medical training and bedside manner is not featured in the core curriculum of most academic health care programs. Physicians are often taught to avoid or suppress the emotions that are connected to states of disease and healing—the patient’s and the physician’s. For patients and professionals alike, the biomedical model often fails to offer a system that embraces the vast potentials of healing—ignoring or negating completely the possibility for human growth and development in the face of illness.1

And yet, we are meaning-making creatures. As Kaiser Permanente’s recent “Thrive” advertising campaign accurately reveals, we are calling for something deeper in our lives, both individually and collectively, as we confront the complexities of illness, disease, and aging. Although there is ample reason for concern about the challenges facing health care today, crisis can also lead to breakthrough and transformation.2 Indeed, we see this happening already. A fresh breeze is blowing through many corridors of our hospitals and clinics. Patients and clinicians alike are demanding that the heart and soul of healing be reinstated. There are many positive developments that speak to an emerging new model for health care—one that acknowledges multiple dimensions of living, healing, and curing—dimensions that go beyond reduction of symptoms. One name for this new model is integral health care.

An integral perspective promotes our capacity to thrive, even under the most adverse circumstances. As emergency room physician, William Benda, MD, writes: “Integral Medicine proposes to be the next step in health care, one that incorporates all dimensions of healing, from physical to spiritual, and ecological to cosmological. This evolution is not only necessary but inevitable and fundamental to solving the conundrum that is our current health care system.”3 The purpose of this essay is to give an overview of this emerging new model—and to consider specific ways to apply an integral perspective in your own life and work.

What is Integral Health Care?

The integral model is based on an intuitive understanding of life and reality as an undivided whole. Franklin Merrell-Wolf captured the essence of the integral impulse in his conviction that science, in its fullest sense, cannot be restricted only to objective material, but must, as well, be open to other ways of knowing and being.4 This speaks to the need to attend both to the rational and to the intuitive, the thinking as well as the feeling; and the biological, sociological, and spiritual dimensions of our human experience. An integral approach is dynamic and grounded in an appreciation for the only constant in nature being change and transformation.

One of the first modern attempts to bring an integral
approach to health care was advanced more than 20 years ago in a book entitled *Mind, Body & Health: Toward an Integral Medicine*, by James Gordon, Dennis Jaffe, and David Bresler. Speaking to the many challenges of western medicine at that time, they noted that integral medicine physicians were rediscovering the healing potentials of the patient-physician relationship. Being concerned with the whole person rather than the disease, the authors called on physicians to consider the possibility of a life force that is manifested mentally, physically, and spiritually, and that is at the ground of human development and healing.

Now in the 21st century, several new books and conferences have helped to fuel the development of this integral model. Philosopher Ken Wilber applies his philosophy to the field of health care. Developing a quadrant system, he maps the lines and levels of integral philosophy to include both inner and outer experience, and private and public spheres of exchange (Figure 1). In *Consciousness and Healing: Integral Approaches to Mind Body Medicine*, my colleagues and I explore the integral terrain as it relates to health and healing through various forms of expression. Contributions by more than 65 authors represent both the depth and the breadth of this emergent field, including the personal and the collective aspects of health and healing. For physician Elliott Dacher, MD, integral involves a system that is "immune to life’s adversities, including disease, aging, and death"—and that stops at nothing short of authentic happiness and genuine wholeness.

Patients and clinicians are each comprised of psychological, social, cultural, biological, and transpersonal (going beyond the personal) dimensions, which can come together in meaningful synergy in the context of health care and the creation of optimal healing environments. An integral practice exists in widening and deepening relationships with yourself, your family, your culture, your connection to the natural world, and to the great mystery of life. It includes your capacity to review what you did well today and to acknowledge yourself for the small things that happened in the day. In this way, the integral perspective is a holistic approach. It is multidimensional and recognizes that to focus exclusively on one level, the physical body for example, represents a temporary solution at best.

An integral perspective is as much about healing as it is about curing. Just as you might work to mobilize your patients’ antibodies to fight disease, integral health care involves in equal measure harnessing your patients’ desire for health and will to live. From the integral perspective, these qualitative domains are as significant as the role of scientific information and technology. In addition to the science of diagnosing, treating, or preventing disease and damage of the body or mind, this is a model that seeks to heal—even in the face of potential death and dying. Ultimately, the integral perspective calls for a whole system shift from a disease-centered to a healing-centered model for health care.

An integral perspective honors multiple ways of knowing—represented by different cultural views and systems of healing. It moves beyond cultural competence, in which you are required to consider different worldviews in the course of working with diverse ethnic and cultural groups, to cultivating a deep appreciation and humility for the divergent systems of health care that coexist in the modern medical context. Chinese medicine, curanderismo, spiritism, Christian Science, and evidence-based medicine—each offers insights into healing. In this way, an integral model is inclusive of both conventional and alternative approaches, but always with a sense of discernment for what is true for the needs of your patient. And in recognizing different ways of knowing and understanding, we need a model that includes the subjective (inner experiences), the intersubjective (shared cultural experiences), the societal (shared objective experience), and the scientific (third person/objective information). Each of these dimensions requires a different set of assumptions, methods, and means of communicating.

Ultimately, however, integral health care is not about the tools or techniques you carry in your medical bag. Rather, the key to an integral approach is you, the holder of the bag. Whether you are a doctor, nurse,
social worker, educator, nutritionist, or administrator, it is about your own transformation as a healer and the nurturing of yourself as a healthy human being. By adopting an integral perspective, you may begin to restore wholeness in your life and work. By cultivating balance, whether at work or at home, you can find a supportive framework for your own growth and well-being. By considering the beauty of a wildflower, playing heartfully with a child, laughing with a friend, or expressing yourself through art, you are finding a deeper way of living. Integral health care is concerned with creating life-enhancing ways of being in the world, through your encounters with patients, coworkers, family, and finally yourself.

**Applying Integral Health Care to Clinical Practice**

Of course, this can be easier said than done. In the course of a busy day, is there really time to add one more thing? Or, in this case, to add everything? The answer is a simple yes. I base this on scores of in-depth interviews and focus group discussions I have conducted with nurses, doctors, social workers, and psychologists during which I asked them how they bring these philosophies into their practice. I have learned that it can be done in a variety of simple ways—ways that reduce the burden on the caregiver—and ultimately lead to greater fulfillment with each and every case. Whether you are treating heart disease, cancer, an immune disorder, or some type of stress-related condition, there is a place for integral health care in every facet of your life and work. Let us focus now on some very practical tools for including the personal, the interpersonal, the transpersonal, the institutional, and the scientific aspects of integral health care into your daily life and work (see sidebar: Essential tools to create integral health care).

**Personal/Subjective**

With increasing emphasis on patient-centered care it’s vital to consider your own inner experience. Do you get off-kilter as you rush from patient to patient on a busy day? Many health professionals have developed little practices to help them stay centered. These include taking a quick walk outside, meditating (either focusing gently but firmly on your breath, or repeating a meaningful or healing words to yourself repeatedly) for five or ten minutes, setting an intention for the well-being of yourself and those around you, listening to some inspiring music on your MP3 player, or finding “positive distractions” such as waterfalls, art work, or a beautiful view from a window. For some, it is helpful to take one or two minutes between patients of what educator and family physician, William Miller, MD, calls good “inner housekeeping” (personal communication, 2007). He suggests finding easy ways to clear the

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<tr>
<th>Essential tools to create integral health care</th>
<th>Scientific/Objective</th>
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<tr>
<td><strong>Personal/Subjective</strong></td>
<td>Use continuing education to expand critical review skills</td>
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<td>Write notes about observations</td>
<td>Create a journal club</td>
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<td>Take a ten-minute mindfulness break</td>
<td>Get familiar with the Internet</td>
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<td>Frame your experience</td>
<td>Bookmark the best Web sites to review with patients</td>
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<td>Practice good inner hygiene</td>
<td>Allow yourself to expand with your patient’s needs and perspectives</td>
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<td>Acknowledge your own vulnerability</td>
<td>Reflect on your own biases and points of resistance to new information</td>
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<td>Center yourself in times you are truly effective</td>
<td>Find ways to stay open to new ideas</td>
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<td>Link inner balance to the safety of others</td>
<td>Examine your core assumptions about reality and your place in it.</td>
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<td>Set healing intentions</td>
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<td>Review what you did well today</td>
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<td>Find positive distractions—waterfalls, artwork, windows</td>
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<td>Assess your social support</td>
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| **Intersubjective**                            | **Institutional/Shared Objective** |
| Adopt an inquiry approach                      | Work together to make shared decisions |
| Acknowledge the value of others                | Build incentives for integral integration |
| Work in teams                                  | Create a long-term process for transforming the organizational culture |
| Do some role-playing about ways to deal with complex issues or difficult interpersonal relations | Look for signs of hope among institutions that are succeeding |
| Find common rituals and symbols to share across the staff | Create programs to promote healing for practitioners and patients alike |
| Participate in peer-to-peer programs for acute care in hospitals |                        |
| Create collaborative healing intentions        |                        |
Whether you are a doctor, nurse, social worker, educator, nutritionist, or administrator... the key to an integral approach is you... your own transformation as a healer and the nurturing of yourself as a healthy human being.

Interpersonal

As you develop ways to center yourself in the midst of a storm, it becomes easier to bring more awareness to all the social interactions that define your day. For example, as you allow your attention to shift inward, you might inquire: are there ways in which, out of self-protectiveness, you have closed yourself off from your patients and coworkers? How can you find a place of personal wholeness and bring that grounded self-disclosure, visualize being in a situation where you have been truly effective. Use your imagination to help you to bring your best self to the healthcare encounter.

By acknowledging the personal responsibility you carry, you may bring awareness to the ways in which you are unsure, vulnerable, or scared. Given that you deal with life and death matters everyday, these are healthy and realistic emotions. From this place of open self-disclosure, visualize being in a situation where you have been truly effective. Use your imagination to help you to bring your best self to the healthcare encounter.

You may wish to take a few minutes at the end of the work to review what you did well and to acknowledge yourself. Keeping a journal has been shown to be very beneficial to people as they reflect on their lived experience. You can make more time in your week to spend with your family or find ways to get involved with your community in nonwork-related activities. In these moments, you are taking the opportunity to feed your soul and psyche, giving yourself resources to deal effectively with the many complex issues, emotions, and interactions that occur in the course of your work.

Many patients today are calling for more personal connections with their clinicians—but not just any connection. Enhancing your capacity for authentic communication means learning about the most appropriate ways to express yourself. Good communication is not focused on you, or only on the delivery of information, it is about truly engaging with others, learning from them, actively listening, and even following their lead when appropriate (see sidebar: Engaging in an integral conversation). Adopting an “inquiry approach” allows you not just to solve or to interject, but to participate in a process of deep engagement and mutual learning (Cassandra Vieten, PhD, personal communication, 2007). Being respectful of the different ways each individual’s illness experience can be viewed, you may wish to work with your patient’s perceptions of their illness (in addition to yours) to clearly formulate a collaborative healing intention that you both can buy into over the course of treatment.

Encourage your patient to bring their full self to the encounter, empowering them in various ways. Research shows that many means of expression and inquiry can aid the healing process. Through modalities such as art therapy, guided imagery, and journal writing, whether you guide them or recommend someone who can (now available in most major health care settings), you can help create a place for your patient to explore the meaning of their illness or disease. In this process, you gain a deeper appreciation for your own role in their life journey—and their role in yours. Even in the briefest recommendation for a patient to begin to keep a journal of their feelings, to draw, or to create poetry you are acknowledging their whole person—mind/body/soul—in the context of their unique past, present, and future.

Working in a collaborative way with the families of your patients offers new paths to healing—remembering always that healing and curing may not be the same thing at all. With an appreciation for the cultural depths of experience, you may create openings to embrace other types of healing practitioners. By encouraging open communication that allows the curandero, herbalist, acupuncture expert, energy healer, or other practitioner to become part of the healing team, you can create a space for your patients to rely on their own healing systems in partnership with the medical model. Rather than feeling threatened, or even
in the context of being honestly concerned for your patient’s safety, an open-minded spirit of inquiry into healing approaches that are different from your own can validate your patient’s motivation toward taking greater responsibility for their own health.

It’s vital to remember that you can’t be all things to all people. As such, the integral perspective is firmly rooted in a team approach. As nurse and author, Barbara Dossey noted during a recent conference on integral health care,16 creating a collaborative environment involves looking around for those who are there to support you. The simple act of appreciating what others bring to the complex issues within health care today makes their situation better, strengthens your collaboration, and ultimately builds more effective and supportive lines of communication. Working together as an integral whole serves you and your patients. Developing emotional intelligences including empathy and trust for the various people and roles of your health care team can enhance the work situation for everyone.

You may wish to engage in shared decision making, for example, as a way of building a collaborative health care relationship. Group visits are a strategy that Dr Miller has found helpful. You can use them to cultivate a greater sense of wholeness, allowing you to experience yourself in relationship to community, build collaborations, and develop respect for team members. Shared clinical appointments are also an option, as you look with your colleagues for points of agreement regarding any clinical encounter. Both of these approaches help create a collaborative environment that fosters trust, reduces stress, facilitates effective communication, and enhances team spirit.

For cardiologist, Mitchell Krucoff, MD, another integral approach can be as simple as taking 60 seconds prior to surgery to bring the team together, once the patient is on the operating table, to recite Mother Teresa’s prayer for the physician. This brief ritual, according to Dr Krucoff, helps to transform the surgery suite into a healing center, reminding the medical team of the faith and trust the patient is putting into their hands. It also provides a way of bringing the spirituality of the clinicians into the mundane aspects of a clinical encounter. In your own practice, you may not wish to incorporate prayer, but even pausing for a collective intention for well-being can set a new frame for your health care encounters. Finding common rituals and symbols can deepen the shared culture of the clinical team, helping to support collective healing intentions and actions.

Another useful practice is to assess your social support system. Nurse educator, Carol Picard (personal communication, 2007) urges you to consider the resources that are available to you. Take a few minutes to reflect on what you are doing, who you are hanging around with, and whether or not these activities and people support and sustain you, or

### Engaging in an integral conversation

**In addition to standard assessment questions about the biologic and physiologic basis of an illness or disease, you may want to expand your connections to your patients and yourself to more fully achieve an optimal healing relationship.**

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<th><strong>Probe the inner experience of the patient by asking:</strong></th>
<th><strong>Probe the scientific/objective dimensions by asking:</strong></th>
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<tr>
<td>“What does the disease mean to you in terms of who you are?”</td>
<td>What are the key factors to evaluate the evidence for any intervention?</td>
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<td>“How does the disease affect your sense of meaning and purpose?”</td>
<td>What are people saying on the Internet about new treatments?</td>
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<td>“What are some ways in which you can gain greater control in your life?”</td>
<td>How do you evaluate the reliability of different claims?</td>
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<td>“What do you fear most about your illness?”</td>
<td>How can you address your own biases and barriers to integrating new ideas?</td>
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<th><strong>Probe dimensions of your own psychology by asking yourself:</strong></th>
<th><strong>Probe the administrative/institutional dimensions by asking:</strong></th>
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<tr>
<td>What do I know and what do I feel about this case?</td>
<td>How can you create an optimal healing environment?</td>
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<td>How can I bring a healing intention to this person who is seeking my help?</td>
<td>How can you help to empower yourself and others to integrate an integral perspective into everyday practice?</td>
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<td>What are the most important results you hope s/he receives from this treatment?</td>
<td>What are the built-in barriers to integrating integral approaches into the health care system?</td>
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<td>What are some of the simple things you can do to nurture yourself?</td>
<td>What are the resources that are needed for the patient and staff to gain and maintain optimal health?</td>
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<td>How can you do them more often?</td>
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deplete you. Remember the power of humor to help move through difficult or challenging situations. Find a set of friends and colleagues with whom you can share a light or playful moment; this goes a long way on a busy day.

And as you expand the interpersonal in your life, you may find it helpful to talk with others about how you’re feeling. Find opportunities to share the tools you have developed to enhance your work life and practice—and ask your colleagues to share what works for them. As you cultivate a culture of learning, you may wish to do some role playing about ways to deal with complex issues or difficult interpersonal relations.

**Institutional**

At times, the sociopolitical and economic dimensions of health care can seem overwhelming. There are so many interests at stake, and so many complex relationships between institutions and individuals. In the integral model, there is a shift from a disease-centered approach to one that seeks to build optimal healing environments. This requires attention to all aspects of the environment, from the buildings themselves, to the accessibility of those buildings by all the people who bring their life experiences or inner environments with them to the various health centers. What is being called for are organizations that align hospitals, physicians, nurses, alternative practitioners, and communities to optimize patient care. But the focus of a fully integral system also includes the workplace, the home, and the individual. It spans the distance from bedside to boardroom, janitors to CEOs.

As the old adage says, out of crisis comes opportunity. This unique moment in time is poised with potential for major structural changes in our health care system. The public is calling for something more, and many of the leaders in hospitals and government recognize the need for whole system change. As you aspire to change, remember that your voice as a clinician matters. Encourage leaders to create incentives for the adoption of integral principals and to allocate resources toward them.

If you are a hospital administrator, there are many ways to begin to bring the high-tech/high-touch dimensions together. A recent book, *Reinventing the Patient Experience: Strategies for Hospital Leaders,* is filled with valuable tips for increasing quality and renewing the trust of the community. Christianson et al found that many hospitals are beginning to employ a multifaceted strategy to restructure the patient experience. This strategy includes environmental design, in which healing spaces are created to minimize stress through artwork, water features, gardens, soundproofing, optimizing family involvement by designing larger rooms with kitchens, and reducing the physical barriers between patients and caregivers. It includes the ways in which nurses and physicians are being encouraged to create more personalized relationships with patients to help reduce patient anxiety, enhance communication, and promote healing. It includes making complementary and alternative practices, as well as spiritual support, available to inpatients. And it also includes hiring and rewarding staff who embrace integral values, recognizing that change takes time and requires patience. Health care administrators who are leading the way are being supported by benefits in patient care, safety, communication, satisfaction, team building, and ultimately, bottom line health and economic benefits.

**The Role of Science in Integral Health Care**

Whereas much of the writing on the integral health care model focuses on aspects that are underemphasized in the current culture, it also incorporates and rests firmly on an evidence-based approach. Data from many scientific studies support the overall value and efficacy of various elements of integral health care. But how can you stay on top of the bountiful supply of new data that arrives in journals on a daily basis? How can you differentiate reliable data from data based on poor research designs?

Developing your skills as a clinician-learner is a first step. Learning to read and critically evaluate the evidence is essential. There are courses through continuing professional development that can help you to identify the key elements in evaluating a journal article, for example. Learning some very basic elements of statistics can deepen your understanding of what is claimed in various technical reports. In all of this, you may be served by finding problem-based learning programs that allow you to engage the new material with a focus on learning, self-evaluation and reflection, and use of evidence, rather than those that are more heavily subject oriented and didactic.

Start a journal club to share what you are learning and to discuss the strengths and weaknesses of various reports. Recall that evidence can take many forms, from the randomized controlled trial, to the case study, to epidemiological reports, to first-person accounts. Acknowledge that the face of health care is changing as patients rely increasingly on the Internet to provide...
The Integral Model: Answering the Call for Whole Systems Health Care

John Astin has conducted a survey of health professionals and looked at the way in which they resist new sources of data—-from being too busy to being reluctant to adopt approaches that were not part of their conventional training. Learning to address your own barriers to integration of new information is an important key to becoming an integral clinician. This is especially important as more and more data are being amassed to support or refute alternative and complementary forms of therapy—modalities that often have little in common with the principals of western-based treatments.

Ultimately, an integral perspective requires a deep examination of your core assumptions about reality and your place in it. Standard science holds that objective truth is arrived at through discovery of causal laws of the natural world that exist independently for all time and for all human beings. When it comes to the human condition, an integral perspective suggests that so-called objectivity may need to be fundamentally transformed. In fact, no science and no medicine is possible independent of consciousness and the awareness that you bring to your personal experiences, and to those you treat.

**Integral Transformation**

As you open to pain and suffering, as well as joy and human flourishing, you begin to see these experiences as catalysts for transformation—your own, your patients, your colleagues, your society, the institutions that you work with, and ultimately your relationship to the sacredness of life. Holding this view of transformation can liberate suffering into a vehicle for healing. As physician Rachel Remen tells us: “In times of difficulty, meaning strengthens us not by changing our lives but by transforming our experience of our lives. The Italian psychiatrist Roberto Assagioli tells a parable about three stoncutters building a cathedral in the Middle Ages. You approach the first man and ask him what he’s doing. Angrily, he turns to you and says, “Idiot! Use your eyes! They bring me a rock, I cut it into a block, they take it away, and they bring me another rock. I’ve been doing this since I was old enough to work, and I’m going to be doing it until the day that I die.” Quickly you withdraw, go to the next man, and ask him the same question. He smiles at you warmly and tells you, “I’m earning a living for my beloved family. With my wages I have built a home, there is food on our table, the children are growing strong.” Moving on, you approach the third man with the same question. Pausing, he gives you a look of deep fulfillment and tells you, “I am building a great cathedral, a holy lighthouse where people lost in the dark can find their strength and remember their way. And it will stand for a thousand years!” Each of these men is doing the identical task. Finding a personal meaning in your work opens even the most routine of tasks to the dimension of satisfaction and even joy. We may need to recognize meaning for the resource it is and find ways to pursue it and preserve it.”

As this story reminds us, we are meaning-making creatures. We can choose how to ascribe meaning to any aspect of our experience … and to help others in this search to make sense of what they are coping with in their health care journey.

Ultimately, an integral health care philosophy is a call to action for clinicians and patients alike. Medicine is in trouble. Each of us carries the responsibility to help craft a new, better-fitting model. Simply by taking the time to consider an integral perspective, you serve as a hospice worker for a dying paradigm. In so doing, you must be gentle with yourself, with others, and with a system of medicine that is struggling with its very existence. Change can be hard. But it is also revitalizing and ultimately transformative.

Just as one paradigm dies, so another is born. For this, you may enthusiastically offer yourself up as midwife. As you engage in this endeavor to bring a new life into the world, you are not alone. Together we can change the future. Karen Wyatt, a hospice physician and integral practitioner, writes so poetically: “To practice medicine from an integral perspective is certainly no easy task. But it offers an opportunity to transcend the limits of reductionistic thinking and the possibility of true spiritual growth for ourselves. And once the first step is taken toward the larger view, there is no turning back. To become an integral practitioner is to...
reach, ever and unceasingly, like the tenacious tendrils of a budding seed, toward the transcendent, ineffable light.\textsuperscript{24,220} As you build an integral perspective into your life and practice, may you find nourishment for all aspects of your being.

\begin{itemize}
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Caring for the Whole Person with HIV: Mind, Body, and Spirit

The Very Reverend Father Drew A Kovach, MD, MDiv, ABFM

The Very Reverend Father Drew A Kovach, MD, MDiv, ABFM, is a certified HIV Specialist by the American Academy of HIV Medicine. He is an Associate Clinical Professor of Family and Community Medicine at the John A Burns School of Medicine, University of Hawaii, Honolulu, and a Clinical Instructor at the Keck School of Medicine at the University of Southern California in Los Angeles. He is an HIV/Family Medicine physician at the Honolulu Medical Center and Director of HIV Services for the Kaiser Permanente Hawaii Region and a member of the Hawaii Permanente Medical Group. E-mail: drew.kovach@kp.org.
boss, your partner, husband, wife or anyone else for that matter. There’s a difference between being worn out and having clinical fatigue. Having HIV can wear people down. It’s a heavy burden to carry. It’s all about how people live with this chronic disease for a lifetime.

Emotional issues commonly are centered around relationship issues. Jesus said “Love God, love your neighbor, and love yourself.” In all my years, I haven’t found too many people who love themselves very much. That’s too bad because unless you love yourself, how can you love anyone else?

Partner Issues

Think of it—past, present, and future. A patient may think: “I used to have a partner but he died. Who will love me now? Am I ever going to have someone in my life? Will I ever have someone to love and who will love me?” In another situation, one partner may be positive; the other negative—we call them a discordant couple. Just think of what HIV/AIDS does to the emotional dynamics of that relationship. One now becomes the caregiver and one becomes the care receiver. What about when both are positive? At any given time, one partner’s T-cell (CD4) count is going to be a little bit higher even though they may both be doing well. It can be a wedge in the relationship at times. What about the situation of a patient who has no partner? Now, I’m all for the birds, the plants, and the fish in the apartment when you come home, but it’s still an empty apartment. And how sad is that? We need the touch of another human being in our lives. And then outside of partner relationships, what about family and parents? Has the patient told them his or her status? Who do they tell? When do they tell? I remember the bad old days when the young gay man is lying dying in the hospital and the parents come in not knowing he’s gay let alone dying from AIDS and, as his physician, I have to give them both pieces of news. I remember one family simply running out of the room and the patient died with only me and the nurse in the room. What about HIV patients telling friends and coworkers? Again, do they tell them or not? Who can they trust? How much of a secret is it? How many times do they want to tell their story? And when they do, do people treat them differently? Do they judge them?

Anxiety and Depression

I call them “the twins.” They’re never separate. In 34 years of medicine, I’ve never seen anybody 100% depressed and 0% anxious or 100% anxious and 0% depressed—I don’t think I’ve ever found anyone on the 50/50 line either. It’s a continuum with overlapping symptoms and we need to treat them accordingly. My feeling is that every single individual living with HIV disease will become clinically depressed at some stage—early, middle, or late. This disease grinds people down. I challenge my colleagues in other areas of medicine to treat people’s depression. They’re going to get better and they’re going to have better quality of life regardless of their pathology. Depression is a thief in the night of quality of life, and the physician needs to know it and the patient needs to know it. So do something! These people are suffering. It’s a painful situation. If we really believe in the good life model, we need to use anti-anxiety agents, antidepressants, and, if we do not want to do the counseling ourselves, we need to send the patient to individual or group psychotherapy.

Spiritual Issues

I think when we talk about such things we first need to decide what spirituality is. It isn’t religion. I have been a priest and have been involved in organized religion for over 30 years. Religion in my mind is the vehicle to get you to things spiritual. I happen to drive a certain kind of car; you may drive a very different kind of car: but if we’re driving the same direction, we will approach the same place. Think of it in terms of God or the creator or whoever that is for you as the hub of a bicycle wheel and we each are on a different spoke. As we get closer to the center, we get closer to each other. It’s very simple. We need to be moving in the same direction and we need each other’s help along the way.

I often ask patients, “Do you ever think there might be something beyond yourself?” When defining things spiritual these questions are sometimes helpful. Do you think you might be connected some way with others who have either gone before you or come behind you? What about humility? What about something beyond ourselves? Is it the answer to all questions or is it the question to all answers? Is it vulnerability? Is it some kind of cumulative wisdom of energy and nature? Is it vitality? Is it so personal in definition, you can’t describe it? Is it justice? Is it what gives life? Is it meaning? Is it something so simple as shelter and water and warmth, food maybe? Is it grace? Is it the intersection of meaning and love? I kind of like that one. Is it power? Is it where we fit? Is it purpose? Is it who I am? Is it why I am? Is it unique? Is it inherent? Is it the boundary surrounding the illusion of control? We’re all into control and we get really, really scared when that control is taken...
away. Is it frightening? Is it taking a deep breath? Is it inspiration in both of its definitions? Is it some kind of confidence that no matter how bad things get, it’s going to be okay at some level? Is it filling? Is it fullness of life? Is it fullness of grace? What is it then? I think it’s core. I think it’s essence. I think it is inspiration in both of its meanings. I think it’s life. Soul as in sol; sol as in sun; sun as in light. Where does it come from?

Relationship

My patients have given so much more to me than I’ve ever been able to give to them. But it is a two-way street. My patients have taught me so much over the years. Medicine is ministry and ministry is medicine when you get down to it. But it can come from the provider; it can come from parents and spouses; it can come from families; it can come from the community of faith, which we call churches and synagogues and mosques. It can come from God or the creator if that is your belief. I think it is purpose of life. I think it is something beyond ourselves.

What about guilt and judgment? We in the church business have been handing that out in great quantities for centuries. We’re getting better, albeit ever so slowly. What about this redemptive suffering business? Is pain the fuel for the journey? Consider it. It comes down to our relationship with ourselves and our spiritual relationship with whomever or whatever that is for you—the creator or some outside force. How do we deal with guilt about lifestyle choices? How do we support gay/lesbian and transgender people, especially in churches? When conflicted, the last thing these people want to do is talk to a religious person. Why? They’re afraid of the judgment they’ll receive. What about feeling a sense of condemnation? Why did this happen to me? What did I do to make this happen? What about hopelessness and helplessness? What about feeling worthless? What about feeling sad? What about feeling bad? What do we do? Again, treat, refer, but for heaven’s sake, do something. These people are suffering.

All of HIV has to be managed: the spiritual, the emotional, and the physical. Making people whole requires a holistic approach. Wellness to wholeness to holiness, it’s all on a continuum. Managing whole people to make people whole is what we are called to do.

In conclusion, a few words about my personal journey: 34 years in medicine; 30 years in ministry; 26 years of taking care of people with HIV/AIDS: mind, body, and spirit. Years spent developing the serenity, courage, wisdom, faith, and love that I needed to replace fear, despair, and depression at having so many of my patients suffer and die. There is blessing in all things. It just depends on where we look. This disease provided me a different way to relate to myself and to others. It gave me a different way to look at life and look at death. Death is not the extinguishing of the light; it’s blowing out the candle because the dawn has come. Live right now. Love right now. Now is all we have. But now is forever.

Excerpts from Dr. Kovach’s presentation at the 2007 National Kaiser Permanente HIV Conference in Napa, CA.

Heal the Whole

The reason why many diseases are unknown to the Greek physicians is because they are ignorant of the whole, to which attention ought to be paid, for the part can never be well unless the whole is well.

— Plato, 427-347 BC, Classical Greek philosopher
soul of the healer

“St Emilion”
photograph

By Elizabeth E Willer, RN, MSN, CPNP

Ms Willer is a pediatric nurse practitioner at the Walnut Creek Medical Center and case manager for the Pediatric Gastroenterology Department. Her interest in photography comes from a previous career in art and graphic design. She has enjoyed using that background with her new hobby of travel photography. This photograph was taken in the early morning haze on a recent trip to France.
A Conversation with David Bates, MD, MSc, Chairman of the American Medical Informatics Association

A world-renowned physician-researcher, David Bates, MD, MSc, is Chief of the Division of General Medicine at the Brigham and Women’s Hospital in Boston, MA, and a Professor at Harvard Medical School and the Harvard School of Public Health, where he is codirector of the Program in Clinical Effectiveness. He is the Medical Director of Clinical and Quality Analysis, Information Systems at Partners HealthCare System, Inc. He is also the former Chair of the National Alliance for Primary Care Informatics (NAPCI) and the Chairman of the American Medical Informatics Association (AMIA). Dr Bates’ primary interests are in information technology and how it can be used to improve safety and quality. He has conducted extensive research on medication safety in particular, evaluating the incidence and preventability of adverse drug events. He is the author of over 350 publications in peer-reviewed journals.

Introduction

In this interview Harvard professor of medicine, David Bates, MD, MSc, speaks on recent progress towards widespread health information technology (IT) adoption, why decision-support tools are now more important than ever, and the necessity to develop the next generation of health informatics professionals.

Brian Raymond (BR): Where do we stand seven years after the release of the Institute of Medicine’s To Err is Human report? Have quality and safety improved?

David Bates, MD, MSc (DB): We have come a reasonably long way in that time, and know much more about safety. Support from the federal government has dramatically increased the amount of patient safety research. But we’ve made less progress in actually taking the research findings and implementing them. Are we doing better overall with quality and safety? I think we are doing modestly better, though the truth is we can’t be certain based on the available data.

The National Quality Forum’s Safe Practices for Better Health Care represents a very positive development. Hospitals are starting to work on various initiatives to reduce the risk of harm to patients, though it is still in the early days, and we are probably only a little better. A major obstacle is that we don’t have the metrics to accurately assess how we’re doing with respect to patient safety objectives. And therefore, it’s difficult to know for sure how much things have really improved.

BR: Have electronic health records (EHR) enhanced the ability to measure quality and safety?

DB: Absolutely. Using electronic records to detect adverse events is one of the main areas that I’ve focused on the research front, but I’ve collaborated with other groups that have used IT successfully to detect falls and nosocomial infections. I believe that in the not-too-distant future it will be possible to build a computerized adverse event monitor that looks for all types of adverse events and delivers a reasonable, reliable assessment of safety levels—useful in a variety of ways. For example, we’ve used a computerized adverse drug event monitor to determine the impact of computerized prescribing with two different levels of decision support—more reliable and objective than chart review and peer review to assess medication safety.

BR: What do you think of current efforts to use evidence-based clinical guidelines to improve health care quality?

DB: There is a lot of redundant
effort in guideline development and having a repository of actionable knowledge would be valuable, with guidelines as an important component. However, the repository should also include rules and algorithms.

The National Guidelines Clearinghouse (NGC) is a great resource, though many conflicting guidelines exist for the same condition. Another concern is that most of the guidelines from NGC are not written for direct incorporation into an EHR. That takes a lot of work. Every organization incorporating guidelines into their electronic record system has their own group working on the exact same problem. Sharing guidelines could really advance this work.

BR: Is it possible for physicians to keep up with the latest guidelines and recommendations?

DB: Physicians are highly motivated and giving them the right information often results in big improvements. But if primary care physicians, in particular, were to do all the things they are supposed to do on the basis of recommended guidelines, it would take them 20 hours to see the patients they now see in 8 hours. We’ve got to explore some solutions, like previst lists and engaging patients with health information tools. Also nonphysicians and physician extenders can do many things. If we change the way primary care is delivered, it might again become manageable.

BR: What’s being done to get to higher levels of performance in outpatient care?

DB: There are three strategies that are pivotal to improving quality in the ambulatory setting. The first is decision-support tools and resources—but the gains here tend to be modest: on the order of 10% to 15% improvement per measure. The second strategy is registry-based tools—you have to be able to list your patients and determine who is in or out of compliance with the treatment plan, with some method of contacting them, and this should not depend on the physician. Third, you need a team component, including support for outreach to patients who are not coming in as scheduled or who are not in compliance. With those three strategies you can get to very high levels of performance across major indicators, in the high 90s. It’s clear that if you create an environment with the right strategies and tools and the right incentives, you can improve care across a broad range of parameters.

BR: What is the future state of quality improvement?

DB: Maximizing computerized decision support will be much more cost effective than alternative approaches that tend to be quite expensive; particularly those that require investments in ancillary personnel. Personal health records (PHRs) will be another important tool, because clinicians and patients can accomplish a lot with online communication tools, as an alternative to office visits. Eventually, patients will go online and get messages from their clinician’s team to manage their health. Patient notes and self-reported data in PHRs will help to inform clinicians of patient status. Eventually, I think we’ll off load many functions from the primary care clinician and free them to work on other priorities. So the endgame will look quite different than it does today.

BR: Are PHRs being oversold?

DB: Eventually PHRs will be very important. Today, they are being pushed harder than is justified given the evidence available. Some believe that personal health records are the solution for health IT and that we can forego EHRs, but I don’t agree.

A PHR will work best if it’s linked to an EHR because that’s where much of the information patients care about resides. Much more research is required on PHRs, and the business case needs to be sorted out. Organizations like Kaiser Permanente and Partners HealthCare Systems have made big investments in PHRs. But smaller clinician groups are really conflicted about investing in consumer-centric technologies because they are not reimbursed for nonvisit care. The most important research question in the near term is: “How can PHRs be used most efficiently to improve care for patients with chronic conditions?” This is important both because of the high costs of these conditions, and because decision support hasn’t been as effective for many conditions, compared to its performance in preventive care.

BR: The infrastructure to translate evidence-based guidelines and decision-support tools into positive clinical outcomes requires a significant investment that many clinicians in the fragmented US health care system cannot afford. How do we deal with this reality?

DB: We need a federally funded clearinghouse for decision support that is clinically actionable, providing information that clinicians could plug into an EHR system. Until we have that, we won’t realize much of the value of EHRs that research tells us is possible. The modeling that we’ve done at the Center for Information Technology Leadership (CITL) suggests that you only get financial benefit if you use sophisticated decision support. In fact, CITL models also suggest that an EHR without decision sup-
port is not even cost-effective. But that’s the direction the industry is headed. A national infrastructure for clinical decision support is one of the most important things to address in the next few years, if we’re going to achieve benefit. There are several proposals on the table about this, and AMIA has made clinical decision support one of its centerpiece issues.

**BR:** What are some of the most promising IT innovations emerging in care delivery today?

**DB:** There are many exciting and important innovations right now. I’ll list them: 1) in hospitals, computerized order entry that should be used universally soon; 2) bar coding appears to make a big difference; 3) smart pumps—intravenous infusion pumps that know what drug is being given and can warn a nurse if there is a problem—are very promising and will probably have a big impact; 4) computerized adverse drug event monitoring; 5) smart monitoring, not just for adverse events but more broadly in the inpatient setting; 6) it often takes an unacceptably long time to perform medical reconciliation—information technology will be improving the process; 7) tools that facilitate hand-offs between clinicians; 8) tools to better manage critical test results; and 9) in the outpatient setting, computerization of prescribing with decision support, tools for managing critical test results and tools for monitoring of patients with chronic diseases are very promising.

**BR:** What are the most important things to understand today about clinical decision support?

**DB:** It’s important to learn what works, particularly for treating chronic conditions. Many recent trials in this area have been negative. We also need to understand how decision-support effectiveness varies by condition. You might expect that because we have figured out how to use decision support for one condition that we could apply it to all conditions—it doesn’t play out like that. We also need to learn how to use data mining techniques to get key pieces of information about patients like their current symptom status to aid decision support. That’s a particular challenge for conditions like congestive heart failure.

**BR:** How can decision support be used to improve diagnostic processes?

**DB:** This is an important and relatively understudied question. Many of the decision-support tools that were designed in the late 70s and 80s focused on diagnostic support and those tools, as good as they became, were never used very much. It’s now become clear that one of the important categories of error that harms patients is the diagnostic error—and yet we don’t really know how to prevent it. Clinical IT tools that help practitioners avoid diagnostic errors are one of the important frontiers in patient safety. Those diagnosis support tools that are available today are useful in certain circumstances—taking a constellation of findings and providing a differential diagnosis—and they do that reasonably well. Examples are tools like Dxplain, QMR, and Iliad. I use those when I encounter a patient with complex constellation of findings (and I can’t come up with a unified diagnosis) largely to decrease the likelihood that I’ve missed something. But overall, diagnosis support tools are used very little in the physician community. When physicians make most diagnostic errors, they generally don’t know they are errors and they tend to make an early diagnosis, for example pneumonia when a patient actually has a pulmonary embolism. They have to recognize their uncertainty if they are to utilize a freestanding tool. The future here may be diagnostic tools that “think along” with the clinician and make suggestions at appropriate times.

**BR:** What are the barriers that keep the clinician from moving more rapidly toward EHR information exchange?

**DB:** The biggest issue is lack of incentives. There’s little incentive for a delivery system—that’s made a large investment in a clinical information system—to share their information with others in their market who have not—they’d lose a competitive advantage. Although health information exchange will benefit the individual and society, the incentives are mixed from the delivery system perspective. Standards have been another barrier. We now have good standards for all types of clinical data but many vendors are still not using them, in part because they haven’t been asked to by their customers. Issues around privacy and security are very important and we need to have a societal dialogue about the benefits of health information exchange. Most people are willing to have their information exchanged electronically, but there’s a vocal minority that are strongly resistant to it. As a society, we haven’t decided how we want to manage that.

**BR:** Are health care purchasers becoming more explicit part in the health IT reimbursement equation?

**DB:** It’s absolutely pivotal because health care payers and purchasers are actually the ones who benefit the most economically when EHRs and clinical data exchange are...
implemented. In Massachusetts, one of the main reasons we’ve been successful is that we were able to bring all the main players to the table. But in many other states, the payers in particular have not been engaged. And purchasers are often fragmented. In most markets there is no entity like the Pacific Business Group on Health, which has been so effective in bringing employers together. Most of the attention of the purchasers has been on pay-for-performance, which is clearly important, though other issues like who should pay for health IT also need to be addressed.

BR: Have we made progress to address the barriers to widespread adoption of EHRs over the past decade?

DB: We have made a great deal of progress since 2001. Today, the integrated delivery systems in this country have for the most part adopted EHRs. We’ve also had progress on the standards and there is now a standard for most key types of clinical data. However, in many instances that standard is not yet widely used. Progress is likely to continue to accelerate. The Certification Commission for Healthcare Information Technology (CCHIT) also represents an important new development. CCHIT is now certifying EHR products. The process of deciding what system elements will be certified is extremely important. Many commercial systems made it through CCHIT’s first round of certification, but the bar is going to be raised in the next round. The CCHIT will be important in reducing barriers to adoption. In the past, clinicians worried that IT vendors might go out of business and they’d be stuck with a system based on proprietary data structures that didn’t represent data in a standardized way. CCHIT addresses this concern. It reduces the likelihood that a systems investment will become obsolete in the near term and it ensures that all the key elements that should be in a system are present. The standards work done by a variety of organizations including the Health Information Technology Standards Panel (HITSP) has also been fundamentally important.

BR: What about incentives for physicians in small or individual practices to adopt EHRs?

DB: That’s one of the biggest outstanding issues. The fundamental issue is financial and it has not been resolved. For an individual physician or a small group practice, the costs of health IT are still really high. Some approaches to addressing this problem haven’t been implemented. For example, improving access to low-cost systems would be helpful for clinicians who have capital issues—so would paying clinicians more if they adopt and making available low-interest or forgivable loans. Also, if they buy a medical record system, it may not have the decision-support tools they really need.

BR: You suggest that access to a low-cost technology for clinicians is a potential solution. But is free even cheap enough?

DB: Free is too cheap. EHRs don’t need to be free for clinicians to adopt them. When something is free, the user tends not to take it seriously enough. Furthermore, even if EHRs were free, someone is paying for them—in Australia, the pharmaceutical industry pays for records and they are using the record to deliver real-time, diagnosis-specific drug advertisements to physicians.

BR: As you look at recent research results on the use of IT in health care, what gives you the most hope and what concerns are worth noting?

DB: We now have a considerable amount of research suggesting that care will be better if clinical information systems are used, particularly on the quality and patient safety fronts. Examples relating to quality include: reminders for preventive measures; decision support for drug dosing; computerization of prescribing; and implementation of bar coding in the pharmacy. But, there is still controversy about even the most effective health IT interventions. For example, there is debate in the literature about how much benefit you get from a particular intervention and if the results can be replicated across institutions. There are also concerns of unintended consequences with technologies like computerized physician order entry (CPOE)—and some of these concerns are valid and important to consider. Introduction of any technology can create new errors, and it is important to track these errors and to introduce strategies to reduce their frequency.

BR: What are the key research questions yet to be answered?

DB: There are lots of unanswered questions. For example, what decision-support tools make the most difference with CPOE? Are the effects of clinical IT interventions the same in community hospitals as they are in academic hospitals? Testing needs to be done for a variety of understudied interventions like systems to manage critical test results. More information about the relative benefits of specific interventions from both the clinical and economic perspectives would be helpful for administrators who need to prioritize. There’s a lot more work
to be done, both inside the hospital and in outpatient settings where there has been relatively little research.

**BR: What is the imperative for medical informatics training?**

**DB:** There is clearly a major shortage in the number of people who understand medical informatics in the US. I get e-mails every day asking for job candidates skilled in this area. Health care institutions are starting to recognize that they don’t just need one person, but probably multiple people in their organization that understand both medicine and informatics—and there are far too few people with formal training in both areas.

Medical informatics is going to be important in all of the major clinical disciplines. It’s important to have physicians, nurses, and pharmacists who all understand informatics. Today, students studying health sciences do not have medical informatics sufficiently high on their radar screen. Most curricula in all major disciplines do not include enough about health IT. That’s certainly true in medical schools, but it’s also true in nursing and in pharmacy schools.

One effort addressing this is the American Medical Informatics Association’s 10x10 initiative. It’s a call to train 10,000 people in clinical informatics by 2010. That’s necessary, but it’s not sufficient. It won’t result in enough people being trained at the right levels. We need more people being trained at the doctoral level and at the master’s level, and we need people positioned as implementation and practice leaders. If we are going to achieve the expected benefits of health IT, many, many people will need to understand at least the basics of medical informatics.

**BR: Where do you think informatics is going more broadly?**

**DB:** It is an incredibly exciting time for informatics and health care IT. There are two big things that are about to transform health care: genomics, which will make fundamental changes, and health IT. Although health IT is just a tool, it is a very powerful one. It has the potential to enable a revolution in quality and in safety measurement and improvement.

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**References**


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**Only a Boy**

I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.

— Sir Isaac Newton, 1642-1727, English physicist, mathematician, astronomer, theologian, natural philosopher, and alchemist
Healing the Self Through Self-Portraits
—A Drawing Workshop

Amy Stein, MFA

Eight portraits line the office wall of Jon, a psychologist and veteran of the Vietnam War who counsels the broken and broken-hearted soldiers in their attempts to return to “normal lives.” Jon describes the treacherous re-entry process through those portraits on his wall—self-portraits, most showing wounds, scars, and strength (Figure 1).

Jon’s Story
Over the last eight years, Jon has attended each of my “Healing the Self through Self-Portraits” workshops in Santa Fe, NM. I wondered why he chose to repeat that process year after year, and why he chose to hang each self-portrait in his office, side-by-side, year by year.

Through this public display, Jon is making a powerful statement. At a time when he was losing touch with his own voice and soul, he said he needed his portraits to affirm and connect to his own reality.

There was nothing else in his life that could do this for him but these drawings.

The subject of most of these drawings is the warrior—sometimes strong, sometimes defeated, sometimes destroyed, always chronicling his dual career as psychotherapist and soldier.

Jon feels that all of these pictures are, “of a guy that I dreamt about long ago and who has emerged in some therapy I have done … as literally the outsider of my soul: he rides on the horizon—my flank. So it is the same guy, but he clearly changes radically, as I evolve—and it has not been a straight path to glory.”

All of Jon’s drawings are a chronicle of his emotional journey through the warrior issue.

“I was worn down by too many Army stories of soldiers who had grim difficulties and I started to feel my age; essentially I was in an age-role-related quandary,” Jon said.

Jon states, “As medical and mental health professionals, we take on the patient’s toxicity, sometimes blurring the boundaries. In this breakthrough self-portrait process, I experienced a chance to express my authentic voice and true self. I need to remember who I am and be centered in that reality.”

The Workshop
“This will not hurt at all,” is how I often begin my art workshops for physicians. I stare into their apprehensive eyes, thinking how most surely want to bolt from the room. They haven’t typically drawn before and certainly have not created self-portraits. Of 30 participants, perhaps 5 have received art training. I suggest they would all consider themselves artists if something early in their life hadn’t convinced them that they weren’t. Was it a mother, teacher, older brother or sister who ridiculed them for their efforts?

They close their eyes to remember. “Who would be brave enough to share their story?” One, then another, and another volunteer. They seem relieved to divulge their stories.

I also share my personal experiences and vulnerabilities about my lonely childhood and my early attempt to heal myself through art (Figure 2).

My Story
At age nine I created a pastel self-portrait of unusual skill and feeling for a child with no training. I explain to the group that this self-portrait was more than an exercise in art by a young artist, but a soul-searching attempt to validate my existence. I looked in the mirror and really tried to create my own face. At the moment I was completing the self-portrait, my mother unexpectedly entered the room, looked at my artistic efforts and gasped. She instinctively understood the impact of this portrait. It was at this pivotal moment of creation that the course of my future was determined. At this moment I became a portrait artist who understood the power of portraits to heal.

I share with the group the loneliness and disconnect of my childhood, my unhappy and separated parents, and my isolation. In subsequent years it became apparent that all my most powerful portraits made eye contact with the viewer, perhaps making up for the lack of bonding in my early years.

The eye contact between mother and child has been clearly noted in child development as the most pivotal...
factor in the healthy development of a child. Children have been diagnosed with failure-to-thrive syndrome and actually die if their needs are not met. My self-disclosure creates a safe environment for others to share their innermost experiences and realities.

**Drawing**

Now it’s time to draw. Each participant has charcoal and an 18- by 24-inch sheet of drawing paper in front of them. I stare at them and they look scared. I ask them to admit if they feel scared and I assure them that they will do brilliantly—I guarantee it. It is important that this be an absolutely failure-proof experience for healing to occur.

I instruct class members to take their charcoal stick and, using it lengthwise, to cover the entire paper as quickly as possible. Invariably, at this moment as their arms move wildly over the paper, there is a tangible release of tension, a lot of giggling, and a lightening of the mood in the room. The charcoal creates a grey tone, which to the participants clearly ruins the paper, leaving nothing more to fear.

This first act of creativity is liberating in a way that is palpable. This moment of covering the papers in soft grey tones is pivotal. In this kinesthetic use of large motor skills, an immediate energy shift takes place. The left brain seems to shut off temporarily, alleviating the pressure to succeed, assuaging the crippling expectation of failure.

What follows is a step-by-step drawing lesson in which the class simply draws ovals, mimicking what I demonstrate for them. I ask that they try not to be creative, just copy what I do. Their previous programming of “I cannot draw” … “I have no talent” … begins to quiet. The goal is to eliminate the assumption that the participant must create a masterpiece. I instruct class members to take their charcoal stick and, using it lengthwise, to cover the entire paper as quickly as possible. Invariably, at this moment as their arms move wildly over the paper, there is a tangible release of tension, a lot of giggling, and a lightening of the mood in the room. The charcoal creates a grey tone, which to the participants clearly ruins the paper, leaving nothing more to fear.

I instruct the participants to draw a line down the middle of their ovals, followed by four horizontal lines, which establish eyes, nose and mouth placements. As the portrait drawings progress—as they fill-out their eyes, nose, mouth, ears and hair—there is no question that each participant is unconsciously creating their own face. They have adjusted my instructions and my demonstrations to create their own likeness.

What has become clear to me has been clear to great portrait artists throughout history: Rembrandt, Van Gogh, and others, who realized that “all portraits are self-portraits.” Anecdotally, when someone told the famous portrait artist Rembrandt van Rijn that he had captured the soul of the sitter, he is reputed to have replied, “Madam, I beg to differ with you, I have captured my own soul.”

These results are startling to the participants. Many exclaim, “I never believed I could have done anything like this.”

Near the end of the workshop I ask permission to explore the drawings through meditation and visualization exercises.

The room is darkened. I ask the participants to close their eyes and to relax; then to visualize sitting in the middle of a green meadow on a pleasant summer day. I coax them to visualize from a distance, out of a forest, the meadows edge, an individual walking towards them. As the individual approaches, each participant begins to recognize who it is.

I explain that the individual traveled from a very far distance, loves and cares about them, and is there to give them an important message about what they need to do as the next step in their development as an artist and as a person.

As the individual comes close, it is clear that he or she is holding a gift. Participants are also holding gifts for the individuals and are encouraged to lovingly exchange gifts. The gifts given to participants are symbolic of the development that is required of them. I ask the class to carefully inspect their gifts and if it is in a box, to open it up.

I instruct the participants to notice every detail in the appearance of the individual in their mind’s eye, including apparel and jewelry. Tears often accompany this process—sometimes sobbing—because these individuals are usually very significant in the lives of the participants, often a departed loved one. I ask them to say goodbye and to give thanks for the valuable information and instruction they received from the individual.

I gently invite the participants to bring their minds back to the darkened room and open their eyes. I turn on the lights, open the blinds, and ask them to add any details to their drawings inspired by the visualization exercise, including the gift given and the gift received. I also have the class name the person they drew.

Participants are asked to share their drawings with the group. Through their revelations, they explain and understand the meaning of the gifts and the significance to their lives.

Many describe an epiphany—a realization of what was previously inaccessible to them.

I congratulate the participants for their courage. Physicians deal with stress daily in the healing of others.
and at times face unpredictable outcomes. Without a creative outlet, the stress can become overwhelming. Physicians need emotional nourishment—a creative door opened can help them.

**Susan’s Story**

Susan (Figure 3), an oncologist, created a powerful image she called “Death.” My initial reaction to Susan’s painfully emaciated and gaunt face was to assume that the person depicted was dying of cancer. Susan had another take on it. She said, “As the picture materialized, I was thrilled because I am in a transition/ transformation right now and the specter that emerged, my picture of death, showed me in concrete terms that I was in fact changing, transforming, moving forward. That was a great validation since I feel like I am stuck in the mire. To know that I am not stuck is wonderful.”

It was not a physical death she described, but a death of her old self. The gifts given and received on the left side of the drawing are a circle and a rectangle. Susan describes them as “a round peg in a square hole.” She said the circle symbolizes the infinity of God, a divine gift. The rectangle, the old part of her personality is a coffin. She said she loved her practice of being an oncologist but had to resolve all the other bureaucratic and disheartening aspects of her job.

Susan said, “I feel this drawing process is a powerful and an appropriate modality to use with patients. They will be able to get into and unlock, de-stress, and heal major parts of their lives. This process transforms your reality.”

**Vicki’s Story**

Vicki (Figure 4), a retired internist, tragically lost her 12-year-old son in a car accident in 2001. She confided in me that she was “so depressed, so miserable,” that she rarely left her bed. She was literally pulled out of bed and dragged to my workshop.

In her visualization, Vicki’s son Tyler came to her. He had flowers in his hand for her, which she pictured on the left side of her drawing. Her gift to him was a strangely anatomically accurate broken heart. She had to think about how to live with this broken heart. Her self-portrait is one of resignation and grief. Vicki said the drawing was a turning point in her life.

As a result of the drawing experience, “I realized that this (Tyler’s death) was not going to define me—this public accident. I had gone to grief groups, but felt too fragile and felt the participants not wanting to live somehow. During the drawing process I had to decide whether to live or die. I experienced a sense of victory, a sense of beginning to heal.”

**Eliza’s Story**

In the summer of 1991, Eliza (Figure 5), a psychiatrist, attended my self-portrait workshop. She had not done any drawing, other than medical sketches, since medical school in Vienna, Austria. As I was walking about the room looking at the students’ progress in the workshop, I noticed Eliza and her portrait. She related to me much later that I had turned to her and said, “Are you a professional artist? If you’re not, you should be.”

“A seed had been planted,” Eliza said. “Four years later, I started painting on my own late at night and on the weekends.”

She soon gave up her psychiatric license and became a full-time professional artist. As many times as I have conducted these art workshops, I am always disarmed by the willingness of each participant to share intimate details of their lives with strangers and medical colleagues. I am touched by their vulnerable self-disclosures. This process can only occur when a completely open and safe environment is achieved, which is the predominate focus of my workshop.

**Tom’s Story**

Tom (Figure 6), an anesthesiologist, is also a medical writer—published a poem in the New England Journal of Medicine—but he wanted to draw. It’s a good story. He wrote me: “When you said to imagine a person coming toward me, it was my father who had died ten years before. He was smiling and handed me a glass sphere, and said, ‘Be whole.’ I gave him a landscape I’d painted—like he used to paint. He never knew I could paint. I only started after his passing on. I painted to remember him, to be close to him.”

**All Artists**

Through this joyful creative experience, participants are empowered to know that they are truly artists. We are all artists! 🌟

**Acknowledgments**

I would like to thank Tom Janisse, MD, editor-in-chief and publisher of The Permanente Journal, for his empathy and for allowing me to write this article in the service of alternative and creative healing methods for doctors and patients.

I also want to acknowledge and thank journalist Carol A Clark for her insight and professionalism in reviewing and editing this article.

**Dedication**

“I dedicate this article to the loving memory of my mother, Matilda N Stein—whose love of art, teaching, and music inspired me. Her beauty, wisdom, and goodness will remain with me always.”
Reflective Writing in the Competency-Based Curriculum at the Cleveland Clinic Lerner College of Medicine

J Harry Isaacson, MD
Renee Salas
Carl Koch
Margaret McKenzie, MD

Abstract
The Cleveland Clinic Lerner College of Medicine of Case Western Reserve University is a five-year medical school where the major emphasis is to train physician investigators. In this article we describe our experience with reflective writing in our competency-based medical school, which has reflective practice as one of the nine core competencies. We outline how we use reflective writing as a way to help students develop their reflective practice skills. Reflective writing opportunities, excerpts of student pieces, and faculty and student perspectives are included. We have experienced the value of reflective writing in medical school education and believe elements of our program can be adapted to other training environments.

Introduction
The Cleveland Clinic Lerner College of Medicine (CCLCM) of Case Western Reserve University is a five-year program with a major emphasis on the training of physician investigators. First- and second-year students receive basic science and clinical research training that culminates in a master level research thesis completed during years three to five. The medical college opened in July of 2004 and is now in its fourth year of matriculation with the first class to graduate in May of 2009. The class size of 32 allows for intimate learning environments. Students learn the basic science curriculum in seminars and problem-based learning groups. Additionally, students begin their clinical experience early in the first year when they are assigned to a longitudinal outpatient clinic preceptor for a half day every other week during year 1 and weekly during year 2. This is combined with communication skills, physical diagnosis, and clinical correlation sessions. All students participate in seminars and small groups that focus on professionalism, ethics, and other topics relevant to the role of physicians in our society. These seminars occur weekly in the first two years and several times per year in years three to five.

Reflective writing is integrated throughout all five years of the program. Instead of traditional grades, a competency-based portfolio assessment system is used. Students are assigned a “physician advisor” who helps guide them through this process. Funding for the maintenance of the physician advisor program is provided by the medical school because of the commitment to this portfolio form of assessment. Reflective practice—a core of the nine competencies—is defined: Demonstrate habits of analyzing cognitive and affective experiences that result in the identification of learning needs, leading to integration and synthesis of new learning. To this end, writing serves either as a stimulus for further development or a way in which to perform reflective practice.

This article describes our experience with reflective writing. We review here a way to help students develop

<table>
<thead>
<tr>
<th>Table 1. Reflective writing opportunities</th>
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<tbody>
<tr>
<td>Portfolios</td>
</tr>
<tr>
<td>Patient logs</td>
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<tr>
<td>Patient journals</td>
</tr>
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<td>Professionalism seminars</td>
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<td>Web logs</td>
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<td>Forums for sharing spontaneous pieces</td>
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Renee Salas (top, right) is a fourth-year medical student at the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University in Cleveland, OH. E-mail: salasr@ccf.org.
Carl Koch (bottom, left) is a fourth-year medical student at the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University in Cleveland, OH. E-mail: kochc2@ccf.org.
Margaret McKenzie, MD, (bottom, right) is an Obstetrician/Gynecologist and an Assistant Professor of Surgery and Chair of the Physician Advisor Council at the Cleveland Clinic Lerner College of Medicine of Case Western Reserve University in Cleveland, OH. E-mail: mckenzm@ccf.org.
their reflective practice skills with six writing opportunities (Table 1) and six student examples to demonstrate both the value of writing and that the elements of our program can be adapted to other training environments.

**The Portfolio Process: Years 1-5**

Students in our medical school do not earn grades. They are responsible for constructing written portfolios to document their achievement of the nine competencies (Table 2) throughout the five-year program. Every student writes a series of essays reflecting their progress toward the specific standards that are outlined for each respective competency. They cite evidence to support the conclusions they have drawn from items produced and the feedback on their performance. These formative portfolios are completed at set times during the year with a summary portfolio at year-end to demonstrate meeting the competency standards required to pass that academic year.

As set out in a review of the CCLCM portfolio process, *Reflective practice is the foundational competency of the CCLCM program, underscoring the critical importance of learning from experience and engaging in conversations about practice to develop personal judgment.*

Placing the reflective practice competency (Table 3) on the same level as medical knowledge and clinical skills stresses the importance and utility of the development of this skill set to students.

The steps of the assessment system and portfolio process create an environment that necessitates reflective writing.

**Excerpt from a Portfolio from Year 1**

(Written shortly after the first Summary Portfolio)

... And here, I hit a wall. I had entered a world where I was being trained to elicit the deepest secrets, maladies, and weaknesses of my patients but knew nothing about how to help them. I knew how to calculate the stroke volume of a heart and that the hormones produced by the anterior pituitary roughly amounted to the pneumonic, FLAT PiG, but I did not have a clue about how to soothe a bursitis, relieve the muscle aches of a statin, or help a patient sort out Medicare Part D. I became an awkward ear that took in information but offered little in return. I felt unworthy to be asking and felt dirty to grasp at canned lines from textbooks only to see them achieve their intended effect. Then, late last spring, much of this changed. I was interviewing a patient struggling with a chronic problem. Appropriately, I said something expressing my concern. My patient thanked me and grinning wildly, turned to my preceptor and said, “Oh, I see you are teaching them empathy these days!”

We all laughed, but my perspective on my role in patient care had been fundamentally changed.

**Table 2. Nine competencies**

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<tr>
<td>Reflective practice</td>
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<td>Research</td>
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**Patient Logs: Years 1-5**

The focus of assigning first-year students to a primary care faculty preceptor—for a two-year longitudinal clinic—is initiation to the profession and to learn basic interviewing and physical examination skills. After seeing four patients during a clinic session, students create a “patient log” for each encounter. In addition to patient demographics and diagnoses, students summarize their encounter, identify learning issues, and reflect on other issues raised in their mind.

This first opportunity for reflection on patient interactions is meant to be “real time” and is completed by end of clinic day. Faculty provide comments on the interaction and the student’s observations. The creation of patient logs continues throughout all clinical rotations, although in years three to five only a subset of logs are reviewed by faculty.

**Excerpt from a Patient Log from Year 2**

**NonHispanic White Male, aged 65 years**

**Clinic:** General Internal Medicine

**Diagnosis(es):** Alcohol problem

**Student comments:**

Patient arrived with his wife for immediate treatment of his alcohol use. An incident occurred last night in which he got up in the middle of night to drink, which, as I learned through our discussion, appears to be a common occurrence. This time he fell; although he had no memory of falling.

When I entered the room and introduced myself, they expressed displeasure that they were speaking to a medical student. The first thing he said was, “I need treatment for alcohol, what are my options?” Although I knew the “categories” of options from our instruction week on substance abuse, my knowledge was still somewhat limited. I informed them that I was not sure of all of the options; the doctor would be the main resource. My goal was to collect the information that would aid...
In their second year of longitudinal clinic students are asked to complete several “patient journals” related to patient encounters. These journals differ from logs in that students explore a focused question or issue in a brief essay, electronically submitted. Whereas the majority of these journal entries focuses on integrating basic science with clinical medicine, students are also encouraged to write about challenges in the other major program types, etc. This proved calming and seemed to allow them to put some trust and faith in me. To allow him an opportunity to discuss his feelings, I commented that he outwardly appeared anxious and emotional. My reflection on the encounter is that it was a successful technique. At the end I congratulated him for taking this important but very difficult step, and he expressed appreciation of this acknowledgment.

Thus far in my training, this was one of the most intense situations that I have walked into alone. However, using the communication skills I have learned, I was able to form a rapport with the patient and his wife and gain information that in the end was useful for his treatment decision. I also witnessed the effect alcohol can have on an individual and their loved ones and the challenges they must face even once the problem is acknowledged. In the end, the encounter had a layer of optimism as they both shared some of their fears and concerns with the hope that this would be a turning point.

**Patient Journals: Year 2**

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3. Recognize the feelings that patients evoke in me as the health caregiver. This is an important first step to ensure that keypoint No. 4 is met. This requires personal reflection and acknowledgment of feelings that I may be ashamed to admit are present. Although I did not fully reflect or verbalize this at the time of the encounter because I did have associated guilt for these feelings, I worked through them more on later reflection and when composing this entry.

4. Recognize that it is not how I feel towards the patient that is most important to their care but how I behave. This requires conscious action not to allow those feelings identified in keypoint No. 3 to interfere with my care. Make sure that my behavior is acting to remedy keypoint No. 2 or to address the medical problems. I feel that I was able to prevent those feelings from interfering with my treatment—but again this was a very mild situation. The key will be to remember this when I do have one of the four “stereotyped” patients and fatigue attempts to hinder my internal regulation.

Table 4. Seminars and writing assignment example

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<tr>
<th>Professionalism Seminars / Reflective Writing Assignments: Years 2-5</th>
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<td>Students participate in professionalism seminars that often include reflective writing assignments beginning in their second year (Table 4). Students read assigned articles and are asked to share a brief written response to an article with their group.</td>
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<table>
<thead>
<tr>
<th>Reflective Writing Selection from Year 3</th>
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<tr>
<td>(from the “Humor in Medicine” seminar)</td>
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</table>
| I believe that true humor is the ability to be funny without making fun of another person. The genius of the comedian is one that can tap into something universally human, distort it, and show it back to us like those “fat” mirrors at carnivals. However, we are not comedians in medicine, nor are we expected to be. In fact, many patients appreciate a serious, empathetic physician who can serve as a guide through fear, instability, and great uncertainty. Yet, as both the bearers of bad news and the flickering lights of 

Table 4. Seminars and writing assignment example

<table>
<thead>
<tr>
<th>On Being a Patient: “Practicing Medicine without a Swagger”</th>
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<tbody>
<tr>
<td>Read: In the hospital, a degrading shift from person to patient1</td>
</tr>
<tr>
<td>The other side of the bedrail2</td>
</tr>
<tr>
<td>Reflect on your experience thus far as a physician in training that has given you insight into the patient’s experience of the medical system</td>
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<table>
<thead>
<tr>
<th>On Being a Patient: “Delicate Balance in Keeping Hope Alive”</th>
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<tbody>
<tr>
<td>Read: Doctors’ delicate balance in keeping hope alive3</td>
</tr>
<tr>
<td>Each student should be prepared to discuss his or her own experience (as a physician in training or as a patient or family member) of having participated in or seen a patient interaction in which a diagnosis and prognosis was given reflecting the balance of honesty and hope and what the student’s reactions were.</td>
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<tr>
<th>Diabetes as a Model of a Social Crisis</th>
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</thead>
<tbody>
<tr>
<td>Read: Diabetes and its awful toll quietly emerge as a crisis4</td>
</tr>
<tr>
<td>How does the US obesity/diabetes mellitus epidemic relate to the societal role of physicians?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shared and Informed Decision Making</th>
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<tbody>
<tr>
<td>Read: The script5</td>
</tr>
<tr>
<td>How comfortable have you become with your scripted role in the patient-interaction process?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Humor in Medicine</th>
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<tbody>
<tr>
<td>Read: Does laughter make good medicine?</td>
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<tr>
<td>Discuss situations in which you witnessed humor that was directed toward patients. Did you participate? How did you feel in the moment? Afterwards?</td>
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<table>
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<tr>
<th>Conflicts of Interest</th>
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<tbody>
<tr>
<td>Discuss your own views and experiences on conflict of interest as you have seen or experienced them thus far in your career.</td>
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</table>

hope, how can we not take on at least some of the emotion of our patients? I heard a pediatric oncologist speak of being admonished in her early career for crying because a crying doctor took the attention away from the patient and family. But what do we do with the emotions and tragedy we inherit so that we do not eventually become numb ourselves?

In steps humor. We laugh, emotion is released, and we feel better. And really, some patients are funny. A recent patient reminded me of this. Here was a man, morbidly obese, who believed he was a woman. Big and sweaty be would make inappropriate advances toward male residents and complain of PMS and spotting between periods. Time and again mornings brought tales of him wandering the wards soaked in urine and sleeping naked on the floors. Admittedly, I laughed. My laugh was not a real laugh: it was more of a middle-school bully—laughing at my own discomfort. He is funny because he is a caricature rather than a person, an uncomfortable reminder of my own incomprehension and lack of understanding.

However, the use of humor at home, behind closed doors, somehow seems acceptable. It is my decompression, my emotional release, my processing of the painful moments of life. In medical training, we alter our perceptions of life from the first day we cut into the lifeless body of another person—life becomes surreal and emotion becomes separated from experience. Naturally, we need to decompress. My concern is that our humor at home, our proclivity to say something inappropriate or demeaning, may in fact alter our interactions with patients. And paradoxically, I worry that our humor, meant to release our own difficult emotions, may buster our desensitization to tragedy and to sadness. Dehumanizing humor actually builds barriers between ourselves and others and keeps real emotions at bay. It is addicting. We need it to be more frequent and more shocking to keep ourselves feeling, and to keep on laughing. We must ask ourselves at what point do patients become more of a joke than a person, even if we uphold the utmost of decorum and professionalism in their presence? In medical training we can teach the movements of empathy, and perhaps even empathy itself, but we can just as easily unteach empathy and hollow out those much practiced motions.

All of this is not to say that humor does not have its place in medicine. Physicians need to understand their emotions to mature as individuals and to maintain real relationships outside of work as well as within. During my time on the inpatient pediatric psychiatry unit, I was shocked at the raw intensity of each moment and the wide range of emotions. Humor was at times mild and at times frightening, as were the tears and the anger, but I saw it dance the line between making fun of patients and making fun of the situation. What I saw were extremes of emotion demanding immediate response and immediate decompression.

As physicians, we will experience emotion and at times be uncomfortable. We all will be or have been traumatized by our experiences in medicine, which only underscores the need to process and vent emotion. I can see that we must tread this fine line as people and physicians, between laughter and distance, versus incessant crying and emotional stress. My experience tells me that we need to be acutely conscious of this dichotomy in our daily work. Humor is appropriate, but we must be certain that we process our own emotion and not seek to dehumanize ourselves or our patients—we cannot afford that attitude to creep into our minds or emotions. We must therefore strive to be like the artful comedian who turns the fat mirror on ourselves and laugh at the bent and battered soul staring back.

**Web log: Years 3-5**

In the program’s fifth writing opportunity, students are encouraged to anonymously post and respond on a private Difficult Conversations Web site. Faculty monitor the site content and provide additional responses. Similar to the patient logs students have realtime opportunities for reflective practice and writing.

**Web log Selection from Year 3**

**Revelations**

A young gentleman died today. This being my first sight of death at work, my impressions are: 1) Despite education/knowledge and experience, powerlessness inevitably prevails. It is a sight to witness great minds stand helpless over lifelessness; 2) Death is not death until it becomes death, until the process is witnessed; 3) Life moves on, except for mine.

Death is powerful and comes to us all no matter the age or profession. It is a simple idea, but as physicians I feel as though we really need to internalize that idea—to understand death because we deal in death. And that is not to say I am skeptical or embittered at this early stage, because I am in this for my amazement of people and life.

**Spontaneous Reflective Writing**

Ideally, a curriculum with structured opportunities for reflective writing will initiate a process where students will begin to use reflective writing to process their experiences, ie, become spontaneously mindful.
Spontaneous Writing from Year 3
(Written after finishing a 16-week core block of clinical rotations)

OB/GYN ... PEDIATRICS ... PSYCHIATRY ... NEUROLOGY ... the electronic medical record grants us the luxury of creating patient lists with the ease of a few clicks. As I progressed through my first four rotations during my third year of medical school, I diligently performed this task to increase my efficiency during morning rounds and to allow me a few minutes of precious sleep. Now, having reached my last day of the four-month stint, I click through the lists in a reminiscent fashion. As I see the patient name, I remember the individual, the disease, the physical findings, and the management plan. Many of these patients I only interacted with briefly, because either I switched to another service or they were discharged during my cherished days off. I interacted with most of these patients during a particularly vulnerable time as I gained knowledge of intimate details of their life during history taking ... placed my hands on their damaged bodies for my education ... and was present for eating or heartbreaking conversations regarding their mortality. Although short in duration, many were powerful interactions. It had been recited to me during discussions about humanity in medicine that being a physician is one of the only professions in which one is allowed to share such raw and poignant moments of human existence with previous strangers. However, much as a murmur of aortic insufficiency doesn’t come alive until you hear one, I never gained a full appreciation of the sacredness of that position until I experienced full-time clinical medicine.

I continue to click through the lists. Some names bring a much stronger emotional response:

Mrs Jones a quadriplegic female, aged 55 years, with Stage IV sacral decubitus ulcers who passed away a month after I left the service ... discovered only through my periodic checking of former patients. I will always remember her because she was the first patient I had cared for who passed away. Her words resonate in my head, “I don’t want to die—I have so much left I want to do,” as she lay unable to move in her frozen prison of a body. She taught me unsinkable hope.

A female pseudoseizure consult, aged 65 years, with whom I spent hours talking with as she finally released the details of the sexual, physical, and mental abuse she had received during her childhood. Whereas the texts and teachings from my attending on pseudoseizures are now part of my medical knowledge bank, I remember most vividly her huge embrace and kiss on the cheek. As we parted she said she would never forget me because I walked with her through one of the most monumental moments of her life. She taught me true survivorship.

Hindsight has given me much more respect for these interactions. The blur of the rotations hindered my ability to reflect; energy instead went to maintaining alertness despite constant sleep deprivation, trying to fill the never-ending knowledge deficits, and attempting to complete new tasks with skill. Yes, I have new clinical knowledge and skills, my treatment plans are more fully developed, and my presentations more concise. Yet, I now also have the personal and raw human stories from this list of patients before me ... their pain, fears, hope, and strength. These do not fit into the portions of my intellect that are filled with the academic lessons specific to their cases. Instead, these fill my heart and soul and create an unexpected weight that I am struggling to cope with. I suppose as I progress through my career my soul will become a bottomless reservoir that each patient encounter will add to. The stories of patients will resurface periodically when I see a glimpse in the face or the actions of another patient ... that unsinkable hope or that true survivorship. Others will quickly sink far into my memory and never re-emerge. Yet, they are each there because they are a part of my collective experience. Just as the medical knowledge I am gathering is building my medical library, these encounters are also shaping my soul. Realizing this, I now carry the weight of their stories with honor and privilege.

The Value of Reflective Writing and Reflective Practice
How do reflective writing and reflective practice shape physicians in training? What is the perspective of students and faculty, especially the physician advisors...

Professional Competence
Epstein and Hundert define professional competence as “the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served.” To act with clarity and insight requires the capability for critical self-reflection—central to “mindful practice”—as practitioners tend to their own physical and mental processes during ordinary everyday tasks.

References
who play a central role? We offer our view and some concluding thoughts about the process.

**Student Perspective**

While reflective practice truly originates in internal monologues, reflective writing is one of the most powerful and concrete ways for a student to learn the art of reflection. Reflective practice is initially foreign and abstract. Outlining tangible steps, such as in the portfolio process and the guided prompts in the curriculum, provide a roadmap for the student to follow. The actual process of committing words to paper forces the student to proceed through reflection in a stepwise fashion and to formulate a level of reasoning behind each step. Though it initially feels awkward and forced, the students who begin to see its positive effects tend to embrace it holistically, incorporating its practice into both their professional and personal lives. On the continuum of reflective practice, some students will reach the ideal point where internal motivation, instead of these external requirements or prompts, becomes the driving force behind their reflection. This can then lead to continual and spontaneous reflective practice. Another value of putting pen to paper is that they have a written record that can be revisited later, gaining even more insight and growth. Thus, some will embrace reflective practice while others will not. It is truly an individual choice. For those who do not, simply being exposed to the concept provides an initial foundation that may be built upon in the future. Meanwhile, for those who do embrace it at the outset, they have an invaluable tool to use as they process the magnitude of experiences on their path to becoming a physician.

**Physician Advisor Perspective**

A role of physician advisors is to facilitate student growth as reflective practitioners through guided reflective writing and conversations. The guided writings include those described in this article, which transcend multiple settings across the curriculum. These, along with guided conversations, encourage introspection into their authentic performance on the basis of their assessment of evidence. The experience of the physician advisors over the past four years suggests that over time, reflective writing allows students to deepen their level of reflection. Their writing develops a very objective approach regarding the significance of experiences to their own learning and personal development. Students begin to own the process and adopt a general application of reflection to other life experiences. Students are not the only individuals who benefit from this process. Physician advisors, as the student’s mentors, gain not only insight in how to better guide the reflective process, but also into their own capacity to be a reflective person.

**Conclusion**

All of our students are exposed to the curricular components described. Data from our surveys have suggested that students perceive value in most instances even though initially many are skeptical of a portfolio assessment in medical school education. Our experience thus far suggests that creating an environment that fosters reflective practice is vital for the personal and professional development of medical students. Reflective writing is a key way to stimulate and further develop this skill set. The inherent reflective writing components of the portfolio system in this curriculum have led to the natural development of other avenues through which to stimulate this form of writing. We have identified six opportunities for students to write reflectively based on their patient encounters and clinical experiences. However, we hold no illusions that this will be an easy process or be embraced as worthwhile by all students. In our experience students engage in the reflective process at different depths and energy. Two students who have found reflective writing to be critical to their growth and have successfully used it to process medical school experiences agreed to include examples of their writing. We recognize that there are unique aspects of our medical school that do not easily translate to other institutions. Nonetheless, we have identified a variety of reflective writing opportunities, many of which can be modified and tried in other settings. We hope to encourage other medical educators to consider incorporating reflective writing in their training programs.

### References

Constructing Stories of Past Lives: Cadaver as First Patient: “Clinical Summary of Dissection” Writing Assignment for Medical Students

The Clinical Summary of Dissection assignment encourages students to reflect on their experiences in the Gross Anatomy Lab. The goals we have in human dissection are 1) to help students observe the donor as a whole being and not just as the bones and organs they studied; 2) to have students make careful observations without medical equipment or diagnostic procedures; 3) to have students formulate their observations into plausible hypotheses; 4) to have students identify how lifestyle might have contributed to chronic disease as evidenced by the condition of the body; and 5) to help students appreciate the contribution made to their education by the donors and their families through body donation.

The Clinical Summary of Dissection is a required student writing assignment for Foundations of Clinical Practice I, the first semester of a four-semester course that introduces students to clinical medicine at the Carver College of Medicine at the University of Iowa, in Iowa City. Each group is instructed to keep a log of observations about its cadaver, including a general description, evidence of regular exercise, appearance of structures, evidence of disease, surgery, abnormalities, anatomical variations, and the morphology of the aging process. At the end of dissection, using the data collected, each group writes a one-page summary hypothesizing about the cadaver’s lifestyle, possible diagnoses of chronic and acute diseases, probable age, and probable cause of death. Students are encouraged to reflect on what the experience means to each of them. They are allowed either to work on their own or with their dissection table colleagues to complete this assignment. Grades of complete or incomplete were used to score the submissions. Since 2004, discussion of the assignment has been included in one of the Personal and Professional Development weekly small group discussions.

The writing styles of the summaries generally fall into one of four categories: reporting of anatomic, surgical, or clinical observations; presenting a holistic overview of the body studied; a lifestyle-focused report based upon observational hypotheses; or personal reflections on the dissection experience. Here we provide samples of edited assignments that reflect these styles.

In addition to this assignment, medical students are exposed to a number of activities that attempt to link the affective, professional, and intellectual domains of their educational experience. Before classes begin, students are introduced to the curriculum. In the laboratory they are reminded of the privilege assigned to studying the human body and that this privilege is granted by the donors upon whom they will study. A Chaplain from the University of Iowa Hospitals and Clinics leads a short talk; students are allowed time for reflection and encouraged to demonstrate their thanks by learning as much as they are able. Throughout the semester, students are reminded to take respectful care of the donors’ remains. This is encouraged to protect tissue that is not being studied from increased exposure and to build awareness for properly covering patients during physical exam.

Four Clinical Summaries

Observation of The Body

The examples presented were written by individual students, edited, and reprinted with permission. The first illustrates careful observation regarding details of the donor’s body.

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Marc Pizzimenti, PhD, (right) is a Lecturer in the Department of Anatomy and Cell Biology at the University of Iowa Carver College of Medicine, Iowa City. E-mail: marc-pizzimenti@uiowa.edu.
I Wonder …
by Adam J Case

The white sheet remains motionless as I stand above his body. I fear nervously thinking it will move at any second, but of course it does not. I am unaware of this feeling inside of me; it is a feeling that is foreign. I know that my curiosity is driving me to pull the sheet back, but my humanity leaves him to rest. I wonder if he was married? I wonder if he had children? I wonder his name? I pull the sheet back.

My first patient’s skin is dark and very smooth. His legs are small and withered; they show signs of great atrophy. I wonder if he was in a wheelchair? A small rubber tube pierces his glossy skin just above his right clavicle. This tube leads directly into his subclavian vein and runs into the right atrium of his heart. It is a central line for medication. I wonder what types of medications? I wonder if he was conscious when he died? The remainder of his body appears unremarkable. From where I stand, this man looks healthy. He looks as though he is lying asleep before me, though his face is wrapped in a towel and bagged. His hands and feet follow suit. He is not asleep, and I must not forget that.

As I prepare the scalpel blade, my hand begins to shake. Is this for real? Am I seriously going to cut open a human being? I wonder if he ever hurt anyone? I wonder what he cried about? I make the cut. The blade passes smoothly through his soft skin, and I take care not to push too deep. I pull back his skin. I look into the man that once was a man, so that I may see what it is to be—a man. Heart. Lungs. Liver. Kidneys. Spleen. They are all present. Dreams. Goals. Hopes. Aspirations. Love. They have passed on. I look into what once was, so that I may learn. This man has given the greatest gift to education: himself. I wonder what drove him to donate his body to education?

I see his lungs are discolored and enlarged. This must be from the pneumonia, which is what ultimately ended his life. I wonder if it really was pneumonia that killed this man? I wonder what other problems he had that placed him in this condition? As I look further, I notice small stitches on the heart. The blue colored strands stand out amongst the shade of tan all the structures have taken. These stitches are indicative of a heart transplant. I wonder when he had the transplant? I wonder why he had one? As the weeks pass, I notice more pathology on our body. I wonder if he had regular dialysis? I wonder if he had regular injections? His spleen is enlarged almost twice the normal size. I wonder what type of injection he had? I wonder if it was from the pneumonia?

The lab is coming to a close now. Our body has taught me more than I ever dreamed I could know about the human body. I wonder how much I have truly learned about life? I know that when I stand above him, as I did the first day, I still have that same feeling. I look at the white, motionless sheet and wonder: I wonder where he had his first kiss? I wonder where he is from? I wonder what kind of foods he enjoyed? I wonder if he ever loved? I wonder if he was married? I wonder if he had children? I wonder his name? I pull the sheet back.

Donor as Whole Being

The second example focuses on the donor as a whole being and not just the bones and organs being studied.

Honored
(name withheld by request)

I was scared to meet you. Then, after I met your “body,” became intimately aware of your organs, vessels, muscles. I was scared to see your face. And still, after weeks of seeing your eyes, your hair, your ears, I get nervous before I look directly into your face. I guess I worry about seeing a resemblance to my grandfather; although, when you died, you were healthier than he. But your height, the size of your hands, the toughness of your skin, reminds of my grandfather.

You must have been active during your life. People comment on the size of your muscles and how clearly they can be seen. You have a lining of fat that has preserved your muscles, and under that fat, your muscles are large and well defined. You probably were not a runner or did not go to the gym very often, but I bet you were active. Maybe you were a farmer, or did construction, or worked in a garden because, in addition to your preserved muscle mass, your hands are large and strong.

You must have been healthy for most of your life. Your body is not scarred from surgeries, muscles not weakened from inactivity, no bed sores or broken bones. Your prostate was slightly enlarged and the surrounding area looked healthy; so, despite being diagnosed with prostate cancer, it appears to be in a very early stage. A possible cause of death was the aortic aneurysm found when we opened up your thoracic cavity. Lastly, although you had very large, pronounced muscles, your feet were unhealthy. You may have had diabetes, with poor circulation to your feet, and that may have limited you in your later years.

There were very few abnormalities in your body—almost a textbook layout. You did have your transverse cervical artery coming off your dorsal scapular artery, which is abnormal, but makes no difference as long as
you have the artery. This is the case for your posterior humeral circumflex artery, as well. Your artery is a branch of the subscapular artery, but normally the artery branches from the axillary. You had a new lens put in your eye, probably when you got older, because of cataracts. The anatomist helping my table said that almost everyone your age gets a new lens. Your body seems to indicate you led a long, healthy, and active life. I hope that the health problems you did have did not cause you too much pain or distress. I want to thank you and your family for making the decision to donate your body to University of Iowa Medical School. This was a brave choice and I hope that I was respectful of your gift. I know I feel honored to have been given this opportunity, which would not have been possible without you. Thank you very much.

**Lifestyle Contributions**

The third example identifies how lifestyle might have contributed to chronic disease and provides a glimpse into the student’s future relationships with patients.

**The Book I Couldn’t Buy**  
by Emily (Isaak) Schindler

I remember the difficulty we had with the electric saw that day. A professor had to come over and help us. There was smoke, the blade was turning brown, and you refused to yield to his heavy-handed attempt. He stopped, turning off the saw. “There’s your problem.” A wire, covered by connective tissue, had been used to rejoin your sternum after open-heart surgery. I remember thinking that it didn’t look very elegant—perhaps you knew that we would separate you layer by layer, bone by bone, and learn you inside and out. You knew we needed you. You knew I needed you. Your body was the book I couldn’t buy, the class only you could teach. You knew it and that’s why you were there. Now I know it, too.

**Personal Experience**

The final example, which has been edited for length, demonstrates the writer’s personal reflections about the dissection experience and expresses gratitude to the donor for the gift she has given.

**The Hyoid Bone**  
by Benjamin Lewis

Before I had even made the first cut into the female cadaver at the table, an uneven and timid slice down her sternum, it seemed that all of my possible reactions to seeing and enacting this ritual of violence were pre-configured and delivered in various formats including Foundation of Clinical Practice lectures, a special lecture in Anatomy, a speech by a Chaplain, and a Deeded Body ceremony. Although this speaks perhaps to the thoughtfulness of the curriculum, I felt it necessary to inject a dose of skepticism, even cynicism. And so I steadied my gloved and wavering hand as it drew the blade down and deep between breasts that were bleached pink and hardened by formaldehyde: this was no longer a body, I told myself, but an incredible mannequin.
In the Gross Anatomy Lab it is easy to forget what you are, in fact, doing. You have sheets—of terms and places and things and stuff—which you attempt to find. The body, apparently, is full of stuff. The problem, it seems, is that when you are constantly surrounded by trees, the very concept of “the forest” is incoherent—there are no boundaries to demarcate it, no clearings from which to survey it: the body stretches out like a vast and alien landscape.

Although it seems that the extrapolation of a brachioradialis, witnessed in the lab, to its existence in one’s own forearm is not a particularly involved mental maneuver, it was one that I made relatively rarely throughout the process. At the same time, during these long afternoons possessive tense predominated. A particularly good example of the chorda tympani nerve became ours, something we owned: “Oh, if you guys can’t find it you can come over and see ours.” There was a bustling economy of transactions taking place between Table #3’s fantastic thoracic duct and the cadaver’s sturdy sympathetic chain. There was never any protest.

You get to know the dead in reverse. Here you begin with the inside and work your way to the surface. And yet, as the cadaver was emptied of itself it seemed to grow heavier, weighed down with a spiraling interconnectedness only made apparent when broken. It was a body laden with the gradual passage of time as it is measured in the anatomy lab: by the significance of what is missing. Or perhaps it was I who was changing. How could I thank her for allowing me to know her in a way that no one else ever has or ever will, in a way that I could never know myself? Look at this, I told myself, look at this now and do not forget it.

At the end of the first of seven books of Vesalius’ Fabrica, there is a woodcut of a human skeleton leaning up against a tomb examining a separate human. Lying nearby on the surface of the tomb is what looks like the hyoid bone… that normally hangs suspended below the mandible, solely by ligament and muscle without attachment to the rest of the skeleton. It is a bone that could have come from either the examiner or his subject of study. The inscription on the tomb reads “The spirit lives on; all else is Death’s portion.”

Conclusion
At the conclusion of the semester, student identifiers are removed from the essays and the essays are shared with Gross Anatomy Laboratory teaching faculty. Each year, the University of Iowa conducts a memorial service to honor those who made this very generous gift. The focus of the ceremony is to allow families to come to closure with the great gift that was made. Students participate by sharing expressions of gratitude through readings or poetry of personal reflection that share how the gift benefited their education, by leading music as part of the ceremony, or by assisting in distributing the ceremony program and helping seat individuals.

Editor’s note
The University of Iowa Writers’ Workshop was the first creative writing degree program in the United States and is the model for contemporary writing programs. It has produced Pulitzer Prize and National Book Award-winning authors.

Reference
1. Vesalius A. De humani corporis fabrica libri septem [1543].

Contentment
In the minds of the virtuous, general contentment is produced.
— Sikhism
Many of us in clinical medicine aren’t fond of very large numbers. We deal with and intuitively grasp milligrams, grams, and kilograms, and centimeters and meters, but what sense does the difference between a megabyte and a terabyte make? By contrast, computer professionals routinely work with gigabytes, and given the popularity of multigigabyte, MP3 players, pocket-form terabytes (one thousand gigabytes) are soon to come.

So what do these gargantuan numbers mean to the clinician? With more storage in less space the opportunity exists to develop new methods to house medical information in tinier packages. This should translate to ease of use, convenience, and portability that we need or might enjoy. Technical advancement however shouldn’t be viewed simply as a parade of interesting devices. It’s also about processes, surprises, breakthroughs, and the migration of technology from place to place in society. This movement of technology appears capricious, until innovation alights a consumer application, and then we can count on clever folks transplanting it to professional use.

Digital Music

A case in point is digital music. Audio CDs are moving rapidly toward obsolescence, replaced by MP3 players—bad news for CD manufacturers, good news for plastic recyclers and manufacturers of tiny digital file-storage devices.

Parallel to the rise of the MP3 player are Internet file-sharing services—at first underground and ultimately illegal over copyright infringement, but recently mainstream, legal, and astonishingly popular. Apple’s iTunes music download service, for example, recently passed the billion-song milestone. No more trips to the music store to purchase CDs and ready access to an enormous range of music choices online, convenience, and competitive pricing create a marvelous extension of daily use of PCs.

If Gen X youth can walk about with tens of gigabytes of their favorite tunes (thousands) nestled in MP3 players, how could this technology make life better in clinical medicine?

Sound As Data

To first grasp what is underway, think about sound as data. There is great irony in this—we write (remember “word process”?) words that become files sent over the Internet, which bulges with vast numbers of Web pages and blogs—a gargantuan eruption of written expression in culture-changing proportion. Throughout history, before the written word, there was the spoken word, the poem, and the song.

There are subtleties, nuances and depth of meaning to the spoken word. The richness of sound also creates our significant attraction to music, theater, and poetry. Sound enhances the pleasure of learning and can enhance comprehension. Our remarkable era has produced methods of digitizing many things—storing, transporting, and utilizing what is digitized in new and previously unimagined ways.

Podcast

Podcasting, an odd term now familiar, brings sound seeming too melodious to fit the gigabyte stored in your pocket. “Pod,” shorthand for the iPod, is the iconic leader of MP3 players. Tens of millions of these elegant little devices reside in the backpacks, belt clips, and shirt pockets of our tech-savvy youth. The “cast” part becomes interesting for those of us in medicine. Digital sound as recording data is static—a file quietly sitting on a PC, server, or mass storage device, waiting to be played or transferred.

Through a dazzling interlocked series of small technical leaps, movement of audio files has been simplified, automated, and streamlined. Highly compressed audio files can move from the point of origin to your MP3 player in no time with little effort, and in most cases at no cost. The technical language of this transforming convergence is arcane—RSS feeds and aggregators are terms as alien as “floppy disc” and “peripheral device” once were.

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In one of the historic turnabouts, iPods and other MP3 players might have been just clever “peripherals” but they are now the tail wagging the dog of the personal computer industry—hugely popular, constantly improving, and fun!

**How To Do It**

To glimpse the clever technically sophisticated world of Medical Podcasting you’ll need a good MP3 player—dozens on the market will play MP3 files; the simplest to use are any of the iPod family. Second, tinker with your laptop or desktop PC, (with a high-speed Internet connection) and download and install the software—now an easier process. I used Apple’s iTunes (www.apple.com/itunes/) to prepare for this article; you may prefer other software.

Several other excellent sites also feature searchable Podcast directories—www.podcastpickle.com/=. For additional technical detail on the history, development, and components of podcasting, see http://en.wikipedia.org/wiki/Podcasting or www.pod101.com/.

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**Podcasting, Vodcasting, and Medicine’s Im-Personal Communication Revolution:**
A Commentary on Dr Hogan’s article *From Wolfman to Medicine Man*

**Ricky Chen**

As a young 20-something, I have embraced almost every fun gadget from pocket PCs to MP3 players and Web video blogs with zeal and fascination. Though I am old enough to have graduated college in a wave of dizzying personal communications revolutions from outgrowing puberty in a chat room to basking my future vote on presidential debates on YouTube, I didn’t know about Wolfman Jack until I searched for him on Wikipedia. I learned, to my surprise and admiration, that he was an (other-) generational icon of the timeless communications revolution, a man who became an iconic radio personality in the 60s and 70s. He was a cult figure, a tremendous celebrity for an entire generation, but to my fledgling cohort and me, he is as herculean and distant as the 60s leaders I studied in school. I wonder—how could this transformation in technology be so continuous, universal, and timeless as indicated by Robert Hogan, MD.

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I also wonder if the transformation of podcasts reaching billions of those in their downloading, pop-crazed teens and 20s might take a while to reach those late adopters of technology, who prefer the security and comfort of time spent with real people. This group resents paying bills with the automated British lady when they dial their

utilities and might listen unenthused to the idea of a prerecorded physician’s advice, downloaded to a mysterious and baffling machine.

If podcasting ever becomes mainstream enough to be a truly useful tool for the health-seeking populations and not just for the interest-seeking crowd, then perhaps our culture itself might have changed. People my age of course don’t really remember hour-long face time with doctors enough to lament its demise. Even my Chinese mother, now in her 50s, has learned to plug in a USB to view pictures on her LCD HDTV and also to dial China using an Internet phone service. So I guess she’s not too many steps away from iPod-subscribing a health cast to keep up with the latest.

A more appealing alternative to recorded sound-bytes, however, is simply viewing videos of similarly prerecorded professional health advice. On the NIH today you can get the latest seasonally relevant medical advice and even learn about some research from their monthly “vodcast” (“vidcast” is another name). These videos are more attractive to the older crowd, who desires to hear and see a more personal doctor, and even more attractive to the younger crowd, who prefer music video to cd, now just another “eight-track.”

In other words, MP4 is going to win out MP3 because video is more personal and interactive to our psyches. Even as a student learning tool today, video is more appreciated than sound recordings and may facilitate learning in a more mentally accessible way.

I agree with Dr Hogan that medicine would gain much from adapting new technologies for its professional use. However, I think video will be a more useful tool than NPR-like podcasts because it’s a more human compromise for a technologic present characterized by lessening degrees of “personal” communication. And though I would lap up this innovation readily, there are many who might pick it up more slowly. Setting down our iPods though, the most apparent way in which medicine is behind our technologic times is that we still lack a universal electronic health record. Between hospitals and across insurance lines, this old technology, if finally implemented, would create many podcasts of excitement across the nation and really be worthwhile.

Though I am young and ignorant, perhaps I might have known Wolfman Jack if he hadn’t died when I was in my early teens. Similarly, I think many people, both young and old, seeking health care today, would prefer a video to an airwave, even if it were simply because medicine’s technologic advances have made it increasingly more difficult to see one’s physician in person.

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Feeds

There is a growing list of high-quality “feeds”—with medical content awaiting your curiosity. To actually receive a podcast several steps are necessary: 1) locate medical sound files; 2) subscribe to those services with noteworthy materials; 3) download them; and finally, 4) transfer downloaded files to a highly compact personal player—simple steps.

Apple, with a commanding market position in podcasting has a very good player family—iPods range from basic models like the Shuffle through the midrange 4GB slim Nano to the astonishing 40GB video—a commercial download service, and an effective and easy-to-use podcast subscription service.

Guide

Figure 1 illustrates a screen shot of iTunes installed and ready to search; note in the upper right hand corner a search window with “clinical” entered, as you would with Google. Figure 2 illustrates the screen shot of results from the “clinical” search. On this page, visible now and when scrolled down, there are familiar “artists”: NEJM, JAMA NIH, and many newcomers. Alternatively, click on the podcast menu in the “source” box and perform the same search (Figure 3). Searches may be done for “author” as well.

Another alternative is to search for an audio file on Yahoo! (Figure 4). Finally, a Google search—Google is the largest and best-known search engine—for “medical mp3” will result in 19,300,000 hits—more than can realistically be scanned (Figure 5).

Subscription Plus

In iTunes, clicking on the clinical “title of interest” requires one more click to establish a subscription: the
content is then updated each time iTunes is opened on a PC. Each time your MP3 player is attached/synced with the PC, the updated subscribed MP3 transfers to the MP3 player, ready to be played.

Convenience is still king: Apple has integrated a search service, a subscription service and a download/transfer function each of which meshes seamlessly to produce almost effortless transfer of “programs” of our liking to iPods.

Receiving a podcast is like tuning to Internet radio, but better. Once a sound file is captured in this way, we are free to play it on our MP3 player whenever and wherever.

In the past, I was vexed that my drive time only allowed listening to pieces of NPR shows; now, having subscribed to several NPR features, they transfer to my Nano automatically. If I miss part of a program because of time constraints, I just listen later.

Broadcast

All of us in clinical medicine are at least budding authors. We constantly write medical histories, operative notes, and discharge summaries—though not scientific articles or editorials, they are, nonetheless, authored. Similarly, if you’ve written an e-mail, widely passed on, you have experienced journalism or perhaps broadcasting. Once an idea is penned there is no telling where it may go. And who hasn’t had an idea, mentioned during an encounter with a patient, come back in either its original form or morphed by a patient’s family member, neighbor, or friend? Perhaps clinicians, albeit unwittingly until now, are also broadcasters, even with a responsibility to educate. Wouldn’t it be interesting to give our best advice to hundreds (or thousands) of hypertensives, patients with diabetes, or innumerable other medical conditions we commonly treat?

As a final step, to produce a podcast visit a podcast originator’s site such as www.lionhardt.ca/wps/.

Ponder what words of wisdom to send out into the world, then, with PC microphone in hand, get ready to rock the clinical listening world. Perhaps entertain a bit.

Move over Wolfman Jack, here comes medicine man.

Disclosure Statement

The author(s) have no affiliation of any kind with Apple, iTunes, iPod, Yahoo, Google, or any of the Web sites and companies mentioned in this article.
To the Editors and Dr McKenzie,
—Reply

To the Editors and Dr McKenzie,

In response to Dr McKenzie’s letter, there is total agreement that improvements in teamwork and communication support the successes we have seen with Roseville Medical Center’s Rapid Medical Response Team. The Australian MERIT study was reviewed for and cited in the article. Although it was the largest and best designed study to date, the study’s implementation structure and process was very different from Roseville’s where we relied on previous studies.

The MERIT study did include more than 120,000 patients from public hospitals, with a mean age much younger than found at Roseville. NonICU patients in this study included coronary care units and unsupervised high-dependency units. Staff training at intervention hospitals consisted of four months of researcher training with no education on early recognition or treatment of critically ill or unstable patients. At study implementation, all researcher-led training was ceded to individual researchers. There was no indication if additional training was provided. Although the authors asserted that no training was provided in the control hospitals, they indicated information on patient safety and the study was being widely reported in the media, which could have influenced the control hospitals as both control and MET hospitals improved their adverse outcome rates during the study. Finally, the MERIT study timeframe was only six months. The researchers concluded ‘the results of our study will have been affected by the effectiveness of our implementation strategy’ and stressed the implementation could have been improved by continuation of a comprehensive educational strategy. In fact, a second study was simultaneously carried out at the implementation hospitals by the MERIT group and has recently been published. The authors concluded the details of implementation are critical to the optimization of the intervention.

The MERIT study was invaluable to us for its conclusions that many adverse events are preceded by physiologic signs that are abnormal and for underscoring the need for continuing education during implementation, which was a keystone for our study. Although we have had an expansive palliative care program in place since 2002, there has been no organized focus on changing our DNR process. Since the time of our study, we have analyzed an additional year’s data and have found that we have maintained our nonICU code rate at 1.15 for the years collectively since implementation (compared to the 1.90 for the year prior; p = 0.018). Collectively, the two years show an overall decrease in nonICU mortality from 2.01 per 1000 discharges for the pre-RMRT year to 1.96 per 1000 discharges for the collective two-year period postimplementation. As with our previous study, the data was unavailable to adjust for age, gender, or comorbidities.

Although the body of literature cited in the Roseville article focused on studies that were much smaller in scope than the MERIT study, they were more consistent in the structure, systematic approach, and patient population to those found at Roseville.

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References
ABSTRACTS

Ob/Gyn Resident Research Abstracts

Impact of Depression on Pregnancy in the Kaiser Permanente Santa Clara Medical Center.

Voedisch A, Brubaker K, Young M.

Context: Depression is a major leading health problem with a lifetime prevalence of 17% in the world’s population. Women are twice as likely as men to suffer from depression and over 50% of cases occur during the reproductive years. As many as 20% of women suffer from depression during or after pregnancy and clinicians do a poor job of identifying those patients at risk. Depression during pregnancy leads to increased maternal health care costs by increasing office visits, somatic complaints, and hospital admissions. Those children born to depressed mothers often have impaired cognitive function, poor emotional adjustment, and an increased risk of suffering from a psychiatric disorder in their lifetime.

Objective: Kaiser Permanente (KP) Santa Clara Medical Center recently instituted a screening and treatment program for women with depression during and after pregnancy. The purpose of this pilot study was to perform an initial evaluation of the efficacy of this screening program by identifying the prevalence of depression both during and after pregnancy.

Methods: A prescreening baseline rate of postpartum depression was determined through a chart review of all patients seen for a postpartum visit during a one-year period. The incidence of depression both during and after pregnancy was determined using standard screening tools.

Results: The rate of postpartum depression before initiation of the screening program was 15%, 35% of whom were diagnosed and treated. The positive screen rate among all antepartum patients was 17%. Of those patients who were screened both antepartum and postpartum, 10% were positive antepartum and none of those patients developed postpartum depression. However, 10% of patients screened positive in the postpartum period and only 30% of those patients were treated for depression.

Conclusions: The rate of depression in pregnancy at KP Santa Clara Medical Center is similar to previously published data. The provider identification and treatment rates are also similar to published data. This pilot study demonstrates the need and validation of a screening program for depression during and after pregnancy.

Surgical Management of Grade 1 Endometrial Adenocarcinoma by Obstetrician-Gynecologists or Gynecologic Oncologists: A comparison of outcomes.

Rodriguez N, Tatman JL, Kato DT, Hung Y.

Background: Endometrial cancer is the most common gynecologic malignancy in the US. Approximately 70% of endometrial cancers are stage I and carry greater than an 85% five-year survival rate. Despite this favorable prognosis, approximately 7400 women in this country will die from endometrial cancer during 2007, making it the eighth most common cause of cancer death in women. In August 2005, the American College of Obstetrics and Gynecology issued a practice bulletin recommending that most women with endometrial cancer should undergo systematic surgical staging, including pelvic washings, bilateral pelvic and para-aortic lymphadenectomy, and complete resection of all disease. Despite these recommendations, many obstetrician/gynecologists (Ob/Gyns) still continue to manage patients with grade I endometrial cancer. Currently there are no studies that investigate survival differences in patients with grade I endometrial cancer when managed by Ob/Gyns or gynecologic oncologists.

Objective: To determine the survival rates in patients with preoperative grade I endometrial cancer when operated by obstetrician-gynecologists compared with gynecologic oncologists.

Methods: A retrospective review of the Kaiser Permanente Northern California Cancer Registry for the 24-month period from 2000-2001 was conducted. All patients with preoperative biopsies demonstrating grade 1 endometrial cancer were included. Patients without preoperative biopsies, biopsies demonstrating complex hyperplasia or ≥ grade 2, and patients with other coexisting...
primary malignancies were excluded. Analysis included age, race, comorbidities, surgical procedure, final grade, final stage, additional therapy, recurrences, and survival.

**Results:** Of 621 patients with endometrial adenocarcinoma, 338 patients with a diagnosis of preoperative grade 1 endometrial cancer were identified: 336 patients underwent surgical management; 332 patients met inclusion criteria. Ob/Gyns operated on 200 patients; gynecologic oncologists operated on 132 patients. Patient demographics and comorbidities including tobacco use, obesity, hypertension and diabetes were similar between the two groups of surgeons. The recurrence rate for patients operated by Ob/Gyns was 4.5% compared to 6.8% when operated by gynecologic oncologists. The five-year overall survival rate was 88% versus 86% respectively. The five-year cancer-free survival rate was 97% versus 94%.

**Conclusions:** Five-year survival rates for patients with grade 1 endometrial cancer are very favorable. This study did not show a significant difference in overall survival rates or cancer-free survival rates in patients with grade 1 endometrial cancer managed by Ob/Gyns compared with patients managed by gynecologic oncologists. Overall survival rates are more favorable when operated on by an Ob/Gyn generalist. Factors such as advanced age and the presence of comorbidities such as diabetes and hypertension may influence overall survival rates.

**Effects of Weight Gain on Neonatal Birth Weights and Cesarean Section Rates in Patients with Elevated BMI.**

Lee, K

**Purpose:** The goals of this study were 1) to develop weight gain recommendations for patients with Body Mass Index (BMI) ≥ 25 with the lowest infant low-birth weight and macrosomia rates and 2) to review the effects of weight gain on maternal morbidity in patients with BMI ≥ 25 including the rates of cesarean section and operative deliveries.

**Materials and Methods:** Data were collected from computerized prenatal and intrapartum charts on all term deliveries at Kaiser Permanente Santa Clara Medical Center from August 2004—August 2006. Pregravid BMI was calculated from height and weight measurements at early prenatal visits. Overweight and obese gravidas were included in the study. Exclusion criteria included: prenatal intake > 12.9 weeks, gestational or pre-existing diabetes, hypertensive disorders, excessive edema, and smoking/alcohol use. In order to delineate optimal weight gain in pregnancy, five different categories were assessed. Fetal outcomes included birth weight, maternal outcomes included cesarean and operative deliveries.

**Results:** One thousand one hundred ninety-eight women met inclusion criteria on the basis of BMI ≥ 25. Seven hundred ninety-nine gravidas met criteria for inclusion on the basis of the definition of overweight (BMI 25.0—29.9) and 399 gravidas met criteria on the basis of the definition of obese (BMI ≥ 30). Weight gain categories (≤ 10 lbs, 10.1-20 lbs, 20.1-30 lbs, 30.1-40 lbs, > 40 lbs) were assessed for all overweight and obese patients. The rates of small-for-gestational-age infants (< 2500 g) were not significant across weight gain categories. For the women gaining 10.1-20 lbs during pregnancy, the macrosomia rate was 2.7% in the overweight group and 10.7% in the obese group. Macrosomia rates (> 4000 g) increased with weight gain increments for both the overweight and obese categories, with up to a seven-fold increased risk in those gravidas gaining > 40 lbs. Increased weight gain was also associated with increased cesarean section rates.

**Discussion:** This study provides data that the optimal weight gain for overweight and obese gravidas is ≤ 20 lbs.

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**Preceding Discoveries**

In our inquiries into any particular subject of medicine, our labours will generally be shortened and directed to their proper objects, by a knowledge of preceding discoveries.

**BOOK REVIEW**

**They Can’t Find Anything Wrong! Seven Keys to Understanding, Treating, and Healing Stress Illness**

By David D Clarke, MD

Review by Erik K Fromme, MD

_They can’t find anything wrong! Seven keys to understanding, treating, and healing stress illness_ describes the approach and techniques developed by physician David D Clarke, MD, in treating more than 7000 patients with “stress illness.” For more than 20 years, Dr Clarke has taken referrals of patients with “medically unexplained” symptoms, who have generally already seen multiple health professionals bent on finding a biomedically explanation. Patients with medically unexplained symptoms have always existed, but with greater and greater advances in diagnostic technology they have become increasingly marginalized. The better we get at identifying the underlying mechanisms of disease, the more skeptical we are of patients for whom we “can’t find anything wrong.” Dr Clarke describes medically unexplained symptoms as a “blind spot in the health care system,” but it might be more accurate to say that very few physicians have the knowledge, attitudes, and skills to successfully manage such patients.

Reminiscent of the work of John Sarno, MD, with patients suffering from chronic low back pain,1 Dr Clarke provides example after example of patients with medically unexplained symptoms that vanish or become bearable after the connection to stress becomes clear and the patients are able to work directly with their stress. Dr Clarke divides stress into five overlapping categories that are easily understood and accepted by patients: childhood stress, traumatic stress, stress occurring now, stress from depression, and stress from an anxiety disorder. Even better, in story after story he walks the reader through his elegant approach to introducing patients to the notion of stress may be causing their symptoms. This approach is simple yet profound, incorporating unconditional positive regard, active listening, and a gentle curiosity as patients share with him parts of their lives they have been struggling to escape.

A number of questions arise reading this book. First, to what degree are Dr Clarke’s successes replicable by other practitioners? I have tried to apply his techniques with some success, in particular, I have found his approach to discussing stress with patients quite fruitful. I have had the best results in patients with irritable bowel syndrome, but I cannot report any spectacular “cures.” One observation I made in applying his techniques is that they were harder to introduce after I had undertaken an exhaustive search for medical explanations for a symptom.

Second, are the techniques that Dr Clarke describes useful for patients whose symptoms are medically explained but chronic in nature? The high rates of depression, anxiety disorders,2 child abuse,3 intimate partner violence,4 and post-traumatic stress disorder5 in patients with chronic pain, and the high rates of symptoms in patients with these histories,6 suggest that the stress illness approach to stress might be helpful to this patient population as well.

In conclusion, I highly recommend this book. Through storytelling and real life examples, Dr Clarke effectively captures the wisdom and respect inherent in his approach to patients. It is a potential classic because it offers a refreshingly practical approach to problems that have been tying doctors and patients in knots since medicine became a science. In the tradition of _Kitchen Table Wisdom_ and other great books that teach through storytelling, Dr Clarke’s book speaks equally well to patients and clinicians alike.

**References**

Dr Nikravan credits art with bringing balance to his life. He began his studies in art at the Brentwood Art Center and continues at the Kline Academy of Fine Art, both in Los Angeles, CA. You may see more of his work at his Web site: www.nikravan.com.

On the cover: “Path: Homage to Edward Hopper” is an oil on canvas (24 x 36”) by Kamran Nikravan, MD. Edward Hopper painted the original in 1949 during the Depression. Dr Nikravan changed the “Tsunami” coming through the door to an open path to the sky to express my depth and gratitude for all that I have.

In the Family Health Center, the “Teamlet” practice innovation—a clinic and a health coach—was implemented to expand the traditional medical visit into previsit, visit, postvisit, and between-visit care.

Alcohol through the principles and benefits of Permanente Medicine.

Circulation: 10,000 print readers per quarter, and accessed by 500,000 unique Web readers in 2007 from all 160 countries of the world.

Books published by Permanente authors:

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By Swarnakatha V Mahadevan, MD, FACEP, RAAEM and Gus Carmel, MD, FACEP, FAEM
Cambridge (UK): Cambridge University Press.
Published: (02.15.2008)
Paperback: $18.95

Courage to Heal
By Paul Bernstein, MD
Bloomington (IN): AuthorHouse, 2006
ISBN: 978-1-425983796
Paperback: 236 p, $15.96
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