The Permanente Journal is happy to announce the availability of Continuing Medical Education credits for completing manuscript reviews for The Permanente Journal. Physicians are now eligible to receive up to 15 AMA PRA Category 1 Credits per year (3 AMA PRA Category 1 Credits per manuscript). With this change, we have launched our new For Reviewers home page on our Web site: www.thelpermanentejournal.org/reviewers.html.
The Coccidioidomycosis Conundrum: Leveraging Geographic Information Systems in an Integrated Health Care Delivery Organization. Kathryn Clift; Luther Scott, MS; Michael Johnson, PhD, MS; Carlos Gonzalez

Health exchanges require that health provider networks are geographically accessible to underserved populations. Nonprofit hospitals nationwide are required to conduct community health needs assessments every three years. Kaiser Permanente (KP) is applying geographic information systems, with spatial analytics and map-based visualizations, to data sourced from its electronic medical records and from publicly and commercially available datasets. The results are helping to shape an understanding of the health needs of KP members in the context of their communities.

NARRATIVE MEDICINE

92 What Can We Learn From Narratives in Medical Education? Samir Johna, MD; Brandon Woodward, MD; Sunal Patel, MD

Medical literature has demonstrated the effectiveness of narrative writing in enhancing self-reflection and empathy, which opens the door for deeper understanding of patients’ experiences of illness. Thirty-three narratives were collected over the course of 2 years. Each narrative analysis took 10 to 15 minutes to complete; narrative discussion with each learner took a similar length of time. The median for “collective number of core competencies” per single reflection was 4 (4 to 6). The learners perceived that reflective writing through narratives was a useful educational intervention for learning Accreditation Council for Graduate Medical Education core competencies through daily encounters.

REVIEW ARTICLES

77 Palliative Care in the Emergency Department. Susanne M Mierendorf, MD, MS; Vinita Gidwani, MD

For patients living with chronic disease or malignancy who may be in a crisis, an Emergency Department (ED) visit may be pivotal in determining the patients’ trajectory. This article summarizes the following: identification of patients who may need palliation, discussing prognosis, eliciting goals of care and directives, symptom management in the ED, and making plans for further care. These efforts have been shown to improve outcomes and to decrease length of stay and cost, assisting in transition to a noncurative approach and placement where this may be accomplished.

CASE STUDIES

86 The Coccidioidomycosis Conundrum: A Rare Parotid Mass. Christopher G Tang, MD; Brian A Nuyen; Balaram Puligandla, MD; Barry Rasgon, MD

A man, age 62 years, presented to the clinic with a 2-week history of increased nontender, nonerythematous, indurated right-sided parotid swelling. Cultures from an aspirate revealed Coccidioides immitis confirmed by DNA probe. The patient was treated with 800 mg of fluconazole every day for 3 months with resolution of the parotid swelling. However, persistent cervical adenopathy remains.

COMMENTARY


In response to personal and institutional history and articles published in The Permanente Journal, this article begins a conversation based on the premise that health care will only reach its full potential with the integration of traditional medical care (which relies on the application of pharmacologic and surgical intervention after the development of illness) and lifestyle medicine, the use of optimal nutrition, and exercise.

Special Report

50 Creating a Longitudinal Integrated Clerkship with Mutual Benefits for an Academic Medical Center and a Community Health System. Ann Noelle Poncelet, MD; Lindsay A Mazotti, MD; Bruce Blumberg, MD; Maria A Wamsley, MD; William B Shore, MD; Maria A Wamsley, MD; Tim Comran, MD; William B Shore, MD

A successful one-year longitudinal integrated clerkship was created in partnership between an academic medical center and an integrated community health system. Compared with traditional clerkship students, students in the longitudinal integrated clerkship had better scores on clinical performance examinations, internal medicine examinations, and higher perceptions of direct observation of clinical skills.

CME

58 Physician Update: Total Health. Phillip Tuso, MD

Because of an increase in the incidence of preventable disease, and the potential long-term and short-term costs associated with the treatment of preventable disease, Kaiser Permanente has developed a new strategy called Total Health (healthy people in healthy communities) to meet the current and future needs of its patients by: 1) measuring vital signs of health, 2) promoting healthy behaviors, 3) monitoring disease incidence, 4) spreading leading practices, and 5) creating healthy environments with our community partners.

Special Report

43 RISQy Business (Relationships, Incentives, Supports, and Quality): Evolution of the British Columbia Model of Primary Care (Patient-Centered Medical Home). Dan MacCarthy, MB, BCH, BAO; Marcus J Hollander, MA, MSc, PhD

The British Columbia General Practice Services Committee, in response to a decline in family practice, introduced a RISQ model: focus on Relationships; provide Incentives for general practitioners to spend more time with their patients and provide guidelines-based care; Support general practitioners by developing learning modules to improve their practices; and, through the incentive payments and learning modules, provide better Quality care to patients and improved satisfaction to physicians.

CME

49 “Serenity”

Brad Christian McDowell, MD

57 “Mont Saint-Michel, Normandy, France”

J Richard Gaskill, MD

64 “Groundwater Nitrogen in Clallam County”

Dwight Barry, PhD, and Brandon Massey

76 “I Dream of Living in a House with White Curtains Like One Sees in Old Prints” from Alone/Together: Meditations on Alienation.

Eric Blau, MD, and Lee Hsueh
CASE STUDY

Medullary Sponge Kidney,
Talha H Imam, MD; Alan S Taur, MD; Hassan Patali

Medullary sponge kidney is a congenital disorder that involves malformation of the terminal collecting ducts of renal tubules, which leads to formation of microscopic to large cysts in the medullary portion of both kidneys. Most patients are asymptomatic. If patients do have clinical manifestations, they are caused by kidney stones, hematuria, and urinary tract infections. These typically start presenting in the second and third decade of life.

CLINICAL MEDICINE

Image Diagnosis: Sister Mary Joseph Nodule.
Alka Sharma, MD; Vishal Sharma, MD

A 44-year-old man presented to the Outpatient Department with a 2-month history of upper abdominal discomfort associated with loss of appetite and weight loss. An umbilical nodule was noted on physical exam. The Sister Mary Joseph nodule is a manifestation of umbilical metastasis of malignancy typically arising from the gastrointestinal or genitourinary tract.

ECG Diagnosis: ST-Elevation Myocardial Infarction.
Calvin Hwang, MD; Joel T Levis, MD, PhD, FACEP, FAAEM

ST-elevation is the single best immediately available surrogate marker for detecting acute complete coronary artery occlusion without collateral circulation, signifying a significant region of injured myocardium at imminent risk of irreversible infarction, requiring immediate reperfusion therapy.

ECG Diagnosis: Type I Atrial Flutter.
Steven Foy, MD; Joel T Levis, MD, PhD, FACEP, FAAEM

Atrial flutter is a cardiac dysrhythmia characterized by rapid and regular depolarization of the atria. It is most commonly caused by the presence of a macro-reentrant circuit in the right atrium that includes a small strip of tissue between the inferior vena cava and the tricuspid annulus known as the cavo-tricuspid isthmus.

BOOK REVIEW

Ghosts from the Nursery: Tracing the Roots of Violence.
Review by Anna Luise Krikenberg, MD, PhD

NURSING RESEARCH & PRACTICE

Implementation Study Improving Alcohol Withdrawal Outcomes in Acute Care.
Jo Melson, MSN, RN, FNP-BC; Michelle Kane, RN, MSN; Ruth Mooney, PhD, MN, RN-BC; James McWilliams, MSN, RN, NP-C; Terry Horton, MD

The authors instituted a care management guideline and assessed data for three months before and after implementation. There was a decreased percentage of patients who experienced delirium tremens (DT), and in those with DT, restraint use and transfers to the intensive care unit decreased. Early identification of patients for potential alcohol withdrawal followed by a standardized treatment protocol using symptom-triggered dosing improved alcohol withdrawal management and outcomes.

Nurse Practitioner Management of Type 2 Diabetes.
Gail Carr Richardson, DNP, RN, CNP; Anne L Derouin, DNP, RN, CPNP; Allison A Vorderstrasse, DNSc, APRN, CNP; James Hipkens, MD, PhD; Julie A Thompson, PhD

Multifactorial barriers prevent primary care clinicians from helping their adult patients with type 2 diabetes achieve good control of hemoglobin A1c levels. Patient depression and low self-efficacy can complicate diabetes management by impairing tasks needed for effective disease self-management. Integrating nurse practitioners into primary care teams to provide innovative methods of support to adults with uncontrolled hyperglycemia improves clinical outcomes and self-efficacy for patients with type 2 diabetes.

ANNOUNCEMENT:
CME Credits Now Available for Reviewers
See inside back cover for details.
Abstract

We report on the incorporation of a North American aboriginal procedure called “the talking circle” into primary care in areas serving this population. Communication is regulated through the passing of a talking piece (an object of special meaning or symbolism to the circle facilitator, who is usually called the circle keeper). Twelve hundred people participated in talking circles in which 415 attended 4 sessions and completed pre- and postquestionnaires. Outcome measures included baseline and end Measure Your Medical Outcome Profile version 2 forms. Participation in at least 4 talking circles resulted in a statistically significant improvement in reported symptoms and overall quality of life (p < 0.001 and effect sizes ranging from 0.75 to 1.19). The talking circle is a useful tool to use with Native Americans. It may be useful as a means to reduce health care costs by providing other alternative settings to deal with stress-related and other life problems.

Introduction

Talking circles, peacemaking circles, or healing circles, as they are variously called, are deeply rooted in the traditional practices of indigenous people. In North America, they are widely used among the First Nations people of Canada and among the many tribes of Native Americans in the US. Healing circles take a variety of forms, but most basically, members sit in a circle to consider a problem or a question. The circle starts with a prayer, usually by the person convening the circle, or by an elder, when an elder is involved. A talking stick is held by the person who speaks (other sacred objects may also be used, including eagle feathers and fans). When that person is finished speaking, the talking stick is passed to the left (clockwise around the circle). Only the person holding the stick may speak. All others remain quiet. The circle is complete when the stick passes around the circle one complete time without anyone speaking out of turn. The talking circle prevents reactive communication and directly responsive communication, and it fosters deeper listening and reflection in conversation. It also provides a means for people who are prohibited from speaking directly to each other because of various social taboos to speak and be heard. Healing circles are often called *hocokab* in the Lakota language, which means a sacred circle and is also the word for altar. The *hocokab* consists of people who sit together in a talking circle, in prayer, in ceremony, and are committed to helping one another and to each other’s healing. *Hocokabs* may participate together in purification and other ceremonies and usually camp together when traveling to larger gatherings, such as the sun dance. Healing circles have been used for recovery from alcoholism in aboriginal communities, especially when the traditional spirituality of those communities are perceived to conflict with the assumptions of Alcoholics Anonymous (AA).

The talking circle process is a unique instructional approach that can be used to stimulate multicultural awareness while fostering respect for individual differences and facilitating group cohesion. The creation of the talking circle is often credited to the Woodland tribes in the Midwest North America, who used it as a form of parliamentary procedure. The symbol of the circle holds a place of special importance in Native beliefs. For the North American Indian, whose culture is traditional rather than literate, the significance of the circle has always been expressed in ritual practice and in art. The lives of men and women, as individual expressions of the Power of the World move in and are nourished by an uninterrupted circular/spiral motion. This circle is often referred to as the Medicine Wheel. Human beings live, breathe and move, giving additional impetus to the circular movement, provided they live harmoniously, according to the circle’s vibratory movement. Every seeker has a chance to eventually discover a harmonious way of living with their environment according to these precepts. Traditionally, many Native American communities have used the talking circle as a way of bringing people of all ages together for the purposes of teaching, listening, and learning. Talking circles were a traditional form of education from early childhood through adulthood and provided a way to pass on knowledge, values, and culture. This method of education instilled respect for another’s viewpoint and encouraged members to be open to other viewpoints by listening with their hearts while another individual speaks. Today, talking circles are used throughout the country in tribal inpatient and outpatient drug and alcohol centers, group homes, adolescent prevention and intervention programs, prayer circles, tribal and public schools, and college-based English as a Second Language programs. They effectively foster respect, model good listening skills, settle disputes, resolve conflicts, and build self-esteem. Talking circles as a psychological technique provide a cathartic impact of publicly sharing problems or concerns. This group intervention/activity provides participants with a structure that promotes self-exploration in an empathic and supportive atmosphere. In addition, talking circles have been compared in relevance to Network Therapy, which mobilizes members of the family and extended family into maximizing their resources and coping mechanisms.

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Introducing Healing Circles and Talking Circles into Primary Care

The object used to designate the speaker is considered sacred. In many Native American cultures, this object is often viewed as having a symbolic meaning to its owner. It is suggested that the group facilitator or instructor (for the first talking circle) bring an object that is symbolic to him or her. Members of the group can bring personally significant objects to use in subsequent talking circles. The convener sets the framework for the activity by clarifying the use of the talking circle as an educational group activity versus a therapeutic group format (which would require an agreement for participant confidentiality). The facilitator clarifies and models appropriate use of self-disclosure, such as staying within the topic, especially in educational settings. Furthermore, the facilitator/instructor identifies, models, and monitors the emotional content level in personal disclosures.

The circle process establishes a very different style of communication. Rather than aggressively debating and challenging each other, which often involves only a few of the more assertive individuals, the circle process establishes a safe nonhierarchical place in which all present have the opportunity to speak without interruptions. Rather than active verbal facilitation, communication is regulated through the passing of the object. The talking stick or other object fosters respectful listening and reflection. It prevents one-to-one debating or attacking. After brief opening comments by the circle keeper about the purpose of the talking circle, a listing of ground rules, and a request for additional contributions to the ground rules, the circle keeper says a few things about the talking object and then passes it to the person on the left, clockwise. Only the person with the talking piece can speak. If others jump in with comments, the circle keeper reminds them of the ground rules and refocuses on the person with the talking object.

Healing circles have also been used for reconciliation justice within the criminal justice system and are then often called peacemaking circles:

“Peacemaking circles use traditional circle ritual and structure to create a respectful space in which the crime victim, victim supporters, offender, offender supporters, judge, prosecutor, defense counsel, police, court workers, and all interested community members can speak in a shared search for understanding the event at issue; participants also identify the steps necessary to address the harm caused by the offense and to prevent future occurrences. The peacemaking circle process typically involves several steps that lead to the sentencing. An application by the offender to the circle process is followed by the creation of a support system for the offender and a support system for the victim. Other steps are a healing circle for the victim and healing circle for the offender. These steps are then followed by the sentencing circle. After the sentencing circle, there may be follow-up circles at appropriate intervals to review progress on the sentencing agreement. The circle process is not simply a process for finding more appropriate justice; it is an exercise in building community, because it brings community members together in a forum that allows exploration of the underlying causes of crime and encourages each community member to offer gifts or capacities to the process of finding solutions and implementing them. The circle process allows full expression of emotions and channels the energy of those emotions toward positive solutions. In the circles, decisions are based on consensus, and everyone involved must agree that the decision is one with which they can live. Circles draw on the life experiences of all the participants to understand the problem at hand and to devise workable solutions.”

Healing Circles Are Elements of Native American Spirituality

The healing circle/talking circle is an element of North American aboriginal spirituality, which has historically been an underlying concept that permeates every aspect of Native American life. This spirituality is closely connected to the natural world, with land and community having the highest possible meaning and being places for honoring and communicating with spirits.

Native American spirituality is circular in nature, encompassing the 7 sacred directions of West, North, East, South, Sky, Earth, and Center. “West, North, East, and South are viewed as the sacred quadrants of the universe. Each quadrant contains special meanings, elements of power, spirits, and sacred teachings. The spiritual essence of all life forms—plant, animal, and human—resides in these four directions.” The fifth direction, Sky, is the upward direction that represents (in Lakota) Wakan Wakan, the sky spirits, many or one. Earth, the sixth direction, represents the Mother, the source of all life. The seventh direction, Center, is responsible for the connection and unification of all the sacred directions. Center is the spiritual essence of self, so that every living entity is also a Center. All of these directions in unison represent the Sacred Hoop, or Medicine Wheel. When the 7 sacred directions are in harmony and balance, the Sacred Hoop is whole. Similarities exist between talking circles and support groups and 12-step groups.

This article reports a “case study” of implementing this culturally appropriate healing tool within conventional primary care to learn whether outcomes could be improved. A total of 1211 people participated in talking circles in which 415 people attended 4 sessions and completed baseline and end Measure Yourself Medical Outcome Profile version 2 (MYMOP2) forms. These talking circles focused on drugs, alcohol, and mental health in the respective communities and how community members could work together to solve these problems.

Methods

LMM provided consultations to several Canadian aboriginal reserves and to urban Indian centers and facilities in the province of Saskatchewan. LMM implemented talking circles within and around 10 primary care health clinics, usually in the waiting room after hours. Posters and flyers were widely circulated to announce talking circles at the primary care clinic to explore solutions to problems of drugs, alcohol, and mental health in the community. No one was excluded. A total of 1211 people attended at least 1 meeting. Participants completed the MYMOP2 initial rating form on the first day of participation and the follow-up form on their fourth time of participation. A total of 415 participants submitted both an initial rating and at least 1 follow-up form. There were 234 people available for telephone interview at the completion of their eighth week of participation.
This project had institutional review board approval as part of a larger research project on spirituality and health. No identifying data were provided on the MYMOP2 forms. Respondents picked their own code names so that their first and second MYMOP2 forms could be correlated. The study lasted for 3 years and finished when LMM left Saskatchewan, so the study size was determined by factors external to the participants.

The MYMOP2 is a patient-centered, problem-specific outcome measure. Evidence suggests that it is a useful and sensitive measure of change in perceived symptoms and quality of life. In the current study, participants used the MYMOP2 to choose the 1 or 2 symptoms of most concern to them, along with 1 activity of daily living that was restricted or prevented by these symptoms. The respondent scored these items according to their severity in the previous week using a 7-point Likert scale ranging from 0 (as good as it can be) to 6 (as bad as it can be). They also rated their general feelings of well-being. Measures were taken before the first treatment (baseline) and at follow-up 3 months later. Additional details collected included gender, age, occupation, and marital status.

The MYMOP2 has been used in clinical audits in the United Kingdom (UK) to improve patient care, to show that acupuncture benefited people with chronic illness, and to assess overall outcomes in a complementary care clinic. In all these contexts, the MYMOP2 provided an opportunity to assess overall improvement in symptom severity, the degree to which symptoms restrict participation in desired activities, and overall quality of life in cases in which the symptoms themselves may be radically different. The use of symptom-specific scales in these cases would result in insufficient numbers of participants for comparison purposes and also prevent across-illness comparisons. Paterson and Britten, Rees, and Harris et al have argued that the MYMOP2 is more useful than other tools for the “real-world” situation in which clinicians apply the same treatment methods (group therapy, talking circle, acupuncture) to a variety of different patients and conditions, all with the same goal of reducing their suffering and improving their quality of life.

LMM typically participated in the first talking circle and encouraged participants to continue to meet on their own. LMM or an associate appeared regularly to distribute MYMOP2 follow-up forms and to provide support to the continuation of the talking circles. The talking circles consisted of a kind of “leaderless leadership” in which the person who had originally convened the talking circle welcomed new members (whom anyone could invite), led the opening prayer, and oriented members to the task or question for which the talking circle had been convened. No fees were charged and no professionals were intentionally involved in leadership roles. The opening invitation usually related to exploring how alcohol, drugs, and mental health issues affected participants and their families in their home communities. No attempt was made to personalize the invitation to those people who came. The MYMOP2 was introduced as a tool to assess how participation might have an impact on participants’ own health and sense of well-being. The rationale for this lay in their participation in problem solving for the community in a uniquely Native American (First Nations) manner. Support groups and 12-step groups were also available in the communities involved in this study.

We wondered whether having the opportunity to meet in this culturally appropriate manner with others would reduce the primary complaints that people had (as reported on the MYMOP2). Even with the best resources, mental health services cannot meet the need for mental health care in the community. We wondered whether culturally syntonic practices could help fill that gap. This could be important in health care systems such as the UK’s in which primary care has considerable power to fashion the development of services locally, through both service provision and commissioning. In the UK, primary care trusts are able to provide locally any form of service they choose, including mental health care.

**Statistical Analyses**

Descriptive statistics were compiled in the standard method provided by Statistical Product and Service Solutions (SPSS) version 17 (IBM, Armonk, NY). Paired t tests were used to compare pre- and postbaseline and end data on the MYMOP2 scale for the 2 most prominent symptoms, their effect on activities of daily life, and the person’s overall well-being. Participants who provided only one MYMOP2 were not included in the analysis.

**Sources of Bias**

The results of this study are biased toward people who came at least four times. We do not know the reasons why people came fewer than four times. We picked four attendances as a minimum number expected to produce change in participants. Psychotherapy outcome studies tend to require a minimum of six visits. We cannot provide an intent-to-treat analysis because all circles had open enrollment, and no one was referred specifically to the circle. All who came were welcome. Follow-up data was collected only on the fourth time that a person attended the circle, and a person could attend without providing any data.

**Results**

The mean age of the participants was 40.5 years. Of the participants, 65.5% were women (mean [standard deviation (SD)] age, 42.1 [15.9] years), and 66% of those were married. For men, 35.1% were married.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Men (n = 143)</th>
<th>Women (n = 272)</th>
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</thead>
<tbody>
<tr>
<td>Musculoskeletal</td>
<td>37</td>
<td>90</td>
</tr>
<tr>
<td>“Family problems”</td>
<td>22</td>
<td>75</td>
</tr>
<tr>
<td>Headaches</td>
<td>21</td>
<td>63</td>
</tr>
<tr>
<td>“Stress”</td>
<td>25</td>
<td>56</td>
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<tr>
<td>“Children”</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>“Marriage”</td>
<td>19</td>
<td>31</td>
</tr>
<tr>
<td>“Depression”</td>
<td>13</td>
<td>30</td>
</tr>
<tr>
<td>Worry/fear/anxiety</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Financial/money</td>
<td>47</td>
<td>15</td>
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<tr>
<td>“Work”</td>
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<td>14</td>
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<tr>
<td>Other</td>
<td>42</td>
<td>118</td>
</tr>
<tr>
<td>Total</td>
<td>286</td>
<td>544</td>
</tr>
</tbody>
</table>
Introducing Healing Circles and Talking Circles into Primary Care

Of the respondents, 21.6% reported taking prescription medication for their main symptom; the majority of which included analgesic and anti-inflammatory drugs for musculoskeletal complaints, headaches, and migraines. Other medications commonly reported by participants included antidepressants, antihistamines, anti-anxiety agents, sleep-promoting agents, and narcotic pain medications. Of participants taking medication, 72% had experienced their main symptom for more than a year. All participants were asked if cutting down or avoiding medication was important to them; 29.8% reported this was “very important,” whereas 29.8% indicated it was “not important.”

Table 1 shows that most people were suffering from experiencing what could be called the problems of ordinary life. Histograms were used to confirm that the results followed an approximate normal distribution, which they did. The paired-samples t-test procedure of SPSS, version 18 (IBM) was used to test the hypothesis that statistically significant improvement occurred in symptoms, activities of daily living, and overall well-being during the time that participants attended the talking circles.

The reporting of specific medications taken was spotty and not judged reliable, so it was not analyzed. Although the majority of patients served were aboriginal, nonaboriginal people also attended the talking circle. As we did not ask about ethnicity, no analysis was possible on that variable.

Table 2 presents the results of paired t-test analyses. Both the participant’s primary symptom and his or her secondary symptom showed a statistically significant decrease in severity from the beginning of participation in the talking circle to the end of the fourth visit. The extent to which symptoms interfered with daily life was also statistically significant, decreasing from baseline through the fourth visit. Ratings of overall well-being also statistically significantly improved (lower ratings equal better well-being). Effect sizes ranged from 0.75 to 1.19, indicating that participating in the talking circle had a robust effect.

**Conclusion**

Culturally derived practices may work well in the primary care setting. One-third of the people came for 4 or more sessions, which is remarkable in this population. Historically, community mental health centers have reported that more than 40% of their clients attend only one or two outpatient visits12-25 when referred. Less than one-fourth of outpatients attend even brief psychotherapy’s minimum criterion of 10 visits for effective treatment.22 This has only gotten worse over time.26

For patients who engaged in primary care counseling services, the average “declared” rate of unplanned endings was calculated at 32%, with a high rate determined as 40% and a low rate as 21%.21 The average “estimated” rate of unplanned endings was

<table>
<thead>
<tr>
<th>Table 2. Comparison of baseline and end data</th>
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<tbody>
<tr>
<td><strong>Result</strong></td>
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<tr>
<td>Difference from baseline to end</td>
</tr>
<tr>
<td>SD</td>
</tr>
<tr>
<td>95% CI of the differences of the mean</td>
</tr>
<tr>
<td>Significance</td>
</tr>
<tr>
<td>Effect size</td>
</tr>
</tbody>
</table>

CI = confidence interval; SD = standard deviation.
The statistical power to detect an effect was 100%.

<table>
<thead>
<tr>
<th>Table 3. Comparative primary care referral rates for counseling services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study authors</strong></td>
</tr>
<tr>
<td>Ciarlo JA1</td>
</tr>
<tr>
<td>Connell J, Grant S, Mullin T2</td>
</tr>
<tr>
<td>Passey ME, Laws RA, Jayasinghe UW, et al3</td>
</tr>
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</tr>
<tr>
<td>Gifford H, Paton S, Civanovic L, McNemmin J, Newton C4</td>
</tr>
</tbody>
</table>

GP = general practitioner.

calculated at 50%, with a high rate determined as 58% and a low rate as 38%. Declared therapy endings are where the practitioner has provided data; estimated therapy endings take into account missing data where clients are more likely to have had an unplanned rather than a planned ending to therapy. Table 3 summarizes other studies’ findings for primary care referral rates to counseling services.

The Native American concept of the talking circle and its use is similar in some ways to 12-step programs, including AA. Morgan-Lopez et al. found greater reductions in alcohol use over time for women who followed-up with a 12-step group compared with women who didn’t after the completion of an intervention program (Seeking Safety). They found no effect of follow-up with a 12-step group on reducing cocaine use.

A Consumer Reports Study found that people with mental health and substance abuse problems who went to AA did especially well, with an average improvement score of 251 (range = 0 to 300), significantly bettering mental health professionals. People who went to non-AA groups had less severe problems and did not do as well as those who went to AA (average score = 215). Thus, peer-led group programs may have an important role in primary care settings.

Targ and Levine examined outcomes for 181 women with breast cancer randomized to either a 12-week standard group support or a 12-week complementary and alternative medicine (CAM) support intervention. Participants in the CAM group were taught the use of meditation, affirmation, imagery, and ritual. The standard group combined cognitive-behavioral approaches with group sharing and support. Both interventions were statistically significantly associated with improved quality of life, decreased depression, decreased anxiety, and increased “spiritual well-being.” Only the CAM group showed statistically significant increases in measures of spiritual integration. The standard group was associated with decreased confusion and decreased helplessness/hopelessness, whereas the CAM group was associated with decreased avoidance. At the end of the intervention, the CAM group showed higher satisfaction and fewer dropouts compared with the standard group. The CAM group had an 8% dropout rate, whereas the standard group had a 19% dropout rate, although this was a population who had already agreed to participate. Whiting et al. found a 40% dropout rate from cognitive-behavioral therapy and a 32% dropout rate from support groups for people with chronic fatigue syndrome.

Limitations of this current study must be acknowledged. Perhaps anything that enabled people to sit together for four or more times would show high levels of effectiveness, although this would potentially be one of our points: that people sitting together and talking about the ordinary problems of life may be as beneficial or more beneficial than actually consulting the general practitioner. Certainly we cannot say that the talking circle format is the cause of the changes observed since there was no control group, but we can suggest a beneficial effect of bringing people together with a structure that allows them to speak and be heard. Preliminary data from another study underway suggest that the effect size for change for clients receiving conventional psychiatric care in the US is small (Mehl-Madrona, manuscript under editorial review, 2014). The clients in our study experienced large effect sizes. We should, therefore, walk through the door of exploring peer-to-peer support and mutual help in primary care and, of course, aim to make primary care even more culturally appropriate to the population it serves.

The talking circles were peer-led after the first introductory circle. Peer leaders were not paid and participants were not charged. Thus, the cost-benefit ratio is potentially favorable. Professionals were not involved except to initiate the circle. The initiator’s attendance was not required for these circles to continue. After the first session, the only costs were that of heating and lighting the building. Effect sizes equaled or exceeded what is seen for other common interventions in primary care and/or mental health care.

Talking circles or similar peer-counseling interventions may have an important role in these days of escalating health care costs. They provide an opportunity for people to help each other without reliance on professional expertise. Talking/healing circles or other forms of peer support and/or peer counseling could become a useful adjunct to conventional health care. For Native Americans, talking circles may be a particularly culturally syntonic way to receive help from other people.

Among 57 patients who attended a complementary medicine clinic in the UK, significant changes were found in MYMOP2 scores for symptoms 1 and 2 and for effect on daily activity scores, but not for overall well-being scores. They would have needed 43 more subjects to have had adequate power to detect an effect on well-being. Their effect size for changes in symptoms was also 1.0, similar to what was found in this study. Talking circles have been used successfully in other contexts, including Native American communities, to successfully increase the rate of screening for cervical cancer, and to improve receptive and expressive language functions in English as a Second Language classrooms. Talking circles were successfully used as culturally sensitive mitigation strategies for Alaskan Native people negatively affected by the 1989 Exxon Valdez oil spill, taking advantage of this traditional social activity of Alaskan Natives. The talking circles in this last example were organized and implemented by members of the Village of Eyak in Prince William Sound, AK. The 2-day event resulted in many testimonies about personal experiences with the oil spill. Activities by Eyak village members after the talking circle event indicated increased cultural awareness and political mobilization. The use of talking circles appeared to promote cultural consciousness among victims experiencing chronic disaster impacts and resulted in a “transforming activity” for the Village of Eyak. Talking circles have been used to foster positive psychology and cultural appropriateness for Native Americans with alcohol problems. Talking circles have been used to foster awareness of healthy eating and to improve eating practices among Native Americans.

Talking circles or other peer activities may fill gaps in meeting the need for mental health services. According to a report in 1992 by Howard et al., in the US, people in need of mental health services had available no more than an average of three treatment sessions from a mental health professional in any
given year. A small proportion of such individuals actually sought service, and each individual who consulted the specialty mental health sector had available no more than an average of ten treatment sessions. The most needy, particularly those lacking in education, are the least likely to receive treatment in the psychotherapeutic service delivery system.

Further research is warranted to determine the acceptability of talking circles or more generic peer counseling groups to broader population groups. Talking circles could potentially reduce health care costs by providing a low-cost forum for people to manage and to resolve stress-related and other life problems.

Our remarks are limited to people who came to at least four sessions and were willing to complete both questionnaires. Although our retention rate was higher than that of people receiving psychotherapy and people being treated for depression in primary care, we still lost more people than we retained. This is a common problem in human services delivery. Future research could examine the effects of attending two or three sessions and could also explore the reasons why people came once and did not come back. We also do not know whether these results would generalize to nonindigenous populations, which could be a topic of future research.

Disclosure Statement

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

Acknowledgment

Mary Corrado, ELS, provided editorial assistance.

References

ORIGINAI RESEARCH & CONTRIBUTIONS

Electrocardiograms of Adult Outpatients Followed-Up in Basic Health Care Units in the Community of the South Region of São Paulo City

Alice T Yamada, MD, PhD; Renata X Baldow, MD; Carla Ribeiro, MD; Wilma N Ribeiro, MD; Carolina Peruzzi, MD; Nilce M Matsuda, MD, PhD; Alfredo J Mansur, MD, PhD

Abstract

Objective: The electrocardiogram (ECG) is an important, available, and inexpensive diagnostic tool to assess cardiac symptoms. Few studies address the prevalence of ECG abnormalities or changes of a normal tracing in ECG in outpatients. Our objective was to evaluate ECGs of adult outpatients to determine whether changes from a normal tracing could disclose the patients’ cardiovascular health status.

Methods: We evaluated all elective ECGs obtained in adult outpatients, from January 2009 to January 2010, at a municipal hospital in the city of São Paulo, Brazil. Electrocardiography was performed with a 3-channel, 12-lead machine (Dixtal Cardio-page EP-3, Dixtal Biomedica, São Paulo, Brazil), and results were interpreted by a cardiologist.

Results: Electrocardiography was performed in 3567 adult outpatients. 62.5% of whom were women, with a mean age of 51 years (standard deviation [SD] = 16 years). Of the 1918 patients whose ECGs showed abnormalities (mean age = 56 years, SD = 15 years), 1137 were women. Electrocardiographic changes were found in 1184 of the patients. Minor changes were found in 38.3% of patients. A total of 3133 changes were found in 1918 abnormal ECG results. There was a statistical difference related to sex and age, and abnormal ECG results were more frequent in men. There was a high prevalence of abnormal ECG results in the population studied.

Conclusions: There were more ECGs obtained from women; however, men and elderly patients more frequently had abnormal ECG results.

Introduction

The city of São Paulo, which is the capital of the state of São Paulo, Brazil, is one of the most populous cities in the world, with more than 11 million inhabitants.¹ Health care in the city of São Paulo (hereafter called São Paulo) consists of both public and private entities. Public health has financial support from the federal, state, and municipal governments.² The municipal public health is divided into regions and comprises several hospitals surrounded by several basic health care units.³ Municipal Hospital of Campo Limpo, located in the southern region of São Paulo, is responsible for 25 basic health care units. In the community, each basic health unit has general physicians, specialists, nurses, paramedics, and others who care for outpatients in both treating and preventing disease.²

The 12-lead electrocardiogram (ECG) is a low-cost and readily available tool that provides important diagnostic cardiovascular information.³⁻⁴ The usefulness of ECG in acute cardiac diseases and its prognostic value are well established.³⁻⁴ There are few studies, however, addressing the prevalence of ECG abnormalities in outpatients. Abnormalities in the ECG tracing have been shown to be independently associated with coronary artery disease and cardiovascular disease events.³ Changes in the ECG result, compared with a normal tracing, could reveal the cardiovascular health status of outpatients, which led us to perform this study.

Methods

This study evaluated all elective ECGs of adult outpatients performed in the Electrocardiography Division of Municipal Hospital of Campo Limpo from January 2009 to January 2010, as requested by physicians from 25 basic health care units in the south region of São Paulo.³ Municipal Hospital of Campo Limpo is a tertiary care hospital with 254 beds. The 12-lead ECGs were performed with a 3-channel machine (Dixtal Cardio-page EP-3, Dixtal Biomedica, São Paulo, Brazil).

All elective ECGs were interpreted by an expert cardiologist, and results were classified as being normal or abnormal. “Abnormal ECG” was further classified into two categories: minor or major changes. Changes considered minor were sinus arrhythmia, bradycardia or tachycardia, nonspecific ST-segment or T-wave changes, and low QRS voltage. Changes considered major were bundle branch block, atrial or ventricular hypertrophy, arrhythmia, and pathologic Q waves. If a patient had more than one alteration, the ECG was ranked in the class according to the alteration of greater importance for potential influence on the prognosis.

Inclusion Criteria

Included in this study were all ECGs of outpatients age 18 years or older who were followed-up in 25 basic health care units of the southern region of São Paulo and whose tests were performed at Municipal Hospital of Campo Limpo and were ana-
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Statistical Analysis
A comparison of demographic data (sex and age) between the ECGs considered normal and abnormal was performed; in the abnormal ECGs, the number and the type of changes found were evaluated. The χ² test and independent-samples Student's t test were performed, and differences were considered to be statistically significant when p < 0.01.

Results
This study evaluated the ECGs of 3567 adult outpatients with a mean age of 51 years (standard deviation [SD] = 16 years), and 2228 (62.5%) were women. The ECG was considered normal in 1649 (46.2%) of adult outpatients, and in this group 1091 (66.2%) were women, with a mean age of 45 years (SD = 17 years). The ECG was considered abnormal in 1918 patients (53.8%), and in this group 1137 (59.3%) were women with a mean age of 56 years (SD = 15 years).

In the abnormal group of 1918 patients, 1184 (61.7%) patients showed major changes, and 734 (38.3%) patients had minor ECG changes. The most frequent minor change found was nonspecific ST-segment or T-wave changes, and the most frequent major change was bundle branch block (Table 1). Table 2 shows the breakdown of major ECG changes by specific type.

In total, there were 3133 changes in the group of 1918 patients with abnormal ECGs of which 1679 were considered to be major changes and 1454 minor ones. The most frequent alterations found were nonspecific ST-segment or T-wave changes (Table 3).

Of the 1918 adult patients with abnormal ECGs, 1088 (56.7%) of them had 1 change, 535 (27.9%) had 2, 219 (11.4%) had 3, 64 (3.4%) had 4, 10 (0.5%) had 5, and 2 (0.1%) had 6 changes.

There were 1157 women with 881 major changes, and the ratio of number of changes to women was 1:0.7. The distribution of major changes in women is shown in Table 4. There were 781 men with 798 major changes, and the ratio of changes to men was 1:1. The distribution of major changes in men is shown in Table 4.

There were 694 patients older than age 65 years with 538 major changes, with a ratio of 1:0.7. The distribution of their major changes is shown in Table 5. There was a statistically significant difference related to sex and age between patients with normal ECGs and those with abnormal ECGs. Men had more frequent abnormalities, with an odds ratio of 1.34 and a confidence interval of 1.17 to 1.53, as did patients older than age 65 years (odds ratio = 3.04; confidence interval = 2.54-3.63).

Discussion
This study has demonstrated that more than 50% of adult outpatients followed-up in basic community health care units in the south region of São Paulo presented abnormal ECG results. There was a high prevalence of abnormal ECGs in the population studied, suggesting that electrocardiography is a useful noninvasive method for diagnostic investigation and follow-up of adult outpatients. The statistically significant ECG changes found were arrhythmia, bundle branch block, atrial and/or ventricular hypertrophy, and pathologic Q wave, corresponding to 33.2% of all patients.

There are several limitations in our study. One important limitation of our study is the lack of advanced testing such as catheterization to confirm the coronary artery disease and echocardiography to evaluate left ventricular mass to corroborate hypertrophy found in the ECG. These examinations would have added more value to the clinical relevance of the ECG findings; however, our study was done not in protocol conditions but in the clinical setting, and not all patients were submitted to undergoing these advanced tests.

Table 1. Abnormal electrocardiograms of adult outpatients classified in two groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Type of alterations</th>
<th>Number (%) of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor changes</td>
<td>Nonspecific ST-segment or T-wave changes</td>
<td>516</td>
</tr>
<tr>
<td></td>
<td>Incomplete bundle branch block</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Sinus arrhythmia, bradycardia, or tachycardia</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Low QRS voltage</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Other minor changes</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>734 (38.3)</td>
</tr>
<tr>
<td>Major changes</td>
<td>Bundle branch block</td>
<td>447</td>
</tr>
<tr>
<td></td>
<td>Atrial or ventricular hypertrophy</td>
<td>386</td>
</tr>
<tr>
<td></td>
<td>Arrhythmia</td>
<td>239</td>
</tr>
<tr>
<td></td>
<td>Pathologic Q waves</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>1184 (61.7)</td>
</tr>
</tbody>
</table>

Table 2. Major changes in abnormal electrocardiograms (ECGs)

<table>
<thead>
<tr>
<th>Major change</th>
<th>Number (%) of abnormal ECGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundle branch block</td>
<td></td>
</tr>
<tr>
<td>Left hemifascicular</td>
<td>328 (17.1)</td>
</tr>
<tr>
<td>Right</td>
<td>78 (4.1)</td>
</tr>
<tr>
<td>Left</td>
<td>41 (2.1)</td>
</tr>
<tr>
<td>Atrial or ventricular hypertrophy</td>
<td></td>
</tr>
<tr>
<td>Left atrial</td>
<td>162 (8.4)</td>
</tr>
<tr>
<td>Left ventricular</td>
<td>102 (5.3)</td>
</tr>
<tr>
<td>Both left atrial and ventricular</td>
<td>90 (4.7)</td>
</tr>
<tr>
<td>Right ventricular</td>
<td>21 (1.1)</td>
</tr>
<tr>
<td>Both right atrial and ventricular</td>
<td>6 (0.3)</td>
</tr>
<tr>
<td>Left atrial and right ventricular</td>
<td>5 (0.3)</td>
</tr>
<tr>
<td>Arrhythmia</td>
<td></td>
</tr>
<tr>
<td>Premature ectopic beat</td>
<td>147 (7.7)</td>
</tr>
<tr>
<td>Nodal AV block</td>
<td>42 (2.2)</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>30 (1.6)</td>
</tr>
<tr>
<td>Preexcitation syndrome pattern</td>
<td>6 (0.3)</td>
</tr>
<tr>
<td>Flutter</td>
<td>4 (0.2)</td>
</tr>
<tr>
<td>Other arrhythmias</td>
<td>10 (0.5)</td>
</tr>
<tr>
<td>Pathologic Q waves</td>
<td></td>
</tr>
<tr>
<td>More frequent in anteroseptal wall</td>
<td>112 (5.8)</td>
</tr>
</tbody>
</table>

AV = atrioventricular.
According to the Brazilian Ministry of Health, cardiovascular diseases account for 31.3% of all deaths registered in the country in a given year. This means that more than 319,000 people died mainly of heart attack and stroke in 2009.\textsuperscript{8} The number of deaths in Brazil by diseases of the circulatory system in 2005 was 283,888, 52.5% men and 47.5% women. In the city of São Paulo, 21,011 deaths occurred, 50.6% men and 49.4% women.\textsuperscript{6}

Recent studies showed that major ECG abnormalities are independently associated with coronary artery disease events.\textsuperscript{3} In our study, we found that 33.2% of all patients had major ECG abnormalities and probably were at high risk of cardiac disease events. These ECG changes could disclose the poor cardiovascular health status of our community and the necessity of investments to improve primary medical care. In our country, the public health policy prioritizes the construction of hospitals to treat acute myocardial infarction (MI) and stroke rather than the necessary investment in primary care and programs to prevent and to reduce rates of morbidity and mortality.

Studies performed at the Institute Dante Pazzanese of Cardiology in São Paulo showed that 60% of people who experience heart disease are men, with a mean age of 56 years. The high frequency of the problem puts Brazil among the 10 countries with the highest rate of deaths caused by cardiovascular disease.\textsuperscript{7}

Of 246,246 adult residents older than age 40 years in Kurashiki-city, Japan who were studied from May to December 2006, the overall prevalence of atrial fibrillation (AF) was 1.6% independently associated with cardiac disease.\textsuperscript{8} The 1.6% prevalence of AF in Japan is lower than in Western populations and is similar to our results, which also found AF to comprise 1.6% of abnormal ECG results.

An increased prevalence and incidence of left ventricular hypertrophy on ECG is associated with a poor prognosis in very old men and women. On the other hand, regression of left ventricular hypertrophy on ECG in older people, irrespective of causes, may confer improvement in risk of coronary artery disease.\textsuperscript{5,10} In a prospective, longitudinal study of 10 years’ duration with ECGs obtained from older subjects in the Bronx in New York City, which was a community-based cohort study consisting of 459 subjects (age 75 to 85 years, mean age = 79 years), left ventricular hypertrophy was found in 9.2% of subjects.\textsuperscript{9} In our community, we found left ventricular hypertrophy in 5.3% of abnormal ECGs in adults of all ages.

The data from 4102 patients with heart failure hospitalized during a prospective national survey in Israel showed that right bundle branch block was present in 381 patients (10.2%) and left bundle branch block was present in 504 patients (13.5%).\textsuperscript{10} In our community-based study, the adult outpatients of the south region of São Paulo presented with right bundle branch block in 78 cases (4%) and left bundle branch block in 41 (2%) of abnormal ECGs.

It is widely known that mortality caused by diseases of the circulatory system is higher in men,\textsuperscript{11} although women in our study had more ECGs performed. However, the number of ECGs considered abnormal was higher in men than in women in our study.

In Brazil, the idea is quite widespread that basic health care units are designed almost exclusively for women, children, and elderly people.\textsuperscript{12} The male identity is linked to the devaluation of self-care and low health concerns. Actually, men prefer to use other types of health services such as pharmacies and hospitals, which respond more objectively to their demands. This and some other points can perhaps explain the female predominance in ECG examinations in our study.

In the Netherlands, 566 participants age 85 years (377 women, 189 men) were studied during a 5-year period to evaluate routinely performed ECGs in older people from the general population.\textsuperscript{13} In elderly people, a history of cardiovascular disease is a strong predictor of cardiovascular morbidity and mortality. Although abnormal findings on routine ECGs predict cardiovascular mortality, they do not provide additional prognostic information beyond the information available from medical records. Therefore, when accurate medical records are available, ECG recording is not ef-

### Table 3. Minor and major changes in abnormal electrocardiograms*  

<table>
<thead>
<tr>
<th>Group</th>
<th>Type of alterations</th>
<th>Number of alterations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor changes</td>
<td>Nonspecific ST-segment or T-wave changes</td>
<td>974</td>
</tr>
<tr>
<td></td>
<td>Incomplete bundle branch block</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Sinus arrhythmia, bradycardia or tachycardia</td>
<td>215</td>
</tr>
<tr>
<td></td>
<td>Low QRS voltage</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Other minor changes</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>1454</td>
</tr>
<tr>
<td>Major changes</td>
<td>Bundle branch block</td>
<td>570</td>
</tr>
<tr>
<td></td>
<td>Atrial or ventricular hypertrophy</td>
<td>650</td>
</tr>
<tr>
<td></td>
<td>Arrhythmia</td>
<td>347</td>
</tr>
<tr>
<td></td>
<td>Pathologic Q waves</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>1679</td>
</tr>
</tbody>
</table>

* There were 56.7% patients with 1 change, 27.9% with 2, 11.4% with 3, 3.4% with 4, 0.5% with 5, and 0.1% with 6 changes.

### Table 4. Distribution of major electrocardiographic changes in relation to subject’s sex  

<table>
<thead>
<tr>
<th>Change</th>
<th>Sex</th>
<th>Total, no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Bundle branch block</td>
<td>313</td>
<td>257</td>
</tr>
<tr>
<td>Atrial or ventricular hypertrophy</td>
<td>324</td>
<td>326</td>
</tr>
<tr>
<td>Arrhythmia</td>
<td>178</td>
<td>169</td>
</tr>
<tr>
<td>Pathologic Q waves</td>
<td>66</td>
<td>46</td>
</tr>
<tr>
<td>Total, no.</td>
<td>881</td>
<td>798</td>
</tr>
</tbody>
</table>

### Table 5. Distribution of major electrocardiographic changes in relation to age  

<table>
<thead>
<tr>
<th>Change</th>
<th>Age, years</th>
<th>Total, no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 65</td>
<td>&gt; 65</td>
</tr>
<tr>
<td>Bundle branch block</td>
<td>374</td>
<td>196</td>
</tr>
<tr>
<td>Atrial or ventricular hypertrophy</td>
<td>432</td>
<td>218</td>
</tr>
<tr>
<td>Arrhythmia</td>
<td>266</td>
<td>81</td>
</tr>
<tr>
<td>Pathologic Q waves</td>
<td>69</td>
<td>43</td>
</tr>
<tr>
<td>Total, no.</td>
<td>1141</td>
<td>538</td>
</tr>
</tbody>
</table>
Electrocardiograms of Adult Outpatients Followed-Up in Basic Health Care Units in the Community of the South Region of São Paulo City

References

Acknowledgments

Disclosure Statement

Conclusions

In Brazil, the idea is quite widespread that basic health care units are designed almost exclusively for women, children, and elderly people. The male identity is linked to the devaluation of self-care and low health concerns.

The Heart's Beat

If a pair of electrodes ... are strapped to the front and back of the chest, and connected with a Lippmann's capillary electrometer, the mercury in the latter will be seen to move slightly but sharply at each beat of the heart.

— Augustus Désiré Waller, 1856-1922, British physiologist who produced the first electrocardiogram
Using Simulation to Address Hierarchy-Related Errors in Medical Practice

Aaron William Calhoun, MD; Megan C Boone, RN, MSN, CCRN; Melissa B Porter, MD; Karen H Miller, PhD

Abstract

Objective: Hierarchy, the unavoidable authority gradients that exist within and between clinical disciplines, can lead to significant patient harm in high-risk situations if not mitigated. High-fidelity simulation is a powerful means of addressing this issue in a reproducible manner, but participant psychological safety must be assured. Our institution experienced a hierarchy-related medication error that we subsequently addressed using simulation. The purpose of this article is to discuss the implementation and outcome of these simulations.

Methods: Script and simulation flowcharts were developed to replicate the case. Each session included the use of faculty misdirection to precipitate the error. Care was taken to assure psychological safety via carefully conducted briefing and debriefing periods. Case outcomes were assessed using the validated Team Performance During Simulated Crises Instrument. Gap analysis was used to quantify team self-insight. Session content was analyzed via video review.

Results: Five sessions were conducted (3 in the pediatric intensive care unit and 2 in the Pediatric Emergency Department). The team was unsuccessful at addressing the error in 4 (80%) of 5 cases. Trends toward lower communication scores (3.4/5 vs 2.3/5), as well as poor team self-assessment of communicative ability, were noted in unsuccessful sessions. Learners had a positive impression of the case.

Conclusions: Simulation is a useful means to replicate hierarchy error in an educational environment. This methodology was viewed positively by learner teams, suggesting that psychological safety was maintained. Teams that did not address the error successfully may have impaired self-assessment ability in the communication skill domain.

Introduction

Errors of communication have been frequently cited as significant contributors to patient injury, with some reports suggesting that 60% to 70% of errors are communication related. One aspect of communication that, until recently, has received little attention is the effect of hierarchy on effective communication. Hierarchy is defined as the presence of a significant gradient in authority between practitioners within a health care team, and errors of hierarchy have been identified as the source of such disparate patient safety threats as wrong-site surgeries, medication overdoses, and failures to diagnose, some of which have resulted in patient death.

One way to consider this situation uses the concept of “power distance,” which compares the type of leadership present in a society with the likelihood of subordinates to express disagreement to those leaders. Put simply, increased power distance often corresponds to difficulty challenging authority. The effect of this power distance has been described between junior and senior physicians and between physicians and nurses. One study noted a tendency among critical care nurses to marginalize their thought processes to defuse interdisciplinary conflict. When coupled with an acute situation, this creates an opportunity for serious harm because it effectively silences a portion of the health care team.

How, then, can a health care team prevent the detrimental effects of hierarchy? One pragmatic method is high-fidelity simulation. Several years ago, our institution experienced a critical event that was directly attributable to a failure to challenge hierarchy. On the basis of our previous work with high-fidelity simulation, we generated a case designed to replicate this error in an educational environment. In this article, we explore the outcome of our pilot implementation of this case and outline a method by which similar events could be replicated at other institutions using simulation.

Methods

Description of the Clinical Case

The clinical case spurring this intervention centered on the inappropriate administration of amiodarone. A patient presented to our institution with the sudden onset of reentrant supraventricular tachycardia (SVT). Although the patient was clinically stable, the attending physician was concerned about the possibility of hemodynamic compromise and a crisis team was organized. At our institution, verbal orders are considered appropriate in such situations. During the course of therapy the physician leading the team inadvertently requested amiodarone to be administered by fast intravenous (IV) push instead of adenosine, the medication recommended by the American Heart Association Pediatric Advanced Life Support materials for this condition. Unfortunately, the team did not question the order and administered the amiodarone as requested, which resulted in severe hypotension and bradycardia that required resuscitation. When asked about the situation after the event, most team members stated that the amiodarone order concerned them but the event, most team members stated that the amiodarone order concerned them but they felt uncomfortable directly addressing the error to the attending physician.

Learner Selection

Given the nature of the initial error, we chose the pediatric intensive care unit
Using Simulation to Address Hierarchy-Related Errors in Medical Practice

(PICU) and Pediatric Emergency Department (PED) environments as the optimal location for the implementation of the case. Because this pilot was performed in the context of our usual simulation program activities, no specific selection or exclusion of team members occurred apart from deliberately varying the level of experience within a given team to more accurately recreate a “natural” code team. Physician team members consisted of categorical pediatrics and combined medicine/pediatrics residents, whereas nursing team members were drawn from the pool of staff nurses in the PICU and PED, respectively. The final case also required that a confederate of the simulation program participate. A confederate is defined as an individual invited to participate in a simulation in order to fill a fixed role or perform a fixed function. Confederates consisted of attending pediatric intensivists and pediatric emergency medicine physicians who were selected on the basis of their perceived level of authority by the participants in the case.

Replicating Reality

When replicating a critical event in the simulated context, environmental fidelity, case fidelity, and personnel fidelity must all be addressed to support the suspension of disbelief. With regard to environmental fidelity, it is imperative that the environment in which the session is conducted closely match the clinical environment in which the error occurred. Although a simulation lab will suffice, it is worth considering whether such a case might be better conducted using “in-situ” methodology. Defined as the use of simulation in actual clinical spaces (as opposed to a separate learning center), in-situ methodology brings the simulator to the learners, allowing them to practice in their own clinical domain. This ensures the maximum amount of fidelity possible, which allows learners to more readily picture themselves in a similar “real” situation and potentially increases the value of the simulation.

The next issue is case fidelity. The script for the simulation must accurately replicate the error. This means that the case cannot be run in a rigidly linear fashion, and the script and simulation program must be capable of following branched paths. These paths are determined by the learning objectives. For this case, we determined the following three objectives:

1. Identify sources of psychological pressure generated when trusted authorities give incorrect orders.
2. Identify the appropriate Pediatric Advanced Life Support algorithm for stable SVT.
3. Identify the appropriate pharmacologic and electrical treatment for stable SVT (ie, adenosine and synchronized cardioversion).

To ensure these learning points were reached, we developed a script in which the patient presented with narrow complex SVT and mild hypotension. Once selected, our confederate was instructed to misdiagnose the rhythm as wide complex ventricular tachycardia and, further, to request that amiodarone be given as fast IV push (an inappropriate and potentially dangerous means of administration). The confederate was instructed to change the order after two challenges to encourage the persistence of the team in addressing the error. No timing or personnel restrictions were placed on these challenges, but they were required to be specifically directed toward the confederate. If the order was successfully challenged, the team would most likely choose adenosine as the appropriate medication and the scenario would progress. If the amiodarone was given by fast IV push, the mannequin was programmed to become severely bradycardic and progress to asystole, at which point the scenario ended. This same case, with little modification, could be effectively used to replicate other types of medication error, such as the issues surrounding verbal orders or “sound alike” drugs and weight-based dosage errors.

If the hierarchy issue was navigated successfully and adenosine was chosen, the simulator was programmed to respond

Figure 1. Flowchart depicting the structure of the simulated encounter.

CPR = cardiopulmonary resuscitation; SVT = supraventricular tachycardia.
with a brief period of heart block followed by resumption of the dysrhythmia if the adenosine was appropriately administered, but not to respond at all if it was inappropriately administered. Given the short half-life of adenosine in the circulation, this medication must be given by fast IV push or it will not reach the heart. Thus, this plan allowed us to simulate the effect of appropriate adenosine administration while also allowing us to include synchronized cardioversion. At this point the scenario again branches depending on whether the team chooses synchronized cardioversion vs asynchronous defibrillation. If synchronized cardioversion is chosen, the patient will convert to sinus rhythm and the case ends. If the patient receives defibrillation (a common mistake), then the rhythm will degenerate to a coarse ventricular fibrillation. This is done to replicate an R-on-T phenomenon, a significant risk that occurs when a reasonably organized rhythm such as SVT is treated with asynchronous defibrillation. This resulting dysrhythmia, if treated with cardiopulmonary resuscitation and an additional defibrillation, will convert to normal sinus rhythm, at which point the case ends. The flow of this case is graphically depicted in Figure 1. This branched approach allows the case to end early for debriefing if the hierarchy issue results in a poor outcome but also permits the inclusion of the other learning points should the hierarchy issue be navigated successfully.

Finally, steps must be taken to ensure personnel fidelity, which refers in this case to the behavior of the confederate. It must be recognized that the use of a confederate in this way involves a degree of deliberate misdirection of the learner group. In this case, the misdirection began with an announcement in the presimulation briefing in which the team was informed that an attending physician would be entering the simulated environment with them in order to participate in the learning process. No information was given, however, as to the true purpose of his or her presence, which was to precipitate the hierarchy issue. This approach is not without risk and is the subject of active simulation research.11,16,20 It is questionable, however, whether the error could be precipitated in a convincing manner without this approach.

Preparing and Debriefing the Learners

When learners are deeply invested in the outcomes of a simulation-based educational session, they are also more vulnerable to distress if outcomes are poor.16 Thus, if deliberate misdirection is to be used, it is critical that psychological safety be assured both before and after the case. We addressed this in the initial briefing by raising issues of communication (including hierarchy) as a way to prepare the team without alerting them to the specific content, which we feared would detract from the fidelity of the event. Once the session concluded we began the debriefing by allowing participants to discuss their impressions of the event. The discussion then proceeded to the communication issues that had been introduced in the briefing, and participants were asked for their sense of how well they had navigated them. Once the hierarchy issue was reached, the presence of the confederate was revealed and the hierarchy issue was precipitated in a convincing manner.

Session Assessment and Analysis

Demographic information for participants was obtained before each session. The error was considered to be “successfully” addressed if the team directly challenged the incorrect order twice, thereby preventing the amiodarone administration. An “unsuccessful” challenge was defined as one in which the two necessary attempts did not occur and the amiodarone was given as ordered. Session outcomes were assessed by simulation program faculty after the debriefing using the Team Performance During Simulated Crises Instrument (TPDSCI), a validated multirater assessment tool, and a separate crisis resource management skill checklist.21 Scores of 3 to 5 (good to excellent) were considered acceptable, whereas those of less than 3 (poor to fair) were considered to indicate a need for improvement. Participant impressions of the sessions were also assessed via a quality-improvement survey. This data was descriptively analyzed in subgroups on the basis of the team’s success at addressing the error. Video recordings were also analyzed descriptively where available.

The scores of the TPDSCI were also used to calculate a gap analysis for each session. Gap analysis is a means of numerically quantifying participant self-appraisal that has been piloted in several simulation-based educational environments.22,23 It is calculated by subtracting the self-score from the average faculty score, and the resulting “gap” scores represent a numerical index of participant self-appraisal with numbers of greater magnitude indicating a greater difference between faculty appraisal of the session and participants’ perception of their own performance. Positive gaps occur when the learners rate themselves lower than faculty (self-underappraisal), whereas negative gaps occur when learners rate themselves higher than faculty (self-overappraisal). Although no clear cutoff exists in the literature, gaps greater than or equal to 0.5 or less than or equal to −0.5 have been used in prior publications as

Participants were assured that the goal of the simulation was to encourage positive real-world actions regardless of the outcome in the simulated environment.
boundaries for a meaningful score.²¹ Our study was approved by the University of Louisville institutional review board.

Results

Learner Demographic Characteristics

Three sessions were conducted in the PICU and 2 in the PED over a 1-month period. Cases had from 5 to 11 participants with a median of 3 (range = 2-5) physicians and a median of 3 (range = 2-8) nurses. No respiratory therapists or pharmacists participated.

Session Outcomes

The team was unsuccessful at addressing the hierarchy error in 4 (80%) of 5 cases. Trends toward lower crisis resource management scores (87% correct for a successful challenge vs an average of 67% correct for an unsuccessful challenge), communication scores (3.4 for a successful challenge vs an average of 2.3 for an unsuccessful challenge), and communication gap scores (0.66 for a successful challenge vs an average of ~0.88 for an unsuccessful challenge) were noted in the cases in which hierarchy was unsuccessfully challenged. Given the small sample size, however, patterns could not be statistically assessed. Table 1 displays these scores. Table 2 displays the flow of 2 representative sessions as derived from the video records.

Group Impressions of the Case

Learners regarded the sessions as useful, informative, and well organized regardless of whether the hierarchy issue was successfully addressed or not, as indicated by a score of 5/5 for the group that successfully addressed the error and

<table>
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<tr>
<th>Table 1. Session-specific assessment scores³</th>
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<tr>
<td>Session no.</td>
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<td>4</td>
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<td>5</td>
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</table>

³ This table depicts session-specific scores as derived from the TPDSCI and the CRM checklist. For the TPDSCI competencies, scores of 3 to 5 (good to excellent) are considered acceptable whereas those of less than 3 (poor to fair) are considered as indicating a need for improvement. For gap analyses, scores greater than or equal to 0.5 are indicative of self-underappraisal of skills, whereas scores less than or equal to −0.5 are indicative of self-overappraisal of skills. The TPDSCI competency scores indicating a need for improvement are highlighted in gray, as are gap analysis scores indicating self-overappraisal. Gap analysis scores indicating self-underappraisal are underlined for clarity. The CRM checklist scores are presented as a percentage of applicable skills performed. CRM = crisis resource management; TPDSCI = Team Performance During Simulated Crises Instrument.

<table>
<thead>
<tr>
<th>Table 2. Analysis of representative sessions according to resolution of hierarchy issue³</th>
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<tbody>
<tr>
<td>Session 1: Successful</td>
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<tr>
<td>0:00—Patient’s bedside nurse enters, verbalizes that patient is in SVT</td>
</tr>
<tr>
<td>1:49—Crisis team arrives, confederate arrives and assumes leadership</td>
</tr>
<tr>
<td>3:51—Confederate verbally identifies SVT and asks for amiodarone 5 mg/kg IV fast push</td>
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<tr>
<td>4:31—Team challenges confederate’s order, resident physician assumes leadership</td>
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<tr>
<td>5:11—Confederate again advises amiodarone administration, new team leader disagrees and orders adenosine</td>
</tr>
<tr>
<td>7:52—Adenosine appropriately given with transient resolution</td>
</tr>
<tr>
<td>9:16—Adenosine appropriately repeated with transient resolution</td>
</tr>
<tr>
<td>10:00—Decision made to perform synchronized cardioversion</td>
</tr>
<tr>
<td>12:35—Amiodarone given as a slow bolus during a 20-minute time frame for refractory dysrhythmia (an appropriate therapy)</td>
</tr>
<tr>
<td>15:24—Sedation administered in preparation for cardioversion</td>
</tr>
<tr>
<td>16:56—Team fails to appropriately synchronize the defibrillator and patient develops ventricular fibrillation</td>
</tr>
<tr>
<td>17:00—CPR started and patient is successfully defibrillated with resumption of normal sinus rhythm. Simulation is halted for debriefing</td>
</tr>
</tbody>
</table>

³ This table lists the activities occurring at relevant time points in two representative enactments of the simulation. Time points relevant to the hierarchy issue have been boldfaced for ease of reference. CPR = cardiopulmonary resuscitation; IV = intravenous; SVT = supraventricular tachycardia; V-tach = ventricular tachycardia.
an average score of 4.6 (range = 4.25-5) for the groups that did not successfully address the error. Figure 2 depicts these scores. No learners recorded negative comments about the use of misdirection despite the poor outcome of many of the simulations, and many felt that the sessions were beneficial. Table 3 lists relevant comments. Although quantitative data were not gathered regarding the proportion of participants who identified the error before the challenge, many voiced this knowledge during the debriefing, citing lack of confidence in their own knowledge base as a primary barrier.

Discussion
Assessment of Our Experience
Using the above process, we were able to successfully replicate errors of hierarchy in the simulated environment. Although the number of sessions we were able to conduct was small, the frequency at which the error was not successfully addressed accords well with previous research regarding this issue.25,26 Interestingly, many participants stated during the debriefing that they recognized the medication requested as incorrect and potentially harmful but that they had decided to remain silent chiefly owing to a lack of confidence in their own judgment. This also correlates well with the existing literature regarding authority gradients.19,20 Postsession analysis of group characteristics suggested a trend toward lower communication scores in the unsuccessful cases, although this could not be statistically assessed. Gap analyses also suggested a disparity in self-perception, with a gap of 0.66 for the successful group and an average gap of −0.88 for the unsuccessful groups in the communication domain. This indicates that the successful group underrated their communication skills whereas the unsuccessful groups overrated their communication skills, and it further suggests that communication skill may be a “blind spot” in the self-awareness of unsuccessful groups. Attempts to address this issue may be hindered by this relative lack of insight, and focused strategies aimed at enhancing self-awareness may be necessary to potentiate change.23,24 Our team addressed this issue via graphical feedback reports containing faculty assessments, gap analysis data, and specific comments on how to interpret and apply this information to future practice. Those using the simulation approach delineated above may wish to consider the use of a similar technique.

Institutions desiring to address hierarchy using the outlined methodology should be aware that educational techniques using deliberate misdirection or unplanned patient death have received ethical criticism and are currently subjects of active research and debate in the simulation community.19,20,25,26 Given the significant emotional stress that can be induced, it is imperative that the psychological safety of learners remain a primary concern. One important factor in creating a safe environment is a careful consideration of the learners.27 For less experienced clinicians or students, educators should consider mitigating the consequences of the case or giving a more explicit warning in the initial briefing as to the possibility of a confederate.21 Clinicians participating in our sessions were drawn from both the residency program and our experienced PED and PICU nursing staff, so we elected to maintain both the surprise nature of the confederate and the severity of the negative outcome because these groups represent relatively experienced learners. Our data indicate that the experience was perceived as valuable by participants regardless of the outcome, supporting our choice. Furthermore, comments indicated... the session’s goal [is] explicitly defined as the acquisition of a personal experience that will improve future care.

<table>
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<tr>
<th>Table 3. Positive and negative comments regarding the simulated experience</th>
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<tr>
<td><strong>Strengths of the simulated experience</strong></td>
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<tr>
<td>• Real-life scenario, debriefing session, education after event, teaching how to question hierarchy</td>
</tr>
<tr>
<td>• Real-life situation</td>
</tr>
<tr>
<td>• Presented a very relevant topic</td>
</tr>
<tr>
<td>• Used real-life experience to come up with applicable situation</td>
</tr>
<tr>
<td>• Placed us in a situation that would question authority and mimicked a real-world event</td>
</tr>
<tr>
<td>• Good experience</td>
</tr>
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This table lists comments provided to the simulation team by learners after their session had ended. Despite the negative outcome present in most situations (80%), no criticism regarding the use of misdirection was offered.

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Figure 2. Participant impressions of the case.
This graph depicts the average domain-specific scores given by learners when rating the session after an unsuccessful resolution of the hierarchy issue. Scoring was performed on a 1-5 Likert Scale (1 = poor, 5 = excellent). All unsuccessful sessions were highly rated, with scores between 4 and 5. In the session with a successful resolution, all scores were 5.
an appreciation of the applicability of the case to their practice, which seemed to directly stem from the case’s roots as an actual clinical event.

Another critical factor is the level of facilitator training in debriefing technique, as significant experience is needed for emotionally charged cases such as this. It is common for novice clinician-educators to debrief in a didactic style, recounting to the learner team a list of things that were done well and things that were done poorly. This strategy does not address the psychological frames of reference that lead to inappropiate decisions. One useful approach to addressing these reference frames is termed advocacy-inquiry. This approach begins with the facilitator stating his or her personal judgment regarding each action of the team but then proceeds to more open-ended questions regarding participant thought process. The goal of this approach is to allow the facilitator to clearly state what may have gone wrong in the situation while simultaneously allowing the learners to explore the underlying beliefs and assumptions that may have led to this action. A number of other useful strategies in the literature are oriented toward the same end. Readers interested in these debriefing techniques are encouraged to use our references as a starting point. Newer simulation facilitators may also wish to obtain formal training.

When addressing the emotional state of the learners, we find that maintaining a future-focused orientation regarding the case is an effective strategy, with the session’s goal explicitly defined as the acquisition of a personal experience that will improve future care. An additional strategy is the use of similar errors in which the facilitator may have been involved to “normalize” the situation. Carefully placed humor can also defuse tension. Above all, “normalize” the situation. Carefully placed humor can also defuse tension. Above all, “normalize” the situation. Carefully placed humor can also defuse tension. Above all, “normalize” the situation. Carefully placed humor can also defuse tension. Above all, “normalize” the situation. Carefully placed humor can also defuse tension. Above all, “normalize” the situation. Carefully placed humor can also defuse tension. Above all, “normalize” the situation. Carefully placed humor can also defuse tension. 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Using Simulation to Address Hierarchy-Related Errors in Medical Practice


A Hundred Small Steps

We always hope for the easy fix: the one simple change that will erase a problem in a stroke. But few things in life work this way. Instead, success requires making a hundred small steps go right—one after the other, no slipups, no goofs, everyone pitching in.

— Better: A Surgeon’s Notes on Performance, Atul Gawande, MD, b 1965
American surgeon and journalist
Online Cognitive Behavioral Therapy for Depressed Primary Care Patients: A Pilot Feasibility Project

Ursula Whiteside, PhD; Julie Richards, MPH; Bradley Steinfeld, MD; Gregory Simon, MD, MPH; Selin Caka, MA; Chris Tachibana, PhD; Sarah Stuckey, MS; Evette Ludman, PhD

Abstract

Context: Cognitive behavioral therapy (CBT) is a goal-oriented treatment that guides patients to healthy thoughts and behaviors. Internet-delivered CBT with supportive coaching can be as effective as in-person psychotherapy treatment of depression.

Objective: To test the feasibility of engaging depressed primary care patients not currently receiving psychotherapy and to measure the outcomes of Internet-delivered CBT with supportive coaching.

Design: Pilot feasibility project.

Main Outcome Measures: 1) Uptake rate. 2) Reduction in depressive symptoms (average score on 20-item Hopkins Symptom Checklist) from baseline to 4-month follow-up.

Methods: Medical records data were queried to identify patients experiencing a new episode of depression. Eligible patients were invited via secure messaging (patient and clinician communication using a secure Web site linked to the medical record) to participate in the Internet-delivered CBT program (also known as Thrive), which was algorithm-driven and delivered through didactic segments, interactive tools, and assessments. Patients completed a self-administered online follow-up survey four months after enrollment.

Results: Of 196 eligible patients who were sent an invitation, 39 (20%) enrolled in the Internet-delivered CBT program. At follow-up, enrolled patients experienced a clinically significant decrease (average = 46%) in depressive symptoms. Suicidal thoughts also decreased both overall and by severity.

Conclusions: Seamless, scalable integration of Internet-delivered CBT into health care systems is feasible. The 20% uptake rate suggests that future work should focus on strategies to increase the initial response rate. One promising direction is the addition of “human touch” to the secure message invitation. Depression outcomes suggest promise for systemwide implementation of Internet-delivered CBT programs.

Introduction

Internet-based interventions have the potential to be seamlessly integrated into current health care systems to improve depression care. This would be accomplished by harnessing existing resources, such as electronic medical records (EMR), for screening and documentation of treatment. It is now possible in many health care settings to use data routinely captured in the medical record to automatically identify depressed patients and to monitor their symptoms over time using depression diagnosis codes, prescription fills of antidepressant medications, and depression screening instruments (eg, Patient Health Questionnaire [PHQ-9]).

Successful Internet-based interventions for depression and anxiety have been implemented, and the most advanced and effective programs involve an empirically supported treatment, such as cognitive behavioral therapy (CBT). Internet-delivered CBT has been successfully implemented across Australia; effective programs became part of a nationally available online program through the country’s universal health coverage, and adherence has been tracked at 60%. A similar program was successfully launched in the United Kingdom, and the intervention had similar outcomes, particularly in adherence, cost-effectiveness, efficacy in primary care, and providing psychological services to underserved populations. In meta-analytic reviews, CBT has been shown to have longer posttreatment benefit than does antidepressant treatment; only 30% of CBT recipients vs 60% of patients receiving antidepressant treatment experience a relapse of depression at least 1 year after discontinuation of treatment.

For patients, Internet-delivered CBT provides increased treatment options and psychobehavioral education for those unable to access or afford face-to-face services, those not interested in face-to-face services, or both. For clinicians, Internet-delivered CBT also offers a mental health treatment option for geographically remote patients without transportation and/or for whom in-clinic appointments are difficult because of symptoms, financial constraints, or other barriers.

Supported Versus Unsupported Programs

Currently, Internet-delivered CBT is administered by two methods: unsupported programs delivered entirely by computer, and supported programs with a coach or “care manager.” The care manager does not provide psychotherapy but monitors, encourages, and reinforces use of the online program through brief telephone or e-mail contacts. Unsupported programs provide more patient autonomy and individual privacy but have
higher dropout rates and limited clinical benefit compared with supported programs.\textsuperscript{13} Supported programs have relatively high completion rates and substantial clinical benefit, often rivaling that of face-to-face treatment.\textsuperscript{5,15,16} Although supported programs require skilled staff and are associated with higher costs than unsupported programs, costs remain much lower than those of traditional mental health services.

Benefits and Barriers of Implementation

Internet-delivered CBT has many potential benefits for clinicians and health care organizations, including the potential to serve more patients at a lower cost than with traditional psychotherapy. Despite the potential benefits, health care organizations have not widely used Internet-delivered CBT in population-based management of depression.

Barriers to implementing Internet-delivered CBT programs at health care delivery organizations include the time and financial resources necessary to select and implement an appropriate Internet-delivered CBT program for the organization. In addition, most Internet-delivered CBT programs are not designed to interface with existing EMR systems. Despite general evidence that Internet-delivered CBT programs are cost-effective,\textsuperscript{17} it is difficult to estimate cost-effectiveness of Internet-delivered CBT given the upfront expenses of selecting the appropriate product, integrating it into existing systems, and reorganizing health care delivery teams.\textsuperscript{18}

Our research evaluated the impact of an Internet-delivered CBT through a pilot feasibility project involving depressed primary care patients. The goal of our research was to measure uptake by primary care patients of an Internet-delivered CBT program. We describe feasibility testing of Internet-delivered CBT in a health care delivery organization, as well as the depression-related outcomes of the intervention.

Methods

Setting

Group Health Cooperative (Group Health) is a large regional health care delivery system in Washington state, which serves more than 610,000 patients. More than 70% of members receive comprehensive care in Group Health-owned facilities, including 25 primary care or family medical centers and 7 behavioral health clinics, which are responsible for coordinating nonemergency mental health services and chemical dependency treatment.

Previous research studies at Group Health have demonstrated success implementing Internet-based management strategies for patients with depression and bipolar disorder,\textsuperscript{19,20} but Group Health does not currently use an Internet-delivered CBT program or any other specific Internet-based intervention for depression. Group Health leadership provided support to implement an Internet-delivered CBT pilot feasibility project in our primary care delivery system (not a research activity), as well as to support our research evaluation of the project.

Program Selection

The commercial Internet-delivered CBT program selected was Thrive, which was offered free of charge for the pilot project by Waypoint Health Innovations (Madison, WI). Thrive is similar to programs used in successful trials of Internet-delivered CBT; the Thrive interface is interactive and its curriculum is adaptive to patient input.\textsuperscript{5,15,16} Thrive includes three CBT-based modules that are based on behavioral activation, cognitive restructuring, and social skills training techniques.\textsuperscript{5} Thrive recommends a starting module aligned with patient concerns and interests and then prompts movement to other modules on the basis of progress. Thrive is delivered through didactic segments (text and video), interactive tools (eg, tools for selecting and scheduling pleasant activities, identifying and correcting negative thoughts, and recording and playing back the patient’s voice), assessments, offline homework assignments, and branching logic. Although the patient is asked to make some explicit choices about how to move forward, the path through therapy is primarily algorithm-driven. Data elements that determine the user’s path include PHQ-9 scores, patient-reported success in implementing CBT techniques, and patient-reported lifestyle characteristics. Thrive includes a clinician’s portal that allows a coach or other authorized clinicians to view a patient’s activity and assessment scores.

The Coach

The coach’s role in the pilot feasibility project was to invite patients to participate in the Thrive program and to encourage patients to initiate the program and continue participation throughout the program, but not to provide psychotherapy. The coach communicated with patients through Group Health’s secure messaging platform and attempted to make contact at least once a week for eight weeks. Coaching required that the clinician be highly familiar with the Internet-delivered CBT intervention and tailor the secure messages so that they addressed the following: 1) the motivation level of the patient (based on how often s/he responded to the coach and how often and to what degree s/he used the Internet-delivered CBT program), 2) the level of depression of the patient (based on PHQ-9 scores collected as part of the clinical intervention), 3) the progress the patient had made in the program (how many page views, how many and which practice assignments and videos the patient had reviewed), and 4) any specific problems or strengths that the patient had reported via secure messaging.

The coach was a licensed mental health clinician with 17 years’ experience in the Group Health behavioral health system. She had no previous experience delivering Internet-delivered CBT, and she worked with the first author (UW) to develop intervention protocols and expectations. The coach was required to review the entire Internet-delivered CBT program before the project, check for messages from participants on a daily basis, and send at least 1 message per week engaging the participant in the intervention. During the course of the study, she met for 1 hour or more weekly for supervision and consultation with UW.

Implementation Process

Patient Identification and Invitation

The target population for the pilot feasibility project was primary care patients experiencing a new episode of depression (had not received a diagnosis of depression in the past 6 months) and who were not already receiving treatment of
Online Cognitive Behavioral Therapy for Depressed Primary Care Patients: A Pilot Feasibility Project

depression (medication or psychotherapy). Programmers identified potentially eligible patients using diagnosis codes to query EMR data over a rolling enrollment period. Potentially eligible patients were aged 18 to 90 years, had a depression diagnosis code at a primary care visit, and had filled a new antidepressant prescription. The fill of a medication indicated that the patient was receiving care for depression in a primary care setting.

Patients were then excluded through a manual chart review if they had evidence of chronic or recurrent depression, had a diagnosis of dementia, were not currently receiving care from Group Health clinicians, and/or were not using secure messaging. Eligible patients were sent a secure message from the Internet-delivered CBT coach to participate in the Thrive program. Patients interested in Internet-delivered CBT proceeded to the online consent form. Patients were invited to participate in Thrive in three groups in successive order: 1) invitation via secure message only; 2) invitation via secure message and postal letter; and 3) invitation via secure message, postal letter, and telephone (or voicemail).

Data Collection and Evaluation

The research evaluation of the Internet-delivered CBT pilot feasibility program was approved by the Group Health institutional review board, and online consent was obtained from all participants. This project was not a clinical trial and thus was not registered as such. This research evaluation is an example of pragmatic research conducted in a health care setting. Baseline and follow-up data were collected using DatStat Illume (DatStat, Seattle, WA), a full-service, user-friendly Internet data collection and management package with integrated security features. Participants received a secure message via a hyperlink with embedded identification to the online questionnaires at baseline and four months after enrollment. Participants who clicked the link were authenticated by the DatStat program using a participant list (ie, only invited participants were able to complete the survey).

Intervention uptake was measured descriptively, summarizing the percentage of patients who continued at each contact point (opened the invitation message, clicked the link, etc), as well as the number of times participants logged into the Thrive site and contacted the program coach. We also summarized age, sex, and race and ethnicity of Internet-delivered CBT participants.

Our primary outcome for depression symptoms was the average score on the 20-item Hopkins Symptom Checklist score. We chose to use this checklist over the PHQ-9 because patients receive the PHQ-9 in our health care setting as part of standard depression care, and we did not want to incorporate practice effects or confuse patients that the research assessment was part of their treatment. The Symptom Checklist-20 is a measure of primary symptom dimensions with a range of 0 to 4.0, for which a score of 1.75 or greater is indicative of major depression. Patients rated how bothersome their depression symptoms had been over the past 2 weeks, choosing from 0 indicating not at all, 1 = a little bit, 2 = moderately, 3 = quite a bit, and 4 = extremely.

To evaluate whether patients receiving the intervention experienced clinically significant changes in depression symptoms, we developed 2 categorical variables. First, we classified patients as depressed if they had a Symptom Checklist-20 score of 1.75 and above (a generally accepted threshold for major depression). Second, we determined the percentage of patients who experienced a 50% or greater reduction in depression scores from baseline to 4-month follow-up. The depression item, “Feeling lonely or blue,” from the Symptom Checklist-20 was used to contextualize response to the Internet-delivered CBT intervention. Furthermore, to evaluate suicidal patients in the context of the Internet-delivered CBT intervention, Item 13 of the Symptom Checklist-20, “Thoughts of ending your life,” was reported. If the participant endorsed 1 of the 2 highest ratings, “quite a bit” or “extremely,” study staff attempted to contact the patient and conduct a suicide risk assessment with the individual within 1 business day. Seven suicide risk assessments were conducted at baseline, and 2 were conducted at follow-up.

Patients also were assessed for disability they had experienced in the previous 30 days, specifically the degree to which the disability interfered with daily activities. This was measured by the number of days patients had “cut down” on daily activities and the number of days patients had not completed daily activities at all.

Results

Participants

The feasibility project identified 280 Group Health patients as potential candidates for our Internet-delivered CBT program using EMR over a rolling enrollment period (Figure 1, Table 1). Overlapping exclusions determined by visual review of medical records were as follows: not filling the antidepressant prescrip-

<table>
<thead>
<tr>
<th>Step in uptake process</th>
<th>n</th>
<th>Percentage of screened patients</th>
<th>Percentage of patients sent secure message</th>
<th>Percentage of patients who opened secure message</th>
<th>Percentage of patients who clicked through</th>
<th>Percentage of patients who consented to intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>280</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eligible and Sent SM</td>
<td>196</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opened SM</td>
<td>160</td>
<td>57</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clicked through SM</td>
<td>70</td>
<td>25</td>
<td>36</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreed to Internet-</td>
<td>39</td>
<td>14</td>
<td>20</td>
<td>24</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>delivered CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consented to research</td>
<td>37</td>
<td>13</td>
<td>19</td>
<td>23</td>
<td>53</td>
<td>95</td>
</tr>
<tr>
<td>evaluation study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CBT = cognitive behavioral therapy; SM = secure message; dash = not applicable.
tion (62 patients, 22%), seeing a Behavioral Health clinician in the 90 days before depression diagnosis (38 patients, 14%), antidepressant prescription in the 180 days before depression diagnosis (38 patients, 14%), not being set up for e-mail notification through the Web site (5 patients, 2%), not being an active Group Health member (4, 1%), or age older than 90 years or a diagnosis of dementia (2 patients, ~1%). After exclusions, 196 patients (70%) were eligible for the Internet-delivered CBT program.

Eighty-two percent (n = 160) of 196 invited opened the secure message offering an online CBT program, and 36% (n = 70) of the 196 invited patients “clicked through”; that is, they used a secure link embedded in the e-mail to visit the intervention Web site. At the Web site, 20% of those invited (n = 39) agreed to receive the Internet-delivered CBT program. Most of these 39 patients (n = 37) agreed to participate in the research evaluation, including 7 men and 30 women; most were white (32 patients, 86%) and identified as non-Hispanic ethnicity (35 patients, 95%). Thirty-one patients tried Internet-delivered CBT and participated in the follow-up research survey; 6 patients who enrolled in the research evaluation never logged into the Thrive program.

The group of participants who received a secure message, postal letter, and phone call clicked through and consented to the research evaluation at a higher rate than the other two groups did (Table 2). Nearly three times as many people who were contacted in these three different ways reached the consent stage as did people who were contacted by secure messaging alone.

**Thrive Participation and Contact with the Coach**

Thirty-one patients logged into Thrive at least once. Their mean age was approximately 52 years, mean number of log ins was 7.3, and mean number of page views was 109. Older patients tended to log in more (0.34 correlation between log ins and age). The Thrive coach sent weekly or biweekly secure messages that reviewed the patients’ recent activity in Thrive, suggested goals for future activity in Thrive, and offered encouragement. For every 2 secure messages our coach sent (beyond the invitation and the welcome message), she received approximately 1 secure message in return. For the 37 participants in the research evaluation, the coach sent a mean of 6 messages to each patient and received a mean of 2 messages in return.

**Depression Outcomes**

The baseline mean score on the Symptom Checklist-20 was 2.2, exceeding the threshold for probable severe depression of 1.75 (Table 3). By this measure, two-thirds of patients were rated as having severe depression, and the remainder reported mild to moderate levels of depression. At baseline, 59% of 37 patients (n = 22 reported having had thoughts of death or dying in the past 2 weeks; for 27% (n = 10), these thoughts occurred quite a bit or extremely often. Suicidal thoughts (“thoughts of ending your life”) in the past 2 weeks were reported by 38% (n = 14), with 24% (n = 9) describing those thoughts as moderate to extreme (Table 3).

At follow-up, patients receiving Internet-delivered CBT experienced a significant decrease in depression scores, with an average of 46% reduction in depression symptoms (as measured by a drop in the Symptom Checklist-20 score from 2.2 to 1.2; Table 3). The number of patients meeting the Symptom Checklist-20 threshold for severe depression had decreased by 57% (from 21 patients to 9). Overall, patients’ rating of “feeling lonely or blue” (one of the criteria for major depression) over the past 2 weeks went from 2.2, exceeding the threshold for probable severe depression of 1.75 (Table 3). By this measure, two-thirds of patients were rated as having severe depression, and the remainder reported mild to moderate levels of depression. At baseline, 59% of 37 patients (n = 22 reported having had thoughts of death or dying in the past 2 weeks; for 27% (n = 10), these thoughts occurred quite a bit or extremely often. Suicidal thoughts (“thoughts of ending your life”) in the past 2 weeks were reported by 38% (n = 14), with 24% (n = 9) describing those thoughts as moderate to extreme (Table 3).

At follow-up, patients receiving Internet-delivered CBT experienced a significant decrease in depression scores, with an average of 46% reduction in depression symptoms (as measured by a drop in the Symptom Checklist-20 score from 2.2 to 1.2; Table 3). The number of patients meeting the Symptom Checklist-20 threshold for severe depression had decreased by 57% (from 21 patients to 9). Overall, patients’ rating of “feeling lonely or blue” (one of the criteria for major depression) over the past 2 weeks went from an average rating of “quite a bit” to “a little bit.” Although not necessarily indicative of depression-related disability, the mean number of days in the past month that patients reported that they had to cut down on their activities because of disability decreased from 8 to 5 days, whereas the mean number of days they were unable to complete their activities remained the same (4 of the past 30 days). At follow-up, suicidal thoughts had decreased, with 23% of 31 patients (n = 7) reporting any “thoughts of ending your life” in the past 2 weeks, and 10% (n = 3) describing those thoughts as moderate to extreme (Table 3).

Frequencies of secure coach-patient messaging were similar among all participants, with clinically meaningful reductions in depression symptoms. Among those who experienced a 50% or greater reduction in depression symptoms, the number of secure messages sent by the coach (mean = 6.8, standard deviation [SD] = 3.5) and the patient (mean = 2.6, SD = 2) were similar to those who did not experience such reductions (coach, mean = 6.9, SD = 3.7; patient, mean = 2.5, SD = 2.7).

Frequencies of secure messaging between the coach and the patient were also similar among those who were still considered depressed and those not considered depressed at follow-up. For participants not considered clinically depressed (Symptom Checklist-20 score < 1.75) at follow-up, the number of secure messages sent by the coach (mean = 7.2, SD = 3.4) and the patient (mean = 2.8, SD = 2.3) were similar to those sent between coaches and patients still considered clinically depressed (coach, mean = 6.0, SD = 3.8; patient, mean = 2.0, SD = 2.8).

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**Figure 1. Project flowchart.**

ICBT = Internet-delivered cognitive behavioral therapy; SM = secure message.
Discussion

Results indicate that our methods for identifying potentially eligible patients and recruitment via secure messaging are feasible and can be used to recruit our target population—patients who are depressed but not seeking formal treatment. Although recruited patients were not seeking behavioral health treatment, 70% opened a secure message offering the Internet-delivered CBT program. Ultimately, only 19% of those potentially eligible patients enrolled; but the people starting the Internet-delivered CBT program had, on average, moderate to severe depression and were not receiving behavioral treatment at the time. Patients who enrolled in the program improved, in both their degree of depression and their level of suicidality.

Our overall uptake rate of 19% varied from 30% of those contacted by secure message, mail, and telephone vs 12% by secure message only. These results indicate that an additional “human touch” over and above a secure message increases the initiation rate. Mail and telephone contacts would also increase costs of an Internet-delivered CBT program implemented on a wide scale, but the cost may be negligible in comparison to the cost of untreated depression and suicidality. The cost of depression has been estimated at $83 billion per year; in 2000, estimates were $26.1 billion for direct medical costs alone and an additional $5.4 billion for suicide-related mortality costs. We demonstrated that at Group Health, secure e-mail messaging successfully delivered a low-intensity psychosocial intervention consistent with our previous work demonstrating the success of secure messaging for medication care management. Although still in limited use in the US health care system, Internet interventions that deliver adaptations of empirically supported in-person therapy such as CBT and motivational interviewing have demonstrated advantages over usual care and, in some cases, are comparable to in-person treatment. Internet interventions, with and without coaching, are scalable for populations in ways that in-person interventions are not. For health care delivery organizations, Internet-delivered CBT has the potential to extend the reach of mental health services with minimal personnel requirements as an alternative or an adjunct to antidepressant treatment in primary care. Additionally, as Internet-delivered CBT programs evolve and as the general population continues to shift more activities to online and mobile services, it is possible that adherence will be better or remain constant with less direct human contact hours.

Internet-delivered CBT can also serve to enhance care within behavioral health service delivery systems. With sufficient patient tracking systems in place, an Internet-delivered CBT coach can respond to and manage more patients than can a mental health therapist providing in-person CBT for depression. Behavioral

Table 2. Uptake of intervention with additional outreach

<table>
<thead>
<tr>
<th>Method of contact with patient</th>
<th>Number of people who clicked through</th>
<th>Click-through rate, %</th>
<th>Number of people who consented</th>
<th>Consent rate, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM only</td>
<td>68</td>
<td>18</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>SM + postal letter</td>
<td>84</td>
<td>28</td>
<td>33</td>
<td>16</td>
</tr>
<tr>
<td>SM + postal letter + phone</td>
<td>44</td>
<td>24</td>
<td>55</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>196</td>
<td>70</td>
<td>36</td>
<td>37</td>
</tr>
</tbody>
</table>

SM = secure message; + = and.

Table 3. Depression and suicide outcomes for recipients of intervention

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Baseline, n = 37</th>
<th>Follow-up, n = 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression Symptom Checklist-20, average score overall (SD)</td>
<td>2.2 (0.9)</td>
<td>1.2 (1.0)</td>
</tr>
<tr>
<td>Clinically depressed (≥ 1.75 score), no. (%)</td>
<td>21 (68)</td>
<td>9 (29)</td>
</tr>
<tr>
<td>Reduction in depression ≥ 50%, no. (%)</td>
<td>—</td>
<td>16 (52)</td>
</tr>
<tr>
<td>“Feeling lonely or blue,” average score on specific checklist item (SD)</td>
<td>2.7 (1.2)</td>
<td>1.3 (1.2)</td>
</tr>
<tr>
<td>Suicide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Thoughts of death or dying,” average score (SD)</td>
<td>1.7 (1.5)</td>
<td>0.7 (1.2)</td>
</tr>
<tr>
<td>Not at all (%)</td>
<td>38</td>
<td>65</td>
</tr>
<tr>
<td>Any thoughts (%)</td>
<td>59</td>
<td>35</td>
</tr>
<tr>
<td>Quite a bit or extremely (%)</td>
<td>27</td>
<td>13</td>
</tr>
<tr>
<td>“Thoughts of ending your life,” average score (SD)</td>
<td>1.0 (1.4)</td>
<td>0.4 (1.0)</td>
</tr>
<tr>
<td>Not at all (%)</td>
<td>59</td>
<td>77</td>
</tr>
<tr>
<td>Any thoughts (%)</td>
<td>38</td>
<td>23</td>
</tr>
<tr>
<td>Moderately to extremely (%)</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td>Past 30 days disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days unable to carry out usual activities because of health, mean (SD)</td>
<td>4 (8)</td>
<td>4 (9)</td>
</tr>
<tr>
<td>Days cut down on usual activities because of health, mean (SD)</td>
<td>8 (9)</td>
<td>5 (7)</td>
</tr>
</tbody>
</table>

* One participant did not answer these questions at baseline. SD = standard deviation; dash = not applicable.
health service delivery systems often struggle to triage patients. The most at-risk individuals need to receive in-person treatment first, and Internet-delivered CBT provides a triage method option for those seeking behavioral health treatment but who are in the mild to moderate depression range. Those with severe depression receive treatment at the front of the line, but patients with moderately severe or severe depression also receive immediate access to care. Furthermore, Internet-delivered CBT may augment traditional talk therapy as well as pharmacotherapy, providing a support mechanism between appointments with clinicians.

Because the Internet-delivered CBT program includes the educational content that would otherwise be delivered in person, the Internet-delivered CBT coach can focus on improving motivation and reinforcing behaviors recommended as part of Internet-delivered CBT treatment (such as practice with strategies in daily life). This also means that the content—the didactic component of the treatment—is standardized and not dependent on skill level or adherence of the clinician to CBT principles. This can be accomplished without a reduction in care quality. In Australia, no significant differences in outcomes were found when a supported Internet-delivered CBT program administered by a trained nontherapist was compared with treatment by a licensed therapist. This finding suggests that care managers do not need an advanced clinical degree, lowering potential personnel costs.

In addition, Internet-delivered CBT standardization is also attractive to researchers and those conducting quality-assurance checks. Therapist adherence and fidelity to in-person CBT treatment is difficult and time-intensive to track and monitor. We know that highly structured manual-based CBT is effective, but often that content is lost in the translation from research to clinical practice and its unique demands. Internet-delivered CBT provides standardized content that always delivers the treatment in an adherent manner.

Internet-delivered CBT also offers benefits even for clinicians with patients who do not experience symptom improvement, particularly when patients are inactive or are active but do not experience reduced PHQ-9 scores. Internet-delivered CBT coaches and/or health care clinicians with permission to view Internet-delivered CBT activities are able to monitor patient activity and progress in Internet-delivered CBT and to modify treatment when necessary. In contrast, adherence to and benefit from pharmacotherapy and human-delivered CBT is often more difficult to assess.

Internet-delivered CBT also provides an opportunity for rapid, iterative testing and improvement, potentially providing opportunity for patients to participate in the design of this care model. This is because programs can be measured and changed easily (relative to other care models). It is also possible to deliver Internet-delivered CBT through multiple electronic modes, such as mobile applications on tablet computers and smart phones. Recent research indicates Internet-delivered CBT for the treatment of depression remained efficacious delivered via mobile application vs a fixed computer. There were a number of limitations to this project—mainly the small sample size and lack of a control group—which limit the generalizability of our results. A control group would provide the advantage of ensuring the depression outcomes observed could be explained by the treatment. Additional limitations may be that the patients were all part of a nonprofit health care system, and patients who participated (ie, those who completed the multistaged process to agree to Internet-delivered CBT treatment and consent for research) were more motivated than those who did not. Further research would be beneficial to validate findings that resulted from this study.

In this pilot feasibility project, we demonstrated that important barriers can be overcome, particularly that Internet-delivered CBT programs can be integrated into existing EMR and patient communication technology. The cost of wide-scale implementation of this research remains a barrier, and our small research sample size did not allow us to estimate the cost-effectiveness of this technology. However, despite the small number of research participants, we were able to demonstrate the potential pragmatic utility of rolling out an existing technology with proven benefit and limited need for additional personnel and training resources.

Conclusion

We conclude that Internet-delivered CBT is a promising option for addressing the need for integrating behavioral health services into primary care. We developed steps to create a seamless and scalable integration of this online service into primary care using minimal financial and staff resources. We propose that the next steps would be to strategically test methods to further reduce barriers for patients to initiate Internet-delivered CBT (eg, requiring multiple steps and research consent before contact), and systematically making Internet-delivered CBT technology available to larger numbers of patients to estimate cost-effectiveness, suicidality, and depression outcomes. Many patients will likely prefer and/or be more appropriate for in-person psychotherapy, but Internet-delivered CBT has the potential to help improve depression care as an option to treat patients who are not able to receive in-person treatment and as an adjunct to pharmacotherapy and in-person psychotherapy.

Disclosure Statement

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

Acknowledgments

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Kathleen Louden, ELS, of Louden Health Communications provided editorial assistance.

References


14. Williams AD, Andrews G. The effectiveness of Internet cognitive behav


Depression

It is a sort of waking dream, which, though a person be otherwise in sound health, makes him feel symptoms of every disease; and, though innocent, yet fills his mind with the blackest horror of guilt.

— Commentaries on the History and Cure of Disease, William Heberden, 1710-1801, English physician and fellow of the Royal College of Physicians
Use of a Modified Reproductive Life Plan to Improve Awareness of Preconception Health in Women with Chronic Disease

Pooja Mittal, DO; Aparna Dandekar, MD; Danielle Hessler, MD

Abstract

Objective: Chronic diseases such as hypertension, diabetes, and obesity pose unique reproductive challenges for women. Preconception health results in improved reproductive outcomes. We designed an interventional study testing the use of a reproductive life plan to improve knowledge of preconception and contraception health in women with chronic diseases.

Methods: Primarily underserved, English- and Spanish-speaking women aged 18 to 40 years with active diabetes, hypertension, or obesity were recruited. We developed a revised reproductive life plan specific to these diseases. Two resident physicians performed reproductive plan counseling. Pre- and postcounseling surveys were administered to evaluate knowledge and attitudes about chronic disease and the effects on a potential pregnancy.

Results: Twenty-seven women (average age = 31 years) were surveyed. Of the subjects, 85.2% were obese, 29.6% had hypertension, and 7.4% had diabetes. Significant increases were reported in understanding risks of pregnancy associated with diabetes (p < 0.001), hypertension (p < 0.001), and obesity (p < 0.01). After counseling, women increased their knowledge about a reproductive plan (p < 0.001) and increased support and information to make reproductive health choices (p = 0.001 and p < 0.01, respectively). The largest improvements in postcounseling variables occurred in women with the lowest precounseling test scores and in women without children.

Conclusion: A reproductive life plan is a brief, cost-effective preconception and contraception counseling tool in the primary care setting for women with chronic diseases. This tool increases knowledge about reproductive health and enables women with chronic diseases to make informed decisions about their reproductive future.

Introduction

Preconception care is a set of interventions intended to identify and to modify biomedical, behavioral, and social risks in women of reproductive age. The goal of preconception care is to improve pregnancy outcomes and general women’s health through prevention of disease and management of existing conditions. Research shows that focusing on preconception health can result in improved reproductive outcomes, healthier pregnancies, and healthier babies. A reproductive life plan is an effective communication tool with patients regarding their reproductive goals.

Women with chronic diseases face unique reproductive planning challenges. For women who do not desire pregnancy, chronic diseases may limit or influence their choice of a birth control method. For women who wish to become pregnant, their chronic diseases may decrease the likelihood of pregnancy and increase the risk of premature birth and other maternal and fetal complications.

We focused on diabetes, hypertension, and obesity in our study. The burden of disease for diabetes is substantial: 9.3% of reproductive-aged women have diabetes, 2% of women have prediabetes (impaired fasting glucose), and gestational diabetes complicates 2% to 10% of pregnancies. The fetal implications of maternal diabetes include an increased risk of congenital malformations and spontaneous abortion. Women with gestational diabetes have increased risks of preeclampsia and operative deliveries. They also have higher rates of diabetes later in life as well as increased rates of hypertension and hyperlipidemia. Preconception care can directly affect this risk; there is a direct correlation between increased hemoglobin A1c (HbA1c) and the incidence of congenital malformation. Previous studies have found that women with diabetes who received preconception care demonstrated improved glucose control during pregnancy and shorter hospital stays in comparison with women who did not receive preconception care.

Approximately 3% of women of reproductive age are hypertensive, and hypertension affects 6% to 8% of pregnancies in the US. The maternal risks associated with hypertension include preeclampsia, eclampsia, hemorrhagic stroke, cardiac disease, and renal disease. Fetal complications of maternal hypertension include intrauterine growth retardation, preterm birth, placental abruption, and fetal demise.

With an estimated prevalence of more than 50%, maternal obesity is the most prevalent chronic disease among pregnant women. Although much remains to be learned of its full impact, obesity has been linked to decreased fertility and during pregnancy has been linked to increased rates of gestational diabetes and preeclampsia. Obese women also have significantly higher rates of...
Use of a Modified Reproductive Life Plan to Improve Awareness of Preconception Health in Women with Chronic Disease

labor induction, primary and repeated cesarean delivery, and postcesarean complications, such as venous thromboembolism. Perinatal mortality is increased 3-fold in obese women. The fetal implication of maternal obesity is major: the risk of intrauterine fetal demise increases 2 to 3 times in morbidly obese women.

In the move toward implementation of the primary care medical home, much of preconception care will be shifted to the primary care physician. Although there has been a major focus on the management of chronic diseases in the primary care setting, reproductive planning in high-risk populations has been variably neglected. In our own clinical setting, the management of chronic diseases such as diabetes is standardized and protocol-driven, and our clinicians perform well in managing these patients. However, comprehensive reproductive planning is often underemphasized and even overlooked. With increased demand on the primary care clinician’s time, we must systematize reproductive planning to ensure that we meet our patients’ needs.

Key issues—such as the optimization of health before pregnancy, the impact of medications on a potential pregnancy, and counseling about effective birth control methods—must be addressed to decrease perinatal morbidity and mortality caused by chronic diseases. Discussion and management of these issues with patients is central to decreasing the burden of perinatal morbidity and mortality associated with pregnancy. Standardization of the preconception visit using a reproductive life plan targeted toward chronic disease may enable clinicians to better address this issue in a format that is useful for patients, and one that builds on the physician-patient relationship.

We performed an interventional study using a reproductive life plan (see Appendix: Your Reproductive Life Plan at: www.everywomancalifornia.org/files/Spring2014/Plan.pdf) that is based on the work done by the Preconception Health Council of California, Sacramento (http://everywomancalifornia.org) as well as the reproductive life plan created by the Utah state government. We modified the reproductive life plan to include sections on diabetes, hypertension, and obesity. In this article, we describe our experience in piloting use of the reproductive life plan to counsel women of reproductive age with chronic disease.

Methods Setting

The study was performed at San Francisco General Hospital Family Health Center, San Francisco, CA, which provides care to a diverse population of approximately 18,000 patients, most of whom are medically underserved. The current study focused on patients who speak either English or Spanish, which make up the 2 most common patient-spoken languages at the health center. The health center is also a primary clinical site for a residency training program. This study, a pre-posttest pilot study, was approved by the institutional review board for human research.

Subjects and Materials

The health center registry identified 2100 women of childbearing age (which we narrowly defined as age 18 to 40 years) and 10% to 15% of these patients were found to have 1 or more of the chronic diseases targeted (diabetes, hypertension, and/or obesity). A random subset of patients was contacted through telephone calls and through recruitment in clinic. Patients were included in the study if they met at least 1 of the following criteria: 1) active diabetes (HbA1c concentration > 6.5%), 2) hypertension (blood pressure ≥ 140/90 mm Hg, or ≥ 130/80 mm Hg if concurrent diabetes was present), or 3) obesity (body mass index > 25 kg/m²). Patients were not excluded on the basis of uncontrolled vs controlled disease, but they were excluded if currently pregnant. The patients were invited to participate in the study and received a gift card of $35 compensation at completion of the visit.

We developed a revised reproductive life plan to include additional sections specific to counseling patients with diabetes, obesity, and/or hypertension. This was created using the reproductive life plan from the Preconception Health Council of California as a template. We also developed an appendix to provide reference information to be used as a tool by resident physicians. It provides background information, primarily adapted from the work by Jack et al, which highlights important aspects of general preconception care and care that is specific to women with chronic disease. This can be used for self-education and for preparation for a visit with a patient. A survey was developed to evaluate participants’ knowledge and attitudes regarding the effects of chronic illness on pregnancy at baseline and after intervention. This survey was created with Likert-scale response options for ease of participant completion and to ensure data completeness and was modeled on the work done in Colorado around evaluation of a reproductive life plan. The questions were reviewed by key informants for clarity and content.

Procedures

Two resident physicians performed the reproductive life planning counseling. The clinic visits were initiated with written consent. Patients completed a 24-item survey that asked about their baseline knowledge and attitudes about their chronic disease and the effects on a potential pregnancy (see Appendix: Chronic Disease and Pregnancy Survey at: www.thepermanentejournal.org/files/Spring2014/Survey.pdf). The physicians then reviewed the reproductive life plan with each patient, focusing particularly on the chronic disease or diseases affecting that patient. They loosely followed a framework suggested by the US Centers for Disease Control and Prevention for reproductive life planning. These visits were timed to evaluate the use of this strategy in a busy clinic. Visits were performed in either English or Spanish, at the patient’s preference; both physicians were fluent in both languages. After the reproductive life plan was completed, the physician readministered the survey to complete the pre-posttest design. Patients were given the reproductive life plan to take home with them, and a copy of the reproductive life plan was placed in the chart for the primary care clinician to have access to the discussion.
Use of a Modified Reproductive Life Plan to Improve Awareness of Preconception Health in Women with Chronic Disease

**Measures**

Participants self-reported their age and disease status for diabetes, hypertension, and obesity (yes/no). Regarding pregnancy and contraception, participants reported whether they had any previous pregnancies (yes/no) or any children (yes/no), whether they were currently trying to get pregnant (yes/no/don’t know), and whether they were currently using contraception (yes/no). For understanding, participating women were asked to rate their understanding of the risks of pregnancy for each of the 3 conditions (diabetes, hypertension, obesity) on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). In a summary of understanding, 4 additional items were used to capture women’s overall understanding of their reproductive health plan options and choices. Those items were as follows: “I know what a reproductive health plan is,” “I have enough support from others to make choices about my reproductive health,” “I make choices about my reproductive health without pressure from others,” and “I have enough advice to make choices about my reproductive health.” All questions appeared on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). All items were administered before and after counseling using the reproductive life plan.

**Data Analysis**

Descriptive statistical analyses were performed to examine the distribution of items. Dependent t tests compared women’s pre- and postcounseling survey responses. Zero-order correlations and independent t tests were conducted to examine associations between patient demographics and both precounseling and postcounseling responses and the difference scores in change from pre- to postcounseling responses. Changes in women’s pregnancy plans from pre- to postconception counseling were explored with a McNemar test.

**Results**

Table 1. Description of sample (N = 27)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Responses, no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean (SD)</td>
<td>31.64 (5.18)</td>
</tr>
<tr>
<td>Medical conditions</td>
<td></td>
</tr>
<tr>
<td>Diabetes (%)</td>
<td>2 (7.4)</td>
</tr>
<tr>
<td>Obesity (%)</td>
<td>23 (85.2)</td>
</tr>
<tr>
<td>Hypertension (%)</td>
<td>8 (28.6)</td>
</tr>
<tr>
<td>Reproductive history and contraception status</td>
<td></td>
</tr>
<tr>
<td>Ever been pregnant (%)</td>
<td>21 (77.8)</td>
</tr>
<tr>
<td>Any children (%)</td>
<td>18 (66.7)</td>
</tr>
<tr>
<td>Currently using contraception (%)</td>
<td>16 (59.3)</td>
</tr>
</tbody>
</table>

SD = standard deviation.

Descriptive statistical analyses were performed to examine the distribution of items. Dependent t tests compared women’s pre- and postcounseling survey responses. Zero-order correlations and independent t tests were conducted to examine associations between patient demographics and both precounseling and postcounseling responses and the difference scores in change from pre- to postcounseling responses. Changes in women’s pregnancy plans from pre- to postconception counseling were explored with a McNemar test.

Two patterns emerged. We observed that the largest improvements in postcounseling variables occurred in women with the lowest precounseling test scores and in women without children. The baseline precounseling level of each variable was associated with the degree of change from before to after counseling for each of the respective items (p < 0.05). Women without children reported larger improvements in having support to make choices about their reproductive health (p = 0.05) and marginally larger improvements in having enough information to make choices about reproductive health (p = 0.09) than did women with children. These findings suggest that the patients who benefited the most from the intervention were the women who started with lower

**Table 2. Comparison of scores before and after contraception counseling**

<table>
<thead>
<tr>
<th>Survey entry</th>
<th>Precounseling score, mean (SD)</th>
<th>Postcounseling score, mean (SD)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand the risks of pregnancy associated with diabetes</td>
<td>3.16 (1.14)</td>
<td>4.40 (0.96)</td>
<td>-4.65</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>I understand the risks of pregnancy associated with hypertension</td>
<td>3.32 (1.07)</td>
<td>4.35 (0.94)</td>
<td>-4.47</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>I understand the risks of pregnancy associated with obesity</td>
<td>3.59 (1.34)</td>
<td>4.37 (0.88)</td>
<td>-2.95</td>
<td>0.007</td>
</tr>
<tr>
<td>I know what a reproductive health plan is</td>
<td>3.19 (1.11)</td>
<td>4.41 (0.69)</td>
<td>-5.21</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>I have enough support from others to make choices about my own reproductive health (pregnancy, contraception)</td>
<td>3.48 (1.05)</td>
<td>4.33 (0.63)</td>
<td>-3.91</td>
<td>0.001</td>
</tr>
<tr>
<td>I make choices about my reproductive health (pregnancy, contraception) without pressure from others</td>
<td>4.00 (1.00)</td>
<td>4.26 (0.86)</td>
<td>-1.57</td>
<td>0.13</td>
</tr>
<tr>
<td>I have enough advice to make choices about my reproductive health (pregnancy, contraception)</td>
<td>3.78 (0.89)</td>
<td>4.33 (0.68)</td>
<td>-2.96</td>
<td>0.006</td>
</tr>
</tbody>
</table>

SD = standard deviation.
Use of a Modified Reproductive Life Plan to Improve Awareness of Preconception Health in Women with Chronic Disease

The average time that the intervention took varied between 15 and 22 minutes, including obtaining consent and administering pre- and postcounseling surveys. This time is consistent with that of an average visit to a primary care clinician.16

Discussion

Women's knowledge about reproductive health in the context of their chronic disease increased with the introduction of a modified reproductive life plan. This finding suggests that this brief and cost-effective intervention is effective in opening a dialogue about reproductive health in this subset of women. Not surprisingly, women with the lower initial scores showed the most improvement. Preliminary findings also suggest that women who have never given birth had greater improvements, suggesting that this subgroup of women may derive further benefit from the intervention. Although not statistically significant in our small pilot sample, it is also interesting to note that, in the postcounseling survey, 50% of the women who were undecided about pregnancy moved toward a decision. This finding suggests that this type of counseling may influence ambivalence regarding pregnancy.

Primary care is at a crossroads today with the push to optimize care in patient-centered medical homes without a substantial increase in available resources. For this reason, strategies that can be employed to improve and to standardize care delivery are critical. This reproductive life plan was developed to enable busy clinicians to provide high-quality preconception and contraception counseling to women of childbearing age who have chronic disease. The importance of reduction of chronic disease burden in this population has been outlined in multiple studies.17 This optimization needs to occur in the primary care setting before pregnancy to improve outcomes. Our study demonstrates that this customized reproductive life plan is an efficient and effective tool in the primary care setting.

Improved knowledge alone does not necessarily predict behavior change; the skills and confidence to make change are needed as well. Reproductive life plans build on the strength of the physician-patient relationship by providing a format to help the patient and her clinician partner around preconception health. In a resource-limited setting, this tool could be administered by a health coach or health educator. The clinician would then review the reproductive life plan and use it as a springboard for continued discussion with the patient.

There are several limitations to this study. The first was our small sample size, and we will address this by continuing to use this tool in our practice and gathering more data on its use. In addition, no physiologic outcome measures (change in blood pressure, HbA1c, or body mass index) were used to evaluate change. It is imperative that the focus also be expanded to include physiologic markers to evaluate for improvement in outcomes with the intervention.

We recommend that the reproductive life plan be used in a primary care setting to strengthen and standardize the reproductive care of women with chronic disease. This tool can be used with special emphasis on nulliparous women to aid in reproductive planning, with the goal of improvement in maternal and fetal outcomes.

Conclusion

On the basis of the results of this small pilot study, it appears that a reproductive life plan is an effective tool for counseling women with chronic disease about preconception and contraception in a busy clinical setting. Women felt empowered to make decisions about their reproductive future in the context of their chronic disease with the use of this educational tool and a discussion with the clinician.

Disclosure Statement

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Acknowledgment

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References


Health

You cannot have maternal health without reproductive health.

— Hillary Rodham Clinton, b 1947, former US Secretary of State, US Senator, and First Lady of the US
Toward a Trustworthy Voice: Increasing the Effectiveness of Automated Outreach Calls to Promote Colorectal Cancer Screening among African Americans

Karen Albright, PhD; Terri Richardson, MD; Karin L Kempe, MD, MPH; Kristin Wallace, MPH

Abstract

Introduction: Colorectal cancer screening rates are lower among African-American members of Kaiser Permanente Colorado (KPCO) than among members of other races and ethnicities. This study evaluated use of a linguistically congruent voice in interactive voice response outreach calls about colorectal cancer screening as a strategy to increase call completion and response.

Methods: After an initial discussion group to assess cultural acceptability of the project, 6 focus groups were conducted with 33 KPCO African-American members. Participants heard and discussed recordings of 5 female voices reading the same segment of the standard-practice colorectal cancer message using interactive voice response. The linguistic palette included the voices of a white woman, a lightly accented Latina, and 3 African-American women.

Results: Participants strongly preferred the African-American voices, particularly two voices. Participants considered these voices the most trustworthy and reported that they would be the most effective at increasing motivation to complete an automated call. Participants supported the use of African-American voices when designing outgoing automated calls for African Americans because the sense of familiarity engendered trust among listeners. Participants also indicated that effective automated messages should provide immediate clarity of purpose; explain why the issue is relevant to African Americans; avoid sounding scripted; emphasize that the call is for the listener's benefit only; sound personable, warm, and positive; and not create fear among listeners.

Discussion: Establishing linguistic congruence between African Americans and the voices used in automated calls designed to reach them may increase the effectiveness of outreach efforts.

Introduction

Colorectal cancer is the second leading cause of cancer-related death in the US and the leading cause in nonsmokers; increasing population screening represents a continued area of opportunity to save lives. Incidence, screening rates, and mortality rates vary by race and ethnicity. African Americans have the highest incidence of this disease, receive a diagnosis at earlier ages, and have later stages of disease and lower survival rates. The reasons for these disparities are complex and include factors related to biology, access to screening, and receipt of treatment, as well as lower educational and socioeconomic status, language or acculturation barriers, fear, medical mistrust, and lack of knowledge. Purnell et al suggest that traditional cultural orientation, group susceptibility to colorectal cancer screening, and medical mistrust should be considered when developing behavioral interventions to increase screening among African Americans.

In 2008, Kaiser Permanente Colorado (KPCO), a not-for-profit integrated care delivery system, initiated a large population outreach program to promote colorectal cancer screening in average-risk men and women. The combination of initial outreach by an educational interactive voice response (IVR) call (a technologic interface that allows people to interact with computer-generated prompts through the use of keypad inputs or speech recognition) followed by mailed kits for fecal immunochemical testing succeeded in increasing the rate of screening 4-fold. A total of 26,000 (45%) of the unscreened population completed screening by fecal immunochemical testing or colonoscopy within a year.

However, despite the equal screening opportunities provided by this systematic approach, and without the barrier of lack of insurance coverage, screening completion rates were lower among KPCO’s African-American members. Fifty-six percent of African Americans remained unscreened after the outreach compared with 48.5% of whites. This disparity raised concern and inspired additional efforts to increase engagement among African Americans. This article describes formative work to test the hypothesis that a linguistically congruent “black” voice on IVR calls might result in increased completion of the calls and ultimately increase screening rates.

IVR has the potential to accommodate racial/ethnic tailoring by language preference and cultural fit while bypassing issues of literacy. However, there are few studies looking at its use in minority populations, and no known studies have targeted African-American populations. Previous linguistic work suggests that the African-American voice itself is distinctive and therefore could be used to facilitate a culturally appropriate intervention.
Henderson has described the complex, rich, powerful, and subtle linguistic heritage of African Americans. Although there is very little vocal variation between African Americans and whites and the vocal cords of these two groups are highly comparable, the literature suggests that individuals can discern race from scant vocal information. Thus, “sounding black” is influenced by society, history, experience, and culture. As the linguist John McWhorter has argued, “Most Americans, and especially black ones, can almost always tell that a person is black even on the phone, and even when the speaker is using standard English sentences.” This “knowing” is based on inflection, cadence, intonation, tone, and variation in pitch and rhythm. We hypothesized that linguistic congruence would lead to increased willingness of African-American Health Plan members to accept and complete an IVR outreach call and subsequently complete colorectal cancer screening.

This formative study evaluated the use of a racially congruent voice in IVR calls as a strategy to increase acceptance of the call and to engender trust in the message. The original evaluation of the KPCO colorectal cancer screening outreach program did not examine IVR completion by race/ethnicity. However, only 17% of all those contacted by IVR completed the call, which provided educational information about the importance of screening, screening options, information on how to request a colonoscopy, and, if low-risk status was confirmed, the offer of a mailed fecal immunochemical testing kit. As with all KPCO IVR calls, the message was delivered in a young white woman’s voice. The 17% rate of IVR completion was comparable with that seen for KPCO programs supporting other preventive services such as mammography. However, it was lower than the rate of 40% or more seen in clinical trials and chronic disease programs at KPCO that use IVR to facilitate a prearranged care plan and provide direct links to clinical staff.

Other interventions to promote colorectal cancer screening using IVR that addressed readiness without making screening easier have failed, whereas calls that facilitated completion of a mailed test or of a colonoscopy have improved screening rates. We are not aware of any other initiatives attempting to tailor IVR outreach by linguistic congruence to promote the acceptability and effectiveness of automated calls, although a systematic review of 40 studies showed benefits of IVR in increasing adherence to process of care.

**Methods**

**Data Collection**

A qualitative approach was deemed most appropriate for assessing members’ preferred recorded voice for colorectal cancer screening outreach calls, exploring the factors influencing those preferences, and investigating barriers to following colorectal cancer screening recommendations. To validate the hypothesis and to assess unanticipated negative consequences of using an African-American voice in outreach calls, a community discussion group was first conducted with 16 members of the local community. Fourteen participants self-identified as African American, one as African, and one as Caribbean American. Participants validated the project’s intention, reported that they did not view linguistic congruence efforts as stereotyping, and applauded the desire to customize care. Feedback from this group was then used to develop a formal focus group protocol.

In April through June 2012, 6 focus groups were conducted with self-identified African-American KPCO members. Potential participants were identified by KPCO’s self-reported “Race, Ethnicity, and Language Preference” dataset and the current colorectal cancer outreach protocol. Participants were recruited through mailed letters that described the study and provided the opportunity to opt out. Those who had a valid address and phone number and who did not opt out were then contacted by the focus group facilitator to discuss participation in a focus group. Of 259 letters mailed across 4 waves of recruitment, 49 potential participants were scheduled, and 33 participants (12.7% of the initial recruitment effort) ultimately took part in a focus group. All participants received a reminder letter or phone call before participation.

All focus groups were conducted in English by the same facilitator, an African-American woman with experience facilitating focus groups. Each group was held at KPCO’s East Denver Medical Office and was attended by at least one additional African-American professional who observed and took notes. East Denver, CO, was selected because of the high percentage of African-American members living in the surrounding area. Written informed consent was obtained from each participant. A demographic survey was administered to determine basic characteristics about the participants; to assess probability of exposure to traditional African-American dialects; to ascertain whether the sampling was representative of the KPCO African-American members based on previous known geographic information; and to determine self-reported health status, screening practices, and best mode of communication. Thirty-two participants (97%) completed the survey.

During each focus group, participants heard and discussed recordings of five different female voices reading the same segment of the standard-practice colorectal cancer message using IVR. Each recording was approximately one minute in length. All speakers had been instructed to use a natural voice and to sound confident, friendly, genuine, and knowledgeable. They also had been instructed to be clear and articulate and to avoid inflating to a higher octave at the end of a voice file unless asking a question.

Voice 1 was a white woman in her early 30s; this voice is currently used in standard KPCO IVR protocols. Voice 2 was a lightly accented Latina woman in her early 30s. Voices 3, 4, and 5 were African-American women. Three African-American voices were recorded in an attempt to cover the continuum of African-American speech. Given that all the speakers read from a standard script, the usual morphosyntactic cues (ie, sentence formation, tense, pronunciation) to racial identity were removed. However, Voices 3 and 4 shared some distinctive features. Voice 5, that of a woman in her mid-50s, was deeper and demonstrated some of the characteristic African-American dialectical features such as the dropping of end consonants and a wider range of intonation. Voice 4, that of a woman in her late 40s, was similar to Voice 3 but was raspier and had a slight southern drawl, with some vowels lengthened. Voice 5, that of
a woman in her mid-40s, had a deeper tone, but otherwise had voice qualities similar to non-African-American voices.

Each focus group lasted approximately 1.5 hours. Four of the 6 focus groups were digitally recorded and then transcribed verbatim by a professional transcriptionist. For the remaining groups, detailed notes were taken during the focus groups by 2 African-American observers not employed by KPCO. Participants were compensated for their time with a $30 gift card to a local grocery store. This study was approved by the KPCO institutional review board.

Data Analysis

The analysis of the focus group data involved an iterative, inductive, and deductive toolkit of analytical strategies, drawing particularly on qualitative content methods of analysis and reflexive team analysis. Analysis of the focus group transcripts and notes began with repeated readings to achieve immersion and was followed by initial coding using an emergent rather than a priori approach, to emphasize respondent perspectives and de-emphasize team member speculations. The qualitative data analysis software (ATLAS ti Version 6.0, Scientific Software Development GmbH, Berlin, Germany) was used for data organization and management during analysis. Words, sentences, and paragraphs were treated as coding units or “meaning units.”

After initial coding was completed, the resulting set of codes was applied to the transcripts and notes, code categories were developed, and emergent themes were identified. The preliminary results of the analysis process were reviewed by members of the research team to assess their evocativeness, thoroughness, and comprehensiveness. Throughout the analysis, new findings were continually checked and compared with the rest of the data to establish new codes, themes, or patterns.

Results

Thirty-three African-American KPCO members participated in 1 of 6 focus groups (n = 5, 5, 4, 6, 6, and 7). Focus group participants ranged in age from 50 to 76 years (median = 58 years). Women comprised 60% of participants. Most participants resided in Denver or the neighboring city of Aurora, CO. More than half (61%) had been KPCO members for a decade or longer (range = 2 to 39 years). There was wide variety in participants’ educational attainment, with most (78%) reporting at least some college or technical school. All participants were employed; occupations ranged from manual laborers to administrators. All rated their health as at least fair; 66.7% rated it as good or excellent. Although nearly all (97%) reported compliance with recommended screenings, more than 50% reported never having completed colon screening. Eighty-two percent indicated that telephone calls were their preferred method of contact.

Preferences for Voices

Without being told the race/ethnicity of each speaker, participants in each of the focus groups overwhelmingly preferred the voices of the African-American speakers (Voices 3-5) over the non-African-American speakers (Voices 1-2). Of the African-American voices, Voices 3 and 4 were particularly favored. Noting that it “sounded African American,” participants described Voice 3 as having a “motherly, concerned tone” that was “soft but strong.” They liked that she “did not rush” through the message, and was effective at getting their attention and explaining clearly the point of the call. The clarity of her tone also was viewed as favorable, as was the fact that she had a “familiar sounding voice” that “sounded mature.”

Respondents described this voice as the most personable, noting that they favored her tone and pitch. Voice 3 was also considered the most motivating to action and was perceived as the most trustworthy of the voices. Participants described this voice as concerned, mature, professional, and caring, with a personable tone. She “spoke with authority” but “talked to me, not at me.” One respondent mentioned that she thought Voice 3 “sounded like my mother.”

Voice 4 was preferred second to Voice 3, but it was nonetheless viewed very favorably by participants. Also recognizable to participants as African American, Voice 4 was described as trustworthy, with a “comfortable sounding” voice that “sounded as if she was interested.” One respondent described Voice 4 as “clear with the right tone.” Another said, “I liked the tone in her voice; she was specific, like she had empathy for me.” Participants described this speaker as personable, joyful, pleasant, professional, sympathetic, and reliable, emphasizing that the voice sounded familiar, as if they were “talking to someone I know.” Participants in all but one of the focus groups reported that Voice 4 would be the most effective at motivating them to continue listening to the message. As one participant put it, “there were more highs and lows in her voice—it kept me interested.” Others commented that receiving a message delivered by this voice “would make me think about calling my doctor to get more information” and “would make me ask more questions.”

Although the remaining African-American voice (Voice 5) was considered a distant third choice by most participants, it was preferred by the participants in one focus group. These participants credited Voice 5 with sounding professional, sincere, and honest. Some also mentioned that this voice spoke with emphasis and sounded positive, which they viewed favorably. Because of this, these participants indicated that this voice motivated them most to continue to listen to the message. These respondents described the voice as sounding sincere and caring, with both concern and some urgency in her voice. Interestingly, many of the explanations about why they liked Voice 5 focused especially on the content of the message, despite the fact that message content was the same across all the recorded voices.

Participants credited this voice with emphasizing the positive and noting that colon cancer is not a death sentence; they liked that this voice gave information but did not create fear. However, some participants noted that this voice also “sounded rushed” and thus was not as pleasant to listen to.

In contrast to the African-American voices, participants in all focus groups overwhelmingly disliked the non-African-American voices (Voices 1 and 2). Voice 1, that of a young white woman, was described as “sounding like a teenager” and “feeling like a telemarketer.” This voice was critiqued for sounding too...
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high pitched, too scripted, and too fast, as if the speaker had “zero sincerity” and was “like a machine.” Voice 2, that of the lightly accented Latina, was also described as sounding like a machine, overly rehearsed, with an unpleasant tone. Some respondents also complained that they could not understand some of what she was saying and, somewhat conversely, that she sounded overly rehearsed rather than authentic. Overall, Voices 1 and 2 were considered the least motivating to listen to by participants. Indeed, a few respondents volunteered that these voices “would have made me hang up” on listening to them.

In sum, participants across all groups reported that if they were designing an outgoing automated call system specifically for African Americans, they would prefer either Voice 3 or 4, with Voice 5 as a third, but distant, possibility. Voice 3 in particular was singled out for praise, with participants reporting that its recognizability as an African-American voice “automatically puts you at ease” and that it was effective “to hear the African-American voice.” This voice was perceived as sounding caring, creditable, calm, clear, and informative. It was also praised for not rushing through the script, instead pausing periodically so “you were able to think.”

Preferences for Voice Qualities and Message Content

Beyond a critique of individual voices, focus group participants also indicated a number of voice qualities that participants deemed important for automated messages. Above all, participants emphasized that voices used in these messages should sound trustworthy and sincere. As one put it, the voice should “make me believe you know what you’re saying.” In addition, voices should sound joyful and positive, yet also mature and reliable. Participants emphasized that voices should sound personable, warm, and conversational in order to make people want to listen to them. The importance of “getting away from being scripted” was also noted. In the words of one participant, the message should “sound like you know what you are talking about; you can’t just read something.” To motivate listeners to continue listening, participants also emphasized the importance of explaining clearly and immediately the purpose of the call and the fact that the call is for the listener’s, rather than the caller’s, benefit (ie, that the caller does not want anything from the listener other than to improve the listener’s health).

When asked about designing messages specifically for African Americans, participants emphasized that messages should state clearly why this issue matters to African Americans specifically, noting that it is crucial to make the content particularly relevant for this population. Some participants suggested providing statistics on colon cancer among African Americans to appropriately contextualize the issue. At the same time, participants emphasized that “you need positives in the messages”; being “too negative” was viewed as ineffective. Participants suggested talking about success stories in the African-American community to emphasize that “we can be helped.” Whereas the ideal message should provide information, it should not create fear, according to participants. For example, some participants suggested that it would be helpful for the message to “tell us this procedure is not painful.” Above all, the voices used in the message should not “talk down” to listeners. As one participant put it, “don’t treat us like we don’t know and can’t be taught.”

Discussion

The strategy of using a familiar voice to reach a specific demographic group is not uncommon in the marketing of commercial products and services. However, there is a paucity of evidence in the literature validating linguistic congruence to promote health behaviors. We designed a formative study to investigate the impact of a linguistically congruent voice in KPCO’s IVR program to support a reduction in the colorectal cancer screening disparity gap for African-American members. Our aim was to reduce morbidity and mortality in this high-risk population. To increase the effectiveness of IVRs designed to promote screening, 6 focus groups were conducted with 33 African-American KPCO members. The purpose of the project was to determine any differential effect of voices heard during prerecorded automated calls about colorectal cancer screening.

Overall, the African-American voices, particularly Voices 3 and 4, were strongly preferred by focus group participants. Participants reported that Voices 3 and 4 would most motivate them to continue to listen to the automated message, whereas Voices 1 and 2 “would have made me hang up.” Most participants considered Voices 3 and 4 to be most trustworthy, in part because they were recognizable as African-American voices, a fact that was described as “automatically putting you at ease.” Though most participants indicated a general dislike of automated phone calls, participants across all focus groups emphasized the effectiveness of using recognizable African-American voices when designing outgoing automated calls for African Americans, because such voices engendered trust among listeners. Participants also indicated that automated messages should provide immediate clarity of purpose; explain why the issue is relevant to African Americans specifically; avoid “sounding scripted”; emphasize that the call is for the listener’s benefit only (ie, is not asking anything of them); sound personable; warm, trustworthy, and positive in tone; and not “talk down” to or create fear among listeners.

These data suggest that establishing consonance between African-American populations and the voices used in the automated calls designed to reach them may increase the effectiveness of outreach efforts. Therefore, such efforts may ultimately improve both the services to and the health outcomes of African-American Kaiser Permanente members. Because such a strategy may also have implications for other programs and other racial and ethnic groups, future research should examine the effect of linguistic congruence in other settings and with other populations. Resources should also be devoted to investigating how these findings may vary across regions of the country and by the age, sex, and accent of the recorded voice.

This study has several limitations. As with most qualitative work, the small sample size makes it impossible to determine the representativeness of the findings. African Americans are a heterogeneous population, with different dialects and social experiences, and the perspectives of these particular participants may not be generalizable to the larger population. In addition, although participants clearly preferred the African-American
voices and explained their preferences in part because of perceived linguistic congruence, the age difference between the non-African-American voices and the preferred African-American voices may be a confounding factor. Future work should examine linguistic congruence with the age of speaker held constant. Finally, this study was formal in design, building on previous work suggesting that African-American voices are recognizable to the African-American population and may be capitalized on in developing culturally appropriate interventions.

We do not know if increasing completion of the IVR outreach calls will lead to increased screening rates for this population. Thus, the next steps for the current project involve the integration of Voice 3, the most preferred voice in this study, into the current colorectal cancer outreach protocol. The effect of these linguistically congruent outreach calls will then be assessed by analyzing members’ willingness to initiate and complete the call, their satisfaction with the outreach process, and the impact on subsequent completion of screening by fecal immunochemical testing or colonoscopy.

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

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References
Prospects and Problems of Transferring Quality-Improvement Methods from Health Care to Social Services: Two Case Studies

Truls Neubeck, MSc; Mattias Elg, PhD; Thomas Schneider, PhD; Boel Andersson-Gäre, MD

Abstract

Introduction: This study examines the use of quality-improvement (QI) methods in social services. Particularly the key aspects—generalizable knowledge, interprofessional teamwork, and measurements—are studied in projects from the QI program Forum for Values in Sweden.

Methods: This is a mixed-method case study. Two projects using standard QI methods and tools as used in health care were chosen as critical cases to highlight some problems and prospects with the use of QI in social services. The cases were analyzed through documented results and qualitative interviews with participants one year after the QI projects ended.

Results: The social service QI projects led to measurable improvements when they used standard methods and tools for QI in health care. One year after the projects, the improvements were either not continuously measured or not reported in any infrastructure for measurements. The study reveals that social services differ from health care regarding the availability and use of evidence, the role of professional expertise, and infrastructure for measurements.

Conclusions: We argue that QI methods as used in health care are applicable in social services and can lead to measurable improvements. The study gives valuable insights for QI not only in social services but also in health care, on how to assess and sustain improvements when infrastructures for measurements are lacking. In addition, when one forms QI teams, the focus should be on functions instead of professions, and QI methods can be used to support implementation of evidence-based practice.

Introduction

High-quality social services are an important contribution to improved results in population health. These services are characterized by a focus on needs and value creation for clients, where treatments often involve client relations and interventions over a long period. To support quality improvement (QI) in the field of Swedish social services, Famna (the Swedish Association for Non-Profit Health and Social Service providers) has been working together with Qulturum (the Center for Learning and Innovation in Healthcare, Jönköping County Council, Sweden) in a Swedish QI program named Forum for Values. Although systematic QI in social services has been examined in a few studies, not much is known about how to support and organize QI in social services.

Aim

QI programs have been used in various fields such as health care and industry. However, because it is not obvious how the transformation of QI between different fields affects the results, it becomes important to understand if and how we can adapt methods and language for each new field. The aim of this study is to examine the conditions for using QI methods that are described from health care in social services. Specifically, it examines three important aspects of QI—the use of generalizable knowledge, organization in interprofessional teams, and measurable improvements—in two social service QI projects carried out in Forum for Values.

Aspects of Quality Improvements

Three key aspects of QI can be identified from earlier studies of the application of QI methods in health care improvement:

1. The use of generalizable knowledge
2. Frontline interprofessional teamwork is organized
3. Measurable improvements for feedback and learning

Generalizable Knowledge

A key issue of QI according to Batalden and Davidoff is to examine how generalizable knowledge and specific contexts lead to measurable improvements together with plans for and execution of change. The use of generalizable knowledge in health care is often equated with evidence-based medicine (EBM), in which scientific evidence, professional experience, and the clients’ value base are weighed together for making best decisions about the care of individual patients. In social services, EBM can be described as evidence-based practice (EBP).

Interprofessional Teamwork

Studies from high-performing health care systems show how improvements can be achieved by frontline interprofessional teams working together using QI methods. A profession can be defined by a social contract between the society and the professional. This contract gives the profession autonomy, self-regulation, and influence over its knowledge base.
Measurable Improvements

Measurable improvements can be defined as a sustained positive change based on the measures that have been set to indicate improvements. Statistical process control tools (e.g., run charts, control charts)—measurements of process performance over time—are often suggested as a useful tool to indicate significant improvements.  

Contextual Setting: Forum for Values as a Driver of Quality Improvement

The studied QI projects were carried out within the context of Forum for Values, a QI program in Sweden. The program focused on building competence and capacity in QI while improving performance that was relevant for the participating organizations. During the years 2009 to 2012, more than 400 employees participated in 80 QI projects in Forum for Values. The projects were conducted in several different areas of social work such as elder care, social psychiatry, care for mentally and physically disabled children and adults, and rehabilitation of drug abusers and criminals. In Forum for Values, improvement teams from different organizations were being educated and trained for the use of QI methods. By focusing on value creation in the microsystem of social services, these teams learned from each other in 5 collaborative learning seminars. Similar to a clinical microsystem, the microsystem of social services can be defined as the group of professionals who work together with the client on achieving the shared goal of the service. Between seminars, participants worked with defined improvements in their own organizations. In all improvement teams, a designated improvement leader facilitated the improvement work. The improvement leader received in-depth training in improvement and coaching skills. Because the teams chose their own focus of improvement, the improvement leaders got an assigned role to relate the project to management and organizational goals, something that is important for the sustainability of QI.

The learning seminars—which functioned as a vehicle for change and learning—focused on various themes over time, starting with system descriptions, testing small-scale changes, and following-up and spreading results. At the final seminar, the participating teams presented documentation with descriptions of the basis for improvement, specific context, tested ideas, and results in their improvement project. This way of organizing learning seminars is similar to the “breakthrough series” developed by the Institute for Healthcare Improvement. During the program, participants received training in QI skills such as understanding their microsystem, cause-and-effect analysis, and the improvement model following a QI protocol. The protocol was based on and adapted from QI described in the Dartmouth curriculum as well as other health care QI initiatives. This protocol also served as a Web-based checklist in which program leaders could assess the development of different QI methods and tools that were being used in each project.

The participants’ experiences were evaluated continuously by self-assessment after each completed project. The evaluation included questions about the extent to which the projects had affected value for clients and whether participants would recommend the program to others (Table 1). Of the 400 participants, 200 completed the evaluation.

Methods

To highlight some problems and prospects regarding the use of QI in social services, we studied two projects that were selected as “critical cases.” Although critical and deviant cases may not be generalizable for the whole population, they can be used to explore or extend existing theories and were thus chosen to support the aim of this study. We used a mixed-method approach, combining quantitative evaluations with qualitative analysis of documentation and interviews. We wanted to study projects that were considered successful by program leaders and project participants. In this study, we defined successful projects as those in which the teams followed the curriculum closely, measurable improvements resulted, and participants experienced relevance and increased value for users. Compliance to the curriculum was checked in the self-reported protocol. Improvement leaders from the two studied projects reported that the teams used all methods and tools in the curriculum. In addition, relevance of the projects was verified by results that were above average in participants’ program evaluations concerning value for users and recommending the program to others (Table 1). The two QI projects included in the study were: 1) a daycare for physically disabled children, which aimed at improving outdoor activity, and 2) a nursing home for elderly residents with multiple diseases, which aimed at improving the elderly individual’s experience of quality during meals and prevent malnutrition.

The qualitative material from the projects consisted of project documentation and interviews with project participants conducted one year after the end of the projects. The material was

| Table 1. Evaluation of participants’ experiences after completed projects* |
|-----------------|-----------------|-----------------|
| **Question**    | **Forum for Values projects, mean (UL 95% CI) of all participants (N = 200)** | **Critical case projects** |
|                 | Individual responses, daycare (n = 4) | Individual responses, nursing home (n = 4) |
| To what extent did your improvement project affect value for patients/clients? | 7.4 (7.7) | 10, 8, 10, 8 |
| To what extent would you recommend a friend to participate in the program? | 9.0 (9.2) | 10, 10, 9, 10 |

* Participants self-estimated to what extent the project had affected different perspectives. Answers ranged from 1 (not at all) to 10 (to a large extent). Table includes average results (with upper limit of 95% confidence interval, or UL 95% CI) for participants in all Forum for Value projects and reported evaluations from the 2 studied critical case projects. Bold figures indicate results that were above average with a 95% CI.

Although critical and deviant cases may not be generalizable for the whole population, they can be used to explore or extend existing theories...
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Results

The content of the studied projects shows that generalizable knowledge, interprofessional teamwork, and measurable improvements are aspects of QI in social services (Table 2).

The improvement project in the daycare for physically disabled children was based on the generalizable knowledge from a report from the National Institute of Public Health in Sweden, which shows that outdoor activity is an important factor for increasing quality of life.27 The goal of the project was to ensure that all children had a minimum of 3 hours of outdoor activity per week. This was achieved by planning outdoor activities, involving the children (many of whom had cognitive disabilities), and informing both full-time and part-time colleagues. To assess whether the new ways of working were improvements, the team logged outdoor activity for each child in 15-minute intervals and displayed this on a board with different colors for each child. Data were plotted as weekly averages during the 2 months of the project. These measurements served as a good example for new measures developed by the team (Figure 1). These innovative measurements not only helped the team to follow progress over time but also clarified important aspects of the meaning of good quality in daily outdoor activities.

One year after completion of the program, the team still continuously measured outdoor activity manually but did not use any documentation system. The improvement team expressed that the ease and fun of the new QI methods and the connection to a relevant problem were the primary reasons for the positive results of the project. The team consisted only of preschool teachers and was not interprofessional. However, team members had different functional roles in the project. Different persons were responsible for different children regarding planning, documentation, and contact with relatives. Also, performing different organizational functions such as leading meetings and staffing substitute teachers differed within the team. During the project, the team members informed other professions outside their own organization such as physical therapists, nurses, and physicians about the project. Other departments in the organization have been interested in their work but have not started any similar project.

The second project studied was conducted in a nursing home for elderly individuals. The improvement team was partly interprofessional. Assistant nurses, nurses, physical therapists, and social pedagogues worked together, but other aspects of elder care such as medical care or needs assessment were delivered by other providers. The goal of this improvement project was to improve the elderly nursing home resident’s experience of quality during meals and to prevent malnutrition. The documentation did not state any clear description of evidence that was used in the project. With the use of a combination of professional expertise and the opinions of the residents, new ways of working were established in the project. The improvement team developed new measures and manually collected and displayed data on the number of elderly individuals who had good meals, who experienced calmness with little anxiety, and who experienced good sleep during the night. During the project, the team members took different functional roles such as identifying elderly participants, informing coworkers, and collecting data.

| Table 2. Aspects of quality improvement (QI) in studied cases |
|---------------------------------|-----------------|-----------------|
| Aspect of QI                    | Daycare project | Nursing home project |
| Use of generalizable knowledge  | Scientific report| Professional expertise and opinion of elderly individuals |
| Organizing in frontline         | Team of preschool teachers | Team of assistant nurses, nurses, physical therapists, and social pedagogues |
| interprofessional teams         |                 | |
| Measurable improvements         | Innovative measures for time of outdoor activity; measures are not reported in any documentation system | Weight data from electronic health record together with innovative measures on quality of meals |

| Table 3. Differences in aspects of quality improvement (QI) between health care and social services |
|---------------------------------|-----------------|-----------------|
| Aspect                          | Health care     | Social services |
| Use of generalizable knowledge  | Abundance of clinical research as a base for QI | QI as implementation of evidence-based practice |
| Organizing in frontline         | Interprofessional | Interfunctional |
| interprofessional teams         |                 | |
| Measurable improvements         | Clinical measures are part of an existing infrastructure | Lack of infrastructure for improvement measures |

Figure 1. Mean weekly outdoor activity in a daycare for disabled children (n = 4). Sep = September; Oct = October; Nov = November.
The results were plotted during the two months of testing and exemplify how the team developed new measurements for assessing improvements in the project (Figure 2). The team also used and followed existing weight data from electronic health records. In a comparison of weight data from previous years, a positive change could be shown during the project for three elderly individuals with low weights (Figure 3). The data collected on meal experience were not part of an existing measurement infrastructure in the organization, but deviations from the new working routines were reported into the documentation system.

One year after the project, the team members reported that the new working procedure had spread throughout the whole nursing home, but they have not continued to measure their results on experienced quality during meals. The improvement team believed that success factors primarily were the relationship with the manager of the nursing home and the relevance of the problem to the residents.

**Discussion**

The two studied cases from Forum of Values highlight problems and prospects of using QI in social services. The general characteristic of Forum for Values focuses on clients’ needs and an internal drive for change by emphasizing value creation in the microsystem of social services. Use of the internal drive for QI in social services fits well with results showing that drivers for change are an important aspect of spreading and sustaining successful improvements. However, the studied cases also reveal some differences between health care and social services regarding the use of generalizable knowledge, frontline teams’ capacity to work interprofessionally, and measurable improvements (Table 3).

**Use of Generalizable Knowledge**

The abundance of clinical research that can be used as generalizable knowledge in health care is often lacking in social care. However, implementing generalizable knowledge as the framework for improvements in social care also requires professional training and knowledge. In the described projects, the teams applied scientific evidence, their own professional experience, and the client’s value base (EBP) to find improved ways of working. The studied projects also used QI methods known and tested in the field of health care. Our results show that the use of QI methods is a possible way to implement EBP in social services. QI might also be considered as a method to implement EBM in health care.

**Organizing in Interprofessional Teams**

In health care, different professions represent different areas of expertise, all of which are needed to create value for patients. These experts are spread throughout different functions in the systems. In social services, the needed expertise is often organized in the same professions, such as social workers. In the studied projects, the teams were not interprofessional. Instead, the team members took different relevant functional roles for the project. The improvement teams also tried to organize relevant functions from other departments to succeed, sustain, and spread improvements. Interfunctional teams in social services seem to correspond to the earlier defined criteria of interprofessional QI teams in health care. A focus on function instead of profession when one forms QI teams may apply to not only social services but also health care.

**Measurable Improvements**

During the projects, the improvement teams developed new measures for assessing their improvements. Defining these measures led to clarification and consensus about what constituted the concepts of good quality in each project. The two QI projects show measurable improvements during the project phase. However, in social services, many information systems and the infrastructure for measurements are built for long-term documentation and follow-up of each client. The studied projects lacked an infrastructure for aggregation and comparison of data. Accordingly, data from the projects could not be followed easily over time to ensure sustainable improvements. The documentation in social services differs from health records, in which gathering and aggregating data are easier. However, there are other ways of assessing improvements over time, and the interviews...
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Initiate Change

Without change there is no innovation, creativity, or incentive for improvement.

Those who initiate change will have a better opportunity to manage the change that is inevitable.

— William Pollard, 1828-1893, Quaker author and minister
RISQy Business (Relationships, Incentives, Supports, and Quality): Evolution of the British Columbia Model of Primary Care (Patient-Centered Medical Home)

Dan MacCarthy, MB, BCh, BAO; Marcus J Hollander, MA, MSc, PhD

Abstract
In 2002, the British Columbia Ministry of Health and the British Columbia Medical Association (now Doctors of BC) came together to form the British Columbia General Practice Services Committee to bring about transformative change in primary care in British Columbia, Canada. This committee’s approach to primary care was to respond to an operational problem—the decline of family practice in British Columbia—with an operational solution—assist general practitioners to provide better care by introducing new incentive fees into the fee-for-service payment schedule, and by providing additional training to general practitioners. This may be referred to as a “soft power” approach, which can be summarized in the abbreviation RISQ: focus on Relationships; provide Incentives for general practitioners to spend more time with their patients and provide guidelines-based care; Support general practitioners by developing learning modules to improve their practices; and, through the incentive payments and learning modules, provide better Quality care to patients and improved satisfaction to physicians. There are many similarities between the British Columbian approach to primary care and the US patient-centered medical home.

Introduction
This paper presents an analysis and firsthand account of a major change initiative regarding primary care in British Columbia (BC), Canada. Fundamental to the approach adopted was the focus on the acronym RISQ, as follows: Relationships between funders and providers; the payment of Incentives to allow family physicians or general practitioners (GPs) to spend more time with their patients and provide guidelines-based care; Support general practitioners by developing learning modules to improve their practices; and, through the incentive payments and learning modules, provide better Quality care to patients and improved satisfaction to physicians. There are many similarities between the British Columbian approach to primary care and the US patient-centered medical home.

1. Practice Organization: There is a range of solo and group practice organizations in primary care in BC.
2. Health Information Technology: The British Columbia Medical Association (BCMA) (now Doctors of BC) and the BC Ministry of Health are providing financial assistance and training support to GPs to encourage them to adopt electronic medical records. More than 70% of BC GPs have now adopted electronic medical records.
3. Quality Care: A training program composed of several modules is available to GPs to train them on how to increase office efficiency and the quality of patient care.
4. Patient-Centered Care: General practitioners in BC provide patient-centered care and have wide discretion to provide the care they believe best benefits the patient. They do not have oversight of their clinical decisions by private insurers. An incentive payment system allows GPs to take more time to plan and care for their patients.
5. Family Medicine: All GPs or family physicians are trained in family medicine.

More detailed typologies of the features and principles of the PCMH are presented by Epperly.3 Again, with the exception that some organizations are solo practitioners, essentially all of the components of these typologies exist in the BC primary care model.

This article outlines how BC moved from an acrimonious relationship between the BC Ministry of Health and the BCMA to one of joint cooperation and collaboration with a primary focus on the well-being of patients. Thus, it involved a major change in organizational culture from a bureaucratic control model based on centralized authority, organizational processes, respect for hierarchy, and adherence to rules, to a culture with an emphasis on flexibility, teams, and broad participation by a range of actors, and in terms of the competing values framework, from a hierarchical culture to a team culture.

Background and Context
For most major initiatives, one can readily obtain information about what the initiative is and how it works: what are its component parts and how they fit together; how the initiative
is related to its context, and so on. What is often harder to determine is why the initiative works the way it does, why it was developed in a certain way, why it is successful or not, and why it is or is not sustainable. In this article, we try to shed light on the more intangible factors related to why the General Practice Services Committee (GPSC), whose mandate is to find solutions to support and to sustain full-service family practice in BC, has been successful and works the way it does. (For an overview of the GPSC, see Cavers et al and Mazowita and Cavers.) This involves an examination of basic values and beliefs about human behavior. It also relates to organizational behavior and the willingness to take risks. What is often not fully appreciated is the profound effect that values and philosophy can have on organizations. For example, Deber et al show how government philosophy and policy can have an impact on operational issues, such as how service delivery is funded. If government sees itself as primarily a purchaser of service, risk will be off-loaded to care provider organizations by adopting funding options such as capitation diagnosis-related groups and tendering. Alternatively, if government sees itself as a steward of the health care system working in partnership with care provider organizations, it may fund them on a negotiated budget, or fee-for-service, basis.

In terms of funding for physicians, BC has funded, and continues to fund, GPs primarily on a fee-for-service basis. GPs bill the Medical Services Plan, which is funded by the government. Payment is rapid (most often within one month to six weeks), but is subject to retrospective audit. There are also some sessional payments (usually blended with fee-for-service) provided for specific populations. BC has not adopted capitation payments for GPs except for a few small experiments. Also, salaried positions have not been offered for full-service GPs for many years.

To provide some context, BC is Canada’s most westerly province. It is bounded on the south by the US, on the east by the province of Alberta, on the north by the Yukon Territory and parts of Alaska, and on the west by the Pacific Ocean. The province has a population of approximately 4.4 million inhabitants and is some 364,800 square miles (slightly larger than the square miles of California, Oregon, and Washington State combined).

BC is a multicultural province with representation from a variety of racial and ethnic groups. The following data are presented from statistical tables produced by BC Stats, the province’s central statistical agency. Approximately 50% of the population live in the Vancouver and lower mainland areas. The 2 largest ethnic groups in BC are Chinese (with approximately 250,000 people indicating this as their mother tongue) and East Indian (with more than 180,000 people indicating this as their mother tongue).

Population density declines as one moves from the Vancouver area to the north and east. A large part of the province could be described as small town and rural and, in the north, even remote. (The population density for BC is some 4.8 persons per square kilometer.) This is true for many Canadian provinces. Canada’s population is about one-tenth of that of the US, and BC’s population is approximately 13% of that of Canada. The median annual household income in BC in 2006 was $46,472 CAD, and the average age of its citizens in 2011 was 41.9 years.

Regarding GP income, BCMA indicates that in Fiscal year 2011/12 (ie, April 1, 2011 to March 31, 2012) the average income for all GPs was $199,512 CAD. To estimate income for regularly practicing GPs, the BCMA also uses a second estimate that excludes part-time GPs. For Fiscal year 2011/12, this cut-off point was $82,500. Thus, for GPs with incomes greater than $82,500 CAD, the average annual income, based on claims made to the BC Medical Service Plan, was $255,522 CAD (unpublished data [DM]).

In accordance with the Canadian Constitution, the provision of health services is a provincial responsibility. Provincial and federal taxes are collected by the federal government, which provides health funding to the provinces through the Canada Health Transfer. Physician services and hospital services are single-payer, insured services and, thus, residents of BC generally receive medical and hospital services without a charge or user fee. No other services are insured services and, thus, there is a complex set of rules regarding copayments for drugs, long-term care, and other allied health services. In the 1990s, the focus in the US was on integrated service delivery systems, through managed care organizations or health maintenance organizations, whereas much of the focus in Canada was on enhancing and improving primary care services. However, more recently, primary care has become an important component of the health reforms in the US. In summary, the GPSC was established as a collaborative partnership of government and the medical profession to bring about transformative change to primary care in BC.

In the 1980s and 1990s, BC was well known for its acrimonious relationship between the government and the BCMA, punctuated by short periods of relative peace. The characteristics of this relationship were focused on comparative power and money. Who was more powerful, government officials or BCMA representatives? How much money could the BCMA extract from the government for its members? In the late 1990s, government tried to cap the overall income of physicians to restrain cost escalation. Physicians countered with Reduced Activity Days, in which they provided less service as a response to having their incomes capped in order to stay within their caps.

These tensions culminated in a 2002 arbitration award, which was rejected by the government. The government subsequently awarded physicians an additional $392 million CAD but believed that it got nothing additional for their money. Physicians, in turn, were upset with the whole process and the government’s rejection of the third-party arbitration award. New leaderships emerged in key positions at the government’s BC Ministry of Health and at the BCMA, and this ultimately led to the emergence of the GPSC (unpublished data [DM]).

**Initial Development of the General Practice Services Committee (2002-2007)**

In the 1990s and early 2000s, the BC Ministry of Health Services was, as were other health ministries across Canada, grappling with how to improve primary care. It was also facing a disillusioned and dispirited workforce of family physicians, or GPs, who were retiring early, leaving their practices to become hospitalists or emergency room physicians, or moving to special interest health clinics. Thus, there were intensive discussions about primary care reform between the government and the BCMA. The main catalyst for change was the clear decline in
the number of GPs working in traditional family practice and the resulting negative effects this would have on access to, and the quality of, care for British Columbians (unpublished data [DM]). There were two points or incidents that were critical and set the course for the emergence of the GPSC.

First, during one set of heated discussions in the early 2000s, a BCMA representative (DM) metaphorically cut the Gordian knot of how to enhance primary care in BC when he blurted out in frustration, “Why don’t you just pay us to do what you want us to do?” There was silence in the room. After a long pause, the government representatives said, “Let us think about that,” and later agreed to have further discussions on this approach. This was a major breakthrough.

Once the notion of paying GPs to provide enhanced primary care was on the table, a second point solidified the future direction to be taken. It was suggested that instead of being mired in administrative and ideologic discussions, future discussions should be focused on how best to meet the needs of patients, and all future administrative and policy discussions should be framed regarding how they can help patients. This patient-focused care approach solidified the evolution of the BC model to primary care transformation.

The solution was to address operational problems related to how primary care would be provided, and how the decline in full-service family practice could be reversed, by an operational solution. Thus, unlike other jurisdictions, which have sought structural solutions such as various forms of community clinics and group practices, BC opted for an operational solution that would build on and enhance existing structures and mechanisms. Although there are many legitimate criticisms of fee-for-service medicine, the fee schedule is, nevertheless, an excellent incentive mechanism that can be used to shape behavior and track activities.

The vehicle to be used to bring about the transformation of primary care in BC, in accordance with the two foundational concepts of “pay us to do what you want us to do” and the clear focus on the patient, was the GPSC, a joint committee of government and the medical profession, with representatives from the regional health authorities.

Relationships
A first critical step was to begin to repair the damage in the relationship between GPs and government. The GPSC determined that it wanted to build positive relationships with GPs. To do this, they staged, in 2004 and 2005, a series of Professional Quality Improvement Days to obtain the views of GPs and to allow them to vent their frustrations. These consultations were held with some 1000 GPs across the province. The key finding from these consultations was that the exodus from full-service family practice was real but could be stopped if GPs felt valued, were paid appropriately for their work, and had adequate ongoing training and support to provide good care for the increasingly complex patient population that is typical in the province. In effect, they said, “Value us, pay us, train us, and support us to provide good care.” The consultations were often tense and acrimonious but yielded extremely valuable information that was used to guide the work of the GPSC into the future. Although the exodus from traditional family practice was clear and palpable, it is not possible to document directly as one cannot assign motivation to a GP’s decision to retire, or to reduce stress and responsibility by working in a drop-in clinic, and so on.

Incentive Payments
The second step in the evolution of the GPSC, in accordance with the key values noted earlier of paying for what one wants and improving patient care, was to develop new incentive payments to encourage GPs to take the time to provide guidelines-based care to their patients. The GPSC created the Full Service Family Practice Incentive Program and started to focus on financial incentives. Incentives were designed to allow GPs to spend more time with their patients and to practice guidelines-based care. The intent was to shift the focus of care to a greater emphasis on patient-focused holistic care and healing, from what some have referred to as fragmented, body-parts medicine.

The financial benefit to GPs varies directly with their adoption and use of incentive payments. The average income for regularly practicing GPs from incentives alone in fiscal 2010/11 was $32,000 CAD (unpublished data [MHI]).

Support
One of the outcomes of the provincial consultations, and the third step, was the establishment of the Practice Support Program, which develops and delivers learning modules on topics of interest to GPs and can improve their day-to-day practices. Two of the most popular modules are Advanced Access, which trains GPs how to restructure their practice to shorten the wait time so patients can see their GP more quickly, and Adult Mental Health, which trains GPs how to provide better care for patients with mental health issues.

The Practice Support Program learning modules have truly been a major success in providing GPs with paid training and support, and the evaluation results have been extremely positive. A typical pattern for the peer-led training module is to have GP champions who have been trained in the model teach practicing GPs in their local communities. The learning modules are structured as three half-day learning sessions interspersed by two (approximately two-month) action periods when GPs practice what they learned at the learning session in their own GP practices.

Quality Revealed by Measurement
Both the Practice Support Program learning modules and the incentive payments are specifically designed to help provide better quality care to patients. Thus, one has the acronym RISQ (Relationships, Incentives, Supports, and Quality), and “RISQy Business” is a key guide to GPSC activities. There is an ongoing, independent evaluation of the Practice Support Program and the incentive payments initiatives, which has revealed very positive results for both initiatives.
Values and Principles

Over time, from the initial base of “RISQy Business” a series of 12 values and principles has evolved to guide the work of the GPSC. These are discussed at the end of this article.

Intermediate Phase of the General Practice Service Committee (2007-2010)

From 2002 to 2007, the structure, goals, and purposes of the GPSC were established, as were its initial, two main initiatives: the Full Service Family Practice Incentive Program, which provides incentive payments to GPs, and the Practice Support Program, which provides training to GPs and their medical office assistants. From 2007 to 2009, there was a rapid expansion of incentive payments. There was also an aggressive development of the initial four Practice Support Program learning modules.

Four major events occurred during this intermediate period. The first was that the GPSC established that its mode of operation would be one of aggressive, active, hands-on, strategic planning, program development, and program operations. The GPSC would not simply be a funder of new programs, or an arms-length steward of primary care. Rather, it would be an active and collaborative agent of change to transform primary care in BC.

The second major event was that an independent evaluation team was hired to evaluate the Full Service Family Practice Incentive Program and the Practice Support Program. The GPSC wanted to make evidence-based decisions and needed someone to provide them with relatively quick new knowledge development. The GPSC made it clear that it would welcome clear, objective evidence. It would build on positive results to further improve services and use the information obtained from neutral or negative results to correct the committee’s activities. Thus, what made the GPSC tick in this second phase of development was a clear, active, and evidence-based strategic planning, development, and operations approach.

It became clear early on in the evaluation that the GPSC approach was relatively unique in the primary care field. The closest parallels were with a pay-for-performance initiative in England and a conceptual paper on primary care in the US. Over time it also became clear that the GPSC model was based on different values and principles than many other initiatives in Canada and internationally. It also appeared, on the basis of research, that it could be quite a successful program.

The third major event was that an active knowledge transfer strategy was developed. It was recognized that no matter how successful a program is, it can come to naught under certain circumstances (eg, a change in leadership with different priorities). Thus, it was determined that an active program of publication and knowledge transfer would be developed. This would serve two purposes. It would inform others in the health sector who face the same challenges that BC faced in the early 2000s about a possible approach to meeting these challenges that may be helpful to them. Publication in scientific and professional journals was selected as the strategy, rather than only producing government reports for the “gray” literature. If one is taking a national and international perspective, the only knowledge that really exists about one’s program is what people in other countries can find if they search MEDLINE or a similar citation source or index. In Canada, one can share government reports, and the GPSC does so, but to reach a broader audience, one needs to publish in journals that are contained in major citation and abstract databases. The second reason for knowledge transfer was to assure current and future senior officials and politicians that GPSC activities are credible and important enough to warrant publication.

The fourth event was an outgrowth of the first three noted. As part of the evaluation conducted for the GPSC, an important new finding emerged regarding the benefits of the continuity of care. It was found that for people with high care needs who had diabetes or congestive heart failure, there was an inverse relationship between the level of attachment of the patient to the provider’s practice and costs. Thus, the higher the attachment, the lower the cost. This finding was validated using multivariate analyses. Hollander et al’s article had a major influence on policy and program development in BC and was the basis for the development of a provincial “Attachment Initiative” (described in the next section).

Moving to a Broader Corporate Approach (2010 and Onward)

In 2010, the GPSC took on 2 major new initiatives. The first initiative was the development of Divisions of Family Practice, which facilitate greater cooperation and collaboration among GPs in what evolved into more than 30 geographic areas. The Divisions of Family Practice also facilitate discussions between GPs and regional health authority representatives about how to streamline and improve the delivery of patient care. The discussions take place through Collaborative Service Committees composed of divisional physicians and health authority representatives. The second new initiative was the development of an Attachment Initiative, which seeks to find family physicians for persons who do not have them and to solidify and support the existing relationship between family physicians and their patients.

In addition, 2010 saw the beginning of an expansion in the range of incentive payments and major developments in the Practice Support Program. Several new Practice Support Program learning modules were implemented between 2010 and 2013, including learning modules on child and youth mental health, end-of-life care, and shared care (Chronic Obstructive Pulmonary Disease and Heart Failure). Thus, the GPSC has expanded and has had to make adjustments in personnel and procedures to allow it to move to the next level and operate on a larger scale. In particular, because of the success of the GPSC, Specialist Services and Shared Care Committees have been established, and there is an overall senior committee that now provides oversight to the GPSC and the other two committees.

A Brief Word on Pay for Performance

The literature on pay for performance reveals mixed results. Although the Quality and Outcomes Framework in England does appear to have had some success, the results are also still somewhat mixed. The term pay for performance can have a range of meanings. In its true sense, pay for performance relates...
to payments for specific outcomes that improve the health of patients, populations, or both. The payments are to individual physicians, group practices, or clinics. However, pay for performance, in actual practice, quite often refers to payments for process, such as doing an immunization, or ordering a certain test such as for diabetes. This is best understood as pay for activity, not performance.

In terms of the GPSC, the incentive payments are a form of pay for activity compensation, similar to that found in other jurisdictions. What is unique about GPSC is that it incorporates a two-step process. It pays for activities conducted by GPs to provide guidelines-based, or enhanced, care. However, in terms of outcomes or performance, it takes the view that there are many methodologic and other shortcomings in the pay-for-performance approach when applied to individual GPs. Thus, the GPSC decided to look at performance at the system level. Is overall medical care improving? Does the GPSC approach increase value for money? On the basis of the values and beliefs that in most cases GPs will provide the best care they can when they are valued, supported, and paid reasonably, the position was taken that a more collective approach—we all sink or swim together—would be more appropriate. That is, performance was to be determined at the broader systems level, rather than at the individual GP level.

Values and Principles that Underlie the General Practice Service Committee

On the basis of the above-mentioned analysis, the 12 values and principles that underlie the activities of the GPSC are:

1. A belief in practical solutions (pay us to do what you want us to do)
2. A clear focus on the patient (all policy and program discussions are analyzed through a lens of how it will help patients)
3. The adoption of the Triple Aim approach of the Institute for Healthcare Improvement (ie, initiatives are viewed through the 3-way lens of population health, per capita costs, and the experience of care)
4. A belief that most GPs want to do well and help others
5. A belief that most GPs recognize and value ongoing training to improve their practices
6. A belief that support from the BC government and the regional health authorities reduces the clinical isolation of GPs and produces better patient outcomes
7. A belief in active, hands-on management to identify and resolve problems quickly
8. A willingness to be evaluated and to accept objective evidence—to build on positive findings and correct policy and programs if there are negative findings
9. A recognition of the importance of sharing results with others
10. A focus on collective results
11. A recognition that change is difficult and requires constant hard work to be successful
12. A belief in the value of inspired, thoughtful, transparent, and strategic leadership.

These values and principles are ingrained into the GPSC and guide day-to-day decisions, whether they relate to how a new program (eg, a new incentive, a learning module, or major initiatives such as Divisions of Family Practice) should be structured; what goals, objectives, and policies it should have; and how one deals with day-to-day operational activities. Their continued acceptance will be critical for the ongoing sustainability of the GPSC and its expansion to the Shared Care and Specialist Services Committees.

Challenges Ahead

Although the GPSC has been well regarded, it is still vulnerable and will need ongoing support and attention to remain sustainable. A key challenge for the GPSC will be dealing with internal, external, and professional challenges by those who are not comfortable with or do not believe in a collaborative approach to health care, or who have their own agendas and/or competing approaches to promoting primary care. The GPSC’s current tactics of evaluating and publishing results, engaging with stakeholders, and exchanging knowledge may need to be further expanded to build bridges to others so the GPSC can continue to develop and sustain collaboration for improved patient care.

Another challenge is that the GPSC approach gives GPs the infrastructure to provide high-quality care. Along with this comes greater responsibility to ensure quality by the BCMA and the medical profession so that the public and decision makers do not lose confidence in the GPSC approach. Related to this is the challenge of being able to adequately support the local Collaborative Services Committees composed of representatives from the Divisions of Family Practice, Regional Health Authorities, the GPSC, and the community to truly provide collaborative care.

It will also be important to ensure that the GPSC is not seen simply as a vehicle for giving more money to physicians without getting a return on the investment. The evaluation will be key to shedding light on this challenge. It will also be important to document, and make clear to decision makers, the possible cost savings and/or cost avoidance from GPSC activities for other parts of the health care system (ie, reduced hospital days), so that the GPSC is not misunderstood as being a cost add-on. A final issue will be succession. When current leaders retire or go on to other activities, care will need to be taken to ensure strong, committed, and competent new leadership. The key will be to ensure that new leaders also adhere to the 12 values and principles noted in the previous section.

The GPSC is open to new ideas and approaches and wishes to learn from others. It will make a point of trying to compare itself with other approaches to primary care and to focus on continuous quality improvement. 

*Recently, in January 2014, the BCMA changed its name to Doctors of BC. For purposes of clarity we shall still refer to the BCMA in this article as that was the name of the organization up to the end of 2013.*
In Their Own Houses

First, the sick without being pained by a separation from their families may be attended and relieved in their own houses. Secondly, the sick can in this way be assisted at a less expense to the public than at a hospital. Thirdly, those who have seen better days may be comforted without being humiliated: and all the poor receive the benefits of a charity the more refined, as it is the more secret.

— First annual report in 1813 of the Boston Dispensary, established in 1796
“Serenity” was taken at sunrise from the waters of Sprague Lake in Rocky Mountain National Park, CO.

Dr McDowell is a Plastic Surgeon at the Denver Medical Office. He has a great affinity for landscape, street, and travel photography. More of his photography can be viewed on the cover and online at [www.DiversityofVision.com](http://www.DiversityofVision.com).
Creating a Longitudinal Integrated Clerkship with Mutual Benefits for an Academic Medical Center and a Community Health System

Ann Noelle Poncelet, MD; Lindsay A Mazotti, MD; Bruce Blumberg, MD; Maria A Wamsley, MD; Tim Grennan, MD; William B Shore, MD

Abstract

The longitudinal integrated clerkship is a model of clinical education driven by tenets of social cognitive theory, situated learning, and workplace learning theories, and built on a foundation of continuity between students, patients, clinicians, and a system of care. Principles and goals of this type of clerkship are aligned with primary care principles, including patient-centered care and systems-based practice. Academic medical centers can partner with community health systems around a longitudinal integrated clerkship to provide mutual benefits for both organizations, creating a sustainable model of clinical training that addresses medical education and community health needs.

A successful one-year longitudinal integrated clerkship was created in partnership between an academic medical center and an integrated community health system. Compared with traditional clerkship students, students in this clerkship had better scores on Clinical Performance Examinations, internal medicine examinations, and high perceptions of direct observation of clinical skills.

Advantages for the academic medical center include mitigating the resources required to run a longitudinal integrated clerkship while providing primary care training and addressing core competencies such as systems-based practice, practice-based learning, and interprofessional care. Advantages for the community health system include faculty development, academic appointments, professional satisfaction, and recruitment.

Success factors include continued support and investment from both organizations’ leadership, high-quality faculty development, incentives for community-based physician educators, and emphasis on the mutually beneficial relationship for both organizations. Development of a longitudinal integrated clerkship in a community health system can serve as a model for developing and expanding these clerkship options for academic medical centers.

Introduction

Medical student education is in an exciting period of transformation because medical schools are actively working to incorporate modern learning principles into their structure and align the forces affecting delivery of care with educational priorities. Important recent advances in the learning sciences expand the understanding of learning beyond the acquisition of knowledge, which is individual in focus (behaviorist, cognitivist, humanist, and constructivist learning theories),\(^1,2\) to participation, with learning being contextual and embedded in social processes (situated learning, social cognitive theory, workplace learning).\(^3\) Learning is tied to context with the learner joining a community of practice. The novice initially has legitimate peripheral participation in the authentic work of the practice then moves to more central participation with the growth of the skills of the learner and the trust of the community. The learners’ participation over time transforms the community.

The recent study of medical education by the Carnegie Foundation for the Advancement of Teaching in Stanford, CA, included 14 site visits and review of the research on medical education and the learning sciences.\(^4\) The study found medical education to have the following characteristics:\(^5\)

1. inflexible, long, and not learner centered
2. overly focused on the inpatient clinical experience
3. situated in hospitals with marginal capacity to support a teaching mission
4. poor connection between formal knowledge and experiential learning
5. inadequate attention to patient populations and health care systems
6. inadequate opportunities to work with patients longitudinally.

The harm created by the fragmentation of clinical training and the importance of continuity as a vehicle for learning has gained awareness in the medical education community. This fragmentation is a barrier to situated learning in a community of practice.\(^6\)

Four key recommendations emerged from the Carnegie study:\(^1\) integration of knowledge and experience, 2) habits of inquiry and improvement with a focus on excellence, 3) standardization and individualization (setting outcomes and allowing flexibility in learning), and 4) focus on development of professional values and dispositions (identity formation). Longitudinal clinical experiences were recom-
mended as a method of integrating formal and experiential knowledge. Such clinical experiences also were recommended as a way of supporting professional identity formation with a commitment to values, dispositions, and aspirations by participation in a community of practice; observation of role models; and coaching, instruction, assessment, and feedback.

Longitudinal integrated clerkships are a curricular structure that incorporates many of the recommendations of the Carnegie report and that are strongly influenced by situated learning, social and cognitive learning theory, and workplace learning. Although longitudinal integrated clerkships are diverse in their structure and contextual characteristics, they all share three foundational elements: 1) medical students participate in the comprehensive care of patients over time, 2) they participate in continuing learning relationships with these patients' clinicians, and 3) they meet most of the year's core clinical competencies, across multiple disciplines simultaneously through these experiences (consensus definition, Consortium of Longitudinal Integrated Clerkships, 2007).

An additional element for some programs is the opportunity to develop a connection between the student and the clerkship host community. Longitudinal integrated clerkship programs have been successfully created in settings that range from remote rural primary care practices to urban academic medical centers.

The principles of longitudinal integrated clerkships closely mirror those of primary care and are based on patient-centered care and longitudinal relationships with faculty preceptors and patients in acute and chronic care settings. In 2005, the University of California, San Francisco (UCSF) began incorporating aspects of continuity with patients, peers, preceptors, and a medical system into students' core clerkship training, and the university successfully launched a one-year longitudinal integrated clerkship at its academic medical center in 2007. Currently, 20% of the medical school class participates in a longitudinal integrated clerkship program, with another 30% of medical students participating in hybrid clerkship programs that include continuity with peers, faculty, and health systems.

The literature reports numerous documented benefits of longitudinal integrated clerkships. Continuity with faculty preceptors in these clerkships provides increased opportunities for observation and feedback on clinical skills, and continuity with a health care system provides opportunities to better understand systems-based practice. Continuity with patients allows students to form deeper relationships and to contribute in meaningful ways to patient care. Students participating in longitudinal integrated clerkships do not experience the erosion of patient-centered values that is well-documented during medical school, and they are less subject to the negative effects of the 'hidden curriculum.' The hidden curriculum is defined as the “set of influences that function at the level of the organizational structure and culture” and has been posited as a key factor in the degradation of student values during medical training. Students in longitudinal integrated clerkships report that their participation in the clerkship inspires commitment, advocacy, and idealism. Finally, students in longitudinal integrated clerkships have more continuity with patients and spend more time independently performing patient care in a physicianlike role compared with students in traditional block rotations. However, longitudinal integrated clerkships can be faculty and resource intensive.

Symbiosis is defined as a mutually beneficial partnership between persons, organizations, or concepts of different kinds. In this spirit, UCSF approached Kaiser Permanente (KP) to develop a joint longitudinal integrated clerkship. Founded in 1945, KP is the nation’s largest not-for-profit Health Plan, serving more than 8.8 million members. The mission of KP is to provide high-quality, affordable health care services and to improve the health of its members and the communities it serves. The KP model is based on the delivery of complete, integrated care orchestrated by the primary care physician and specifically focused on disease prevention, early intervention, and chronic disease management. These KP principles mirror the principles of longitudinal integrated clerkships, which emphasize the importance of continuity between the clinician and the patient.

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Figure 1. Organizational structure of curriculum oversight for the Kaiser Longitudinal Integrated Clerkship (KLIC).

GME = graduate medical education; KP Oakland = Kaiser Permanente Oakland Medical Center; UCSF = University of California, San Francisco.
as well as the care of the whole patient across care settings (inpatient, ambulatory) and across different disciplines.

**Methods**

In 2009, Longitudinal Integrated Clerkship Directors from UCSF met with multiple KP sites, with the introduction and support of the KP Regional Graduate Medical Education Director, who had an interest in collaborating on such a model. Simultaneously, UCSF Longitudinal Integrated Clerkship Directors met with educational deans, curricular oversight committees, and all participating Clerkship Directors to present and vet this new clerkship proposal. In 2010, KP Oakland Medical Center in Oakland, CA (KP Oakland), was selected as the location for the clerkship because of its commitment from leadership and its prior successful track record with graduate medical education (teaching first-through fourth-year medical students both from UCSF and other institutions).

KP hired a Clerkship Director at 40% full-time employment (FTE), appointed an Assistant Clerkship Director at 10% FTE, and hired a full-time clerkship administrator. In addition, KP began to recruit liaisons and preceptors from each department. The organizational relationship between UCSF and KP Oakland is seen in Figure 1.

**Clerkship Design and Student Experience**

The Kaiser Longitudinal Integrated Clerkship (KLIC) was launched at KP Oakland in April 2011 and uses the same model as the longitudinal integrated clerkship at UCSF. Eight students simultaneously complete eight primarily ambulatory core clerkship rotations (anesthesia, family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery) along with experiences in emergency medicine and the surgical subspecialties. They also complete short inpatient experiences in surgery, medicine, and obstetrics and gynecology, and “mini-immersions” of four to five days in pediatrics and neurology. A one-week sample schedule is shown in Table 1.

Students are paired with 1 preceptor in each discipline, attending each clinic approximately once every other week. They establish a panel of 50 to 75 patients and have independent learning time (usually 2 afternoons per week) to follow their panel patients to clinic visits, surgeries, and deliveries or to engage in independent learning based on core competencies they are expected to meet for each discipline. In a given morning in an outpatient clinic, a student will see 2 or 3 patients. The most common pattern is after obtaining consent from the patient, the student will do the interview and brief examination alone, then return to the preceptor to present the patient’s case and discuss his or her findings, initial assessment, and care plan. The student and preceptor then return together to reexamine the patient and confirm the plan. Students have full access to the electronic health record and document a medical student note in the patient’s chart. Students also participate in a weekly didactic seminar with lectures from each discipline and interdisciplinary lectures.

| Table 1. Example of weekly student schedule for longitudinal integrated clerkship |
|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Time        | Sunday | Monday | Tuesday | Wednesday | Thursday |
| Morning     | ER     | Psychiatry clinic | KLIC KLASS | Neurology clinic | Family Medicine clinic |
| Lunch       | ER     | Conferences | Conferences | Conferences | Surgery OR day |
| Afternoon   | ER     | OB-GYN clinic | Medicine clinic | Independent learning | Independent learning |
| Evening     |       | Reflection session |       |       | Surgery OR day |

* A weekly didactic seminar with lectures from each discipline and interdisciplinary lectures.
* A faculty-facilitated monthly session where students reflect upon topics such as challenging patients, transitions of care, and medical errors.

ER = emergency room; KLIC = Kaiser Longitudinal Integrated Clerkship; OB-GYN = obstetrics and gynecology; OR = operating room; blanks = free time.

Clerkship Preceptors

Preceptors undergo an orientation at the start of each year as well as ongoing faculty development on topics such as clinical teaching, time-efficient teaching, and writing evaluations. The number of clinic half days vary for each specialty depending on the number of weeks the clerkships traditionally span at UCSF, and range from 16 half days with psychiatry preceptors to 27 half days with internal medicine preceptors. Surgical specialties see their students both in clinic and in the operating room.

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Clerkship students are assigned to an advisor, a KP physician who is not their direct preceptor. The advisor helps monitor the students’ quarterly progress, provides feedback on individual learning plans that the students are asked to complete, helps intervene and problem solve, and advocates on the students’ behalf to program leadership.

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Preceptors are recruited on the basis of their interest in clinical teaching as well as their ability to meet their clinical demands. Preceptors are generally given some release time from their clinic (average, 30 to 45 minutes), which is supported by their department.

Evaluation

Students are evaluated quarterly in the same manner as for the UCSF Longitudinal Integrated Clerkship, in which a student’s preceptors complete an online competency-based evaluation and are asked to participate in a quarterly evaluation meeting in which their shared student’s progress is discussed.11 Students evaluate their preceptors quarterly and submit midyear and end-of-year evaluations on each specialty and the overall KLIC experience. These evaluations are completed through UCSF’s online evaluation system. Student performance on Clinical Performance Examinations, an examination for each discipline (from UCSF), and national board scores are also tracked by UCSF. Final grades are compiled by the KP liaison and submitted to the UCSF Clerkship Director, who submits the final clerkship grade.

Data Analysis

With assistance from UCSF’s Office of Medical Education, we examined demographics of the KLIC students from 2011 through 2013 (N = 12) and the students who completed traditional clerkships from 2011 through 2013 (N = 181) to determine, with a χ² and Fisher exact test, whether there were statistically significant differences regarding their sex. Using analysis of variance (ANOVA) tests, we also examined perceptions of overall quality of faculty clinical teaching, quality of formal teaching, adequacy of direct observation and feedback, perceived achievement of course objectives, and rating of the clerkship as a whole. We also report in further detail the results of specific components of the KLIC experience. This survey has no comparison survey with the traditional students, because it pertains to the unique aspects of KLIC. Using ANOVA tests, we compared the end-of-clerkship examination scores and the percentage of students given honors in each clerkship between KLIC students and traditional students. Last, we report residency matriculation for the KLIC graduates of 2011 and 2012.

Results

Twelve of 16 students completed the KLIC experience. For personal or academic reasons, 4 KLIC students did not complete the clerkship year. There were no significant differences in sex between the 2 groups using Fisher exact test (traditional clerkship male-to-female ratio = 86:95, KLIC ratio = 2:10, p = 0.069).

Step 1 scores before entering the third year did not differ between KLIC and traditional clerkship students, nor did the Step 2 Clinical Knowledge scores, taken after the completion of the clerkship year. The Clinical Performance Exam scores demonstrated significantly higher performance by the KLIC students in the domain of data gathering (Table 2).

In end-of-year UCSF clerkship evaluations, the perceptions of KLIC students did not differ significantly from the traditional students, except that KLIC students perceived better direct observation of clinical skills than did traditional students (Table 3).

### Table 2. Comparison of US Medical Licensing Examination Steps 1 and 2 and Clinical Performance — Examination scores between Kaiser Longitudinal Integrated Clerkship (KLIC) (N = 12) and traditional students (N = 181)

<table>
<thead>
<tr>
<th>Examination</th>
<th>KLIC students (N = 12)</th>
<th>Traditional students (N = 181)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Medical Licensing Examination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1 Clinical Knowledge</td>
<td>227.7 (16.6)</td>
<td>225.3 (23.9)</td>
<td>0.739</td>
</tr>
<tr>
<td>Step 2 Clinical Knowledge</td>
<td>239.6 (18.7)</td>
<td>238.85 (19.9)</td>
<td>0.901</td>
</tr>
<tr>
<td>Clinical Performance Examination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data gathering skills</td>
<td>67.85 (4.7)</td>
<td>63.97 (5.89)</td>
<td>0.027a</td>
</tr>
<tr>
<td>Communication skills</td>
<td>91.73 (4.68)</td>
<td>88.87 (5.34)</td>
<td>0.071</td>
</tr>
</tbody>
</table>

* Significant difference between KLIC students and traditional students. SD = standard deviation.

### Table 3. Comparison of end-of-year University of California, San Francisco clerkship evaluations between Kaiser Longitudinal Integrated Clerkship (KLIC) students and traditional students, 2011-2013

<table>
<thead>
<tr>
<th>Evaluation parameter</th>
<th>KLIC students (N = 12), mean (SD)</th>
<th>Traditional students (N = 181), mean (SD)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall quality of faculty clinical teaching</td>
<td>4.29 (0.35)</td>
<td>4.35 (0.41)</td>
<td>0.627</td>
</tr>
<tr>
<td>Quality of formal teaching</td>
<td>4.20 (0.44)</td>
<td>4.12 (0.46)</td>
<td>0.551</td>
</tr>
<tr>
<td>Adequacy of direct observation of your clinical skills</td>
<td>4.22 (0.55)</td>
<td>3.91 (0.50)</td>
<td>0.039b</td>
</tr>
<tr>
<td>Adequacy of feedback on your performance</td>
<td>3.88 (0.57)</td>
<td>3.91 (0.50)</td>
<td>0.857</td>
</tr>
<tr>
<td>Your achievement of course objectives</td>
<td>4.21 (0.52)</td>
<td>4.27 (0.44)</td>
<td>0.654</td>
</tr>
<tr>
<td>Clerkship as a whole</td>
<td>4.15 (0.49)</td>
<td>4.28 (0.40)</td>
<td>0.295</td>
</tr>
</tbody>
</table>

* Five-point scale: 1 = poor and 5 = excellent.

* Significant difference between KLIC students and traditional students. SD = standard deviation.
Year-end evaluations of the KLIC are demonstrated in Table 4. Table 5 reports the percentage of honors received by KLIC and traditional students in each clerkship, which were not significantly different in χ² tests. Examination scores were also compared using χ² tests, and KLIC students received significantly higher internal medicine examination scores than did traditional students (KLIC student mean = 85.33, SD = 8.88 vs traditional student mean = 78.24, SD = 8.80). Family and community medicine was the most common choice for residency (4 students), followed by emergency medicine (2 students), psychiatry (2 students), internal medicine (1 student), and pathology (1 student). Two students are currently taking a year off before applying to residency.

**Discussion**

We have created a successful longitudinal integrated clerkship partnership between a community medical center (KP) and an academic medical center (UCSF). On the basis of our experience and the literature, this symbiotic partnership has benefits for students, patients, clinicians, and both organizations (Table 6). Advantages for UCSF include mitigating the resources required to integrate continuity into clinical training, providing primary care training, and addressing core competencies such as systems-based practice, practice-based learning, and interprofessional care. This partnership also provides an opportunity to begin clinical placements at KP in the preclerkship years as UCSF moves toward incorporating clinical and systems continuity for medical students across the four-year curriculum, to engage students in systems-based practice and to integrate undergraduate and graduate medical education along a competency-based advancement continuum. Advantages for KP include faculty development and academic appointments, professional satisfaction, exposing students to an integrated primary care delivery system, and recruitment of future physicians. An overarching vision for both organizations is to create a sustainable approach for medical education to address the future health care needs of the US.

Our results are similar to outcomes published on the UCSF-based longitudinal integrated clerkships. The KLIC students and traditional students perceive their clerkships to be equivalent, with the exception that KLIC students perceive more direct observation, likely secondary to the ongoing relationships they have with their preceptors. The percentage of honors given to KLIC students and traditional clerkship students did not differ significantly, and examination performance was equivalent with the exception of the internal medicine examination, on which KLIC students performed significantly better than their peers did. Reasons for this difference are uncertain.

Participation in KLIC may allow for improved data gathering in clinical encounters, based on the KLIC students’ Clinical Performance Exam scores, possibly because students spend more time in the workplace seeing patients compared with traditional students and are able to hone their interview skills given this increased amount of patient interaction. Clinical Performance Exam cases are also all ambulatory-based cases, and traditional students spend much less time in ambulatory settings.

Challenges to creating a community-based longitudinal integrated clerkship include cost and coordinating a clerkship.
Creating a Longitudinal Integrated Clerkship with Mutual Benefits for an Academic Medical Center and a Community Health System

Program off-site from the academic medical center. First, the cost of a longitudinal integrated clerkship is high if absorbed by the community health system, both in terms of supporting the clerkship leadership and in terms of productivity. Faculty time is required not only at the Program Director and program administrator levels but also for leadership roles in each department and for faculty release time for teaching and assessment. Developing faculty can also be costly, especially in a system unfamiliar with teaching, requiring intensive foundational elements of clinical teaching and assessment. Fortunately, our community health system had a tradition of undergraduate and graduate clinical education, allowing us to focus more on longitudinal teaching and assessment. Second, communication and coordination with the Clerkship Directors, administrators, and medical school educational leadership need to be active and ongoing. Ensuring that changes in the traditional

| Table 6. Mutual benefits for University of California, San Francisco (UCSF) School of Medicine and Kaiser Permanente (KP) Oakland Medical Center |
|--------------------------------------------------|--------------------------------------------------|
| **Benefits**                                | **UCSF**                                              | **KP Oakland Medical Center** |
| Resources                                  | Expands LIC placements for third-year medical students | Faculty development for KP staff |
|                                               | Provides increased clinical placements for core disciplines that are at maximal capacity | Faculty appointments for KP physicians |
|                                               | Provides opportunities by decompressing traditional clerkship rotations | Student presence fosters learning environment for students, staff, and patients |
|                                               | Having fewer students in traditional clerkships potentially enhances these experiences:  | Economy of scale: schedules and didactics done once yearly, can be exported to other KP sites |
|                                               | • Students can have a more authentic role | |
|                                               | • Decreases burden on clinical services | |
|                                               | • Frees up resources to improve learning experiences based on pedagogy | |
|                                               | Increases pool of clinical placements that may facilitate earlier longitudinal clinical experiences in preclerkship years | |
|                                               | Models to create additional LIC sites at other KP locations | |
|                                               | Creates economy of scale: schedules and didactics done once yearly, can be exported to other LIC and hybrid clerkship sites | |
| Propagation of longitudinal principles        | Creates sustainable model of clinical training that incorporates LIC principles | Opportunity to participate in clerkship program whose structure is aligned with structure of KP’s health care system |
|                                               | Informs curricular change at UCSF and beyond | |
| Innovation                                  | Creates opportunity to explore continuity across the continuum of medical education (undergraduate and GME) | Creation of novel health systems and leadership program, which may be adaptable to other settings and other levels of learners (residents, preclinical students, etc) |
|                                               | Opportunity to create longitudinal curriculum or extend LIC principles across undergraduate medical education, GME, and CME. | |
| Primary care principles                      | Creates opportunity for UCSF medical students to work with primary care physicians and specialists who are not subspecialized | Students exposed to functional model of primary care delivery |
|                                               | Opportunity to train physician workforce who understand and to begin to develop competencies essential in an integrated health care system:  | Influence specialty selection in a manner that will benefit society |
|                                               | • Systems-based practice | |
|                                               | • Practice-based learning | |
|                                               | • Interdisciplinary team-based care | |
|                                               | • Physician leadership | |
|                                               | • Population/chronic conditions management | |
| Addressing core competencies                | Creates opportunity to work in an integrated health care system and address core competencies that may be harder to model in an academic medical center: | Opportunity to train physician workforce who understand and to begin to develop competencies essential in an integrated health care system: |
|                                               | • Systems-based practice | • Systems-based practice |
|                                               | • Practice-based learning | • Practice-based learning |
|                                               | • Interdisciplinary team-based care | • Interdisciplinary team-based care |
|                                               | • Physician leadership | • Physician leadership |
|                                               | • Population/chronic conditions management | • Population/chronic conditions management |
| Benefit of teaching/collaboration            | Creates opportunity for clinicians, faculty, and educators from both institutions to work together and learn from each other | Opportunity for clinicians, faculty, and educators from both institutions to work together and to learn from each other |
|                                               | Professional satisfaction from teaching for KP attending physicians | |
| Workforce issues                            | Addresses a UCSF mandate to train physicians who can address the health care needs of California | Number of students who choose KP residency programs and staff positions increased |
|                                               | Number of physicians who appreciate and can disseminate KP values such as integrated health care, patient-centered care, preventive care, etc increased | |
|                                               | Number of primary care physicians increased | |

CME = continuing medical education; GME = graduate medical education; LIC = longitudinal integrated clerkship.
clerkship curriculum are translated to community sites is an ongoing need for both traditional and longitudinal integrated clerkships. Working with a struggling student can be a challenge to any longitudinal integrated clerkship program, and close coordination with the leadership at the academic medical center is critical in these situations, especially in a distributed setting.

Establishment of KLIC was made possible through the support and funding from both local and regional KP leadership, as well as support of UCSF educational leaders and Clerkship Directors. Contributions from experienced administrators and an on-site Clerkship Director, as well as experienced medical student preceptors, also ensured success. Close collaboration and communication with UCSF Clerkship Directors and governing bodies was necessary. End-of-year clerkship evaluations by students demonstrated high student satisfaction with preceptorships and didactics and a strong sense of community among those involved in KLIC. A new undergraduate medical education committee was created to focus on medical student education at KP Oakland.

Expanding the relationship between a community health system and an academic medical center requires faculty development and dissemination of a culture committed to high-quality teaching and assessment. The UCSF faculty development seminars are open to KP physicians. KP appointed a physician lead to collaborate with UCSF, organize quarterly faculty development workshops on-site at KP, and serve on the UCSF Faculty Development Committee. A KP physician participates in a yearlong UCSF faculty development program in medical education. Additionally, UCSF is working to streamline the process of obtaining volunteer clinical faculty status for KLIC faculty, providing an incentive to community physician educators.

As academic medical centers strive to apply the principles of longitudinal integrated clerkships across the continuum of medical education, we anticipate continued engagement with community hospitals and health systems, particularly KP, as a nationwide health care organization. Such partnerships could focus on longitudinal clinical experiences in the first few years of medical school, third-year longitudinal integrated clerkships, and systems-based practice/population health experiences and curricula in a functional primary care system. Factors critical to the success of these partnerships include continued support and investment from community and academic medical center leadership, improvement and organization of faculty development, provision of incentives for community-based physician educators, and emphasis on the mutually beneficial relationship for both medical centers. Our early experience with the UCSF-KLIC program is one of a sustainable, mutually beneficial partnership that translates current educational principles into practice and has the potential to inform and transform the delivery of health care in the US.

Disclosure Statement

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

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This towering medieval abbey, located on a rocky outcropping on the Normandy coast, is one of France's greatest tourist attractions. A Benedictine monastery was first established here in 966 CE. During the following centuries, it has undergone many additions and restorations. It even served as a prison during the French Revolution. Today it is a UNESCO World Heritage Site.

Dr. Gaskill is a retired Otolaryngologist from the Santa Clara Medical Center in CA.
CME credits available for this article — see page 96.

ORIGINAL RESEARCH & CONTRIBUTIONS

Special Report

Physician Update: Total Health

Phillip Tuso, MD

Abstract

As an integrated prepaid health care system, Kaiser Permanente (KP) is in a unique position to demonstrate that affordability in health care can be achieved by disease prevention. During the past decade, KP has significantly improved the quality care outcomes of its members with preventable diseases. However, because of an increase in the incidence of preventable disease, and the potential long-term and short-term costs associated with the treatment of preventable disease, KP has developed a new strategy called Total Health to meet the current and future needs of its patients. Total Health means healthy people in healthy communities. KP’s strategic vision is to be a leader in Total Health by making lives better. KP hopes to make lives better by 1) measuring vital signs of health, 2) promoting healthy behaviors, 3) monitoring disease incidence, 4) spreading leading practices, and 5) creating healthy environments with our community partners. Best practices, spread to the communities we serve, will make health care more affordable, prevent preventable diseases, and save lives.

Introduction

Since its inception almost 70 years ago, Kaiser Permanente (KP) has reversed the economic incentive in medicine by focusing on prevention. Henry J Kaiser’s workers paid for their medical care in advance, and the healthier that KP’s physician founder, Sidney Garfield, MD, could keep Mr Kaiser’s employees, the more productive they would be on the job. Dr Garfield reportedly even walked through the construction sites pounding down nails so that workers wouldn’t step on them and require medical treatment. Today, KP’s emphasis on health maintenance and disease prevention instead of traditional fee-for-service “sick care” has evolved into the concept of Total Health: a state of complete physical, mental, and social well-being for all people.

KP and the Care Management Institute have developed a Total Health strategy geared to supporting members, and communities—including KP’s own employees—where they live, learn, labor, and play. KP has adopted innovative approaches to preventive care and wellness programs by involving schools, businesses, governmental agencies, faith-based institutions, clinics, hospitals, and communities in the Total Health framework. Reducing the rate of obesity and preventing preventable disease is a cornerstone of this framework. Total Health means healthy people in healthy communities.

Marshal Ganz, senior lecturer in public policy at the Kennedy School of Government at Harvard University, teaches that values are transformed into action through use of public narrative.2 The public narrative engages the head and the heart; it not only teaches how one ought to act but also inspires one to do so. The public narrative, according to Ganz, is a leadership art composed of three elements: the story of now, the story of self, and the story of us. The public narrative is a great public story designed to help improve society by identifying opportunities for change (the story of now), examples of change (the story of self), and best practices that can be spread to improve society (the story of us).

The Story of Now

Martin Luther King once said: “We have also come to this hallowed spot to remind America of the fierce urgency of now.” For our country, the “story of now” would include a plot featuring skyrocketing health care costs, payers pressuring health care providers to make care more affordable, and businesses struggling to remain profitable in the wake of mounting health care expenditures.2 Preventing disease remains a key strategy to improving quality and lowering cost. In the US, we spend almost $3.5 trillion on health care.4 One third of health care costs goes toward treating preventable disease. By definition, preventable diseases are preventable yet we spend less than 10% of health care dollars on prevention. Preventable diseases include obesity, diabetes mellitus, cardiovascular disease, and cancer. However, obesity threatens the promise of a healthy nation because it can trigger prediabetes, diabetes, high blood pressure, high cholesterol, heart disease, and cancer.

One-third of American adults and 17% of children are obese.5 Obesity is a major cause of death and disability.6 The estimated annual cost of obesity-related illness based on data from the Medical Expenditure Panel Survey for 2000-2005 is $190 billion, or nearly 21% of annual medical spending in the US.6,7 The estimated annual cost of obesity-related illness based on data from the Medical Expenditure Panel Survey for 2000-2005 is $190 billion, or nearly 21% of annual medical spending in the US.6,7 Obesity predisposes adults and children to type 2 diabetes.8 Unless Americans change current behavior, one-third of children born today will develop type 2 diabetes in their lifetime.9 At current projections, children born today may have a life expectancy that is shorter than that of their parents unless the rate of obesity is abated.10 Winning the war on obesity is critical to having a healthy America (see Sidebar: Lifestyle Management and Diabetes Prevention).

The Story of Self

KP’s mission is to provide high-quality care at an affordable cost. During the past few years, we have realized that most preventable disease can be successfully treated in an integrated

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Physician Update: Total Health

health care system. However, most of our resources are still focused on treatment of patients with chronic preventable disease and not prevention. The Total Health strategy is to shift our paradigm from disease treatment to disease prevention. KP’s strategic vision is to be a leader in Total Health by making lives better through disease prevention. We hope to make lives better by:

- measuring vital signs of health
- promoting healthy behaviors
- monitoring disease incidence
- spreading leading practices
- creating healthy environments.

Measuring Vital Signs of Health

For several years, KP has been measuring vital signs of health for everyone who comes into the clinic. Thus far, these measurements include body mass index and physical activity. The measures are placed into the electronic medical record, which is available for members to view on their personal Web site (www.kp.org).

According to the Institute of Medicine (IOM), healthy eating and active living are 2 potential interventions to slow down the obesity epidemic and prevent disease.11,12 For this reason, KP determined that measures for health should include physical activity and nutrition. The ideal measure for physical activity is set at a minimum of 150 minutes per week as outlined by the National Institute of Health in 2008.13 A proposed vital sign measure to indicate healthy eating is the number of days per week that an individual consumes at least 5 servings of fruits or vegetables. Recent data from the literature suggests that a plant-based diet (more fruits and vegetables per day) can significantly reduce the risk of cancer, diabetes, heart disease, and renal disease (Figure 1).14,15

Data from KP Southern California show that about one-third of adult members are obese (Figure 2) and that there is a strong relationship between members’ high obesity rates and lack of exercise (Figure 3). Recent survey data reported from KP Northern California show that less than 20% of members consume at least 5 servings of fruits and vegetables per day (Figure 4). More women consume at least 5 servings of fruits and vegetables per day than men, and the percentage of women and men who consume at least 5 servings of fruits and vegetables per day appears to be increasing over time. The vital signs of health data mentioned above suggests that we have an opportunity to improve the health of our members by increasing the percentage of patients who are physically active and eat a healthy diet.

Promoting Healthy Behaviors

The many factors shaping health are intricately related. Factors that contribute to premature death include behavior, genetics, environment, and medical care.11,16 Of these four determinants, personal behavior has the most influence and medical care...
the least (Figure 5). Therefore, a focus on personal behavior change offers the best chance of preventing disease and lowering obesity rates.

KP uses various behavior change methods. One particularly successful behavior change model has been developed by BJ Fogg. His model states that three elements must converge at the same moment for a behavior change to occur: motivation, ability, and trigger (see Sidebar: Fogg Behavior Model). When a behavior change does not occur, at least one of those three elements is missing. This persuasive design model is based on the psychology of human behavior. It explains how finding the right motivation, making change simple to do, and employing effective triggers—and doing all three simultaneously—can enact desired behavior change.

Finding solutions to the epidemic of obesity and other preventable diseases is challenging to physicians and health care systems. For example, a recent study explains why it may be so difficult to treat obesity. Research suggests that losing weight may not be a neutral event. It appears the body wants to be at a certain weight and will try to get back to that set point after weight loss.

For this study, researchers recruited people who weighed an average of 209 pounds. Investigators measured participants’ hormone levels and assessed their hunger and appetites after eating a standardized meal. The dieters then spent 10 weeks on a very low-calorie diet intended to make them lose 10% of their body weight. After weight loss, hormone levels had changed in a way that increased the participants’ appetites. Participants were then given diets intended to help them maintain their weight loss. A year after the subjects had lost the weight, however, the researchers found that participants were gaining weight—and certain hormone levels, like leptin, still had not returned to normal.

Fogg Behavior Model

How to get people to eat nutritiously, exercise, or stop smoking? As any physician or health educator will tell you, knowledge alone is seldom sufficient to change behavior. One scientist who has been studying human psychology and the art of persuasion is BJ Fogg of the Stanford University Persuasive Technology Lab. The Fogg Behavior Model (FBM) provides a structured way to think about the factors that must be enacted to change behavior. The FBM identifies three factors that must be present at the same instant for a target behavior to happen:

- Sufficient motivation
- Sufficient ability to perform the behavior change (ie, the behavior change must be simple to perform)
- Effective triggers to perform the behavior.

There is a relationship between the degree of motivation and the level of ability—they are trade-offs of a sort, says Fogg. So the goal is to move the individual to a higher position in the FBM landscape by increasing either motivation or ability (making behavior simpler). The FBM model has three core motivators that are dualistic in nature: pleasure/pain; hope/fear; and social acceptance/rejection. Social media such as Facebook, for example, get their motivation from people’s desire to be socially accepted.

Increasing the user’s ability to perform a behavior by making it easy to do is the next key factor. Fogg contends that merely teaching and training people are not sufficient because human adults are “fundamentally lazy.” Therefore, simplicity is the key to increasing a user’s ability. A good example is one-click shopping at Amazon.com, Fogg notes. The trigger is the third element to the FBM. The trigger must be right one and also delivered at the right moment—that is, when both motivation and ability are at a level where the behavior can be activated (the behavior activation threshold). If a person is below the activation threshold, then a trigger will not lead to the target behavior. This explains why online spam and pop-up ads—meant to be persuasive triggers—are often ineffective: The user has insufficient motivation/ability to do what the trigger (pop-up, spam, etc) says, according to Fogg.

Fogg believes that his model can create a shared frame of reference for project teams thinking about behavior change. The FBM also can help people channel their energies more efficiently: If teams realize that motivation is the lacking factor, for example, then efforts can be focused on that aspect of the design.

Reference

Leptin, which is a hormone that tells the brain how much body fat is present, fell by two-thirds immediately after the subjects lost weight. When leptin falls, appetite increases and metabolism slows. A slow metabolism makes it harder to lose weight even with exercise. A year after the weight-loss diet, leptin levels were still depressed, but levels had increased in participants who had gained weight on the maintenance diet.16

KP has developed two strategies to reduce obesity rates: 1) helping children obtain a healthy, nonobese set point and 2) encouraging obese patients to reset their obesity set point. The first strategy is to prevent obesity before a baby is even born. Interventions for this strategy focus on helping expectant mothers maintain a healthy weight during pregnancy and then educating new parents to develop home environments that encourage healthy eating and active living for their infants. The second strategy focuses on helping the obese patient lose weight. However, to adjust the set point, weight loss in obese patients involves lifestyle modification that includes healthy eating and active living, not just a quick dietary intervention. The success of these interventions depends on changing the biologic, behavioral, and environmental factors that give rise to obesity. This strategy focuses on lifestyle modification and not a specific diet. Once the long-term behavior is changed we may be able to readjust the set point.16-20

Monitoring Disease Incidence

Disease incidence is the principle measure of impact of a disease. Disease incidence data usually represent only a fraction of cases but are useful to monitor trends. Monitoring the incidence of preventable disease in health care is currently by using existing national data sets like the Healthcare Effectiveness Data and Information Set (HEDIS) (www.ncqa.org/HEDISQuality.aspx). HEDIS is a tool used by most health plans in America to measure performance on important dimensions of care and services. Because so many plans use this data set, it is possible to compare the performance of health plans on an “apples-to-apples” basis. This is a valuable resource for health planners, practitioners, and researchers interested in the occurrence of preventable disease. Monitoring the health status of our communities allows us to study the effects of targeted behavior interventions on improving vital signs of health and disease incidence and to identify best practices.

Spreading Leading Practices

Best practices take time to spread passively, at times contributing to suboptimal results in health care. Managed diffusion, often referred to as “spread,” may hasten broad-scale implementation of best practices. Once we can monitor vital signs of health for all patients we can start to develop interventions to improve vital signs of health. For example, KP Southern California has been measuring vital signs for health for many years. Results have shown that despite encouragement from physicians, exercise rates among members have not increased. Health education classes and social networking have been shown to increase exercise rates in subsets of our patients. Therefore, we may not be able to improve vital signs of health without the help of the people who surround the people we are trying to help. To accomplish our goal, we may need to improve the health behavior of the communities where our patients eat, live, learn, work, and play.

Creating Healthy Environments

The IOM has outlined five community areas essential to lowering obesity rates and preventing disease.17 The key areas include physical activity, food and beverages, marketing, health care and workplace, and schools. Five IOM solutions to help prevent disease and reduce the obesity rate in communities are as follows: integrate physical activity into all aspects of daily life, activate employees and health care professions, market what matters, make healthy foods available everywhere, and strengthen schools as the heart of health. KP has developed programs to address the IOM’s five essential areas of improvement and five solutions. These are outlined in Table 1 and discussed below.

Table 1. Behavior change and solutions

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only 15% of adults eat at least 5 servings of fruits and vegetables per day</td>
<td>Healthy eating</td>
</tr>
<tr>
<td>40% of children eat fast food daily</td>
<td>Active living</td>
</tr>
<tr>
<td>Only 30% of adults exercise at least 150 minutes per week</td>
<td>Active people</td>
</tr>
<tr>
<td>Children spend on average about 7.5 hours per day in front of a screen</td>
<td>Marketing</td>
</tr>
<tr>
<td></td>
<td>Weight of the Nation</td>
</tr>
<tr>
<td></td>
<td>Activate communities</td>
</tr>
<tr>
<td>Of a child’s waking hours, 33% are spent at school</td>
<td>School</td>
</tr>
<tr>
<td></td>
<td>Activate teachers and students</td>
</tr>
<tr>
<td>Of an adult’s life, 25% is spent at work</td>
<td>Healthy workforce</td>
</tr>
<tr>
<td></td>
<td>Healthy work place</td>
</tr>
<tr>
<td></td>
<td>Activate health care providers</td>
</tr>
</tbody>
</table>

The Story of Us

The “story of us” involves KP’s engagement with employees, members, the workforce, schools, and the community and nation writ large. KP’s Total Health strategy leverages collaboration and resource sharing to build healthy communities. Employees who have been motivated to adopt healthy lifestyles are encouraged to become “ambassadors,” modeling their own healthy changes to the broader community. In this way, improvements in health behaviors can be sustained over the years.

Healthy Eating Active Living

Healthy Eating Active Living (http://info.kaiserpermanente.org/communitybenefit/html/our_work/global/our_work_3_b.html) focuses on policies and programs that promote healthy eating and active living at home, at work, in schools, and in the community. The thematic focus is to prevent disease and reduce obesity rates through good nutrition and physical activity. As part of the program, KP collaborates with community partners to develop a systematic, population-based approach that addresses the root causes of disease and sustains improvements over time. Key interventions that should help prevent disease include:

- Decrease daily calorie consumption (especially of sugar-sweetened beverages)
- Increase consumption of fresh fruits and vegetables
- Increase physical activity in our communities, schools, and work sites.

The Healthy Eating Active Living Initiative

Examples include Farmers Markets, KP Walk, Every Body Walk, and Thriving Schools. These are discussed below.

Farmers Markets, Fresh Works, and Wholesome Wave

KP has fostered relationships with farmers to sell their fresh fruit and produce at markets that take place at KP Medical Centers (https://healthy.kaiserpermanente.org/static/health/en-us/landing_pages/farmersmarkets/index.html). These markets have become popular and are spreading throughout the organization. KP also has collaborated with nutrition programs Fresh Works (www.cafreshworks.com) and Wholesome Wave (http://wholesomewave.org). Fresh Works is a loan fund program that brings healthy food to retail outlets in underserved communities. Wholesome Wave is a coupon program that reimburses farmers markets for allowing recipients of food stamps to double the value for a certain amount of federal food benefits spent on fresh produce sold at the markets. This program encourages the purchase of healthy fruits and vegetables at the markets as opposed to the recipient spending the same dollar on low-nutrient fast food alternatives.

KP Walk and Every Body Walk

In 1996, the US Department of Health and Human Services published Physical Activity and Health: A Report of the Surgeon General. This report supports the empowering notion that some exercise is better than none, and any approach to encourage activity will have positive health benefits. On the basis of this report, two programs have been developed to encourage physical activity.

**KP Walk**—The KP Walk program (www.kpwalk.com) was designed to encourage employees, members, and communities to get their exercise by walking. Medical research shows that walking 30 minutes a day, five days a week, can prevent the onset and can help manage chronic diseases.

**Every Body Walk**—Every Body Walk (www.everybodywalk.org) provides news and resources on walking, health information, and walking maps. The Web site helps patients find walking groups and provides a forum for sharing stories about individual experiences with walking.

Marketing: The Weight of the Nation

In May 2012, KP and the cable network HBO launched The Weight of the Nation in collaboration with the IOM, the National Institutes of Health, the Michael & Susan Dell Foundation, and the Centers for Disease Control and Prevention. This HBO documentary is available at no charge on the HBO Web site (http://theweightofthenation.hbo.com). The documentary features evidence-based data with personal narratives that illustrate the health consequences of obesity and excess weight. In addition, the documentary showcases strategies that work on an individual and community level. The documentary spearheads a public health campaign.

Workforce: Healthy Workplace and HealthWorks

KP’s workforce wellness strategy pursues clear guidelines in the following area:

1. Healthy eating, including catered food, food labeling in cafeterias and vending machines, and on-site food retail outlets
2. Healthy physical environments, such as accessible stairwells for walking and buildings designed to promote mental and physical health
3. Healthy activity at work, including time and space for physical activities
4. Activating clinicians to work with employer groups to implement lifestyle management programs into the workplace environment.

Healthy Workplace—Healthy Workplace (https://epf.kp.org/kps/portal/hr/kpme/healthworkforce) focuses on improving the health and well-being of all KP employees. The program offers more than 250 services aimed at promoting and enhancing the health and well-being of KP’s 190,000 employees and 17,000 physicians. Healthy Workplace leverages the clinical excellence and health-promotion expertise of the Health Plan and Medical Groups to provide both on-site and online services, including a range of programs from cholesterol and blood-pressure screening to cooking, weight-loss, exercise, and smoking-cessation classes and programs.

Offerings encompass six major categories: healthy eating, physical activity, emotional health and wellness, prevention, healthy workplace, and healthy community expertise and resources.

HealthWorks—KP’s HealthWorks program (http://internal.kp.org/custserv/pdf_11/healthworks.pdf) is designed to help purchasers develop healthy work environments for their employees. HealthWorks offers on-site and online healthy lifestyle...
programs that support employees in reaching health goals, including quitting smoking, losing weight, reducing stress, eating healthier, sleeping better, and managing a chronic condition.

Schools as the “Heart of Health”: Thriving Schools Web Site and Fire Up Your Feet Program

Research has shown that school interventions can have population-level impacts on the future health of communities. The IOM recently identified the need to strengthen schools as the “heart of health.” Better health through changes such as increased physical activity and a decreased availability of unhealthy foods and beverages can help students and school employees perform better. Regular physical activity also can reduce the risk of developing obesity, cardiovascular disease, cancer, and diabetes in an adult.12

*Thriving Schools Web Site*—The Thriving Schools Web site [http://thrivingschools.kaiserpermanente.org](http://thrivingschools.kaiserpermanente.org) serves as a starting point toward healthier schools, offering free, ready-to-use tools and resources. It provides a place to share ideas and success stories and to spark creative innovation and change that can strengthen the health and well-being of schools.

*The Fire Up Your Feet Program*—This innovative program [http://fireupyourfeet.org](http://fireupyourfeet.org) helps teachers, parents, and administrators get students moving before, during, and after the school day. The program also helps schools conduct healthy fundraisers that promote walking, biking, and other types of physical activity.

Conclusion

KP is leveraging the organization’s intellectual, technical, financial, and human assets—and working through an expanding network of public and private partnerships—to help its members, employees, and communities achieve their Total Health potential. Healthy eating and active living programs geared to battling obesity and preventing disease are an integral component of this multipronged initiative. Marshal Ganz teaches that the key to a successful social movement is a good public story that includes three elements: a story of now, a story of self, and a story of us.21 Total Health is a great public story. The story of now is a story of our health care in crisis. The story of self is a story of the innovative work being done within KP that allows us to measure and evaluate vital signs of health. Finally, the story of us is a story of our ability to spread leading practice to our patients and our communities. Best practices will make health care more affordable, prevent preventable diseases, and save lives.●

Disclosure Statement

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

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This image is a geostatistical model of nitrate groundwater concentrations at individual well sites in Clallam County, WA. Because much of the rural county is timberland or in Olympic National Park, wells are clustered around towns. The straight lines that look like ice crystals are the result of the model trying to interpolate between distant wells and/or across large water bodies. It is colored blue because of the “blue baby” syndrome that can sometimes result from high levels of nitrates in well water.

Dr Barry is a Data Scientist with Group Health Cooperative in Seattle, WA. Mr Massey works in public health in San Jose, CA.
The interest of the surgical community in global health has dramatically increased during the past decade as indicated by the numerous surgically focused medical missions, a burgeoning number of surgical resident applicants and programs looking to participate in international collaborations, and an increased attention given to global health by national organizations such as the American College of Surgeons and the International College of Surgeons. The World Health Organization identified a severe imbalance of availability of surgical services worldwide, and participation in global health programs offers opportunities to bridge the surgical service gap. Recent reports highlight the valuable learning opportunities for both local and visiting physicians and the potential to provide medical care to indigent populations that might otherwise be without technical support. The impact of medical missions is objectively measured by disability-adjusted life-years for patients treated, number of cases performed by surgical teams, fixed and relative costs of services provided, and quality outcome. Subjective assessment includes the “feel good” reward to clinicians, the value of giving back, and the intercultural experiences that come with foreign travel and exchanges.

Those who question the efficacy of global health programs point to the ill effects of “medical tourism,” a term referring pejoratively to the practice of health care providers travelling internationally to deliver health care. Medical tourism more commonly refers to patients traveling across international borders to receive health care. However, as global health care has gained popularity in America, so has the negative image of Western physicians, medical students, and college students working in the international arena with a perceived lack of continuity, cultural insensitivity, and failure to meet ethical standards in provision of care and research goals. The critics’ repeated theme is a need for collaborative partnership with other medical schools, universities, and health care systems. The Working Group on Ethics Guidelines for Global Health Training (with the ponderous acronym of WEIGHT) has emphasized the need for “comprehensive accounting for costs associated with programs; the goal of mutual and reciprocal benefit; the value of long-term partnerships for mitigating some adverse consequences of short term experiences; characteristics of suitable trainees … preparation of trainees; trainee attitudes and behavior; trainee safety; and characteristics of programs that merit support by sponsors.”

In the current climate of global health, a remarkably diverse range of experiences are available, depending on the country and region visited. All efforts are made to get things right the first time, but it is an evolving process. The University of California, San Francisco-East Bay Surgical Residency training program participates in several international efforts with a focus on surgical support and training experience. Four themes have emerged as “rules” for creating and sustaining successful international experiences: 1) attaining local buy-in, 2) effective mentorship, 3) developing institutional partnerships, and 4) program continuity. A description of efforts by participating residents to incorporate these key components and a discussion of the merits and lessons learned follows.

**Five Lessons**

**Lesson #1: Successful International Experiences Require Local Buy-In in Guatemala**

Samuel C Schecter, MBBS

Fifth-Year Resident

One counterpoint to arguments against surgical volunteerism sits high atop a volcanic ridge in the far north of Guatemala, 20 miles northeast of the Pacific coast and 15 miles east of the Mexican border. Nuevo Progreso, a village of 8000, is noted for beekeeping and famous for the Hospital de la Familia. Founded 40 years ago by Padre Cayetano Bertoldo and a visiting American, Jack Younger, of the Family Club of San Francisco, the Hospital de la Familia was a dependable center for health care throughout Guatemala’s devastating civil war and continues today. It is staffed by local Guatemalan physicians and nurses and treats over 15,000 patients a year. Volunteer surgical teams from across the US, especially from the Kaiser Permanente (KP) Oakland Medical Center, come for 1 week, 4 times a year, to perform surgery on approximately 1600 patients annually. Some teams have been together for over 30 years—an indicator of the continuity and dedication of the group as a whole. There is a strong connection with the KP Resident training program in Oakland in Head.
and Neck Surgery, led by Raul Cruz, MD, and with Anesthesia, led by Diane Salomon, RN, and Ricardo Charles, MD. Between visits, local physicians identify surgical candidates for the volunteer surgical teams consisting of 40 to 50 anesthesiologists, nurses, scrub techs, and surgeons. Keys to the program’s success rest on 1) a well-maintained infrastructure at the site, 2) support from the local populace, 3) a committed core of medical volunteers who anchor the surgical teams, and 4) a 40-year history of continuity.

The hospital is managed by the nuns of the Catholic Church stationed in Nuevo Progreso. The Mother Superior is an imposing presence as she runs an efficient outpatient and inpatient nursing corps, complete with a nursing school. The Guatemalan medical staff is comprised of 4 rotating primary care physicians who share responsibility for both inpatient services and outpatient clinics. I participated in general surgery at the Guatemala medical mission in February 2011 with ear, nose, and throat; obstetrics-gynecology; and pediatric plastic surgery teams working side by side 10 to 12 hours a day. Sharing a 4-table operating theatre complex, the team coordinated its schedule every morning in the clinic and every evening after rounds. Ophthalmology’s separate team and facility screened close to 1000 patients and performed 90 eye surgeries.

I was supervised by two faculty attendings in the operating room, the clinic, and the wards. By many program standards, the teaching experience was more intense than what might be experienced in an accredited hospital in the US. A memorable experience was the arrival one morning of a Mam, or native Mayan, unable to speak either English or Spanish. He had a large incarcerated hernia and it could not be determined if he had eaten recently. His hands were raised in prayer, and his expression was one of impending doom. Fortunately, surgery was not delayed because his small bowel had infarcted, and only through a major resection was he able to survive. This patient did well and his prayers were answered.

Having a Guatemalan surgeon on the team might have been beneficial to the patient as the Americans were scheduled to leave the hospital the following day; language issues would have been more intense than what might be experienced in an accredited hospital in the US. A memorable experience was the arrival one morning of a Mam, or native Mayan, unable to speak either English or Spanish. He had a large incarcerated hernia and it could not be determined if he had eaten recently. His hands were raised in prayer, and his expression was one of impending doom. Fortunately, surgery was not delayed because his small bowel had infarcted, and only through a major resection was he able to survive. This patient did well and his prayers were answered.

Lesson #2: Effective Mentorship Allows Trainees to Expand their Skill and Knowledge Base in India

Rhiana Menen, MD
Fourth-Year Resident

As a third-year general surgical resident, I accompanied my mentor Sakti Das, MD, a urologist with years of experience both in his field and operating in international, resource-poor settings, to a small hospital in the Gujarat region of India. Dr Das has a long-standing relationship with the urologic hospital, visiting once or twice per year to teach the head surgeon, a gynecologist by training, to do more complex urologic procedures. Over the years, the local Indian surgeon has not only become proficient in these techniques, but has mastered them. In this way, a sustainable relationship has been fostered in which the majority of the general urologic procedures are now effectively managed by the local Indian surgeon, while still providing care for the highly complex urologic patients during the visiting urologists’ semianual visits.

The operating theater is equipped with three operating tables, a single anesthetist, and two highly experienced surgical scrub technicians. Initially, I operated with a local general surgeon, then continued to perform relatively straightforward cases independently at the operating table adjacent to his. In the evenings, there were opportunities to give lectures on perioperative care and coordination with a national program would offer advantages to Guatemalan residents in training as well as to the American program.

The Hospital de la Familia has become ingrained into the culture of the village and beyond. Northern Guatemala and nearby Southern Mexico know when the surgical teams are scheduled to arrive, and patients travel hundreds of miles to receive care. Reflecting back on the four basic principles, three are well established at this medical mission site: including good mentorship, local buy-in, and continuity. Institutional partnerships with medical schools and the surgery programs of Guatemala may further develop with time.
management of surgical complications to the medical officers.

These interactions with the young medical trainees afforded an invaluable personal and crosscultural opportunity. Over meals and short interludes in patient care, there were opportunities to bridge language barriers, visit local temples, watch impromptu cricket matches, and to learn how the Indian medical system structures its medical education. I had initially sought the experience of operating under minimalist conditions and seeing pathology uncommon in the US. I anticipated seeing large numbers of nameless faces, with barebones operating rooms, trying conditions, and substandard equipment. What I gained was, paradoxically, a vision of what life as a surgeon could be. The entire staff of the hospital, from the medical officers, to the anesthetists, to the surgeons, lived together on the medical campus. As the only hospital for hundreds of miles servicing the poor, patients came by the hundreds each day. Operating room cases started early following morning rounds of the previous days' patients, and operative days went until late evening. During a long midday break, the staff was able to have lunch with their families and children within their quarters. Rather than a constant conflict of priority, hospital life and family life became one entity and a true sense of community was enhanced. The hospital itself was home. I was inspired by the unwavering dedication of the medical officers, anesthetists, staff, and surgeons who in turn were united by a desire to do the most good for the greatest number of patients in what can only be described as a calling. I was reminded of my original purpose for attending medical school: to apply myself to the best of my ability in order to live a life of purpose.

Returning from India had a formative affect on my future career as a surgeon. I became both more knowledgeable and engaged in the needs and barriers confronting global surgery. Seeing firsthand the resource and personnel gap in the developing world guided me away from a niche surgical subspecialty and toward skills that will enable me to focus on patient needs in more global settings.

Lesson #3: Institutional Partnerships Allow for Mutually Beneficial Experiences in Tanzania

Randi Smith, MD
Fourth-Year Resident

East Africa has a tremendous shortage of surgeons and a rising burden of traumatic injury and life-threatening conditions requiring surgical intervention. The World Health Organization estimates that 1 in 10 individuals will die as a result of trauma and 5% of women will die from a complication of childbirth in low-income countries such as Tanzania. There has been a recent push to build surgical and anesthesia capacity in the region by several organizations, including the College of Surgeons from East, Central and South Africa (COSECSA) (Macleod).

Residents and faculty from my home institution demonstrated a strong interest in working in East Africa, particularly in Tanzania and Kenya. My work was primarily in Tanzania, where partnerships were already established between a major Tanzanian university and various nonsurgical departments within my institution. With the goal of developing a mutually beneficial collaborative, I traveled to Dar Es Salaam, Tanzania in November-December of 2011 as an initial visit. While there, I conducted an assets-based assessment of the Department of Surgery to systematically explore how my Department of Surgery could partner with them in resident education, research, delivery of quality patient care, and community engagement (see Sidebar: Goals and Assets-Based Assessment in Tanzania). To successfully complete this task, semistructured interviews with key stakeholders were held. I was immersed in the clinical trenches of the general surgery residency, spending time alongside level-appropriate colleagues (junior and senior residents) for ward rounds, case and Tumor Board conferences, overnight call, and surgical procedures in the operating theatre. I took part in daily triage of critically ill patients and assisted in approximately 20 major operative cases throughout the month, in addition to giving lectures on trauma care, organizing mock trauma codes, and leading bedside rounds with surgical interns.

The clinical and surgical exposure, enhancement of cultural humility, and establishment of professional networks significantly outweighed the challenges of long travel, arduous communication before the visit, and difficulty in obtaining objective data with international colleagues. I was well received by the partnering institution and hope I have been instrumental in the advancement of their acute trauma care and trauma research capacity.

Lesson #4: Continuity Maintains Relationships and Builds Sustainable Global Collaborations in Kenya

Michael Cripps, MD

Following a series of medical missions that began in 2003, led by KP Oncologist Gail Wagner, MD, 2 nonprofits were formed to sponsor the Matibabu hospital and clinic in Ukwalla, Kenya, located near the east side of Lake Victoria. Matibabu now provides care for approximately 40,000 patients a year. Tiba, the nonprofit US counterpart, helps with financial support and provides volunteers to medical and surgical teams. Grants, philanthropic donations, benefits, and a sliding scale payment system have made it possible to build the first module of the new hospital as well as a backup generator and water supply system.

I was the first surgical resident to join a team of volunteers and spent 2 weeks operating in 2 government hospitals, Siaya District Hospital and Nyanza Provincial Hospital. Supervised by surgical attendings from the KP Hayward Medical Center and the Kenyan government,
I performed approximately 30 major and minor cases, including pre- and postoperative care. Hospital conditions were at times primitive, with no running water, electrical blackouts, and unavailability of blood transfusion. Postoperative pain care often depended on the patient’s ability to purchase medications, and the surgical team would sometimes walk to the nearest pharmacy to obtain them. Spinal and epidural anesthesia, reliable techniques that were introduced to Siaya District Hospital by Annette Chavez, CRNA, are now used on a regular basis with excellent outcome. The cases at Nyanza Provincial Hospital were more challenging, and I felt I adapted well to the challenges of minimal infrastructure. My experience was heightened when sleeping in the Kibera slums, and I was woken at 3 AM to help a citizen brigade put out a large fire next door using water buckets.

A debate continues in the literature as to whether the costs of sending teams to distant countries is as effective as providing monetary or equipment support to a developing country.

Establishing an independent hospital under national control and coordinating with visiting surgeons requires sensitive and mutual understanding on all levels, from ancillary staff to the highest level of administration.

The Matibabu program is relatively early in evolution but provides strong mentorship, local buy-in, and has accomplished eight years of continuity. Coordination with the Kenyan government and university system has been a slow and careful process. As with the Hospital Familia program, there are benefits in establishing a binational university partnership, but also risks. Currently two Kenyan surgeons are completing their General Surgery and Orthopedic training and will continue to complement the surgical teams in future years. KP has established this hospital as an international training location, and participating medicine and obstetrics-gynecology residents similarly give positive reports of their experiences.

**Lesson #5: Program Continuity in the Philippines Creates a Powerful Cultural Exchange and Facilitates Effective Delivery of Health Care**

*Randi Smith, MD
Fourth-Year Resident*

In an attempt to produce a mutually beneficial experience for both US clinicians and Filipino citizens, the coordinators of the Bay Area Surgical Mission (BASM) have devised a successful schema for surgical missions to Daet, Camarines Norte. Biennially, a group of 20 or more surgical specialists, nurses, anesthesiologists, and operating room technicians travel to this region of the Philippines for a 10-day journey that encompasses surgical intervention, consultation, and education. The team of surgeons is capable of general, obstetric, endocrine, and otolaryngologic surgical care.

The success of this short-term surgical mission hinges on the long-term relationship between the organizers of BASM and local hospital and political leaders. My participation during February of 2012 marked the group’s 7th mission and 14th year of collaboration.

During the weeks preceding the mission, government representatives advertise the teams’ arrival to the surrounding community. Hundreds of patients with various ailments line up at the front steps of the hospital for screening by team physicians. During the week, hundreds of procedures (minor and major) are performed in the four-table operating room setup. BASM provides the personnel (many KP staff and trainees), medications, surgical instruments, and anesthesia equipment; the host hospital provides the tables and the space. Careful triage and selection allows patients to be discharged from the hospital by the conclusion of the mission. Nevertheless, local surgeons are provided a stipend for postoperative care for one week’s time (for suture removal, wound checks, etc.).

As a junior resident, I worked side by side with a local surgeon who practices general surgery in its purest form. I assisted in a wide range of cases including thyroid resections, mastectomies, open cholecystectomies, and hemorrhoid procedures. I independently repaired inguinal hernias and performed breast biopsies and other minor excisions. Several lessons were learned from this experience—notably insight into alternative ways of performing common and uncommon procedures. Additionally, I gained confidence in my ability as I transitioned to becoming a more independent surgeon.

My motivation to participate in this surgical mission was driven by genuine altruism and a desire to help those in need. Although the patients were grateful and wanted to take pictures to remember the experience, I realized that I gained much more than I provided; my surgical skills and knowledge of global health and health disparities were deeply enhanced. For these reasons, I...
expressed to the community of Cama-rines Norte, “Salamat Po” (“Thank you very much” in Tagalog).

Discussion

There is currently unprecedented interest in global surgery among medical students and surgical residents in the US. In a 2009 national survey, Jayaraman et al found that 33% of general surgery residencies offered educational activities in global health and 86% offered international clinical rotations. Programs cited educational advantages such as preparing residents for careers in global health as well as improving resident recruitment. The survey found that the barriers to establishing such programs were related to time constraints for faculty and residents, lack of approval from the Accreditation Council for Graduate Medical Education Residency Review Committee, as well as funding concerns. Furthermore, only 5% of program directors noted a lack of interest, and of the 47 programs not offering international surgical opportunities, 57% were interested in establishing them. Residents reported that benefits of international surgical electives include such important educational objectives as improved clinical acumen, decreased reliance on diagnostic tests, exposure to a broad spectrum of illnesses, and increased cultural sensitivity. Reciprocal benefits to participating international institutions include a temporary increase in trained medical personnel in regions with a limited health workforce, opportunities for foreign faculty or residents to visit US programs, educational materials or medical/surgical supplies, and new opportunities for international collaboration.

These beneficial collaborations between surgical associations and academic training programs have the potential to reduce global disparities in surgical care. The so-called “twinning relationships support education for local providers by creating shoulder-to-shoulder training opportunities for local physicians and international counterparts.” Residents have opportunities to learn from and to educate their surgical trainee counterparts as well as medical students, midlevel providers, nurses, and other ancillary staff. Specifically in our program, residents have led teaching rounds with interns, focused on perioperative care, given basic surgical lectures, and taught techniques such as suturing and wound care. In addition, we have conducted trainee teams in mock trauma protocols—rehearsing location-appropriate scenarios influenced by Advanced Trauma Life Support guidelines.

How have the 4 themes of successful international training played out thus far in our residency program? The first goal of obtaining local buy-in was well demonstrated in the Guatemala experience at Hospital de la Familia—a 40-year history of working in the facility certainly solidified the strong local connections. The second goal of strong mentorship was well maintained in each of the countries visited, although the surgical case load was perhaps minimal in Tanzania, a newer program. The third goal of institutional partnership is a challenging area, depending on the country location and origin of respective hospitals. When hospitals are started by American nongovernmental organizations, they can be in remote and indigent areas such as Guatemala, Kenya, India, and the Philippines, and early communication facilitates institutional coordination. Finally, the fourth goal of continuity affects each of the other goals and is a sine qua non of trust and sustainable relationship.

Conclusion

Surgical residents desire the opportunity to enhance their clinical training by working internationally, particularly in resource-constrained environments. Our experiences confirm the potential of developing more well-versed, flexible, altruistic, and confident trainees. These experiences are only successful, however, through established longstanding sustainable relationships with international institutions that prove mutually beneficial. When these conditions are met we believe medical missions are a vital component of soft diplomacy and must be highly valued for their achievements in higher education and their service to patients in need.

Disclosure Statement

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

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**Care**

The only care
That I shall share
Shall be the care of others,
And on the road
I’ll halve the load
Of overburdened brothers.

— John Kendrick Bangs, 1862-1922, American author, editor, and satirist
Abstract
A handful of the many changes resulting from the Affordable Care Act underscore the need for a geographic understanding of existing and prospective member communities. Health exchanges require that health provider networks are geographically accessible to underserved populations, and nonprofit hospitals nationwide are required to conduct community health needs assessments every three years. Beyond these requirements, health care providers are using maps and spatial analysis to better address health outcomes that are related in complex ways to social and economic factors.

Kaiser Permanente is applying geographic information systems, with spatial analytics and map-based visualizations, to data sourced from its electronic medical records and from publicly and commercially available datasets. The results are helping to shape an understanding of the health needs of Kaiser Permanente members in the context of their communities. This understanding is part of a strategy to inform partnerships and interventions in and beyond traditional care delivery settings.

Introduction
During the past decade, the use of geographic information systems (GIS) for mapping and spatial analytics has evolved at Kaiser Permanente (KP). With roots in care delivery facilities planning, GIS next became an important part of KP’s effort to illuminate disparities in care and improve quality of care. More recently, the Patient Protection and Affordable Care Act (ACA) is reinforcing the need for a geographic understanding of existing and prospective member communities, including health status and outcomes, access to care, and cultural preferences. For example, state and federal health exchanges require evidence that health provider networks are geographically accessible to underserved populations. The ACA also mandates that nonprofit hospitals conduct a community health needs assessment every three years. Other health systems have similarly recognized the utility of GIS to understand primary care needs at the community level and to galvanize multisector collaborations to better address health outcomes that are related in complex ways to social and economic factors.

This article highlights two recent projects required by the ACA in which GIS played an important role: 1) measuring network adequacy and 2) conducting community health needs assessments. We also outline a GIS-based approach that uses data from KP’s electronic health record (EHR) to identify neighborhood-level spatial variation in the prevalence of chronic conditions. Developed as a complement to the community health needs assessment process, the resulting hot spot maps protect patient/member confidentiality, while showing that the variation in health outcomes is often spatially correlated with social determinants across the community. Last, we discuss other uses for hot spot mapping, geospatial analytics, and the evolving role of GIS in targeting community-based disease prevention and management efforts.

In health care organizations, great care must be taken when working with protected health information using any technology. The use of GIS technology is no exception, for reasons ranging from compliance with the Health Insurance Portability and Accountability Act (HIPAA) to preventing unethical targeting of groups on the basis of race, ethnicity, or sociodemographics. For these reasons, much of our efforts focus on protecting individual confidentiality when working with data from KP members’ EHRs.

Measuring Network Adequacy and Accessibility
Health exchanges are an important vehicle for making health insurance available via the ACA. The application process requires health plans to report network adequacy in geographically specific ways. For example, the Qualified Health Plan application for California’s Health Benefit Exchange required time (30 minutes) and distance (15 miles) calculations from low-income populations (≤ 200% of federal poverty level) to primary care physicians across all counties where the Health Plan would offer insurance. GIS tools were used to measure accessibility via the street network between the low-income population and KP care delivery locations. Although not originally required, KP’s internal project team requested maps, which were ultimately submitted as part of the application. As an example, the map for San Diego County (Figure 1, enlarged, full-color version is available online at www.thepermanentejournal.org/images/Spring2014/GIS1.jpg) indicates that very few low-income residents live beyond a 30-minute drive to KP primary care locations.

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Similarly, the federal requirements measure access to care providers by focusing on high-need zip codes. These zip codes have been designated as a Health Professional Shortage Area by the US Department of Health and Human Services Health Resources and Services Administration or have a high percentage (≥ 30%) of the population living at or below 200% of the federal poverty level. The number of primary care physicians in the Health Plan who practice in or adjacent to these high-need zip codes are compared with the number of Essential Community Providers, as defined by the Health Resources and Services Administration. This measure ensures that the Health Plan provides at-risk populations with sufficient geographic access to care providers, and GIS analysis was necessary to answer the question of zip code adjacency. Although measures of network adequacy may evolve in the face of more virtual access to care (eg, telemedicine, care coordination, and broadband access in rural areas), geographically based measures of network adequacy will continue to require GIS technology for accurate measurement and reporting.

Supporting Community Health Needs Assessment

Since 1994, the state of California has required that nonprofit hospitals develop and implement community health needs assessments. Starting in 2013, the ACA requires community health needs assessments for nonprofit hospitals nationwide to be repeated every three years to identify changes in health needs. This requirement aligns well with KP’s mission to provide high-quality, affordable health care services and to improve the health of our members and the communities we serve.

Building on years of experience with community health needs assessments in California and inspired by the ACA mandate, KP conducted a project to support the community health needs assessment process. A crossfunctional team from KP identified indicators and benchmarks, developed toolkits to outline workflows, and partnered with the Institute for People, Place & Possibility in Columbia, MO, and the Center for Applied Research and Environmental Systems at the University of Missouri, Columbia, to build a Web-based reporting and mapping tool. The resulting data platform (www.CHNA.org/KP) streamlines access to a broad set of data indicators, helping planners to explore and to learn about the health needs of a community, and to produce tables, charts, interactive maps, and reports to communicate their findings. The community health needs assessment indicators are organized into categories: demographics, social and economic factors (eg, crime, education, poverty), physical environment (eg, fast food, parks, and air quality), clinical care (eg, access to preventive care), health behaviors (eg, eating fruits and vegetables), and health outcomes (eg, diabetes prevalence). Together these indicators provide insight on health outcomes and clinical care as well as upstream factors that also have an impact on health. In partnership with the Centers for Disease Control and Prevention in Atlanta, GA, the Institute for People, Place & Possibility, and the Center for Applied Research and Environmental Systems, KP has provided the CHNA.org platform as a free GIS community asset to support community health needs assessment efforts nationwide.

Data challenges still exist, however. Although many states are recognizing the limitations of publicly available health data and taking initial steps to address these limitations (eg, All Payer All Claims Database in Oregon and California’s Free the Data initiative), many important public health statistics are still reported only at the state or county levels. From a national perspective, these statistics provide useful benchmarks, as they can be trended over time and indicate regional variation. However, overaggregation can mask underlying disparities, limiting efforts to target interventions and detect changes at the local level.

Mapping Neighborhood-Level Geographic Variation in Health Outcomes

In Summer 2012, we piloted an internal project to address the lack of neighborhood-level insight regarding health outcomes across seven KP Regions in eight states (CA, CO, GA, HI, MD, OR, VA, and WA) and the District of Columbia. We used data derived from KP’s EHR to produce neighborhood-level hot spot maps of disease prevalence in KP member communities for high-impact chronic conditions: adult and child obesity, asthma, diabetes, heart disease, and hypertension. We also analyzed self-
reported physical activity measures, referred to as “Exercise as a Vital Sign,” for several Regions. To protect member privacy while providing actionable insights, we scored neighborhoods by how their prevalence rate compared with the regional KP average rate, but no absolute rates were communicated and no member-level data were presented.

Using GIS tools, we geocoded each member’s home address and aggregated member-level health outcomes to the census tract, providing an initial level of protection for member/patient identifiable information. Regions of KP range in size from a few hundred thousand to more than 3 million members, representing up to 30% or more of the total population in some census tracts. Table 1 lists the number of tracts by Region. Although perhaps imperfect for our purposes, census tracts are intended to be socioeconomically homogeneous, and they have origins in public health applications. This level of aggregation provided a balance between detailed geographic measurement, adequate sample size, and individual privacy. After aggregating member-level chronic conditions data into census tract rates, we used a documented approach with origins in analysis of medication adherence to determine 1) whether individual tract rates stood out compared with other tracts in the Region and then 2) whether there were entire neighborhood rates that stood out compared with the KP Region.

The analysis standardized rates across census tracts to account for variability in KP member density. The resulting tract-level standardized rates (Z scores) incorporate the number of members in each tract along with the rate to indicate how many standard deviations each tract rate is from the regional rate. This highlights individual tract rates that are statistically significantly different from the overall regional rate.

Figure 2. Hot spot index categories for prevalence of adult obesity.
KP = Kaiser Permanente.

Figure 3. Comparison of education level for the overall population and health outcomes for Kaiser Permanente (KP) members across Los Angeles, CA. Enlarged version is available at: www.thepermanentejournal.org/images/Spring2014/GIS3.jpg

GIS can supplement decision support for clinical care teams [who] are increasingly prescribing walking as a therapy for chronic conditions. After-visit summaries ... could include suggestions for walking routes ... near the patient's home or work.

Additional Cases Using Geographic Information Systems

The hot spot modeling method and maps described earlier were initially developed to complement a robust ACA-mandated community health needs assessment process, but KP clinicians are finding new uses for them. We have recently used this approach to 1) inform planning efforts for prediabetes interventions in Georgia and the Northwest, 2) support the case for investment in an at-home healthy meals delivery program for patients with heart failure after discharge in the San Francisco Bay Area, and 3) identify KP communities where fewer people get a flu vaccine to target efforts to increase vaccination rates in Southern California.

In the future, GIS could play a vital role in improving clinical operations. In the spirit of the work done at the University of Florida Family Data Center, we are mapping heart attack risk in KP member communities across San Diego to help target deployment of a mobile health van. In addition, an early prototype has indicated some value for using GIS-based route planning tools to help optimize the work of home health care providers. Although this application is nascent at KP, related work has documented benefits such as reduced cost via reduced travel time for providers as well as improved patient satisfaction.

Evolving Opportunities

Care transformation is likely to happen on multiple scales, from the clinical care team to the community. Insight and information based on GIS could help by supplementing decision support for care teams, informing partnerships with planning and public health agencies, and empowering communities to improve their health collectively.

GIS can supplement decision support for clinical care teams. Care teams are increasingly prescribing walking as a therapy for chronic conditions. After-visit summaries or patient-facing tools could include suggestions for walking routes or other healthy lifestyle resources near the patient's home or work. GIS also have been used to investigate patterns of community-acquired methicillin-resistant Staphylococcus aureus, for which geographic area proved to be a significant risk factor for children presenting with this infection. The authors suggested that this information could guide antibiotic selection before culture results are available.

GIS maps and analyses support a common language that can inform partnerships with local planning and public health agencies and affect policy change. *Health in All Policies: A Guide for State and Local Governments* outlines ways in which decisions made in sectors such as transportation, education, and economic development affect health. The policy suggests that "better health can support the goals of these multiple sectors." Regional Equity Atlases, such as those available for Portland, OR; Denver, CO; and Atlanta, GA, provide another example of the use of GIS to communicate inter-relationships between planning sectors, social determinants, and health outcomes that can help galvanize policy change.

Finally, and perhaps most important, GIS can help empower community members to improve their health collectively. Learning what is already working in some neighborhoods can inform strategies in neighborhoods that face similar social determinants. Increasingly, crowdsourcing is used to allow people to vote online, in a geographically specific way, on investments that are important to them. Portland Bike Share is one example. The same could be done for understanding which neighborhood-level investments would help people become or stay healthy, be it a grocery store, improved park, or better access to transportation.

Conclusion

Use of GIS at KP has evolved over the years and has recently become important for regulatory aspects of health care reform related to network adequacy and community health needs assessment. As part of these efforts, we identified systemic variation in the prevalence of chronic conditions across KP member communities at the census tract and neighborhood levels. This geographic variation is not random, suggesting that geographically informed interventions may be part of a multifaceted solution. Furthermore, these results are generating interest in other parts of KP to understand the effects of place and to respond accordingly. These findings reinforce Ethan Berke, MD's call for
Leveraging Geographic Information Systems in an Integrated Health Care Delivery Organization

“place as a vital sign.” GIS make it possible to give geographic context to data from an EHR, understand individual health in the context of community health, and begin to assess the importance of place as a vital sign. Within KP, the use of GIS is growing, results are compelling, and engagement is high.

Disclosure Statement

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References


Limitations

Anywhere you have extreme poverty and no national health insurance, no promise of health care regardless of social standing, that’s where you see the sharp limitations of market-based health care.

— Paul Farmer, b 1959, American medical anthropologist
"I Dream of Living in a House with White Curtains Like One Sees in Old Prints"
from *Alone/Together: Meditations on Alienation*
21” x 12”
Acrylic and polylith photograph on birchboard

Eric Blau, MD and Lee Huai

This piece, which is part of a larger body of work, explores how our cultures both influence and alienate us.

Artists Eric Blau, MD, of the Southern California Permanente Medical Group, and Lee Huai have been friends since Ms Huai arrived in the US from China. The two often talked about collaborating on a project. Their collaboration has resulted in the remarkable *Alone/Together: Meditations on Alienation* series, more of which can be viewed at [www.ericblauphotography.com](http://www.ericblauphotography.com).
Abstract
The Emergency Department (ED) is the place where people most frequently seek urgent care. For patients living with chronic disease or malignancy who may be in a crisis, this visit may be pivotal in determining the patients’ trajectory. There is a large movement in education of emergency medicine physicians, hospitalists, and intensivists from acute aggressive interventions to patient-goal assessment, recognizing last stages of life and prioritizing symptom management. Although the ED is not considered an ideal place to begin palliative care, hospital-based physicians may assist in eliciting the patient’s goals of care and discussing prognosis and disease trajectory. This may help shift to noncurative treatment. This article will summarize the following: identification of patients who may need palliation, discussing prognosis, eliciting goals of care and directives, symptom management in the ED, and making plans for further care. These efforts have been shown to improve outcomes and to decrease length of stay and cost. The focus of this article is relieving “patient” symptoms and family distress, honoring the patient’s goals of care, and assisting in transition to a noncurative approach and placement where this may be accomplished.

Introduction
Although not considered an ideal place to begin palliative care, in reality the Emergency Department (ED) is the most frequent place where urgent care is sought. Whether there are gaps in the outpatient setting or failure to predict and plan for crisis intervention, the ED experience may be pivotal in determining a patient’s trajectory. The culture of emergency medicine to provide stabilization of acute medical urgencies is now shifting to a more patient-goal-centered culture. There has been a large movement to educate emergency physicians on end-of-life care and improve palliative care in emergency medicine, leading to clinical practice guidelines. In reality, because of the acute symptoms that are often accompanied by significant emotional overtones and disposition issues, a hospitalist or intensivist is quickly consulted. Many patients present with serious and unrelied symptoms such as pain, dyspnea, nausea, and vomiting that were not well controlled in the outpatient setting. The ED or hospital may be the only option for them to receive intravenous (IV) fluids or medications, as well as immediate access for acute imaging or access to specialists, for example, radiation oncologists. Even if the patient’s goals are clearly nonaggressive, the patient may arrive in the ED because of family distress over symptoms.

Definition of Palliative Care
Palliative care is the relief of symptoms including pain that interferes with the quality of life. Whether patients have cancer or heart failure, they have already been undergoing noncurative symptom management in addition to their curative therapies. There must be ongoing reevaluations of life-prolonging interventions so as to determine when they no longer prolong life but instead prolong suffering and unwanted side effects. Palliative care is not the same as hospice or end-of-life care. The latter involves aggressive symptom management in patients with chronic diseases who are on a progressive and rapid decline to death. In hospice care, patients generally have less than a six-month life expectancy. You would not be surprised if the patient died in the next 12 months. Not Surprised
You would not be surprised if the patient died in the next 12 months.

Characteristics of Patients Needing a Palliative Care Consult
Patients with a serious, life-threatening illness and one or more of the following need a palliative care consult (see Sidebar: Definition of palliative care):

- Not Surprised
  - You would not be surprised if the patient died in the next 12 months
- Bounce-Backs
  - The patient makes more than one ED visit or hospital admission for the same condition within several months
- Uncontrolled Symptoms
  - An ED visit is prompted by difficult-to-control physical or emotional symptoms
- Functional Decline
  - There is decline in function or worsening of feeding intolerance, unintentional weight loss, or caregiver distress
- Increasingly Complicated
  - Complex long-term care needs require more support.

Other patients that may benefit from early hospital medicine or palliative care consult include transfers from a long-term-care facility; patients with metastatic or locally advanced, incurable cancer; hospice patients; patients with out-of-hospital cardiac arrest; advanced dementia patients; and frail, elderly patients with poor functional status.

Adults with chronic illnesses often visit an ED several times in their last year of life. A study of patients older than age 65 years by Smith et al revealed 75% visited an ED in the last 6 months of life and 51% in the last month, many with repeat visits. The transition from curative to noncurative symptom management may greatly change the hospital trajectory of care. Here is the opportunity to initiate further goals of care that may change future plans. Research supports early palliative care in the ED to improve quality of life as well as to reduce costs that may have been associated with alternate treatments. Discussions surrounding goals and plan of care, symptom management, and aggressive pain control are...
some of the cornerstones of palliative care. Some additional benefits from early palliative care interventions in the ED include resource management, improved satisfaction for patients and their families, improved outcomes, decreased length of stay, less use of intensive care units and less cost, and increased appropriate direct hospice consults.5,7,10

Goal-Oriented Patient Assessment
The first imperative is to find out why the patient is in the ED and to perform a rapid assessment of their palliative care needs. Emergency medicine physicians can begin goal-directed assessments and plans that can help avoid unwanted treatments, inappropriate resource expenditure, and undue suffering. See Sidebar: Goals-of-Care Discussion in the Emergency Department for advice regarding goals of care discussions.11

Advanced Directives/Capacity
Eliciting goals from patients who are unable to converse can be challenging. Are they temporarily very sick or do they lack decision-making capability? Capacity is defined by the ability of the patient to have a process to understand the options and their ramifications. Surrogate decision makers must be reminded to do their best to express the patient’s wishes and not their own. It should be ascertained if there are advanced directives. These forms, signed by the patient and witnesses, are twofold. They can be helpful in that they designate a surrogate decision maker, and hopefully, this person knows the patient well and has had a prior conversation regarding the patient’s wishes. The other aspect of the directives may be instructural but is prone to misinterpretation. There is often a section indicating whether the person would want “heroic measures” taken if there were no hope of recovery.

Here is an opportunity for the patient or surrogate to elaborate what is important to the patient, what no hope means, and what recovery means. It may be helpful to verify a do-not-resuscitate (DNR) status in the event of a pulseless state or cardiac arrest, so as to allow natural death. But it is also important to distinguish when the patient does have a pulse and is otherwise doing relatively well; we can continue to treat reversible situations. When patients and their families state they want “everything,” do not presume this translates to full resuscitation. This could mean they want every measure that has the potential to prolong life, or it could mean they want every measure taken to provide maximum relief of suffering.

If death is not imminent and the patient is having a reversible setback, this coincides with “limited interventions” on a POLST (physician order for life-sustaining treatment) form. POLST is a multistate form that includes orders, signed by the patient and physician, documenting choices regarding resuscitation, medical interventions, and some treatment options including artificial nutrition. Reassure the family that a DNR applies when someone does not have a pulse and is essentially dead, but if a patient has a pulse and is otherwise doing relatively well, treating the acute problem, such as pneumonia, makes sense.

Prognostication, and informing loved ones of the likelihood and severity of outcomes, especially those related to function, may help guide their choices. Most of the data on outcomes of cardiopulmonary resuscitation (CPR) come from the National Registry of Cardiopulmonary Resuscitation, which analyzed more than 14,000 CPR attempts in adults from 2000 to 2002 in US hospitals.12 This revealed that 17% of these patients survived to be discharged. Many of the survivors suffered neurologic and functional decline, and only half were able to return home. A meta-analysis of CPR outcomes from 49 studies of almost 10,000 patients showed survival to discharge of 13% to 15%.13 A more recent study showed some improvement in survival rates after CPR, with the rate of survival to discharge improving from 15.7% in 2000 to 22.3% in 2009 and a corresponding decrease in neurologic disability rate from 32.9%
to 28.1%. Although it is postulated that faster response times, improved quality of resuscitation efforts, and refined protocols for postresuscitation care all contributed to these favorable outcomes, the role of palliative care and goals-of-care discussions leading to more POLST completions and DNR orders in frail populations was suggested to play a role as well. These survival percentages are overinflated given that they include a population of patients with cardiac ischemia-related ventricular tachycardia/fibrillation, which may double the chance of CPR survival. Asystole and pulseless electrical activity are more common in the sick and frail elderly and are associated with only a 10% CPR survival to discharge rate. Factors that predict failure to survive to discharge included sepsis the day before the CPR event, serum creatinine > 1.5 mg/dL, metastatic cancer, dementia, and dependent status. In another study, the success rate in subjects with metastatic cancer was 7.8%. In dialysis patients it was 14%, but only 3% of the survivors were alive at 6 months. Among patients in the intensive care unit, survival to discharge was only 2.2%. There was no neurologic outcome included. It is a physician’s responsibility to properly educate and inform patients regarding the potential outcomes of attempted CPR based on functional status and comorbid conditions and to clarify patient preferences for the worst-case

<table>
<thead>
<tr>
<th>Table 1. Reversible causes of dyspnea</th>
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<tbody>
<tr>
<td>Cause</td>
</tr>
<tr>
<td>Pleural effusion</td>
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<tr>
<td>Ascites</td>
</tr>
<tr>
<td>Fluid overload</td>
</tr>
<tr>
<td>Anemia</td>
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<tr>
<td>Excess secretions</td>
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</tbody>
</table>

CHF = congestive heart failure; h = hours; INR = international normalized ratio; IV = intravenous; SC = subcutaneous.

<table>
<thead>
<tr>
<th>Table 2. Symptomatic management of dyspnea with opioids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
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<tr>
<td>Mild dyspnea</td>
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<tr>
<td></td>
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<tr>
<td>Severe dyspnea</td>
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<tr>
<td></td>
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<tr>
<td>Active phase of death</td>
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h = hours; IV = intravenous; PO = oral.
scenario. If a patient would still want CPR despite a high chance of a poor outcome, the physician should offer to discuss goals of care and perhaps time-limited trials, in the event that the patient was dependent on machines.

**Trajectories**

To help patients and families feel comfortable with their decisions, the clinician must understand common death trajectories and prognoses. There are four common disease trajectories: sudden death, terminal illness, organ failure, and frailty. The common example of terminal illness is malignancy. Patients often function fairly well until the last few months or year. In organ failure, such as congestive heart failure or chronic obstructive pulmonary disease, the death trajectory is slow and dotted with frequent exacerbations and near resolution, but the patients often do not return to their previous function. They eventually die but may suddenly die during an exacerbation. This is the situation where families will say, “But the doctor told us he was going to die when he was in the intensive care unit last year.” Patients who are frail are already at a low functioning state and slowly deteriorate.

In terms of organ failure like congestive heart failure, there are many online prognostic tools, such as the Seattle Heart Failure Model. This enables physicians to enter patient data into a system that calculates statistics on survival and the impact of medical interventions with the click of a button. By taking a moment to type in a few patient characteristics, a physician in the ED can compute a mean life expectancy, which could help identify patients who may benefit more from a palliative care consult than from a palliative care consult and goals-of-care discussion. Similarly, the Palliative Performance Scale is a grid chart and can be used to assess the prognosis of our frail patient population by evaluating 1) mobility, 2) level of disease and impact on activity, 3) capacity for self-care, 4) oral intake, and 5) mental status on a scale of 0% to 100%. Among patients with a score of 50% or less, only 10% will survive more than 6 months, warranting a palliative care consult.

The bottom line is that if patients are unable to take care of themselves, especially if they are bedbound, this poor functional status portends poor survival. A poor functional state precludes the use of treatment that requires patient participation, such as chemotherapy or radiation therapy. For example, if patients cannot come in to the infusion center, they cannot continue to get transfusions or infusions. Many institutions have implemented a process for generating mortality predictions from risk factors at the time of admission. This prognostic information helps predict death and other serious adverse events. This information can help patients and their families in future decision making and can help the medical team in formulating appropriate care plans.

**Symptom Management in the Emergency Department**

**Dyspnea**

Discomfort in breathing is a subjective sensation rather than a diagnosis and is very common among many patients with chronic illness, including those with cancer, chronic obstructive pulmonary disease, HIV/AIDS, congestive heart failure, stroke, amyotrophic lateral sclerosis (ALS), and dementia. It is most often caused by an underlying medical condition, but it may arise from anxiety. A pulse oximeter reading alone is not an indicator of dyspnea; rather, careful examination of the patient and appreciation of their distress via facial expression, level of anxiety, ability to speak in full sentences, and accessory muscle use can assist in determining the level of discomfort. A normal oxygen saturation and lack of accessory muscle use should not preclude treatment of the patient’s described complaint.

The first-line treatment for this sensation is medications from the opioid class of drugs. Although its mechanism is mostly unknown, its benefit is clearly recognized. This treatment, in addition to oxygen, can be initiated in the ED while reversible causes of dyspnea are sought. See Table 1 for reversible causes of dyspnea and some treatment options. If the patient requires frequent thoracenteses or paracenteses, the patient may be a candidate for a permanent catheter allowing intermittent drainage of fluid at home. See Table 2 for elaboration on opioid treatment options. One must monitor acetaminophen doses from all sources and avoid morphine, codeine, hydrocodone, and oxycodone in patients with significant renal dysfunction. Fentanyl and methadone are safe in renal failure and dialysis patients. Fentanyl is also safe in liver failure, whereas other opioids will need a downward adjustment. When opioids are titrated upward, a change in mental status and alertness occurs before hypoventilation.

Because anxiety often plays a role in dyspnea, a clinician may consider an anxiolytic to accompany opioid treatment. Longer-acting agents such as the benzodiazepine clonazepam are often used starting at 0.25 mg orally every 12 hours. Lorazepam (0.5-1 mg orally every 4 to 6 hours) is also available in liquid and suppository forms, which is helpful if a patient has difficulty swallowing pills. Use the intravenous form if a quicker onset of action is needed.
Pain

Most patients living with life-limiting chronic illness who come into the ED are already on a pain regimen, often on dosages that exceed common practice. Using the patient’s current pain regimen and adjusting it to meet symptomatic relief is an important skill. Facility with titrating common narcotics will allow for adequate control of this prevalent symptom.

**Basics of Pain Management in Patients with Chronic Life-Limiting Illness**

Many patients are on a combination of opioids that can make understanding their pain requirements confusing. Converting all opioids to the oral morphine equivalent allows physicians to titrate medications effectively and confidently.

**Equivalents and Titration of Analgesics**

Below is a quick way to remember approximate and equivalent IV/oral (PO) conversions between morphine (less potent) and hydromorphone (more potent), the two most common opioids used in the hospital setting:

- 10 mg morphine IV ~ 30 mg morphine PO (1:3)
- 1.5 mg hydromorphone IV ~ 7.5 mg hydromorphone PO (1:5)
- 1.5 mg hydromorphone IV ~ 30 mg morphine PO (1:20)
- 1.5 mg hydromorphone IV ~ 10 mg morphine IV (1:6)
- 7.5 mg hydromorphone PO ~ 30 mg morphine PO (1:4)

Calculate the total daily dose of oral morphine to gauge each patient’s pain medication requirement, and adjust each medication per the following guidelines:

- If converting between products, decrease the equivalent dose by 0% to 25%.
- Beware of confusion in elderly patients
- Monitor for respiratory depression, especially if given with opioids

**Table 4. Symptom management for nausea and vomiting**

<table>
<thead>
<tr>
<th>Cause (mechanism)</th>
<th>Treatment</th>
<th>Special considerations</th>
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<tbody>
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<td>Benzodiazepines</td>
<td>Diazepam stings in IV formulation; try to dilute it or use a large vein</td>
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<td>Vestibular—motion sickness/vertigo/ear infections (stimulation of the vestibulocochlear nerve, muscarinic ACh receptors, H1 receptors)</td>
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<td>Obstruction—constipation, bowel obstruction (stimulation of CTZ-D2 and peripheral pathways, H1, muscarinic ACh receptors; gastroparesis-D2 receptors)</td>
<td>Constipation—common problem likely secondary to opioid use; often requires aggressive treatment (see Table 5)</td>
<td>Obtain abdominal x-ray to rule out bowel obstruction and to evaluate stool burden</td>
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<td>Medications/Metabolic (opioid effects on CTZ-D2 receptors) (chemotherapy—5HT3 receptors)</td>
<td>Medications (opioids)</td>
<td>Avoid haloperidol in patients with Parkinson disease, prone to dystonias. Monitor QTc. Run intravenous formulations diluted in D5W slowly, as it may cause postural hypotension</td>
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<tr>
<td>Infection/Inflammation</td>
<td>Infection</td>
<td>Ondansetron is especially helpful for radiation enteritis</td>
</tr>
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<td>Toxins/Tumor (CTZ and meningeal irritation)</td>
<td>Toxins</td>
<td>Monitor for confusion and hyperglycemia with dexamethasone administration</td>
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**IV = intravenous; NGT = nasogastric tube; PO = oral; PR = per rectum; QTc = corrected QT interval; SC = subcutaneous; SL = sublingual.**

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**Approach to Nausea and Vomiting**

Many patients are on a combination of opioids that can make understanding their pain requirements confusing. Converting all opioids to the oral morphine equivalent allows physicians to titrate medications effectively and confidently.

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**IV = intravenous; NGT = nasogastric tube; PO = oral; PR = per rectum; QTc = corrected QT interval; SC = subcutaneous; SL = sublingual.**
Mechanism
Surface laxative to soften stool
Treatment
Saline laxative that increases peristalsis
Osmotic laxative
- Softens stool and rinses it out
Anticholinergic drugs
- Osmotic laxative
- Stimulant laxative
Stimulant laxative
Osmotic laxative

To select the appropriate drug treatment, identify the most likely cause and receptor pathway of the nausea and choose an antagonist to the receptor.

Bowel Obstruction
Postoperative adhesions and compression from tumors are two common causes of bowel obstruction that affect people at the end of life. These pathologic changes impair the movement of gastrointestinal contents causing uncomfortable abdominal distention and abdominal colic. Bowel obstruction leads to hypoxia in the bowel wall and bacterial overgrowth.

Table 5. Symptom management for bowel issues

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vomiting from obstruction</td>
<td>Antiserotonin agents: octreotide 100 mcg - 200 mcg SC 2-4x/day vs continuous infusion of 10 mcg/h - 40 mcg/h, glycopyrrolate 0.2 mg SC every 3h</td>
</tr>
<tr>
<td></td>
<td>Steroids: dexamethasone 6 mg - 10 mg loading PO/IM/IV dose followed by 2 mg - 4 mg every 6-12h maintenance dose</td>
</tr>
<tr>
<td></td>
<td>Antidopaminergic agents: haloperidol 0.5 mg - 4 mg PO/SC or IV (use ½ PO dose) every 6h, metoclopramide 5 mg - 20 mg PO/SC/IV every 6h</td>
</tr>
<tr>
<td></td>
<td>Nasogastric tube to decompress the stomach if in line with goals of care</td>
</tr>
<tr>
<td>Gastric spasm</td>
<td>Anticholinergic drugs: scopolamine 0.5 mg - 1.5 mg transdermal patch every 3 days, glycopyrrolate 0.2 mg SC every 3h</td>
</tr>
<tr>
<td>Outlet obstruction</td>
<td>Dexamethasone 4 mg - 8 mg PO/IV loading with 4 mg - 8mg PO/IV 2x/day maintenance dose to decrease gut wall edema, Palliative stenting, percutaneous venting gastrostomy, or surgical bypass if in line with goals of care to provide symptomatic relief of intractable symptoms</td>
</tr>
<tr>
<td>Fecal impaction</td>
<td>Manual disimpaction, bowel regimen (see Table 6)</td>
</tr>
</tbody>
</table>

Table 6. Constipation management

<table>
<thead>
<tr>
<th>Agent/dose</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactulose 15 mL - 30 mL every 12-24h</td>
<td>Osmotic laxative</td>
</tr>
<tr>
<td>Polyethylene glycol 17 g in 8 oz water every 24h</td>
<td>Osmotic laxative</td>
</tr>
<tr>
<td>Sorbitol 15mL - 30 mL every 12-24h</td>
<td>Osmotic laxative</td>
</tr>
<tr>
<td>Magnesium citrate 120 - 240 mL x 1</td>
<td>Saline laxative, can be used with glycerin in an enema, Avoid in renal failure</td>
</tr>
<tr>
<td>Milk of magnesia 30 mL every 12-24h</td>
<td>Saline laxative that increases peristalsis, Avoid in renal failure</td>
</tr>
<tr>
<td>Bisacodyl 5 mg - 15 mg x 1</td>
<td>Stimulant laxative</td>
</tr>
<tr>
<td>Senna 2-3 tabs every 12-24h</td>
<td>Stimulant laxative</td>
</tr>
<tr>
<td>Docusate 100 mg - 250 mg every 12-24h</td>
<td>Surface laxative to soften stool, Use with stimulant laxative</td>
</tr>
<tr>
<td>Mineral oil/tap water enemas</td>
<td>Softens stool and rinses it out, May be uncomfortable for some patients</td>
</tr>
</tbody>
</table>

Always look for reversible causes. For poorly managed pain or to 50% for adequately treated pain
- If titrating an orally dosed agent, short-acting agents can be increased 25% to 50% for mild to moderate pain and 50% to 100% for moderate to severe pain, up to a maximum of every-2-hour dosing
- Fentanyl patches can only be titrated every 3 days, and methadone can only be titrated every 4 to 7 days. Find out from the patient when the dose was last increased before adjusting these medications
- In titration of an intravenous or subcutaneous infusion, increase the basal dose by 25% to 100% on the basis of severity of pain. Consider an extra loading dose of 50% to 100% of the hourly dose first, before increasing the infusion rate for better pain control if symptoms are particularly severe. If the patient is on methadone or a fentanyl patch
- the dose of morphine in milligrams PO in 24 hours/2 is approximately the dose of fentanyl patch in micrograms in opioid-tolerant populations
- Do not use this conversion in opioid-naive or older populations. Instead, start at the lowest dose of fentanyl and titrate upward.
- See Table 3 for methadone conversion.
- With fentanyl and methadone titration, we recommend conferring with someone with expertise in pain medications. This person may also suggest other pain adjuvants such as nonsteroidal anti-inflammatory drugs, gabapentin for neuropathic pain, lidocaine patches, anti-inflammatory drugs, gabapentin for neuropathic pain, lidocaine patches, and titrate upward.

Nausea and Vomiting
Nausea and vomiting are very common complaints with multiple etiologies that make the choice of treatment clear once the underlying culprit is identified. A common mnemonic is A VOMIT:
- A: Anxiety/Anticipation
- V: Vestibular
- O: Obstruction
- M: Medications/Metabolic
- I: Infection/Inflammation
- T: Toxins/Tumor
- The underlined culprit is identified. A common mnemonic is A VOMIT: A VOMIT:
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- Always look for reversible causes. To select the appropriate drug treatment, identify the most likely cause and receptor pathway of the nausea and choose an antagonist to the receptor. 

Postoperative adhesions and compression from tumors are two common causes of bowel obstruction that affect people at the end of life. These pathologic changes impair the movement of gastrointestinal contents causing uncomfortable abdominal distention and abdominal colic. Bowel obstruction leads to hypoxia in the bowel wall and bacterial overgrowth.
An increase in vasoactive intestinal peptide hormone leads to hypersecretion, which stimulates nausea and vomiting. Untreated, bowel obstruction can lead to overwhelming sepsis and multiorgan failure. Clinicians may be misled by a history of diarrhea that can result from stool leaking around an impaction causing obstruction. The complaint of nausea can be an indication of early obstruction as well. An abdominal x-ray can therefore be very helpful in evaluating a terminally ill patient with complaints of nausea, vomiting, diarrhea, constipation, or obstipation. A rectal examination is used to rule out fecal impaction. If hard, impacted stool is found, manual disimpaction is warranted first. See Table 5 and Table 6 for symptom management of bowel issues.

**Constipation**

Constipation is a very common issue among patients with terminal illnesses. Given that many are on a variety of opioids, it is important to ensure that they are placed on an adequate bowel regimen to prevent the uncomfortable effect of narcotic-induced ileus. A variety of different agents can be used either by mouth or rectally to stimulate the bowels. In general, stimulants work best to prevent opioid-induced constipation. Minimally, a patient on opioids should be on seneca regularly. The addition of stool softeners, bisacodyl, and nightly prune juice is often helpful. Talk with your patient regarding the patient’s preferred method of administration and what has worked in the past.

**Other Emergent Conditions**

**Massive Hemorrhage**

If the patient is already enrolled in hospice, hopefully a preemptive conversation has occurred, including planning and goals of care, to avoid unwanted emergency interventions. Bleeding may occur when a malignancy erodes into a blood vessel. Quickly review any bleeding risks and search for treatable factors. Drugs such as aspirin, nonsteroidal anti-inflammatory drugs, anticoagulants, and antiplatelet drugs should be stopped. Infusion of platelets or blood factors can be discussed if the bleed is not believed to be fatal. Compress, when possible, with dark towels and apply hemostatic dressings for superficial wounds. Consider interventional radiology consult for internal bleeding if death is not imminent, if this aligns with the patient’s goals of care.

**Spinal Cord Compression**

New or worsening back pain in a cancer patient who is otherwise doing well warrants a full exam and imaging. Most patients have preceding back pain that worsens, or they may suddenly be unable to walk or may lose continence. This is an emergency, and time is of the essence. Steroids are started immediately with dexamethasone 100 mg intravenous then 24 mg orally every 6 hours for 3 days. Radiation therapy is administered and steroids tapered accordingly. Magnetic resonance imaging of the entire spine is done to look for other lesions and spine stability. Using the Patchell criteria, if there is a solitary spine metastasis, the patient’s life expectancy is greater than 3 months, and the paralysis is less than 2 days, then immediate surgery could be undertaken. Up to 70% of these patients regain the ability to walk. Radiation oncology should be quickly consulted to make a scheduled plan depending on the number of days to radiation.

### Table 7. Management of the actively dying patient

<table>
<thead>
<tr>
<th>Changes at the end of life</th>
<th>Symptoms/signs</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased oral intake</td>
<td>Dry mucous membranes, refusing to eat or drink</td>
<td>Do not start IV fluids, as dehydration and starvation states may stimulate endorphin release at the end of life as a natural response to provide comfort</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moisture lips with petroleum, use artificial saliva/mouth sponges and ice chips</td>
</tr>
<tr>
<td>Cardiac and renal dysfunction</td>
<td>Cold extremities, pale skin, dark urine, oliguria, hypotension, tachycardia</td>
<td>Do not bolus IV fluids, as unlikely to change outcome and may worsen urinary retention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider Foley catheter if urinary retention is causing patient discomfort</td>
</tr>
<tr>
<td>Neurologic dysfunction</td>
<td>Drowsiness, disorientation, inability to follow commands, incontinence, mumbling, inability to close eyes</td>
<td>Consider keeping patient off a cardiac monitor, limit vital sign checks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide blankets, focus on keeping patient comfortable</td>
</tr>
<tr>
<td>Increased oral secretions</td>
<td>“Death rattle,” gurgling</td>
<td>May occasionally need haloperidol or lorazepam for restlessness</td>
</tr>
<tr>
<td>Respiratory dysfunction</td>
<td>Cheyne-Stokes respiration, agonal breathing, irregular respiratory rate</td>
<td>Avoid deep suctioning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider scopolamine 1 mg patch vs glycopyrrolate at 0.2 mg SC/IV every 3 h vs atropine 1% ophthalmic solution 1-2 drops SL every 4 h to dry secretions</td>
</tr>
<tr>
<td>Pain/terminal delirium</td>
<td>Facial grimacing, moaning, agitation, hallucinations</td>
<td>Normalise the situation, explain to family the changes surrounding the end of life</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reassure family</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider morphine if patient shows increased work of breathing</td>
</tr>
</tbody>
</table>

h = hours; IV = intravenous; PO = oral; SC = subcutaneous; SL = sublingual.
of lesions and life expectancy. Patients receive much pain relief from radiation.

Superior Vena Cava Syndrome
Rapid progression of a thoracic malignancy leading to respiratory distress with facial and arm swelling warrants endovascular stent placement as an effective immediate intervention if aligned with the patient’s goals. Dexamethasone IV/PO can be initiated at 6 mg every 6 hours. If the tumor is chemosensitive, patients may benefit from chemotherapy if it aligns with their goals and with their functional status.

Recognizing and Actively Treating the Dying Patient
The terminal phase of illness can be emotionally challenging yet comforting if those involved feel that the patient’s goals have been met. Early recognition and realization will help with management needs. The patient may have an irreversible decline that has increased in rapidity or a sentinel event, such as massive stroke or decision to withdraw life support. Communication, gentle yet swift, may allow time for closure. The first and foremost palliative care cornerstone is ensuring the best quality of what is left of the patient’s shortened life. All families are different in handling such an emotional situation and may need some guidance in how to achieve a peaceful outcome. If there is time, a hospialist should be consulted for admission to the hospital so that the patient may be in a private room. The patient should be involved as long as possible or as long as s/he is willing. To begin this potentially frightening topic, one could start with, “Most people faced with this bad situation have concerns or specific questions.” Also inquire if the patient would like some spiritual support, which can usually be arranged quickly through the on-call hospital chaplain or the patient’s congregation.

Some signs of the last few hours include decrease in appetite, interaction, level of consciousness, and urine output. Next signs are hemodynamic changes with low blood pressure, tachycardia, and mottled extremities. Respiratory changes ensue with rattleing secretions, irregular breathing pattern, then apnea, and finally cessation of the heartbeat. See Table 7 for treatment of the actively dying patient.

The Hospice Patient in the Emergency Department
This does not always translate into a patient wanting to revoke hospice. The clinician must ascertain why the patient is in the ED. More times than not, the patient came to the ED for symptom management. Other possibilities include families that are unable to handle symptoms or emotional burden. Early referral to the hospitalist for admission and to the palliative care team for symptom management may be indicated for symptoms unrelated in the ED. Also, referral to social services for additional help at home or possible placement may be of benefit. The patient’s hospice needs to be notified of the patient’s admission, and staff from the hospice will continue to see the patient daily while s/he is in the hospital, under the short-term inpatient benefit.

If it is important for the patient to be in his or her own home, we must do everything possible to help palliate the acute problem and then get the patient back to his or her environment. If the family is unable to take care of the patient at home, enlisting more help or consideration for the patient to receive hospice in the nursing home is another option.

Summary
• The primary goal of palliative care is to relieve suffering
• Palliative care starting in the ED is to help patients and their families focus on their goals of care
• The clinician must evaluate the disease trajectory and overall function of the patient to help guide further treatment options
• When developing the next steps, the clinician must be honest yet gentle in discussing prognosis
• The shift from curative to noncurative treatment improves patient satisfaction and decreases use of valuable resources
• Challenges with advanced directives include vague wording, dramatic change in health after completion, and conflicts between family members
• To help guide therapy, focus on what the patient wants or would want

More times than not, the patient came to the ED for symptom management. This does not always translate into a patient wanting to revoke hospice.

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

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Help

One cannot help a man to come to accept his impending death if he remains in severe pain, one cannot give spiritual counsel to a woman who is vomiting, or help a wife and children say their goodbyes to a father who is so drugged that he cannot respond.

— Mary Baines, b 1934, British palliative care physician
The Coccidioidomycosis Conundrum: A Rare Parotid Mass

Christopher G Tang, MD; Brian A Nuyen; Balaram Puligandla, MD; Barry Rasgon, MD

Abstract

A man, age 62 years, presented to the clinic with a 2-week history of increased nontender, nonerythematosus, indurated right-sided parotid swelling. A 4 × 6-cm firm, well-circumscribed mass was palpated in the right parotid gland. A fine-needle aspiration biopsy was performed on the parotid mass with aspiration of 0.5 cc of purulent fluid with some blood. Cultures from the aspirate revealed Coccidioides immitis confirmed by DNA probe. Pathology slides revealed fungal spores. The patient was treated with 800 mg of fluconazole every day for 3 months with resolution of the parotid swelling. However, persistent cervical adenopathy remains.

Although this is a rare case of acute parotid swelling, Coccidioides immitis should be considered in the differential diagnosis of parotid masses in a patient with previous coccidioidomycosis. There may be a potential for an increase in frequency and variety of atypical extrapulmonary manifestations of coccidioidomycosis that parallels the increase in coccidioidomycotic pulmonary infections. Long-term antifungal therapy appears essential for control.

Introduction

Coccidioides—either of the species Coccidioides immitis or Coccidioides posadasii—is endemic to the southwestern US and desert regions of Mexico, Central America, and South America. Primary infections are often respiratory in nature, because Coccidioides infection is typically achieved via inhalation of arthroconidial spores. These infections are frequently asymptomatic and often go unrecognized. Extrapulmonary coccidioidomycosis is virtually always disseminated from a primary pulmonary infection, frequently becoming evident within weeks to 2 years after initial exposure. Risk of dissemination ranges from 0.2% to 4.7%, with the immunosuppressed and those of African or Filipino ancestry as the groups at highest risk for dissemination. The incidence of coccidioidomycosis continues to increase; primary coccidioidal pulmonary infection accounts for 17% to 29% of all cases of community-acquired pneumonia in endemic regions. Lesions are commonly known to hematogenously and/or lymphatically spread to skin and subcutaneous soft tissues, meninges of brain and spinal cord, and skeleton. Rarer and more atypical sites of dissemination have been documented. In the face and neck region, lesions to the eye and thyroid have been reported. Other atypical sites of dissemination to other regions of the body have included the adrenals, liver, peritoneal cavity, male genitourinary tract, and kidneys. To our knowledge, this is the second documented report of coccidioidomycoses of the parotid.

Observations

An African-American man, age 62 years, presented to the clinic with a 2-week history of increased nontender, nonerythematosus, indurated right-sided parotid swelling (Figure 1a). The patient was initially given augmentin, but after histology, magnetic resonance imaging, and DNA probe confirmation, the treatment was switched to 800 mg fluconazole every day. At 3 months, parotid swelling was noted to be greatly improved.
is an office worker and had a history of pulmonary coccidioidomycosis/valley fever several years ago, treated at another facility. During that time the patient had a complicated stay in an intensive care unit, where he required intubation with mechanical ventilation. After 18 months of fluconazole, his pulmonary symptoms resolved. At this visit, the patient denied pain, fever, chills, facial droop, or sicca symptoms. On examination, a 4 × 6-cm firm, immobile, well-circumscribed mass was palpated in the right parotid gland, without mucosal lesion or ulceration in the oral cavity. No pus was milked out of the Stensen duct.

Multiplanar multisequence magnetic resonance images of the soft tissues of the neck were obtained using a 1.5-T scanner with and without gadolinium. In both the coronal T2-weighted sequence (Figure 2) and axial T1-weighted sequence (Figure 3) with fat saturation after gadolinium, the right parotid gland was diffusely enlarged and edematous with an ill-defined peripherally enhancing 2.4 × 2 × 3-cm fluid collection in the superficial lobe, nonspecific at imaging. Associated matted-appearing lymphadenopathy extended posteriorly from the enlarged parotid gland involving predominantly level IIb and V.

No serology was obtained during the visit because a histopathologic diagnosis was seen as key. Fine-needle aspiration of the mass yielded less than 0.5 cc of fluid, showing minimally purulent material with admixed blood. Microscopy at high power with oil immersion (Figure 4) with characteristic histopathology is shown.

Microscopy revealed spherules consistent with Coccidioides immitis (≤ 70 µm in diameter), containing the classic endospores, with macrophages and polymorphonuclear neutrophils dominating the tissue reaction. Initially, the patient was given augmentin, but after histopathology, magnetic resonance imaging, and DNA probe confirmation of coccidioidomycosis, the treatment was soon switched to 800 mg fluconazole every day and the patient was followed-up closely. After 3 months, parotid swelling diminished (Figure 1b).

Conclusions
The differential diagnosis for unilateral parotid enlargement is vast—varying across such broad categories as infectious, neoplastic, or autoimmune. Infectious causes of parotid enlargement are best divided into suppurative versus nonsuppurative, with the former characterized by the clinician milking out suppurative fluid from the Stensen duct. Suppurative causes are almost always bacterial and are much more common; top pathogens involved in suppurative bacterial parotitis include Staphylococcus aureus and mixed oral aerobes and/or anaerobes. Nonbacterial causes of infectious parotitis are nonsuppurative and rarer. The following viral, mycobacterial, and fungal causes have been reported in prior literature. Viruses noted are human immunodeficiency virus, influenza, Coxsackievirus, Epstein-Barr virus, lymphocytic choriomeningitis virus, parainfluenza viruses, herpes simplex virus, and cytomegalovirus. Mycobacteria listed are Mycobacterium tuberculosis and M. avium-intracellulare. Fungal causes are Candida albicans, Candida glabrata, Cryptococcus neoformans, Coccidioides immitis, and Histoplasma capsulatum.

Because less than 50% of primary pulmonary coccidioidomycoses cases come to medical attention, and because of the indolent nature and nonspecific symptoms associated with extrapulmonary lesions, diagnosis of extrapulmonary coccidioidomycosis is often delayed by weeks or even months. Nonetheless, a detailed history, especially a history of
endemic exposure or prior coccidioidomycosis, and physical examination can generate enough clinical suspicion to initiate the appropriate further evaluation. Serologic antibody detection testing is an adequate means to diagnose the condition in ambulatory patients. If available, enzyme-linked immunoassays for IgM and IgG are highly sensitive screening tests and should be ordered before the more specific complement-fixing antibodies or immunodiffusion tests, the latter tests can also be used to monitor treatment response. Definitive cultures from clinical specimens, though the gold standard and useful for hospitalized inpatients, are oftenlogistically difficult. In patients presenting similarly to this case with suitable masses, fine-needle aspiration biopsy can be a critical step in diagnosis and has previously been documented as an effective tool for diagnosis of extrapulmonary coccidioidomycosis.

On the basis of the 2005 Infectious Diseases Society of America published guidelines on coccidioidomycosis, oral azole antifungal agents are customary initial drugs of choice. Although ketoconazole has been approved for the treatment of coccidioidomycosis by the US Food and Drug Administration, studies have shown similar efficacy for use of fluconazole or itraconazole for chronic pulmonary and soft-tissue coccidioidal lesions. For patients worsening rapidly or whose lesions are located in vital areas like the spine, amphotericin B is recommended. There has been documented risk of relapse after discontinuation of therapy; however, most patients do not relapse, as cure rates approach 66%. In summary, in patients with parotid abscess, coccidioidomycosis of the parotid should be incorporated into the differential, most especially in those with typical geographic risks or known prior exposure. To our knowledge, this is only the second case report of a Coccidioides abscess of the parotid, with diagnosis affirmed by histopathology and imaging. Long-term antifungal therapy is essential for control.

**Disclosure Statement**

The author(s) have no conflicts of interest to disclose. This case was presented as a poster at the 2013 Combined Otolaryngology Spring Meeting for the Triological Society: April 10-14, 2013; Orlando, FL. Publication of this manuscript is not a result of this meeting presentation.

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**References**


Herbert J Sorensen, MD

Abstract
In response to personal and institutional history and articles published in The Permanente Journal, this article begins a conversation based on the premise that health care will only reach its full potential with the integration of traditional medical care, which relies on the application of pharmacologic and surgical intervention after the development of illness, and lifestyle medicine, the use of optimal nutrition and exercise.

Introduction
This commentary is in response to articles in The Permanente Journal during the last seven years and to personal experiences and observations during a career that has often traversed the "road less traveled."

The premise of this conversation is that health care will only reach its full potential when two existing paradigms are integrated: 1) Traditional medical care relies primarily on the application of pharmacologic and surgical interventions after the development of illness. It is based on reductionism, which can be characterized as relying on the smallest details in biologic pathways for interventions but ignoring the larger context of the causes of illness. 2) Lifestyle medicine (LM) is primarily the use of optimal nutrition (a whole foods, plant-based diet) and exercise in the prevention, arrest, and reversal of chronic conditions leading to premature disability and death. It looks in a holistic way at the underlying causes of illness.

Background
Three other issues must be addressed to place the above in perspective: During their training, physicians and other health professionals receive little or no education in nutrition, nor do they in their subsequent careers.

At a meeting of 25 active and retired Medical Directors, I asked how many individuals had read the 3 books that serve as the bedrock of the science and understanding of LM: The China Study, 1 by T Colin Campbell, PhD, and Thomas M Campbell II; Prevent and Reverse Heart Disease, 2 by Caldwell B Esselstyn Jr, MD; and Dr Neal Barnard’s Program for Reversing Diabetes, 3 by Neal D Barnard, MD. Out of a possibility of 75 affirmative responses, only one responded yes.

The initial submission of this commentary was reviewed by 8 professionals. Each was asked to respond to the question of having read The China Study or having seen the LM film Forks Over Knives. 4 Six responded; so out of a possibility of 12 affirmative responses, there were 2. My personal contact with health professionals has yielded the same level of response.

Vision, Intention, and Means
To implement a change, there must be a linear progression that can be summarized by the acronym VIM: vision, intention, and means. My goal here is to address vision and intention. Comprehensive implementation will not be possible without a thorough understanding of these two steps. My comments herein will address understanding the concepts. Implementing the concepts will be for a future consideration.

The concepts and public awareness of LM are now sufficiently mature to warrant serious consideration of the proposed integration. Some will object by saying, "We're already doing these things." Farmers' markets, bicycle riding, suggesting exercise, and other activities are important, but what is needed is a coordinated, comprehensive LM approach for health care staff and patients.

In what follows, I outline the journey that has led to an interest in a paradigm integration and conclude with some ideas on how to achieve increased awareness and an ongoing conversation about the importance of LM in health care.

So, how did a physician in the specialty of obstetrics and gynecology ever develop an interest in LM?

African Experience
Having worked in primary care for seven years in Malawi, East Africa, I have been exposed to the contrasts between our Western health issues and those of a population living a simple life with a primarily plant-based diet. This has led to several insights.

In my medical experience in Africa, Western chronic illnesses—for example, obesity, coronary artery disease (CAD), type II diabetes, osteoporosis, and cancer—were relatively rare. This leads to an appreciation of crosscultural disease incidence analysis, revealing how aberrant disease prevalences are in the US. Why are we so different? Why do we have a CAD death rate in the US equivalent to losing the passengers on two and a half Boeing 747s daily? Why are the healthiest individuals, as outlined in the National Geographic article "The Secrets of Long Life," found in Okinawa; Sardinia; and Loma Linda, California? How does our increasing incidence of crippling chronic illnesses relate to the standard American diet?

Herbert J Sorensen, MD, is a retired Obstetrician-Gynecologist and past Medical Director at the San Diego Medical Center in CA. E-mail: heandre@cox.net.
I was fortunate to have been working in Malawi when the problems of Marasmus and Kwashiorkor were being addressed in a preventive (rather than therapeutic) manner by the introduction of a porridge weaning food made from ground dried corn, white beans, and peanuts. The normal transition of weaning was to a corn starch diet. Vision and intention were used by a very wise Dutch nun who had worked for more than 40 years with the local population. Laurel and Hardy films, the Our Gang series, and other silent films were shown on suspended bed sheets in the villages; a nutrition lecture was given; and the weaning food samples were provided and subsequently stocked in the local markets. This completed VIM, and these two scourges were no longer part of our daily rounds.

Pritikin and Kaiser Permanente

Step forward to the next experiences. While I was a physician with the Permanente Group in the 1970s, one of our cardiologists made me aware of the Pritikin Longevity Program, which relied on nutrition and exercise as therapeutic modalities for the treatment of many of our chronic health conditions (eg, obesity, hypertension, diabetes, CAD). Pritikin and his staff gave a demonstration of his approach at the San Diego Medical Center. His demonstration and a review of his results strongly suggested that an organized LM program could, in some cases, offer an alternative to treating symptoms. Because this comprehensive, expensive program was conducted in a domiciliary setting, its potential for application in a traditional medical model of care seemed limited.

I had a desire to test the waters about the interest in such an approach, so I called upon some of the pioneering giants of the Permanente Medical Groups to tap their collective wisdom. Sidney Garfield, MD (physician founder and first Medical Director of Kaiser Permanente); Morris Collen, MD (founder of the Kaiser Permanente Division of Research); Ray Kay, MD (founder of the Southern California program); and Nathan Pritikin agreed to meet. They spent a day sharing their roles in the development of health care. What Pritikin shared was something far outside the traditional medical paradigm and sparked quite a discussion. As the group separated there was an expression of, “If only we had known each other earlier!” Unfortunately, the time to formally introduce LM had not yet arrived.

Complete Health Improvement

Thirty years later, my wife and I were introduced to CHIP (Complete Health Improvement Program, www.chiphealth.com), developed by Hans Diehl, PhD, who had been the epidemiologist and education director at Pritikin. His idea was to bring LM into the local setting, where people could experience a program in their own town and have local support afterward. We became Directors in presenting CHIP in our community, and after seeing our participants’ results we knew that an LM program could be incorporated into a health care system. Individuals lived out the motto “Be healthy by choice, not by chance” as they began to experience improvements in the 70% of their health that was directly under their control. This occurred outside the medical model. For those of us who are “age enhanced,” an additional saying was encouraging—“Die young as late as you can!”

The Permanente Journal

Now, let’s bring in The Permanente Journal and track its articles on LM. I saw the first mention of LM in the Fall 2006 issue (volume 10, number 3). Let’s review the articles.

There was a book review of The China Study outlining the results of the largest nutritional study ever undertaken, under the direction of three universities—Cornell, Oxford, and Beijing. This study showed the health advantage of a whole foods, plant-based diet.

Additionally, there was an article in the Health Systems section: “A Conversation with Marion Nestle, PhD: Straight Talk About Obesity, Nutrition, and Food Policy,” sponsored by the Kaiser Permanente Institute for Health Policy. It is useful to review the last question posed to Dr Nestle and her answer: Question: “Is the health care industry doing anything that’s particularly useful in terms of promoting nutrition and healthier lifestyles?” Response: “Hmmm. Good question, but I can’t think of any examples. The health care system is designed for treatment, not prevention, and until there’s a way to make prevention pay, nobody will talk about it or do anything about it. KP [Kaiser Permanente] is the only game in town where prevention pays. Your organization benefits if people are healthier, but I can’t think of any other institution in America where that is true. This gives KP a rare privilege and a responsibility, and if you don’t take full advantage of it you will be missing a rare opportunity.” My, but that was seven years ago.

In culling through the traditional articles in that issue, I was able to identify 20 applications of LM, without one mention of this approach in the articles. The awareness was not there yet.

Now jump forward through a hiatus of seven years to The Permanente Journal, Spring 2013 (volume 17, number 2), and under Special Reports you will find “Nutritional Update for Physicians: Plant-Based Diets” (www.thepermanentejournal.org/issues/2013/spring/5117-nutrition.html). This is a must-read for physicians. For those who ask for evidence of the efficacy of a plant-based diet, please refer to the 46 references cited.

Finally, in the Fall 2013 (volume 17, number 4), issue of The Permanente Journal, there is a review by me of Colin Campbell, MD’s most recent book, WHOLE—Rethinking the Science of Nutrition. It addresses the reasons why a whole foods, plant-based diet has been so difficult to implement.

Implementing Lifestyle Medicine

Now, let’s consider some ways understanding the concepts of LM can be implemented.

The first is a suggestion for The Permanente Journal. Perhaps the time has come to dedicate a section in each issue to the subject of LM. A possibility could be to consider the authors of “Nutritional Update for Physicians: Plant-Based Diets” as a core group from which to solicit evidence-based publications in this field.
The next suggestion is to initiate some simple steps to bring health care professionals and employees to a deeper level of understanding of LM.

Start by showing the film *Forks Over Knives* (ie, nutrition versus the scalpel) at all the Medical Centers. This film tracks the careers of Drs Campbell and Esselstyn and their scientific and clinical experiences with a whole foods, plant-based diet. Two individuals are followed through their improvement in health achieved by LM. This film is relevant to both medical professionals and lay individuals. Through our CHIP program, we arranged for a free public screening in our community, and 450 individuals attended. At the conclusion of the film there was a standing ovation. One participant was scheduled for bypass surgery in 4 days. His cardiac surgeon, after reviewing our LM approach, agreed to this alternative, and surgery was cancelled. After the CHIP course, the individual and his spouse lost a combined 110 pounds, and there have been no cardiac symptoms. At a program cost of $350 for the couple, this was a good return on investment.

Make available at all centers copies of 1) *The China Study*, 2) *WHOLE—Rethinking the Science of Nutrition*, 3) *Prevent and Reverse Heart Disease*, and 4) *Dr Neal Barnard’s Program for Reversing Diabetes*.

Develop and begin to promote Web sites that will continue the educational process. I will reference two, hosted by recognized scientists: http://pcrm.org/health/cancer-resources, a division of the Physicians Committee for Responsible Medicine, with many resources and links, and at www drmcdougall.com you will find extensive coverage of health topics and recipes.

The final suggestion is to have regional symposia, open to physicians and other health professionals from all specialties. LM has applications in many specialties. There are multiple individuals and resources waiting for an invitation to bring an expanded awareness.

**Conclusion**

Final words in this conversation: The integration of the two mentioned paradigms should be considered from an individual perspective and a Kaiser Permanente program perspective. If you personally use the resources outlined, you will be well down the path of understanding the concepts of LM and the goal of integration, and you may even find an improvement in your health.

When a conceptual maturation has developed, a comprehensive next step can be considered: implementing the concepts of LM. ❖

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**In the Future**

The doctor of the future will give no medicines, but will interest his patients in the care of the human frame, in diet, and in the causes and prevention of disease.

— Thomas Alva Edison, 1847-1931, American inventor and businessman
What Can We Learn From Narratives in Medical Education?

Samir Johna, MD; Brandon Woodward, MD; Sunal Patel, MD

Abstract
Medical literature has demonstrated the effectiveness of narrative writing in enhancing self-reflection and empathy, which opens the door for deeper understanding of patients’ experiences of illness. Similarly, it promotes practitioner well-being. Therefore, it is no surprise that narrative writing finds a new home in medical education. The Accreditation Council for Graduate Medical Education (ACGME), through its Outcome Project, established six core competencies that every residency program must teach. However, no specific pedagogies were suggested. We explored the role that narrative writing can play in reconciling the ACGME core competencies with daily encounters in medical education. Our study suggests a hidden wealth in reflective writing through narratives with a promising potential for application in medical education. Reflective writing may turn out to be an innovative tool for teaching and evaluating ACGME core competencies.

Introduction
Reflective writing is not a new method of introspection or evaluation. It has been used over the years for various professions, most recently in the realm of medical education. Since 2002, medical educators have been exploring various venues to teach essential core competencies in medical education. The Accreditation Council for Graduate Medical Education (ACGME) mandated that every resident must reach a competency level in medical knowledge, patient care, interpersonal and communication skills, practice-based learning and improvement, system-based practice, and professionalism.1 To comply with the mandate, residency programs tapped into some of the traditional educational activities that are already in use; to name a few, the morbidity and mortality conference, teaching in the operating room, and clinical teaching rounds. However, such activities focus mainly on patient care and medical knowledge.2-4 Program directors continue to explore other educational activities that may be as effective and able to cover the more advanced core competencies.5-10 The current educational activities in use, though useful, demand time and resources that may not always be available, particularly for small residency programs. Reflective writing lends itself to such a potential.11-16 To examine this possibility, the authors reviewed their experience using reflective writings through solicited narratives that were collected from different learners over the preceding two years.

Methods
SJ asked his learners, students and residents, at the Fontana Medical Center to reflect on their experiences at any of the locations through which they had rotated during their school years or residency training, whether the experiences were positive or negative, in an anonymous way. Learners who agreed to participate sent their narrative writings to SJ via e-mail. We collected a total of 33 narratives. Learners from Loma Linda University wrote a total of 16 narratives, third-year medical students 12, and physician-assistant students 4. Third-year students from a Caribbean medical school wrote 3 narratives. Fourteen narratives were written by different-level residents from the Arrowhead Regional/Kaiser Fontana General Surgery Residency Program. SJ used a printed form that lists the 6 ACGME core competencies and their subcompetencies as a yardstick. SJ analyzed every narrative and identified every embedded overt or covert ACGME core competency or subcompetency. They were subsequently inserted within the text of each narrative. The narratives were discussed at a later date with the learners, one-on-one, with a focus on the identified ACGME core competencies to show them how to place such core competencies in perspective. Later, an anonymous survey was conducted using SurveyMonkey (Palo Alto, CA) to look at learners’ reactions (Kirkpatrick level I evidence) and gained knowledge (Kirkpatrick level II evidence), with a focus on the perceived effectiveness of this educational intervention. The survey questions were:
1. Was the analysis of the reflection successful in identifying one or more of the ACGME core competencies?
2. Was the analysis of the narrative able to demonstrate how the ACGME core competencies interface with one another within the same encounter?
3. Do you think that such narratives are useful resources for teaching the ACGME core competencies outside structured classes or workshops?

Finally, the data were collected and analyzed using descriptive statistics.

Results
Thirty-three narratives were collected over the course of 2 years. Each narrative analysis took some 10 to 15 minutes to complete. Narrative discussion with each learner took a similar length of time. The median number of paragraphs per reflection was 3 (range, 1 to 9). The median number of words per reflection was 438 (range, 184 to 1152). The median frequency

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What Can We Learn From Narratives in Medical Education?

Discussion

More than ever, program directors are under pressure to explore new horizons and come up with more innovative educational tools, not only to teach the ACGME core competencies but also to properly assess each resident’s performance before s/he is deemed competent. Some of the ACGME core competencies may be easy to teach and evaluate, such as medical knowledge and patient care. Other advanced competencies are more challenging. In addition, a limited number of structured classes or workshops during any given year may not be sufficient to achieve the task. Limited resources, particularly in small residency programs, limitations on residents’ work hours, and the pressure on the faculty for more clinical productivity add fuel to the fire.

An ideal educational activity would be an intervention that is versatile, effective, cheap, and can be implemented anytime and anywhere with no additional resources or expertise. Even better, when the intervention is capable of showing how one or more of the ACGME core competencies interlace with each other, we can potentially reconcile such competencies with daily encounters. After all, the ACGME core competencies should probably not be taught or evaluated separately. Recent data show that the current measurement tools are not able to measure the core competencies independent of each other.¹⁷

Our experience with the use of narratives in medical education has been very satisfying to say the least. No matter how short a narrative is, it is able to encompass one or more core competencies. It is also able to demonstrate how the core competencies interlace with each other within the same encounter. Narratives are versatile. They can be written anytime, anywhere, and at the learner’s leisure, with no need for additional resources and skills. They also add little or no additional pressure on the faculty. Furthermore, narratives can be a real-time mirror of what happens on the front lines on a daily basis. Some of the reflective writings that we collected were eye-openers. Whereas the majority of the narratives referred to positive role modeling that we endorsed and reinforced, some narratives, to our dismay, exposed poor professionalism, poor interpersonal communication skills, poor patient care, and poor system-based practice, which needed to be addressed. As an example, one learner described what he perceived as a negative encounter between his attending physician and a patient who had newly received a cancer diagnosis. He said,

*After we left the room, I was thinking of how shocking and overwhelming that was to the patient. I was wondering if being busy can be an acceptable excuse for not showing empathy and respect when talking to patients about their serious illnesses … I now realize how much contradiction and incongruity there is between what we have been taught and what actually happens in real life.*¹⁵

In this narrative, the learner struggles as he tries to reconcile what he was taught in the classroom with what he saw in the examination room. He eloquently describes the dilemma of a hidden curriculum: teachers who do not walk their talk!

Our study has several limitations. The sample is small and is a convenience sample obtained through solicitation of all learners who rotated with SJ. The fact that not everyone participated may depict an inherent bias. Likewise, the 100% positive response rate to the survey may cast some doubts. We do not believe these doubts, given that the response represented the participants’ personal perceptions. And finally, our data cannot predict how successful our learners would be in applying what they learned to encounters in everyday practice during their schooling, residency training, and beyond. Therefore we propose to use our data as a pilot study to help guide future research.

Conclusions

There is a hidden wealth in reflective writing through narratives, which have promising potential for application in medical education. Reflective writing may turn out to be an innovative tool for teaching and evaluating ACGME core competencies.
Even a simple narrative can expose several core competencies and how they interlace with each other within a single encounter. Such narratives may serve as a versatile tool for every residency program. We hope that every learner will be enriched by this hidden wealth and will learn how to apply it during residency training and beyond, when s/he enters real-life practice. Further research may support this potential.

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

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References

Light of Reason
The physician ought to know literature … to be able to understand or to explain what he reads. Likewise also rhetoric, that he may delineate in true arguments the things which he discusses, dialectic also so that he may study the causes and cures of infirmities in the light of reason.

— Saint Isidore of Seville, 560-636, Archbishop of Seville, known as the last scholar of the ancient world

Dear Editor,

Rondinelli et al offer much-needed insight into the professional practice of registered nurses in ambulatory care. Clearly nurses are taking part in complex patient care activities and are having a positive effect on patient outcomes in a variety of ways. However, one finding in the survey gives some cause for concern. Sixteen percent of staff nurses had a master’s degree or higher. Yet many of the nurses spend much of their time on assessment activities and thus might not be being used to their maximum capacity. This has implications for the effectiveness of nurses and also for their cost effectiveness. Thus, cost effectiveness of health care professional education must be considered as an aspect of the cost effectiveness of care.

This is not straightforward because the cost of health care professional education and the cost of care are notoriously difficult to measure. However, the potential reward is great also: a cohort of nurses who deliver high-quality, low-cost care and whose education is less expensive.

Yours Sincerely,

Kieran Walsh, MD, FRCPI
Clinical Director of BMJ Learning
BMJ Learning, London, UK

References

Response to Dr Walsh

Thank you for the opportunity to respond to Dr Walsh’s thoughtful letter to the editor. As authors of this exploratory study, we realize questions will arise from the evidence on the ambulatory nurses’ role in the 21st century. Although cost effectiveness was not part of our study, we agree with Dr Walsh that cost effectiveness is a consideration when providing quality health care. We encourage the start of conversations, potential improvement projects, and future research related to our findings. We envision that ambulatory staff registered nurse roles are complimentary to physician or clinician provision of care, with each professional practicing to their own scope of practice to deliver team-based, high-quality, and effective patient care.

Yours sincerely and on behalf of the coauthors,

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Atrial flutter (AFI) is a cardiac dysrhythmia characterized by rapid and regular depolarization of the atria that appears as a sawtooth pattern on the electrocardiogram (ECG) and is categorized into type I (typical) and type II (atypical) AFI. The ECG in type I (typical) AFI is characterized by an inverted sawtooth flutter (F) wave pattern in the inferior leads II, III, and aVF, low amplitude biphasic F waves in leads I and aVL, an upright F wave in precordial lead V1, and an inverted F wave in lead V6. Type I AFI is most commonly caused by the presence of a macro-reentrant circuit in the right atrium that includes a small strip of tissue between the inferior vena cava and the tricuspid annulus known as the cavotricuspid isthmus. The ECG in atypical (type II) AFI is characterized by upright F waves in leads II, III, aVF, and V6 and by biphasic F waves in leads I, aVL, and V1. The underlying mechanism of type II AFI is unclear. Risk factors for AFI include presence of heart failure, chronic obstructive pulmonary disease, antiarrhythmic medications, thyrotoxicosis, pulmonary embolism, prior cardiac surgery or prior atrial ablation. Common symptoms of AFI include palpitations, light-headedness, fatigue, presyncope, mild shortness of breath, and possibly chest pain or hypotension. The initial treatment for AFI focuses on rate control of the ventricular response with AV nodal blocking agents such as beta-blockers and calcium channel blockers. If rhythm identification is unclear and the patient is stable, adenosine or Valsalva maneuver may be employed to slow conduction through the AV node such that the atrial flutter waves are more readily apparent. Hemodynamically unstable patients with AFI should receive synchronized electrical cardioversion.

References

Figure 1. 12-lead electrocardiogram from a 54-year-old man with palpitations and light-headedness for 3 hours. Demonstrates an irregularly-irregular rhythm with a ventricular rate of approximately 127 beats/minute.

Figure 2. Rhythm strips (leads II, aVF, and V5) from same patient during administration of 12 mg intravenous adenosine. Demonstrates type I atrial flutter waves with slowing of AV conduction.

Figure 3. 12-lead electrocardiogram from same patient following synchronized electrical cardioversion with 200 Joules demonstrates sinus rhythm with premature atrial contractions (PACs).

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Family therapist Robin Karr-Morse, assisted by Meredith S Wiley, has revisited a familiar place, the nursery, and two previously addressed topics, that of ghosts and that of violence. One would like to assume that the phenomena “nursery,” “ghosts,” and “violence” have nothing in common and no relationships at all. One is also tempted to object to any statements of them being links or trajectories.

Still, we all know better—or rather: we know worse. There are trajectories, and they affect social thriving, well-being, and health detrimentally. Therefore the topic is of high relevance for health care professionals and clinical practice.

In the first edition of this book, Karr-Morse delineated the undeniable yet unappreciated connection between ghosts in the nursery and ghosts from the nursery when choosing to paraphrase psychoanalyst Selma Fraiberg who, as Karr-Morse writes in the Preface of the present edition, “used the phrase ghosts in the nursery to refer to the tendency of parents to bring to the rearing of their children the unresolved issues of their own childhood.” These ghosts in parents’ pasts cast shadows, informing many parental relationships to their children whereby, certainly unintended, threatening experiences in the parents’ pasts transform into threats to their children’s present. This implies that they are engendering transgenerational lines of suffering and pain, rage and defeat, hatred and aggression, violation and violence.

On the ever more expanding background of social and societal drama resulting from increasing numbers of events of school shootings in the US—and increasingly worldwide—Karr-Morse delineates a complex pattern of lived logic. This pattern is woven of threads we members of affluent societies wish to ignore because they are basically incompatible with our illusion of civilization. One thread leads from early neglect, abuse, and violation to self-neglect, abuse, and incarceration. Another thread links abandoned and thrown-away kids to drug-using and runaway kids. A third thread follows the well-known path from “school” introducing toddlers to children of different ages, aiming at fostering children’s empathy. On the other hand, the potentially preventable path from nursery to murder has been extensively explored in my Norwegian context, aiming at understanding what contributed to the transition of a young man from middle class into the murderer of 66 young people, suddenly one summer day.

Please read Ghosts from the Nursery closely and attentively! There are salient messages to all of us: professionals, parents, and laypeople alike. We need to learn the lessons provided here, and we must learn them fast. We have no children to lose, neither to murder nor to jail.

References
CASE STUDY

An 18-year-old man was evaluated for recurrent urinary tract infections (UTIs). His first infection was at age 15 with Escherichia coli; before this occurrence he had experienced an episode of reddish urine; had no episodes of stones, and had no other contributory past or family history. His serum creatinine was 0.9 mg/dL and his urinalysis was negative. His voiding cystourethrogram was negative. Because of his history, there was a suspicion for some structural disorder or stones. Subsequently his intravenous pyelogram (IVP) showed medullary sponge kidney (MSK) (Figure 1).

Another patient with similar symptoms was evaluated with a computed tomographic urogram (CTU) (Figures 2 and 3).

MSK is a congenital disorder that involves malformation of the terminal collecting ducts of renal tubules, which leads to formation of microscopic to large cysts in the medullary portion of both kidneys mostly, though it can be unilateral. The true prevalence of this disorder is not clear, though estimates range from 1 in 5000 to 1 in 20,000 people. Most patients have no family history, although a rare autosomal dominant form has been reported and MSK also can rarely occur in conjunction with other rare congenital abnormalities. It is more common in patients who are recurrent stone formers (mostly calcium oxalate and calcium phosphate) and in women.

Most patients are asymptomatic. If patients do have clinical manifestations, they are caused by kidney stones, hematuria, and urinary tract infections. These mostly start presenting in the second and third decade of life. Other signs may also be renal tubular defects in acidification and urinary concentration.

This disorder is mostly diagnosed during work-up for hematuria, recurrent stones, recurrent urinary tract infections, or incidentally discovered during work-up of urologic disorders, after radiologic study such as an IVP or CTU.

There is no specific therapy that can treat the cysts of MSK. Once this diagnosis is made, it is imperative to follow recommendations for prevention and treatment of UTIs and stones. There are various guidelines for prevention of recurrent UTIs. Regarding stones, prevention methods include oral citrate supplements depending on 24-hour urine collection results and adequate hydration so as to maintain a urine output of greater than 2 liters. Although there is no guideline for surveillance or specialty referral once MSK is diagnosed, an

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initial nephrology referral can be useful. However, in cases of complications from infection or stone, specialty referral will be mandated.

Prognosis is generally good. However, in cases of recurrent infections and stones, chronic kidney disease can develop.

References

Figure 3. Computed tomographic urogram (postcontrast) coronal view demonstrating dilated contrast-filled tubules within the renal medulla and pyramidal medullary calcifications (arrow).
A 44-year-old man presented to the outpatient department with a 2-month history of upper abdominal discomfort associated with loss of appetite and weight loss (8 kilograms/17.6 pounds). An umbilical nodule was noted on physical examination (Figure 1). He underwent computed tomography of the abdomen for suspicion of abdominal malignancy, which revealed a thickened posterior wall of the stomach (Figure 2A) and an umbilical nodule (Figure 2B). Esophagogastroduodenoscopy confirmed the presence of a polyoid fleshy lesion arising from the posterior wall of the stomach. Biopsies of the stomach lesion and umbilical nodule were consistent with adenocarcinoma.

The Sister Mary Joseph nodule is a manifestation of umbilical metastasis of malignancy typically arising from the gastrointestinal or genitourinary tract. The mechanism of tumor spread to the umbilicus may be lymphatic, vascular or contiguous, or via embryologic remnants in the abdominal wall. First described by William Mayo, MD, as "pants button umbilicus," the eponym was coined by Hamilton Bailey after Sister Mary Joseph Dempsey, who assisted Dr. Mayo and first recognized this condition. The presence of this type of umbilical nodule represents advanced metastatic malignancy and indicates a poor prognosis. This nodule has been described with adenocarcinomas of gastric, gallbladder, liver, appendicular, fallopian tube, cervix, urinary bladder, breast, lung, and renal origin. Umbilical nodules have occasionally been described with other histologies. Approximately half of these cases are caused by gastrointestinal malignancies; approximately one-fourth of these are from gynecologic lesions. In addition to the presence of a Sister Mary Joseph nodule, the presence of a left supraclavicular lymph node (Troisiier's node or Virchow's node) or a mass palpable on rectal examination (Blumer's shelf) indicate metastatic disease whose origin must be pursued.

References
ST-elevation myocardial infarction (STEMI) is a clinical syndrome defined by characteristic symptoms of myocardial ischemia in association with persistent electrocardiographic ST elevation (STE) and subsequent release of biomarkers of myocardial necrosis.1 STE is the single best immediately available surrogate marker for detecting acute complete coronary artery occlusion without collateral circulation, signifying a significant region of injured myocardium at imminent risk of irreversible infarction, requiring immediate reperfusion therapy.2 Diagnostic STE is defined as new STE at the J point in at least 2 contiguous leads $\geq 2$ mm (0.2 mV) in men or $\geq 1.5$ mm (0.15 mV) in women in leads V$_2$-V$_5$, and/or of $\geq 1$ mm (0.1 mV) in other contiguous chest or limb leads.3 The presence of reciprocal changes (manifested as ST depression in a region that approximates the vector 180 degrees opposite the major vessel of injury) increases the specificity of STE caused by STEMI.4 New or presumably new left bundle branch block has been considered a STEMI equivalent. Reperfusion therapy should be administered to all eligible patients with STEMI who have experienced symptom onset within the previous 12 hours.1 Primary percutaneous coronary intervention is the recommended method of reperfusion when it can be performed in a timely fashion by experienced operators, with a goal of first medical contact-to-balloon time of 90 minutes or less.5,6

References

Figure 1. 12-lead electrocardiogram from a 67-year-old man with hyperlipidemia presenting to the Emergency Department with substernal chest discomfort for 90 minutes, which began while walking, demonstrates a normal sinus rhythm, with 2-mm ST elevations in leads II, III, and aVF, and reciprocal ST depressions in leads I, aVL, and V$_1$-V$_5$. These findings are consistent with an acute inferior wall myocardial infarction.

Figure 2. 12-lead electrocardiogram from a 75-year-old man with diabetes, hypertension, and hyperlipidemia presenting to the Emergency Department with substernal chest discomfort for 90 minutes, which began while walking, demonstrates normal sinus rhythm, with ST elevation (“tombstoning”) in leads V$_1$-V$_5$. These findings are consistent with an acute anterior wall myocardial infarction.
NURSING RESEARCH & PRACTICE

Nurse Practitioner Management of Type 2 Diabetes

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Abstract

Context: Multifactorial barriers prevent primary care clinicians from helping their adult patients with type 2 diabetes achieve good control of hemoglobin A1c (HbA1c) levels. Patients’ depression and low self-efficacy can complicate diabetes management by impairing tasks needed for effective disease self-management.

Objectives: To evaluate whether nurse practitioners in collaborative practices with primary care clinicians are effective in helping improve control of HbA1c, blood pressure (BP), and low-density lipoprotein cholesterol (LDL-C) in adults with uncontrolled hyperglycemia, and to assess whether nurse practitioner-guided care affects depression and self-efficacy in these patients.

Design: De-identified preintervention and postintervention data were collected from prospective review of medical charts of patients in a managed care organization’s primary care clinics.

Main Outcome Measures: Preintervention and postintervention HbA1c values were evaluated as the primary outcome measure. Preintervention and postintervention values for BP, LDL-C, body weight, and depression and self-efficacy scores were secondary outcome measures.

Results: After intervention, 50% of 26 patients achieved HbA1c benchmarks, 95.6% achieved systolic and diastolic BP benchmarks, and 57.8% achieved LDL-C benchmarks. Wilcoxon signed-ranks tests showed significantly increased self-efficacy (z = −3.42, p < 0.001) from preintervention to postintervention. Depression scores decreased slightly from preintervention (mean = 0.44, standard deviation = 1.34, median < 0.001) to postintervention values (mean = 0.18, standard deviation = 0.73, median < 0.001), but this decrease was not significant.

Conclusion: Integrating nurse practitioners into primary care teams to provide innovative methods of support to adults with uncontrolled hyperglycemia improves clinical outcomes and self-efficacy for patients with type 2 diabetes.

Introduction

Diabetes is a global epidemic. An estimated 382 million people worldwide have diabetes, including 25.8 million Americans. In the US, diabetes is the seventh leading cause of death. Overall, the risk of death among people with diabetes is about twice the risk of death for people of similar age without diabetes. Moreover, type 2 diabetes mellitus, the most common type of diabetes, is a chronic progressive disease associated with a host of complications and coexisting conditions. Among adults, diabetes is the leading cause of microvascular complications (eg, kidney failure, nontraumatic lower-limb amputations, and new cases of blindness) and a major cause of macrovascular cardiovascular disease (CVD), including heart attacks and strokes. Adults with diabetes have heart disease death rates and risk of stroke 2 to 4 times higher than do adults without diabetes. Common conditions such as hypertension and hyperlipidemia often coexist with diabetes, which further increases the cardiovascular risks. This increased risk of CVD necessitates stringent management of blood pressure (BP) and lipid control as essential components of care for persons with diabetes. In 2007, the total costs related to the care of diabetes were estimated to be $174 billion, with $116 billion related to direct medical costs and the remaining $58 billion related to indirect costs associated with disability, work loss, and premature mortality.

Depression and negative self-efficacy affect the management of persons with diabetes. People with diabetes are twice as likely to have depression as people without diabetes. Comorbid depression in patients can complicate diabetes management by increasing disease burden, symptom severity, work disability, use of medical services, and hospital costs. Additionally, depression can impair glycemic control through negative effects on self-care and/or self-efficacy (eg, depression impairs the confidence, skills, and tasks associated with adherence to diet, exercise, and self-medication administration). Self-efficacy is the perceived ability to engage in various situation-specific self-management tasks (eg, self-monitoring of blood glucose levels and meal choices). It relates to the willingness and ability of people to engage in behavioral challenges such as preventive and disease management behaviors; therefore, enhancing self-efficacy and diabetes self-management knowledge is an important goal of diabetes care and education.

The Diabetes Control and Complications Trial found that for every 1% reduction in hemoglobin A1c (HbA1c) value, the risks of microvascular and neuropathic complications were reduced by 40% to 50%. Although an HbA1c goal of less than 7% is recommended for most adults with diabetes to reduce diabetes-related complications, most people with diabetes are in poor glycemic control. Endocrinologists show a better quality of diabetes care, but the number of these specialists is diminishing, leaving primary care physicians and clinicians (PCPs) to meet the costly and time-intensive medical, psychosocial, and educational needs for this population of patients. Other barriers that prevent PCPs from achieving HbA1c goals...
with their patients include high patient loads, clinical inertia (ie, the failure to initiate, change, or intensify treatment therapy), patient diversity, cultural and language differences, racial insensitivity, lack of treatment protocols, and complex and difficult-to-follow algorithms.9,11

There is evidence that nurse practitioners (NPs) improve clinical outcomes for patients with type 2 diabetes in primary care practices through their capacity to initiate, change, and adjust medications without physician authorization. Their willingness to embrace alternate methods of patient communication (via telephone, e-mail or e-visits [ie, managing patient care through e-mail visits, such as changing medication, ordering labs, etc], faxes, and texting) has been shown to increase the convenience and quality of care while reducing costs and improving glycemic control.12,13

One framework often used in ambulatory care practices to improve patient care and guide clinical quality initiatives is the chronic care model. This model focuses on transforming the care of patients with chronic illnesses from acute and reactive care to proactive, planned, and population-based care.14 The chronic care model promotes the enhancement of chronic disease management through six practice systems (ie, community resources, self-management support, delivery system redesign, decision support, clinical information systems, and organizational support) that partner collaboratively, rather than in isolation.15 These systems work together to strengthen provider-patient relationships and to improve health outcomes.15

The aim of this quality-improvement project was to evaluate whether NPs in collaborative practices with PCPs are effective in improving control of HbA1c, BP, and low-density lipoprotein cholesterol (LDL-C) values in adult patients with uncontrolled hyperglycemia, and to assess whether NP-guided care affects depression and self-efficacy in patients with uncontrolled hyperglycemia.

Methods

Local Problem

Kaiser Permanente Georgia (KPGA) is aware that the care of its patients with uncontrolled hyperglycemia is costly and both resource and time intensive. The organization therefore places a strong emphasis on implementing initiatives and interventions to improve the glycemic and cardiovascular health for its members with diabetes. The Region sets clinical quality priorities (ie, HbA1c < 8%, BP < 140/90 mm/Hg, and LDL-C < 100 mg/dL) to measure and to evaluate the relationship between diabetes, hypertension, and cholesterol and their impact on clinical outcomes for its members. These priorities are measured and evaluated through Healthcare Effectiveness Data and Information Set (HEDIS) measures. The HEDIS tool is used more than 90% of America’s health plans to measure performance on important dimensions of care and service.16 The KPGA Region collects, reports, and uses HEDIS data to monitor clinical outcomes for its members with diabetes. In 2012, the Medical Group met the clinical quality priorities for its LDL-C target but did not meet its HbA1c target. In 2012, the Medical Group met the HEDIS data to monitor clinical outcomes for its members with diabetes. In 2012, the Medical Group met the targets for HbA1c, BP, and LDL-C values, such as patients with anemia and hemoglobin variants (eg, iron deficiency anemia and hemoglobin S or C variants), patients who received a blood transfusion in the previous 3 months, patients with Stages 4 and 5 chronic kidney disease, and pregnant women. The following patients were also excluded from the project: patients with a CPT diagnosis of prediabetes and/or impaired glucose tolerance without a diagnosis of type 2 diabetes; patients without a telephone; non-English-speaking patients; hospice patients and/or patients who were terminally ill; patients enrolled in research studies focusing on diabetes, BP, lipid, or depression management; and patients who declined to participate in the project.

Sample

A convenience sample of 28 adult patients with type 2 diabetes and an HbA1c value of 8% or higher was selected for this project from 2 PCP patient panels at KPGA. Inclusion criteria were patients with Current Procedural Terminology (CPT) and/or International Classification of Diseases, Ninth Revision (ICD-9) codes of type 2 diabetes with an HbA1c value of at least 8%. Exclusion criteria were patient conditions that can falsely affect HbA1c values, such as patients with anemia and hemoglobin variants (eg, iron deficiency anemia and hemoglobin S or C variants), patients who received a blood transfusion in the previous 3 months, patients with Stages 4 and 5 chronic kidney disease, and pregnant women. The following patients were also excluded from the project: patients with a CPT diagnosis of prediabetes and/or impaired glucose tolerance without a diagnosis of type 2 diabetes; patients without a telephone; non-English-speaking patients; hospice patients and/or patients who were terminally ill; patients enrolled in research studies focusing on diabetes, BP, lipid, or depression management; and patients who declined to participate in the project.

Intervention

Patients were recruited and selected for the study from the diabetes registry by GCR or were directly referred to her by the patients’ PCP. The PCP approached eligible patients for the study during a usual-care office visit, explained the study, and referred the patient to GCR if the patient agreed to participate. Patients who agreed to participate in the study were accepted into the study by their verbal informed consent. Patients who declined participation in the study continued usual care with their PCP.
After extensive review of patient medical records, GCR called each patient and reviewed purpose, interventions, risks, and benefits of the study. After discussion and agreement with the patient, individualized treatment plans were devised for each patient on the basis of individualized patient goals, medical history, clinical data (ie, HbA1c, BP, and LDL-C values), current and past medications, and social history. The treatment plans also were designed in consideration of efficacy, safety, drug costs, and real or potential risks for adverse drug effects and drug interactions. The treatment strategies were guided by the existing evidence-based guidelines of the organization17 (eg, treat-to-target algorithms and clinical guidelines) with goals to improve HbA1c values to less than 8%, BP values to less than 140/90 mm Hg, and LDL-C values to less than 100 mg/dL. For example, a patient with an HbA1c of 9% was instructed to follow an insulin treat-to-target guideline to improve HbA1c control (see Sidebar: NPH Insulin: Controlling Your Blood Sugar for Longer and Healthier Living).

Follow-up care was provided by GCR every 2 to 5 weeks between January 28, 2013, and June 7, 2013, through a combination of office visits, telephone visits, and e-visits. Frequency of care was based on individualized patient need and the ability to establish communication with the patient.

The follow-up appointments were used to initiate and adjust medications, to order laboratory studies, to review and discuss laboratory results, to encourage lifestyle changes, to schedule office-based follow-up visits with the PCP or nurse, to refer patients to health education classes, to refer participants to specialty care, and to administer depression and self-efficacy screenings.

A clinical pharmacist, registered dietitian, and case manager were consulted by GCR as needed for questions regarding complex medication therapies; nutritional interventions; and care coordination for patients with complex medical, financial, and social needs. Collaboration with the PCPs and primary care teams regarding the study and the changes and updates in patient treatment regimens was ongoing throughout the project by verbal communication and messages through the organization’s electronic health record.

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**NPH Insulin: Controlling Your Blood Sugar for Longer and Healthier Living**

These instructions will help you start and adjust the dose of a medicine called NPH insulin. NPH insulin helps people with diabetes control their blood sugar (glucose) levels. By controlling your blood sugar, you will lower your risk of getting serious complications from diabetes.

The target range for your blood sugar (glucose) levels is between 80-120 before breakfast and before dinner.

**Instructions for starting NPH insulin:**

Start by injecting 10 units of NPH insulin at bedtime. Continue all of your other oral diabetes medications at the same dose.

Check and record your blood sugars every day before BOTH breakfast and dinner.

Increase your dose of NPH insulin by ONE UNIT every day at bedtime if that day’s BREAKFAST blood sugar is greater than 120. STOP increasing the amount of NPH insulin dose when your before-breakfast blood sugar is 120 or lower, OR the before-dinner blood sugar is 80 or lower.

If your before-breakfast or before-dinner blood sugar is BELOW 80 you may decrease your insulin by 1 unit per day until these results are between 80 and 120.

Example: Day 1 Continue to take oral medications BEFORE-breakfast blood sugar is 150 BEFORE-dinner blood sugar is 175 Give 10 units NPH insulin at bedtime Example: Day 2 Continue to take oral medications BEFORE-breakfast blood sugar is 200 BEFORE-dinner blood sugar is 200 Give 11 units NPH insulin at bedtime Example: Day 3 Continue to take oral medications BEFORE-breakfast blood sugar is 175 BEFORE-dinner blood sugar is 180 Give 12 units NPH insulin at bedtime Example: Day 4 Continue to take oral medications BEFORE-breakfast blood sugar is 115 BEFORE-dinner blood sugar is 105 Give 12 units NPH insulin at bedtime

Reprinted with permission from the Kaiser Permanente Georgia Region. Treat-to-Target NPH Insulin Patient Instructions.

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**Figure 1. Patient Health Questionnaire-9**

Developed by Robert L Spitzer, MD; Janet B W Williams, DSW; Kurt Kroenke, MD; et al, with an educational grant from Pfizer, Inc. Reprinted with permission from Pfizer, Inc. Available from: [www.phqscreeners.com](http://www.phqscreeners.com).
Outcome Measures

Pre- and postintervention HbA1c values were evaluated as the primary outcome measure. Pre- and postintervention values for BP, LDL-C, body weight, and depression and self-efficacy scores were evaluated as secondary outcome measures.

The Patient Health Questionnaire-9 (PHQ-9) was used to evaluate depression (Figure 1). The PHQ-9 is the depression module of the Patient Health Questionnaire. It is a self-administered assessment tool and is used to screen, diagnose, monitor, and measure the severity of depression. The PHQ-9 measure uses a 4-point Likert scale that ranges from 0 (not at all) to 4 (nearly every day). The PHQ-9 was used as the assessment tool in a study linking comorbid depression to patients with type 2 diabetes. The PHQ-9 showed excellent internal reliability in a PHQ primary care study when used telephonically.

The Diabetes Empowerment Scale-Short Form was used to evaluate self-efficacy (Figure 2). This assessment tool was developed by the Michigan Diabetes Research and Training Center in Ann Arbor, MI, to assess the psychosocial self-efficacy of people with diabetes. The full scale evaluates 3 subscales of assessment: 9 items as assessing managing the psychosocial aspects of diabetes ($\alpha = 0.93$); 9 items assessing satisfaction and readiness to change ($\alpha = 0.81$); and 10 items assessing set and achieving goals ($\alpha = 0.91$). The 8-item Diabetes Empowerment Scale-Short Form measure uses a 5-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree). The content validity of the questionnaire was supported in the study by the Michigan Center, which demonstrated that both the questionnaire scores and HbA1c levels changed in a positive direction after their subjects completed a 6-week problem-based patient education program. These data provided preliminary evidence that the assessment questionnaire was a valid and reliable measure of overall diabetes-related psychosocial self-efficacy.

Data Collection and Analysis

Pre- and postintervention data were collected by GCR from the electronic medical record for each participant in the study. Data collected included demographic variables for age, race, and sex; clinical metrics for HbA1c, BP, LDL-C, and body weight; depression questionnaire scores; self-efficacy questionnaire scores; and information on patient medications, diagnoses, and comorbidities.

Preliminary analyses for normality were conducted at the conclusion of data collection. Specific benchmark values were set a priori for clinical outcome values. The mean and standard deviation (SD) for outcomes were presented for all outcomes. Descriptive statistics on demographic variables of the sample, including mean, SD, and frequency counts were presented.
The pre- and postintervention assessments of depression and self-efficacy were assessed using questionnaire scores. Depression and self-efficacy were analyzed as a total score (paired t test) and as an ordinal outcome variable using Wilcoxon paired-samples test.

Results
Patient Characteristics
The NP (GCR) conducted a search of the electronic diabetes registry for the 2 PCP patient panels using the keywords type 2 diabetes, ≥ 18 years of age, and HbA1c ≥ 8%. The PCPs directly referred 5 patients for the study. GCR randomly selected 75 of 131 patient medical records to review for the study’s predetermined inclusion and exclusion criteria. Twenty-two patients met the exclusion criteria and were therefore excluded from the study. Fifty-three patients were called by GCR to discuss potential inclusion for the study. One patient declined participation, 21 patients were unreachable, and 28 patients agreed to participate in the study. Two patients dropped out of the study (did not complete laboratory tests and stopped responding to requests to attend follow-up clinic visits, telephone visits, or e-visits as requested by GCR). Therefore, 26 patients completed the study (responded to requests for follow-up clinic visits, telephone visits, and e-visits and completed laboratory tests as requested by GCR).

Table 1 presents the descriptive characteristics of the 26 study participants who completed pre- and postintervention measures. The average age of the participants was 57.58 years. The mean duration of years living with type 2 diabetes was 9.40 years. The sample was evenly split into men and women (n = 13 each), with 46.2% reporting their race or ethnicity to be “African American” (n = 12), followed by white (“Caucasian”) (n = 9; 34.6%). Most participants were nonsmokers (n = 21; 80.8%), and most had diagnoses that included type 2 diabetes with hypertension and hyperlipidemia (n = 15; 57.7%).

Outcome Measures
Table 2 presents the benchmark results for HbA1c, LDL-C, and BP values, which were set a priori preintervention for this study. Specifically, this project was designed to help patients achieve an HbA1c concentration below 8%, an LDL-C value less than 100 mg/dL, and BP under 140/90 mm Hg. Postintervention HbA1c values were evaluated for each participant. Postintervention BP values were measured for participants who had an office visit for any reason near the end of the implementation phase of the study, which included 23 study participants. Postintervention LDL-C values were measured only for participants not at goal before the intervention for LDL-C control and/or participants who had not had an LDL-C value measured in the previous 12 months, which included 19 study participants. Of the interventions used to interact and follow-up with patients (ie, clinic visits, telephone visits, and e-visits), most of the contact between GCR and patients was by telephone. The average telephone time spent with patients during the course of the study was 55.81 minutes for each patient.

Table 3 presents the results of the self-efficacy and depression screening scores, which were examined using Wilcoxon paired samples tests. There was a significant increase in self-efficacy from before to after the intervention. Depression scores decreased slightly from before to after intervention, but this decrease was not significant.

Discussion
This study supports the evidence that NPs can be effective in helping patients lower their HbA1c levels and improve clinical outcomes for patients with type 2 diabetes in collaborative primary care practices with PCPs. At the end of the study, 50% of the participants achieved the study’s glycemic goals (ie, HbA1c value less than 8%), 95.6% achieved BP goals (ie, BP less than 140/90 mm Hg), and 57.8% achieved lipid goals (ie, LDL-C level less than 100 mg/dL). This study demonstrated significant improvements in patient’s HbA1c and self-efficacy scores from before to after intervention. This finding may suggest that the willingness of NPs to provide innovative methods of support for follow-up care (ie, office visits combined with e-visits and

<table>
<thead>
<tr>
<th>Table 1. Baseline characteristics of study participants (N = 26)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Characteristic</strong></td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td><strong>Mean age, years</strong></td>
</tr>
<tr>
<td><strong>Mean body weight, kg (lb)</strong></td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
</tr>
<tr>
<td>African American</td>
</tr>
<tr>
<td>White (“Caucasian”)</td>
</tr>
<tr>
<td>Canadian</td>
</tr>
<tr>
<td>Cuban</td>
</tr>
<tr>
<td>Dominican</td>
</tr>
<tr>
<td>Irish</td>
</tr>
<tr>
<td>Liberian</td>
</tr>
<tr>
<td><strong>Mean duration of type 2 diabetes, years</strong></td>
</tr>
<tr>
<td><strong>Smoking status</strong></td>
</tr>
<tr>
<td>Nonsmokers</td>
</tr>
<tr>
<td>Smokers</td>
</tr>
<tr>
<td><strong>Diagnoses</strong></td>
</tr>
<tr>
<td>T2DM alone (no hypertension or hyperlipidemia)</td>
</tr>
<tr>
<td>T2DM + hypertension (no hyperlipidemia)</td>
</tr>
<tr>
<td>T2DM + hyperlipidemia (no hypertension)</td>
</tr>
<tr>
<td>T2DM + hypertension + hyperlipidemia</td>
</tr>
<tr>
<td><strong>Comorbidities</strong></td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Peripheral neuropathy</td>
</tr>
<tr>
<td>Congestive heart failure</td>
</tr>
<tr>
<td>Coronary artery disease</td>
</tr>
<tr>
<td>Retinopathy</td>
</tr>
<tr>
<td>Chronic kidney disease (Stages 2-3)</td>
</tr>
</tbody>
</table>

* Percentages may not total to 100 because of rounding.

This information on race/ethnicity was the only information available.

T2DM = type 2 diabetes mellitus; + = plus.
telephone visits) positively affect HbA\(_1c\) and self-efficacy in adult patients with uncontrolled hyperglycemia. Although there was no statistically significant difference in depression scores, there were small improvements in depression, so it appears that the study’s implementation had a positive impact clinically on depression.

NPs are effective in improving clinical metrics because of their capacity to initiate, change, and adjust medications or medication doses without physician authorization. Additionally, because of their training and scope of practice, NPs in the US are able to deviate outside clinical guidelines, and when problems are identified or clinical metrics are not improving as anticipated, they can make immediate changes to patient treatment regimens as appropriate without awaiting physician approval. The findings of two systematic reviews are consistent with this finding. A systematic review by Shojania et al.\(^{20}\) concluded that nurses, when empowered with the ability to make independent medication changes without awaiting physician approval, are effective in achieving reductions in HbA\(_1c\) values. A literature review and synthesis on nurse care coordination by Ingersoll and colleagues\(^{21}\) concluded that patients with diabetes showed significant reductions in HbA\(_1c\) and LDL-C values when their care was managed by nurses compared with patients who received usual care not managed by nurses who specialize in diabetes care or nurse managers. The willingness of NPs to embrace alternate methods of patient communication (via telephone, e-mail or e-visits, faxes, and texting) to provide care to patients with diabetes may make them effective in improving HbA\(_1c\) control. Chang et al.\(^{22}\) found that NP-based care management clinics achieved significant reductions in HbA\(_1c\) values when using telephone intervention as a venue to provide care.

In contrast, Krein et al.\(^{23}\) concluded that collaborative case management was not effective in improving physiologic outcomes of HbA\(_1c\), lipid, or BP control for high-risk patients with type 2 diabetes. A significant difference in the study by Krein et al.\(^{23}\) vs the present study is that the nurses were not allowed to independently initiate and change medications. A systematic review by Loveman and associates\(^{24}\) found that nurses who specialize in diabetes care demonstrated reductions in HbA\(_1c\) values, but the HbA\(_1c\) reductions were not found to be significantly different over a 12-month follow-up period in groups not managed by specialist diabetes nurses. The conclusions from the review were questionable because of the poor quality of the studies.

The current study was limited by its small sample size and the short timeframe for implementation. Also, the management of patients with type 2 diabetes is complex, involving several diverse components. Roles in caring for patients with type 2 diabetes are driven by individual patient needs, which make it difficult to clearly define specific clinicians’ roles and responsibilities. Although telephone and e-visits can be effective as alternate means of communication with patients, their effectiveness depends on patient availability, patient telephone and computer access, and patient unresponsiveness to multiple clinician requests to respond and follow-up for care. This study included only those patients who agreed to participate. Several patients were unreachable or declined participation for the study, so alternative methods of supporting patients with type 2 diabetes may be necessary for this group. It is essential that support staff be available to assist with the recruitment and scheduling of patients for care so that the NPs time is more focused on patient care and less on administrative matters. Future studies should replicate this study over a longer duration with a larger sample of patients to evaluate the long-term effects of nurse practitioner management of patients with uncontrolled type 2 diabetes. Any future study should also include a cost analysis to evaluate cost-effectiveness.

### Conclusion

NPs, when added to primary care practices, are effective as treatment providers in improving clinical values in adult patients with uncontrolled hyperglycemia. Improvements in HbA\(_1c\), BP, and LDL-C values reduce the microvascular and macrovascular complications associated with uncontrolled hyperglycemia, especially CVD. Providing care through telephone and e-visits is an innovative way to improve clinical values, make care convenient to patients, reduce the financial burden of costs associated with office visit appointments, and improve adherence to treatment plans. Telephone and e-visit care also potentially offer health care practices an additional revenue stream though coding and billing for these services.

With the implementation of the Affordable Care Act,\(^{25}\) the KPGA Region is expecting an influx of patients with uncontrolled type 2 diabetes and is considering innovative, cost-effective interventions to assist PCPs with managing these patients. The Region will consider the integration of NPs in the Region’s internal medicine modules to partner with internists to assist in improving clinical metrics for patients with type 2 diabetes. The prevalence of type 2 diabetes is expected to double or triple by 2050, and many health care organizations are under considerable pressure to find cost-effective interventions to care for this population of patients. Integrating NPs into primary care teams to provide innovative methods of support to improve the clinical metrics of patients with type 2 diabetes may be a cost-effective alternative to provide care.

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**Table 2. Clinical outcomes comparison between preintervention and postintervention**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Preintervention, no. (%)</th>
<th>Postintervention, no. (%)</th>
<th>McNemar p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA(_1c)</td>
<td>0 (0)</td>
<td>13 (50.0)</td>
<td>0.0001</td>
</tr>
<tr>
<td>LDL cholesterol</td>
<td>15 (60.0)</td>
<td>11 (57.9)</td>
<td>0.687</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>23 (88.5)</td>
<td>22 (95.7)</td>
<td>0.625</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>25 (96.2)</td>
<td>22 (95.7)</td>
<td>0.999</td>
</tr>
</tbody>
</table>

BP = blood pressure; HbA\(_1c\) = hemoglobin A\(_1c\); LDL = low-density lipoprotein.

---

**Table 3. Self-efficacy and depression comparison between preintervention and postintervention**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Preintervention</th>
<th>Postintervention</th>
<th>Wilcoxon paired test p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
<td>30.31</td>
<td>31.00</td>
<td>&gt; 0.001</td>
</tr>
<tr>
<td>Depression</td>
<td>0.68</td>
<td>&lt; 0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Mean, Median; Wilcoxon paired test.
Disclosure Statement
The author(s) have no conflicts of interest to disclose.

Acknowledgment
Kathleen Louden, ELS, of Louden Health Communications provided editorial assistance.

References
14. Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the Chronic Care Model in the new millennium. Health Aff (Millwood) 2009 Jan-Feb;28(1):75-85. DOI: http://dx.doi.org/10.1377/hlthaff.28.1.75
Improving Alcohol Withdrawal Outcomes in Acute Care

Abstract

Context: Excessive alcohol consumption is the nation’s third leading cause of preventable deaths. If untreated, 6% of alcohol-dependent patients experience alcohol withdrawal, with up to 10% of those experiencing delirium tremens (DT), when they stop drinking. Without routine screening, patients often experience DT without warning.

Objective: Reduce the incidence of alcohol withdrawal advancing to DT, restraint use, and transfers to the intensive care unit (ICU) in patients with DT.

Design: In October 2009, the alcohol withdrawal team instituted a care management guideline used by all disciplines, which included tools for screening, assessment, and symptom management. Data were obtained from existing datasets for three quarters before and four quarters after implementation. Follow-up data were analyzed and showed a great deal of variability in transfers to the ICU and restraint use. Percentage of patients who developed DT showed a downward trend.

Main Outcome Measures: Incidence of alcohol withdrawal advancing to DT and, in patients with DT, restraint use and transfers to the ICU.

Results: Initial data revealed a decrease in percentage of patients with alcohol withdrawal who experienced DT (16.4%-12.9%). In patients with DT, restraint use decreased (60.4%-44.4%) and transfers to the ICU decreased (21.6%-15%). Follow-up data indicated a continued downward trend in patients with DT. Changes were not statistically significant. Restraint use and ICU transfers maintained postimplementation levels initially but returned to preimplementation levels by third quarter 2012.

Conclusion: Early identification of patients for potential alcohol withdrawal followed by a standardized treatment protocol using symptom-triggered dosing improved alcohol withdrawal management and outcomes.

Introduction

Early identification and treatment of alcohol withdrawal syndrome using symptom-triggered dosing can reduce use of restraints, transfers to the intensive care unit (ICU), and progression to delirium tremens (DT).

Mokdad et al1 used data from the Centers for Disease Control and Prevention in Atlanta, GA, for the Year 2000 and determined that excessive alcohol consumption was the third leading cause of preventable deaths in the US, with tobacco use being first and poor diet and physical inactivity second. Saitz et al2 found that 17% of patients reported risky drinking behavior, and 77% of those patients, or 13% overall, were found to be alcohol dependent. Risky drinking was defined as more than 14 standard drinks per week or 4 or more drinks per occasion for men, for women as more than 11 drinks per week and as more than 3 drinks per week for people older than age 66 years.

Current evidence dictates the need for screening and early management of alcohol withdrawal syndrome to prevent progression of symptoms and/or onset of DT.3,4 Early intervention and symptom-triggered dosing is recommended in managing alcohol withdrawal and preventing DT.3,5 The management of patients with alcohol withdrawal syndrome is a challenging and resource-intensive process.9 Patients experiencing alcohol withdrawal syndrome often place themselves and staff at risk of injury. Lansford et al5 reported violence, including kicking, hitting, scratching, and other violent episodes, in 36% of patients before they received a standardized care protocol. This rate was reduced to 8% in the protocol group. Phillips et al6 developed a protocol to manage patients with alcohol withdrawal syndrome in the ICU. One of the reasons for developing the protocol was injury to staff that occurred because of violent patient behavior as patients withdrew from alcohol.

Alcohol use disorder includes alcohol dependence, commonly called alcoholism, and alcohol abuse. Alcohol dependence has the following characteristics: craving, loss of control, physical dependence, and alcohol tolerance. Patients with alcohol abuse may not fulfill family, work, or school responsibilities but are not physically dependent on alcohol. The alcohol-dependent patient is of most concern to us, because 6% of dependent patients go into withdrawal if untreated, and 10% of these are at risk of DT.7,9

Alcohol withdrawal can manifest as nausea and vomiting; disorientation and clouding of the sensorium; tremors; diaphoresis; anxiety; tactile, auditory, and visual disturbances; and headache. If left untreated, alcohol withdrawal can lead to delirium, seizures, and possibly death.

This project was initiated at Christiana Care Health System, the largest provider of acute care in Delaware. As found in a pilot study, 7% of patients admitted to Christiana Care acknowledged drinking daily. Before 2009, Christiana Care had no standardized screening criteria for assessing risk of alcohol withdrawal syndrome.

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no consistent approach to treatment, and no formal method for monitoring and adjusting treatment outside the critical care units. Likewise, colleagues from other hospitals told us that they also experience problems managing patients with alcohol withdrawal and do not have robust screening and treatment protocols. At Christiana Care, identification of patients at risk of alcohol withdrawal syndrome, especially outside critical care units, was not timely and often occurred at the onset of severe symptoms. Delayed diagnosis and treatment of alcohol withdrawal syndrome resulted in several adverse patient and staff outcomes.

Because of adverse patient outcomes, the existing team for alcohol withdrawal management was enhanced to include nurses, physicians, a social worker, a pharmacist, a nurse from Performance Improvement, and a data analyst. The Patient Safety Committee charged the team with developing a system of assessment and management that would result in the following: 1) early identification and monitoring of patients at risk of alcohol withdrawal syndrome and 2) reduced variation in care through the adoption of evidence-based standards/guidelines and clinician order set. Regular intervals for reporting back were established.

The alcohol withdrawal team determined that identifying patients at risk of alcohol withdrawal syndrome was essential and that all adult inpatients should be screened for risk of this syndrome in a manner similar to other routine risk assessments. Finding a screening tool with known reliability and validity for detecting alcohol use disorders and pairing it with a symptom-based assessment tool were identified as priorities for broad implementation. The team used performance improvement techniques to determine the impact of instituting a bundled approach. This approach included screening of all adult inpatients for risk of alcohol withdrawal syndrome and using symptom-triggered management based on the revised Clinical Institute Withdrawal Assessment of Alcohol Scale (CIWA-Ar) scores for those patients experiencing alcohol withdrawal syndrome or DT.

This report describes the development, implementation, and evaluation of a bundled approach to the management of alcohol withdrawal syndrome in the acute care hospital. The Alcohol Withdrawal Symptom Management Care Management Guideline was developed to be used by multiple clinical disciplines. This care management guideline includes an alcohol withdrawal risk assessment, the symptom-based CIWA-Ar assessment, two clinical algorithms, and a clinician order set. The Sedation Agitation Scale was included to provide for ongoing assessment for oversedation (Table 1).

**Methods**

Beginning in October 2009, the standard nursing admission assessment for adult patients included a risk assessment for alcohol withdrawal using the Alcohol Use Disorders Identification Test-Piccinelli Consumption (AUDIT-PC). The AUDIT-PC is a 5-item scale developed to screen for hazardous alcohol intake. Patients who scored 5 or greater were then assessed using the CIWA-Ar, a 10-item scale used to categorize alcohol withdrawal on the basis of symptom severity. The physician was notified of the results and then determined if medication was appropriate. If the patient scored 8 or below on the CIWA-Ar, the patient was monitored for further symptoms. If the score was 9 or greater, the treatment algorithm was followed. Evidence for the protocol was supported by recommendations from Reoux and Oreskovich, which included symptom-triggered medication administration based on CIWA-Ar scores.

The alcohol withdrawal management team monitored results for effectiveness and made adjustments when indicated. The aims of this project were to:

1. reduce the incidence of alcohol withdrawal syndrome advancing to DT
2. reduce restraint use in patients with a DT diagnosis
3. decrease transfers to the ICU for patients with DT.

Data analysts extracted information from existing data sources for patients with a discharge diagnosis of alcohol withdrawal syndrome or DT for 9 months before implementation. Data were also

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**Table 1. Components of the Alcohol Withdrawal Symptom Management Care Management Guideline**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol withdrawal risk assessment</td>
<td>Performed in all adult patients at time of admission using Alcohol Use Disorders Identification Test-Piccinelli Consumption (AUDIT-PC)</td>
</tr>
<tr>
<td>If score is ≥ 5, perform CIWA-Ar</td>
<td></td>
</tr>
<tr>
<td>CIWA-Ar</td>
<td>Assessment to determine level of severity of alcohol withdrawal syndrome</td>
</tr>
<tr>
<td>Precautions algorithm</td>
<td>Followed when CIWA-Ar score is ≤ 8</td>
</tr>
<tr>
<td>Treatment algorithm</td>
<td>Followed when CIWA-Ar score is ≥ 9</td>
</tr>
<tr>
<td>Physician order set</td>
<td>Initiated for patients with alcohol withdrawal syndrome</td>
</tr>
<tr>
<td>Sedation Agitation Scale</td>
<td>Administered before each medication dose</td>
</tr>
</tbody>
</table>

CIWA-Ar = revised Clinical Institute Withdrawal Assessment of Alcohol Scale.

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**Table 2. Impact of program on patients with alcohol withdrawal syndrome and delirium tremens**

<table>
<thead>
<tr>
<th>Selected program results</th>
<th>Before implementation*</th>
<th>After implementation*</th>
<th>Percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with DT who were restrained, %</td>
<td>60.4</td>
<td>44.4</td>
<td>26.4</td>
</tr>
<tr>
<td>Patients with DT who were transferred to ICU, %</td>
<td>21.6</td>
<td>15.0</td>
<td>30.5</td>
</tr>
<tr>
<td>Patients with alcohol withdrawal syndrome in whom DT developed, %</td>
<td>16.4</td>
<td>12.9</td>
<td>21.3</td>
</tr>
</tbody>
</table>

* First, second, and third quarters of 2009.


DT = delirium tremens; ICU = intensive care unit.
Improving Alcohol Withdrawal Outcomes in Acute Care

compiled quarterly after implementation to provide insight into the effectiveness of the intervention. Following implementation of the intervention, nursing quality and safety representatives conducted monthly monitors to determine if the alcohol withdrawal risk assessment and the CIWA-Ar were administered as indicated by the care management guideline. Quarterly retrospective chart abstractions were conducted to determine ongoing fidelity to the care management guideline. A data report card was created to reflect the percentage of patients with primary or secondary diagnoses of alcohol withdrawal syndrome or DT, restraint use, average length of stay, ICU admissions, and transfers to the ICU.

Before the results were presented, information was submitted to the Christiana Care institutional review board. Approval for dissemination was granted.

**Results**

Of the 39,402 admissions before implementation of the care management guideline, 462 patients had a discharge diagnosis of alcohol withdrawal syndrome or DT, including 134 patients with a discharge diagnosis of DT (76 patients with a secondary diagnosis of DT). During the first 4 quarters after implementation, there were 50,534 admissions. Of these, 602 patients had a discharge diagnosis of alcohol withdrawal syndrome or DT, with 159 having a discharge diagnosis of DT (78 patients with a secondary diagnosis of DT). The percentage of patients with a diagnosis of alcohol withdrawal syndrome who developed DT decreased from 16.4% (76/462) before implementation to 12.9% (78/602) after implementation (Table 2).

A review of records for patients with discharge diagnoses of DT revealed the following findings. In the 3 quarters preceding implementation, 60.4% of the patients with DT (81/134) were restrained compared with 44.4% (71/159) restrained in the 4 quarters after implementation. Transfers from floors other than ICUs to the ICU decreased from 21.6% (29/134) before implementation to 15% (24/159) after implementation.

Figure 1 depicts the trend lines for the percentage of patients who experienced DT before and after implementation of the care management guideline.

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Figure 1 depicts the trend lines for the percentage of patients who experienced DT before and after implementation of the care management guideline.
Because of the great degree of variability, the $R^2$ is low for both periods ($R^2 = 0.0008$ before implementing the care management guideline; $R^2 = 0.1513$ after implementation). Linear regression analysis revealed $p = 0.5$ and therefore is not statistically significant.

Figure 2 depicts the percentage of patients restrained from the first quarter of 2009 to the third quarter of 2009 (before implementation) and from the fourth quarter of 2009 to the fourth quarter of 2010 (after implementation). The percentage of patients with a DT diagnosis requiring restraints reflected a steady decrease from the time of implementation of the care management guideline through the end of the fourth quarter of 2010, when the initial analysis took place. The percentage of patients transferred from a non-ICU floor to the ICU declined in the immediate postimplementation period.

Restraint utilization has increased and shows a great deal of variability through the first quarter of 2013. Transfers to the ICU varied considerably but remained below preimplementation rates until the first quarter of 2013 (Figure 3).

**Discussion**

In the words of one nurse manager, “I never thought it would be possible to put a patient going through DT on a medical-surgical floor, but since the implementation of this care management guideline, we have empowered nurses with the tools needed to care for them adequately on the floor. You made a believer out of me!”

Research conducted before this project found that using a symptom-driven management protocol resulted in a decrease in transfers to the ICU, use of restraints, and frequency of DT. Patients with delays in recognition and management had worse outcomes. In this project, all adult inpatients were screened for risk of alcohol withdrawal syndrome at the time of admission. This contributed to early identification of patients needing further monitoring or treatment. An evidence-based symptom management protocol provided physicians and nurses with a clearly defined plan for patient care.

Ongoing retrospective chart reviews were performed to evaluate and determine fidelity to the care management guideline. Christiana Care demonstrated a decrease in the incidence of alcohol withdrawal syndrome progressing to DT. For patients with a DT diagnosis, Christiana Care also reduced restraint use and transfers to the ICU. Although statistical significance was not demonstrated, this project is considered a success at Christiana Care because of the decreased number of patients who progressed to DT. Examination of restraint use and transfers to the ICU revealed an initial downward trend after protocol implementation. Perhaps patients at risk for alcohol withdrawal displaying only mild symptoms were identified and adequately treated and therefore did not progress into DT, require restraints, or transfer to ICU. As the percentage of patients who experienced DT decreased, this resulted in a lower denominator thus increasing the percentage of patients restrained or transferred to ICU.

Variations in pharmacologic management resulted from differences in physician orders. The order set provided recommended dosages for benzodiazepines; however, clinicians were free to choose. Anticipated next steps are to develop modifications to the order set to make it easier to use. In addition, we plan to alert clinicians of previous patient admissions in which the CIWA-Ar protocol was initiated, including highest daily CIWA-Ar score and total daily dose of medication. This is being done to give the clinician more information concerning the path of alcohol withdrawal syndrome for the patient in the past and the dosage of medication required to control symptoms. This step may result in higher initial doses of medication, resulting in fewer patients progressing to DT and requiring restraints and/or transfer to the ICU.

Because of facilitywide implementation of this project, there was no opportunity for including a group that did not receive the intervention. Furthermore, data collection relied on accurate physician documentation of alcohol withdrawal syndrome or DT as an admission and discharge diagnosis. Challenges of performing research in the clinical area were experienced in this project. Clinical observations and results of a nursing focus group found the following: CIWA-Ar not being completed one hour after medication administration, not awakening patients for repeated CIWA-Ar, and not effectively using as-needed medications. Additional education was instituted as these challenges were identified.

Patients may be reluctant to truthfully answer questions regarding their alcohol consumption history because they fear judgment. Nurses often receive conflicting information about alcohol use from patients and family members, leading to a dilemma in the assignment of a risk score for alcohol withdrawal syndrome. Pecoraro et al. reported that only 2.2% of patients with alcohol withdrawal syndrome in their study denied alcohol use. However, patients may underreport the amount they drink, which in turn results in a lower score on the AUDIT-PC. The present study initially offered limited referral mechanisms for follow-up care after discharge. Christiana Care has since implemented peer-to-peer counseling to improve discharge planning and to facilitate patient progression into appropriate treatment modalities.

**Conclusion**

This project was initiated because alcohol withdrawal syndrome was often not recognized until patients displayed severe symptoms that resulted in adverse outcomes and safety concerns. Implementation of the “CIWA-Ar Protocol,” as referred to by clinicians and clinical nurses, has had a large impact both on clinicians who use it to order treatment and on staff who provide care for this patient population. This tool has not only simplified and standardized the management of patients experiencing alcohol withdrawal syndrome but also has literally transformed our culture. Results have shown a decreased number of patients who progressed to DT and a decrease in restraint use and the number of transfers to the ICU.

Reevaluation is a must, and the team continues to work on project improvements. Some future project plans include implementing identifiers for patients who enter the Emergency Department and have experienced alcohol withdrawal syndrome in past admissions, designating a unit where patients who have alcohol withdrawal syndrome are admitted, reporting high CIWA-Ar scores as a critical laboratory value, and simplifying the ordering and modifying process online.
Disclosure Statement
The author(s) report no conflicts of interest and received no external funding for this project.

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References
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Mission: The Permanente Journal advances knowledge in scientific research, clinical medicine, and innovative health care delivery.

ORIGINAL RESEARCH & CONTRIBUTIONS

4 Introducing Healing Circles and Talking Circles into Primary Care. Laura-Mari Madsen, MD, MS, MPH; Barbara Mantong, MD.

The authors report on the incorporation of “the talking circle” (or paper-making or healing circle) into primary care. Communication is regulated through the passing of a talking piece. Only the person holding the piece may speak. Twelve hundred people participated: 415 attended 4 sessions and completed pre- and postquestionnaires. Participation at 155 least 4 talking circles resulted in a statistically significant improvement in reported symptoms and overall quality of life (p < 0.001).

9 Electrocardiograms of Adult Outpatients Followed in Basic Health Care Units in the Community of the South Region of Sao Paulo City. Alice T Yamada, MD, PhD; Renata X Baldone, MD; Carla Ribon, MD; Wilma N Ikemura, MD; Carolina Pereira, MD; Nilce M Matuda, MD, PhD; Alfredo V Manuza, MD, PhD.

The authors evaluated all electrocardiograms (ECGs) obtained in 3678 adult outpatients (83.0% women), from January 2009 to January 2010, at a municipal hospital in the city of Sao Paulo, Brazil, with results interpreted by a cardiologist. Of the 1918 patients whose ECGs showed abnormalities (mean age ± 55 years, 59% women), 62% were male. There were more ECGs obtained from women, however, and elderly patients more frequently had abnormal ECG results.

11 Using Simulation to Address Hierarchy-Related Errors in Medical Practice. Aaron William Calhoun, MD; Morgan C Boone, RN, MSN, CCRN; Melissa B Porter, MD; Karen H Miller, PhD.

Hierarchy, the unavoidable authority gradients that exist within and between clinical disciplines, can lead to significant patient harm in high-risk situations. Five sessions were conducted (pediatric intensive care unit and Emergency Department). The team was unstructured at addressing the error in 4/30 of 5 cases. Trends toward better communication scores (3.45 ± 0.6) and, as well as poor team self-assessment of communicative abilities, were noted in unstructured sessions.

21 Online Cognitive Behavioral Therapy (CBT) for Depressed Primary Care Patients: A Pilot Feasibility Project. Umeda Whitman, PhD; John Richichi, MPH; Bradley Weistfeld, MD; Gregory Yoman, MD, MPH; John Caca, MD; Chris Taibah, MD; Sarah Wacley, MS; Evette Ludman, PhD.

Cognitive behavioral therapy (CBT) is a goal-oriented treatment that guides patients to healthy thoughts and behaviors. Internet-delivered CBT with supportive coaching can be as effective as in-person psychotherapy treatment of depression. Of 196 eligible patients who were sent an invitation, 39 (20%) enrolled in the Internet-delivered CBT program. At followup, enrolled patients experienced a clinically significant decrease (average = 48%) in depressive symptoms. Social thoughts also increased significantly and anxiety similarly.
CME Evaluation Program

Section A.

Article 1. (page 21) Online Cognitive Behavioral Therapy for Depressed Primary Care Patients: A Pilot Feasibility Project

Internet-delivered cognitive behavioral therapy may be a promising treatment option for patients with depression who:
- a. live in a geographically remote location without transportation
- b. prefer face-to-face treatment
- c. are at high risk of suicide

This pilot feasibility project demonstrated promise for overcoming which of the following barriers to implementing wide-scale Internet-delivered cognitive behavioral therapy in a health care delivery organization:
- a. cost
- b. staffing
- c. electronic medical record system integration

Article 2. (page 28) Use of a Modified Reproductive Life Plan to Improve Awareness of Preconception Health in Women with Chronic Disease

Fetal complications of maternal hypertension include all of the following except:
- a. intrauterine growth retardation (IUGR)
- b. preterm birth
- c. placental abruption
- d. fetal demise
- e. renal malformations

Which of the following statements regarding obesity in pregnancy is true?
- a. maternal obesity is the most prevalent chronic disease in pregnant women
- b. there is no change in perinatal mortality in obese women
- c. there is no relationship between obesity and rates of preeclampsia
- d. the risk of intrauterine fetal demise increases five times in morbidly obese women

Section C.

What other changes, if any, do you plan to make in your practice as a result of reading these articles?

Section D.

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Objective 1
Integrate learned knowledge and increase competence/confidence to support improvement and change in specific practices, behaviors, and performance.
Objective 2
Lead in further developing “Patient-Centered Care” activities by acquiring new skills and methods to overcome barriers, improve physician/patient relationships, better identify diagnosis and treatment of clinical conditions, as well as, efficiently stratify health needs of varying patient populations.
Objective 3
Implement changes and apply updates in services and practice/policy guidelines, incorporate systems and quality improvements, and effectively utilize evidence-based medicine to produce better patient outcomes.

Article 1

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Key
5 = highly likely
4 = likely
3 = unsure
2 = unlikely
1 = highly unlikely
0 = I already did this