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34 Service Score Segmentation of Diverse Populations to Improve Patient and Physician Satisfaction—A Multi-Care Quality Improvement Study.

David Newhouse, MD, MPH

The changing demographic picture in California creates a complex challenge for physicians, facilities, and an organization. In response, one strategy is a service improvement program, with demonstrated successful outcomes that combines patient satisfaction ‘service scores’, data segmentation by ethnicity, sex and age, and data analysis, which recognizes the demographic subsets at which physicians excel and are weak. Five case examples are described, including clinicians interacting with Chinese patients, African-American patients, and young females, and two department level interventions in urology and internal medicine.

Circulation: 25,000 print readers per quarter, and accessed by 506,000 unique Web readers in 2008 from 164 countries of the world.

On the cover: "Modular Ring" by Gloria Yu, MD, A Garrard from Utah raspberry alabaster. This is Dr Yu’s first piece. Dr Yu is a retired pathologist from Fremont Medical Center.

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CASE STUDIES
42 Peripartum Cardiomyopathy: Case Reports. Mary Wang, MD

Postpartum cardiomyopathy is a dilated cardiomyopathy defined as systolic cardiac heart failure in the last month of pregnancy or within five months of delivery. The symptoms that differentiate it from those of normal pregnancy and postpartum are chest pain, dyspnea on exertion, rales, and cough. This disorder carries a high mortality rate.

46 Gastric Antral Vascular Ectasia (Watermelon Stomach)—An Enigmatic and Often-Overlooked Cause of Gastrointestinal Bleeding in the Elderly. Hien Nguyen, MD; Connie Le, MD; Hanh Nguyen, MD

Gastric Antral Vascular Ectasia (GAVE) syndrome is characterized endoscopically by “watermelon stripes.” Without cirrhosis, patients are 71% female, average age 73, presenting with occult blood loss leading to transfusion-dependent chronic iron-deficiency anemia, severe acute upper gastrointestinal bleeding, and nondescript abdominal pain.

CLINICAL MEDICINE
50 The B-SMART Appropriate Medication-Use Process: A Guide for Clinicians to Help Patients—Part 2: Adherence, Relationships, and Triage. Elizabeth Oyekan, PharmD, FCSHP; Ananda Nimalsuny, MD; John Martin, MD; Ron Scott, MD; James Duffl, MD; Kelley Green, RN, PhD

Part 2 of the B-SMART process—a guide to appropriate medication use—describes: adherence tools and reminders, relationships, and triage. Elements include: involving patients in the decision making, simplifying dosage regimens, education about the medication, self-management training, ongoing reinforcement and motivation, and positive relationships.

55 Image Diagnosis: Interesting Computed Tomography Scans from the Emergency Department. Gus M Garmel, MD, FACEP, FAAEM

Three examples of intracranial hemorrhage are described and visualized on computed tomography scans: subdural, subarachnoid, and intraparenchymal hemorrhage.

Corridor Consult
56 What Do I Do with My Morbidly Obese Patient? A Detailed Case Study of Bariatric Surgery in Kaiser Permanente Southern California. Pouya Shafipour MS, MD; Jack K Der-Sarkissian, MD; Fadi N Hendee, MD; Karen J Coleman, MS, PhD

Most bariatric surgery studies have shown excellent weight-loss rates for up to two years after surgery; and that most patients maintain the loss for up to ten years. This article summarizes the bariatric surgery process through a detailed case study of how Kaiser Permanente Southern California screens, prepares, and follows patients.

Corridor Consult
64 A Practical Drug Allergy Update: What You Need to Know About Drug Allergies But Did Not Learn in Medical School. Eric Macy, MD, MS

The majority of adverse drug reactions are nonallergic. Of 275 individuals who reported ten or more drug “allergies,” 92% were women (mean age 67 years), and 60% had a diagnosis of depression or serious mental illness. The single most important thing that clinicians can do is not to use antibiotics outside the setting of bacterial infections.

COMMENTARY
68 No Respect: Research in Quality, Safety, and Process Improvement. Ilan S Rubinfeld, MD, MBA; H Mathilda Horst, MD

The need for good quality and safety research has never been more imperative, but even as it is encouraged it is suppressed through institutional bias and inertia. This commentary explores implications of the application of pure science standards at the sharp end of clinical practice, where the down-and-dirty street-level improvement work happens.

72 Health Care Delivery Performance: Service, Outcomes, and Resource Stewardship. Michelle Cowing, PhD; Carrie M Davino-Ramaya, MD; Krishnan Ramaya, PhD; Joseph Szmerekovsky, PhD

As competition intensifies within the health care industry, patient satisfaction and service quality are providing the evidentiary basis for patient outcomes. We propose a conceptual model of three interrelated areas—service, health outcomes, and resource stewardship—all affected by the clinician-patient relationship, and from the perspectives of the health care organization, clinician, and patient, to define a more comprehensive measure of health care delivery performance.

79 Patient–Physician Language Concordance: A Strategy for Meeting the Needs of Spanish-Speaking Patients in Primary Care. Michael H Kanter, MD; Karyn M Abrams, MBA; Maria R Carrasco, MD; Nancy H Spiegel; Ralph S Vogel, PhD; Karen J Coleman, PhD

Patients need to communicate with a language-concordant physician, not simply an interpreter, to receive the best medical care, bond with the physician, and be satisfied with the care experience. A Spanish Language Task Force addressed the issue of Spanish-speaking patients visiting Primary Care Departments. Not all physicians who self-identify as Spanish-speaking truly speak fluently. Once an individual assessment is completed, then a plan for concordance can be made.

EDITORIAL
85 High Satisfaction: Thank You Survey Respondents! Tom Janisse, MD

The Permanente Journal (TPJ) conducted its fifth reader survey and found continued high satisfaction. Of the 2910 respondents—70% physicians, 15% clinicians, 11% nurses, 4% academics, researchers, leaders, and managers—33% rated TPJ “excellent,” 49% “good,” 12% “average,” 4% “fair,” and 2% “poor.” Reader comments and requests are cited with 2009 actions, including new electronic capabilities.

NARRATIVE MEDICINE
87 From Microscope to Comfy Chair: Imaging Control in Interview Situations. Susan Fairbairn; Gavin Fairbairn

This presents a simple model as a series of metaphorical images—microscope, picture frame, mirror, and two comfy chairs—that correspond to points on a continuum of levels of control exerted by interviewers, and a second continuum, from low to high empathy.
Computed Tomography Angiography in Patients Evaluated for Acute Pulmonary Embolism with Low Serum D-dimer Levels: A Prospective Study

Lana Hirai Gimber, MPH
Travis R Ing
Jayme M Takahashi, MD
Torrey L Goodman, MD
Hyo-Chun Yoon, MD, PhD

Abstract

**Context:** Pulmonary computed tomography angiography (CTA) and the Wells criteria both have interobserver variability in the assessment of pulmonary embolism (PE). Quantitative D-dimer assay findings have been shown to have a high negative predictive value in patients with low pretest probability of PE.

**Objective:** Evaluate roles for clinical probability and CTA in Emergency Department (ED) patients suspected of acute PE but having a low serum D-dimer level.

**Design:** Prospective observational study of ED patients with possible PE who underwent pulmonary CTA and had D-dimer levels ≤1.0 μg/mL.

**Main Outcome:** Clinical probability of PE determined by ED physicians using standard published criteria; pulmonary CTAs read by initial and study radiologists kept unaware of D-dimer results.

**Results:** In 16 months, 744 patients underwent pulmonary CTA, with 347 study participants who had a D-dimer level ≤1.0 μg/mL. In one participant, CTA showed a PE that was agreed on by both the initial and study radiologists. In six participants, the initial findings were reported as positive for PE but were not interpreted as positive by the study radiologist. In none of these participants was PE diagnosed on the basis of clinical probability, of findings on ancillary studies and three-month follow-up examination, or by another radiologist, unaware of findings, acting as a tiebreaker.

**Conclusion:** Pulmonary CTA findings positive for acute embolism should be viewed with caution, especially if the suspected PE is in a distal segmental or subsegmental artery in a patient with a serum D-dimer level of ≤1.0 μg/mL. Furthermore, the Wells criteria may be of limited additional value in this group of patients with low D-dimer levels because most will have low or intermediate clinical probability of PE.
and exclusion of PE\textsuperscript{12,14,15} and have found the assay to have a high negative predictive value in patients with low pretest probability of PE. Studies have indicated that negative findings on a quantitative D-dimer assay may preclude the necessity for pulmonary CTA in ruling out PE in an acute-care setting.\textsuperscript{15,16} Furthermore, a prospective study of patients seen in an acute-care setting for possible PE revealed that even a low but positive serum D-dimer level precludes the need to undergo pulmonary CTA.\textsuperscript{17}

In light of this information, we queried whether the clinical probability estimate obtained with the use of the Wells criteria or a low but positive serum D-dimer level would increase the accuracy of the diagnosis of PE. We hypothesized that in cases of patients with a low but not necessarily negative level of serum D-dimer, there is limited utility for pulmonary CTA, irrespective of clinical assessment using the Wells criteria.

**Methods**

This was a prospective, observational study of all patients presenting to the ED of our facility with suspected PE who underwent pulmonary CTA and had a D-dimer level of ≤1.0 μg/mL. The study ran from February 2005 to June 2006 in the ED of a health maintenance organization (HMO) patient population. The protocol was approved by the hospital institutional review board with a waiver of informed consent.

Before study initiation, ED physicians were requested to obtain a serum D-dimer level for all patients for whom they ordered pulmonary CTA for PE. We had requested that during the study period, the ED physicians not consider the results of the rapid D-dimer assay in their decision to order a pulmonary CTA. In addition, ED physicians were requested to fill out a worksheet detailing the clinical probability of PE using standard published Wells criteria for PE\textsuperscript{11,12} without knowledge of the pulmonary CTA and serum D-dimer assay results. According to this clinical-assessment model, the ED physician assigned points for the following: clinical signs and symptoms of deep vein thrombosis (DVT), 3.0 patients; heart rate >100 beats/min, 1.5 patients; immobilization or surgery in the preceding four weeks, 1.5 patients; previously diagnosed DVT or PE, 1.5 patients; hemoptysis, 1.0 patient; malignancy, 1.0 patient; and an alternate diagnosis that is less likely than PE, 3.0 patients. The weighted values for the Wells criteria were summed and trichotomized into low (<2), moderate (2–6), and high (>6) risk for PE. For those study participants for whom the worksheet had not been completed, the ED physician notes for the patient encounter and the patient’s electronic medical record were reviewed and the data for the criteria were extracted. This was performed by a single research assistant and one of the study physicians together to reduce interobserver variability. Patients for whom the physician notes did not provide sufficient information to allow complete clinical assessment using the Wells criteria were excluded from the study.

The quantitative serum rapid D-dimer assays were performed using a latex agglutination technique (STA D-DI, Diagnostica Stago, Parsippany, NJ). The manufacturer reports that a serum D-dimer level <0.4 μg/mL fibrinogen equivalent units (FEUs) should be considered normal. However, for the purposes of our study, patients with a serum D-dimer level ≤1.0 μg/mL FEUs were included in the study. This cutoff level was based on the results of previous retrospective analyses\textsuperscript{16,17} and is also an easy number to remember.

Pulmonary CTA was done with a multislice computed tomography unit (GE Lightspeed QXi, Milwaukee, WI) with 1.25-mm collimation and a pitch of 1.5:1. Patients were injected with 120 mL of Omnipaque 300 (GE) at a rate of 3 mL/s.

During the study period, all pulmonary CTA studies ordered by the ED were reread by a single study radiologist who was unaware of the D-dimer assay results. The findings for the pulmonary studies were interpreted as positive, negative, or indeterminate. A positive finding resulted if a filling defect was present in one or more pulmonary arteries. A negative finding resulted if there was no filling defect and if there was normal enhancement of the pulmonary arteries. An

<table>
<thead>
<tr>
<th>Study reading</th>
<th>Negative</th>
<th>Clinical reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>25</td>
<td>3</td>
</tr>
</tbody>
</table>

$\kappa = 0.45.$

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{D-dimer level} & \textbf{Wells criteria} & \textbf{Low (<2)} & \textbf{Moderate (2–6)} & \textbf{High (>6)} & \textbf{Total} \\
\hline
<0.4 μg/mL & 34 & 20 & 3 & 57 \\
0.4–1.0 μg/mL & 194 & 89 & 7 & 290 \\
\hline
Total & 228 & 109 & 10 & 347 \\
\hline
\end{tabular}
\caption{Proportion of patients with low, moderate, and high Wells criteria scores for clinical probability of pulmonary embolism on the basis of D-dimer levels}
\end{table}
indeterminate finding resulted if the pulmonary study findings could not be classified as positive or negative. The original radiology report for each pulmonary CTA study was also recorded as positive, negative, or indeterminate. Indeterminate study findings were considered if the report used such language as indeterminate, suboptimal visualization of the pulmonary arteries, or extensive imaging/motion artifact. In those cases in which PE was reported, the specific location of each PE was recorded. Interobserver variability between the initial clinical radiologist and the study radiologist was evaluated using the kappa statistic.

If there was a discrepancy between the original radiologist’s interpretation and the study radiologist’s interpretation in which one reader reported the study as positive for PE but other reader did not, a third radiologist was used as a tiebreaker. This radiologist was kept unaware of the interpretations of the first two radiologists and was also blinded to the D-dimer values.

Follow-up monitoring lasted a minimum of three months for all study participants to verify no new diagnosis of PE, lower-extremity venous thrombosis, or death from PE. The clinical monitoring was performed by a combination of telephone interview and electronic medical record (EMR) verification because all data for members of the HMO are available electronically.

**Results**

During the 16-month study period, a total of 744 patients from the ED underwent pulmonary CTA for suspected PE. Of these patients, 381 had a D-dimer value ≤1.0 μg/mL. Clinical probability of PE could not be ascertained for 34 study participants who presented to the ED and received pulmonary CTA for assessment of PE. These participants were excluded from the study. Clinical parameters were ascertained for 347 participants. This was done through worksheets filled out by ED physicians (151 participants) and through EMRs (196 participants). There were 226 women and 121 men in the study cohort, with a mean age 58 ±18 years (range, 14–98 years). Using the Wells criteria for clinical probability of PE, 228 participants had a low clinical probability (score <2.0), 109 had moderate clinical probability (score 2–6, inclusive), and only 10 had high clinical probability (score >6). For the individual criteria, 33 participants had clinical signs and symptoms suggestive of DVT, 79 had an alternative diagnosis that was less likely than PE, 80 had a pulse rate >100 beats/min, 38 had immobilization or surgery in the preceding four weeks, 26 had a history of PE or DVT, 2 had hemoptysis, and 22 had recent or active malignancy (on treatment, treated in preceding six months, or palliative).

Table 1 shows the overall results of assessment against the Wells criteria, stratified according to D-dimer level: <0.4 μg/mL and 0.4 to 1.0 μg/mL. There was no significant difference in the clinical probability distribution of the PE between the two groups ($\chi^2$ test, $p = 0.36$).

According to the study radiologist’s interpretation
of the pulmonary CTAs, there were 43 studies with indeterminate findings, 303 with negative findings, and 1 study with positive findings. According to the initial clinical interpretation, there were 21 studies with indeterminate findings, 319 with negative findings, and 7 with positive findings.

As shown in Table 2, there was a discrepancy in the CTA interpretation in 37 (10.7%) of the 347 studies ($\kappa = 0.45$). The study reader reported indeterminate findings for 43 pulmonary CTA studies versus 21 from the initial clinical reading. In addition, in 6 of 347 (1.7%) cases there was discrepancy between a positive finding on the initial clinical report versus a nonpositive finding on the other study interpretation. When presented to a tiebreaker radiologist, findings for three studies were considered indeterminate and findings for three were negative for PE. In four of six cases, the original radiology interpretation was made concerning a single embolus at a junction of a segmental and subsegmental branch, which was not reported by the study radiologist. In one patient, two emboli at junctions of segmental and subsegmental branches were reported. In the last patient, two emboli were reported in the proximal segmental branch pulmonary arteries (Figures 1 and 2). Table 3 details the findings in these six patients.

None of these patients had a high clinical probability of PE according to the Wells criteria. Three patients underwent catheter pulmonary angiography within 24 hours of pulmonary CTA: two patients in whom the study radiologist believed that the study findings were indeterminate and one patient in whom the study radiologist believed that the findings were negative. All three pulmonary angiograms were interpreted as negative. These three patients had no clinical evidence of thromboembolism during the next three months. Regarding the other three patients, the study radiologist interpreted the study findings as negative in two and indeterminate in one. One of the patients was already taking warfarin for diagnosed atrial fibrillation at the time of the pulmonary CTA. No further diagnostic study or intervention was performed because the original pulmonary CTA report was of a small upper-lobe embolism and the primary care physician did not believe that additional therapy such as caval filtration was necessary. Despite the original reading of a small PE in one patient, the primary-care physician elected not to treat the patient and the patient did not have any other imaging studies. The final patient was treated with warfarin for six months. Neither patient had a report of thromboembolic disease at a three-month follow-up examination.

Only one participant in this cohort of 347 with a D-dimer level of $\leq 1.0$ μg/mL was noted on pulmonary CTA to have acute PE according to both the original radiology report and the study radiologist’s interpretation. This patient was a man, age 50 years, who was examined because of mild dyspnea and sharp, stabbing chest pain. The attending ED physician believed that this patient presented none of the seven risk factors described in the Wells criteria for PE. Hence, his Wells

<table>
<thead>
<tr>
<th>Study participant</th>
<th>D-dimer (μg/mL)</th>
<th>Wells score</th>
<th>Study radiologist’s findings</th>
<th>Findings on ancillary studies</th>
<th>Location of embolism</th>
</tr>
</thead>
<tbody>
<tr>
<td>48-year-old man</td>
<td>0.61</td>
<td>2.5</td>
<td>Indeterminate</td>
<td>Pulmonary angiography: negative</td>
<td>1 LLL subsegmental</td>
</tr>
<tr>
<td>70-year-old man (no treatment)</td>
<td>0.73</td>
<td>0</td>
<td>Indeterminate</td>
<td>None</td>
<td>1 at LUL posterior segmental–subsegmental junction</td>
</tr>
<tr>
<td>34-year-old woman</td>
<td>0.4</td>
<td>3</td>
<td>Negative</td>
<td>Pulmonary angiography and ultrasound of bilateral lower extremities: negative</td>
<td>1 at RUL proximal segmental junction; 1 at LLL proximal segmental junction &lt;2 mm</td>
</tr>
<tr>
<td>71-year-old man (taking warfarin for atrial fibrillation)</td>
<td>0.70</td>
<td>6</td>
<td>Negative</td>
<td>None</td>
<td>1 at LUL anterior segmental–subsegmental junction</td>
</tr>
<tr>
<td>50-year-old woman (taking warfarin)</td>
<td>0.49</td>
<td>0</td>
<td>Negative</td>
<td>None</td>
<td>1 LLL distal subsegmental; 1 at LLL segmental–subsegmental junction</td>
</tr>
<tr>
<td>64-year-old man</td>
<td>0.64</td>
<td>3</td>
<td>Indeterminate</td>
<td>Pulmonary angiography: negative</td>
<td>1 at LLL distal segmental–subsegmental junction</td>
</tr>
</tbody>
</table>

LLL = left lower lobe; LUL = left upper lobe; RUL = right upper lobe.
score was 0 and the clinical probability for PE was low. His serum D-dimer level was 0.63 μg/mL. This patient’s PE extended from the left main pulmonary artery through the lower-lobe pulmonary artery and along the entire length of the lateral segmental pulmonary artery, as well as extending cephalad into the proximal left upper lobe posterior segmental artery. The length of the embolus was approximately 5 cm.

Of the other 346 participants in the study who had a D-dimer level of ≤1.0 μg/mL and nonpositive pulmonary CTA findings, ten patients (2.9%) were lost to follow-up monitoring despite attempts to reach them by telephone and mail. According to their medical records, two of these patients were seen for follow-up examinations approximately two months after their pulmonary CTA, at which time neither was noted to have evidence of thromboembolic disease. For the remaining 336 patients, none were found to have PE or DVT during the three-month follow-up period. Nine patients died during the follow-up period, but none died of PE, according to their medical records. Causes of death were metastatic cancer (three participants), chronic obstructive pulmonary disease (two participants), heart failure, asystole with no report of PE, severe coronary artery disease, and acute myocardial infarction.

Discussion

Clinicians have become increasingly reliant on pulmonary CTA for the diagnosis of acute PE. However, the modality carries several negative consequences. Radiation exposure for a pulmonary CTA is on the order of 5 millisieverts (mSv) or more. The most recent BEIR VII (Biologic Effects of Ionizing Radiation) report from the National Academy of Sciences estimates that there is a 1 in 1000 lifetime risk of inducing a nonfatal cancer and a 1 in 2000 chance of inducing a fatal cancer for every 10 mSv of radiation exposure. The use of an iodinated contrast agent entails a small but not insignificant risk for nephrotoxicity. This is especially true for patients with decreased renal function, a condition that is becoming increasingly common as our society ages and the prevalence of diabetes continues to increase. Despite the use of low-osmolar and iso-osmolar contrast agents, the incidence of contrast-induced nephrotoxicity remains 4%. Many patients seen in EDs are saddled with large financial bills. At our facility, an uninsured patient would be charged $763 for a pulmonary CTA during the study period. Even those with health care insurance often have a substantial copayment for this study.

Despite these negative consequences, recent data suggest that pulmonary CTA is both overused and not as highly sensitive or specific as once believed. A recent multicenter trial, the Prospective Investigation of Pulmonary Embolism Diagnosis (PIOPED) II study, evaluated pulmonary CTA against a composite reference standard. That study found a sensitivity of only 83% and a specificity of 96%, even after excluding all indeterminate pulmonary CTA studies. Furthermore, although the prevalence of PE in the original PIOPED study was 33%, a recent study of 349 ED patients evaluated by pulmonary CTA revealed a prevalence of 5.7%. At our own institution, the annual prevalence of PE as detected by pulmonary CTA is <5%.

Like all imaging studies, pulmonary CTA is subject to interobserver variability in the interpretation of findings, especially in the determination of distal segmental or subsegmental pulmonary emboli. There was moderate interobserver agreement regarding pulmonary CTAs in our study (κ = 0.45). The study reader reported indeterminate findings on 43 pulmonary CTA studies versus indeterminate findings on 21 studies according to the initial clinical reading. The lower prevalence of indeterminate results reported by the initial clinical reader may be attributed in part to the pressure placed on the clinical reader to make a definitive diagnosis. An indeterminate result would require additional evaluation, which can be a hardship for the patient and taxes limited radiology resources. Furthermore, the radiologists who provided the initial clinical readings did not use a specific definition for an indeterminate result. In contrast, the sole study reader used a specific definition of indeterminate results: lack of uniform enhancement of the pulmonary arteries, and filling defects seen on only one axial slice that could not be confirmed by coronal or sagittal reconstruction.

In addition to the adverse effects that may occur with pulmonary CTA, treatment of PE itself has also been associated with negative consequences. Wysowski et al reported that warfarin was among the top ten drugs with the largest number of serious adverse event reports, according to the Food and Drug Administration’s Adverse Event Reporting System. Bleeding complications associated with warfarin use have an annual rate of approximately 6% to 7%, although major hemorrhage occurs in only 2% of cases. Patients taking warfarin also require frequent monitoring to check the adequacy of therapy, which requires time and effort on both the part of the patient and their clinicians. Patients must also avoid many activities in which there is the possibility of bruising, such as most contact sports. Anticoagulation, like all medications, should not be instituted unless there is clear medical benefit. Eyer et al noted that...
most of their study participants with indeterminate or inconclusive pulmonary CTA findings did not receive anticoagulation and did not subsequently develop venous thromboembolism.

Our results also suggest that in the face of D-dimer levels of ≤1.0 μg/mL, the value of the Wells criteria in the evaluation of PE is limited. Studies have shown the presence of interrater variability regarding the Wells criteria.18 Even when clinical guidelines are present, their implementation can be problematic. A recent large multicenter study of 1529 consecutive patients seen in 117 EDs found that in 43% of patients, diagnostic management was inappropriate.2 In a busy ED, even the use of a short clinical decision tool such as the Wells criteria can be difficult. In a survey of ED physicians, Runyon et al19 found that only 57% of all respondents could correctly identify a specific component of the Wells criteria by spontaneous recall, and 53% reported not using an established clinical decision rule in more than half of their patients.

In our cohort, there were ten patients with a high probability of PE as determined by the Wells criteria. However, none of those patients had PE according to either the clinical or study radiologist reading, and none had evidence of PE at the three-month follow-up examination. Furthermore, the single patient in our cohort with a D-dimer level of ≤1.0 μg/mL that had PE according to CTA had a Wells criteria score of 0. None of the six patients mentioned previously with a discrepancy between the study CTA reading and clinical CTA reading had a high probability of PE as assessed using the Wells criteria.

A better method to evaluate acute PE would be to either the clinical or study radiologist reading, and none had evidence of PE at the three-month follow-up examination. Furthermore, the single patient in our cohort with a D-dimer level of ≤1.0 μg/mL that had PE according to CTA had a Wells criteria score of 0. None of the six patients mentioned previously with a discrepancy between the study CTA reading and clinical CTA reading had a high probability of PE as assessed using the Wells criteria.

The increasing reliance on pulmonary CTA in diagnosing PE has led to increased diagnostic imaging and its consequences. Our study demonstrates that in most patients with a D-dimer level of ≤1.0 μg/mL, pulmonary CTA may not be of added utility because of its limited sensitivity and its interobserver variability, especially for detection of distal segmental or subsegmental embolus. Furthermore, the Wells criteria may be of limited additional value in predicting PE in this patient group (low D-dimer level).

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

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

References
Computed Tomography Angiography in Patients Evaluated for Acute Pulmonary Embolism with Low Serum D-dimer Levels: A Prospective Study

Reducing Collusion Between Family Members and Clinicians of Patients Referred to the Palliative Care Team

Abstract

Objective: Collusion refers to a secret agreement made between clinicians and family members to hide the diagnosis of a serious or life-threatening illness from the patient. Our goal was to reduce the rate of collusion among the family members of patients referred to our institution’s palliative care service such that 80% of patients would be aware of their diagnosis within four weeks of referral to the service. We aimed to achieve this target within six months of starting the project.

Methods: We undertook a clinical practice improvement project using the methodology of Brent James et al of Intermountain Health to see how we could reduce collusion among clinicians and family members of patients with advanced-stage cancers. This strategy included creating awareness among patients, family, and clinicians of the problems with collusion from the standpoint of each group; adopting an empathetic and compassionate approach to communication; using pamphlets; seeking patients’ views; empowering families to reveal the truth to patients; and supporting patients and families until the last moment of each patient’s life.

Results: Between December 2004 and June 2008, 655 patients with advanced-stage cancers were referred to us. We were able to maintain an average awareness rate of nearly 80% of patients starting in February 2005, when we implemented awareness measures.

Conclusion: The deeply entrenched cultural practice of collusion can be changed with simple strategies based on the universal principles of medical ethics and best practices.

Table 1. Reasons families choose to keep a diagnosis from a patient

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disclosure causes the patient to lose hope</td>
</tr>
<tr>
<td>Disclosure leads to depression</td>
</tr>
<tr>
<td>Disclosure hastens the progression of the illness and death</td>
</tr>
<tr>
<td>Disclosure increases the risk of patient suicide</td>
</tr>
<tr>
<td>Disclosure may cause psychologic pain for the patient</td>
</tr>
<tr>
<td>Family members themselves may not be aware of the nature and severity of the illness</td>
</tr>
<tr>
<td>Family members may be in denial</td>
</tr>
<tr>
<td>Family members may be in conflict</td>
</tr>
</tbody>
</table>

Introduction

Collusion, in the medical context, happens when a patient’s family acts with attending clinicians to conceal a life-threatening or serious illness from the patient. This usually occurs at the family’s request and is the default practice in many Asian cultures.1 It is contributed to, in no small part, both by the widespread practice of physicians disclosing a diagnosis to a patient’s family members before revealing it to the patient and by clinicians’ underestimation of the information needs of patients.2,3 Clinicians may also regard collusion as an easier option than telling the truth because it reduces their own stress and anxiety.4

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James Alvin Low, MBBS, FRCP
Sim Lai Klow, SRN
Norhisham Main, MBBS, MRCP
Koh Kim Luan, SRN
Pang Weng Sun, MBBS, FRCP
May Lim, SRN

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Numerous Asian and European studies have shown that up to 60% of cancer patients may not be aware of their diagnoses,\(^5,6\) although more than 90%, if given the choice, would choose to be told the truth.\(^2,7\) A preliminary survey conducted at our hospital in Singapore in 2004 revealed the following characteristics of patients referred to our palliative care service:

- Unaware of their diagnosis at time of referral: about 70% 
- Would like to know about their illness: 67%

Table 2. Why collusion goes against the principles of best clinical practices

<table>
<thead>
<tr>
<th>Patient factors</th>
<th>Clinician factors</th>
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<tbody>
<tr>
<td>Collusion is antithetical to patient autonomy and to the right to self-determination.</td>
<td>Collusion results in a breakdown of the clinician–patient relationship and a loss of trust between patients and clinicians.</td>
</tr>
<tr>
<td>Revealing the diagnosis to relatives before revealing it to patients breaches patients’ right to medical confidentiality.</td>
<td>Clinicians may face treatment noncompliance from patients and may be unable to provide optimal treatment, such as radiotherapy and chemotherapy.</td>
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<tr>
<td>Patients are unable to give informed consent if they are not aware of the underlying illness and thus may not obtain appropriate or optimum and timely treatment.</td>
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<tr>
<td>Patients may not be able to complete unfinished business and tasks prior to their deaths.</td>
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<tr>
<td>Patients who sense something amiss may come to distrust their relatives and clinicians.</td>
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<tr>
<td>Many patients suspect the diagnosis anyway, given their symptoms and physical deterioration.</td>
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Family factors

- Family members will have to bear the burden of being untruthful or even deceptive to their loved ones, which may lead to guilt later.
- A barrier to communication is erected as family members become avoidant at a time when they are most needed by patients.
- Families will have no guidance in making treatment decisions, especially closer to the end of life.

Clinician factors

- Would like to know whether the illness is life-threatening: 54% 
- Would choose to know the prognosis in terms of their remaining life expectancy: 46%.

However, when their families were interviewed, the overwhelming majority of family members would rather not have patients be aware of the life-threatening nature of their illness (91.4%) or of the prognosis in terms of the life expectancy (95.7%).

Singapore is an island state of about four million inhabitants located at the southernmost tip of mainland Southeast Asia. It has a multiethnic population made up mainly of Chinese (75%), Malays (14%), and Indians (9%). Many of the world’s major religions are represented in the nation: Christianity, Islam, Hinduism, and Buddhism.\(^8\) Because Singapore’s culture is predominantly Asian, the Asian practice of collusion, in which the patient abrogates autonomy to his or her immediate family members, is prevalent. Collusion is much less common in predominantly Western countries such as the United Kingdom and the US. Nonetheless, with globalization and transmigration, there are now large numbers of Asians living in the US where collusion is or may become a problem.\(^9\)

The reasons families would choose collusion over revealing the truth to the patient are summarized in Table 1, and the reasons why collusion goes against best clinical practices are shown in Table 2. To address the problem of collusion in the hospital setting, we undertook a clinical practice improvement project adopting the methodology of James et al,\(^10\) which has been further developed and systematized by Wilson and Harrison.\(^11\) We sought to reduce the rate of collusion among patients referred to the palliative care service.
such that 80% of them would be aware of their diagnosis within four weeks of referral to the service. We aimed to achieve this target within six months of starting the project.

Methods
Defining the Problem
This project was carried out in Alexandra Hospital, a 400-bed district general hospital located in Singapore. Its main specialties are general medicine, geriatric medicine, orthopedic surgery, and general surgery. The palliative care service sees about 300 patients a year.

To begin tackling the problem of collusion within the palliative care service, we created a flow chart detailing the stream of information from the time that a diagnosis of a terminal or life-threatening illness is confirmed to the time at which a patient is fully aware of the diagnosis. We found some important factors that led to collusion (Figure 1). It was evident to us that families and attending physicians were the two most common groups of “factors” leading to the high incidence of collusion in the inpatient setting, with the former being more important than the latter. Hence, we looked in greater detail at the possible reasons families may choose collusion over telling the truth and developed a Pareto chart (Figure 2). As we studied the reasons in greater depth, we realized that the overarching theme of almost every way in which collusion was perpetuated had to do with communication or the lack of it. Hence, we devised a strategy to tackle it from a mostly communicational standpoint.

Strategies for Intervention
The first step was to create awareness that collusion was indeed a huge problem among the terminally ill and why, in most instances, it was detrimental to the care of these patients and went against the most basic ethical principles of modern medicine. We then went on to adopt a multipronged approach to tackle this problem (Table 3) and devised an algorithm (Figure 3) to manage collusion.

The key points in the strategy adopted were:
• Acknowledging the problem, making the primary teams aware that collusion was generally inappropriate for patients and their families and should be addressed as soon as possible. We appointed a champion in each of the four main departments to promote awareness of collusion.
• Making family members aware of the gravity of the advanced stage

Table 3. Multipronged strategy to tackle collusion in the inpatient setting

<table>
<thead>
<tr>
<th>Family-targeted strategies</th>
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<tbody>
<tr>
<td>Ensuring that family is fully aware of diagnosis and prognosis</td>
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<tr>
<td>Explaining the reasons and problems of collusion (reinforced with a pamphlet)</td>
</tr>
<tr>
<td>Explaining to the family how breaking bad news is conducted (reinforced with a pamphlet)</td>
</tr>
<tr>
<td>Offering to help break bad news on behalf of the family</td>
</tr>
<tr>
<td>Counseling the family on possible reactions to bad news and reassuring them that the patient will be able to cope with the families’ support and care</td>
</tr>
<tr>
<td>Reassuring family members about continual care and support for the patient and for them in dealing with the terminal illness even after the diagnosis is revealed</td>
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<table>
<thead>
<tr>
<th>Staff-targeted strategies</th>
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<tbody>
<tr>
<td>Creating awareness and addressing the issue of collusion head-on</td>
</tr>
<tr>
<td>Making it routine to address this issue for all patients with a life-threatening or terminal illness</td>
</tr>
<tr>
<td>Appointing clinician champions in the four major departments of the hospital who work to create awareness of collusion</td>
</tr>
<tr>
<td>Encouraging staff to attend workshops on breaking bad news, held regularly by the hospital’s Grief and Bereavement Committee</td>
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<table>
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<tr>
<th>Other strategies</th>
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<tr>
<td>Developing a protocol to deal with collusion (see Figure 3)</td>
</tr>
<tr>
<td>Conducting family conferences specially designed to resolve conflicts between family members about whether to disclose the diagnosis</td>
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</table>
of the life-threatening disease and the need to break the bad news in a timely manner. The biggest challenge was to convince the family to allow the truth to be told to the patient. The burden of collusion was explained in an empathetic and compassionate way, with an emphasis of its cost to the patient as well as to loved ones. It was important for family members to realize that although in nearly all cases, reactions to bad news is not good, they must never underestimate the coping resources of the patient, especially given the support of both informal and professional caregivers.

- Involving the patient in deciding the level of knowledge that s/he had of the illness. Our sense was that one very important deciding factor that affected the family’s decision about whether to break collusion was when they were informed of the patient’s wish to know the truth.
- Using two pamphlets to explain the points we were trying to make 1) about the reasons for collusion and the burden it exerts on patients and family members and 2) about techniques for breaking bad news. The former helped the family understand the issues at hand, in their own time, and acted as a memory aid for their later contemplation. The latter pamphlet empowered family members to break the bad news to the patients themselves. These pamphlets can be obtained from the authors on request.

Results

Figure 4 shows the proportion of patients who were aware of the diagnosis, from December 2004 through June 2008. The measures were implemented during a one-month period in February 2005. With the exception of December 2005, when the number of referrals was at its lowest, we were able to maintain an average awareness rate of nearly 80% as a result of our interventions. The rate was sustainable for a period of more than three years. The awareness rate was arrived at by dividing the number of patients who were aware of the diagnosis within four weeks of referral to the palliative care service by the total number of referrals for the whole month. The numerator excluded those whose families adamantly refused to have the diagnosis revealed to the patient and those who had severe cognitive impairment, which made it impossible for them to grasp the significance of their illness. During the project, 655 were referred to the palliative care service.

Discussion

Telling the truth about serious or terminal illnesses is not a common practice in many Asian cultures. Among the Chinese, who form the majority ethnic group in Singapore and among whom the Confucian tradition is prevalent, physicians tend to approach family members first with the bad news, leaving up to family members the decision of whether to disclose the diagnosis to the patient. Families who tend to be paternalistic and overprotective usually choose collusion over disclosure. This stance, albeit misguided, is born of love and concern for the patient. These families usually have pure intentions.

This project was not so much about trying to break collusion at all costs but more about giving patients a voice. It was about respecting patient autonomy and trying to align families’ decisions with those of patients. We concede, however, that there can be instances when the risk of telling the truth outweighs the benefit and in certain circumstances can even hurt the patient. These rare situations are usually manifested by the family’s strong insistence on keeping the truth from the patient. We respect families’
Reducing Collusion Between Family Members and Clinicians of Patients Referred to the Palliative Care Team

and team meetings. We achieved the latter by spreading the principles espoused by this project to other departments and encouraging family members to communicate about the difficult issues of serious illness and death. We have incorporated most of those strategies into our standard assessment of all palliative care patients. We routinely assess patients and their family members for collusion and use those strategies to manage it. Our goal was also to spread the principles espoused by this project to other departments and other hospitals within our health cluster. We achieved the latter by making numerous presentations to senior management committees and in such settings as clinical forums and team meetings.

Conclusions
We have learned that collusion, despite being deeply entrenched in clinical practice in our part of the world, can be reduced with our strategies. These strategies are based on creating awareness, enabling patients to exercise their autonomy, educating family members, communicating empathetically and compassionately, and empowering family members to communicate about the difficult issues of serious illness and death. We have incorporated most of those strategies into our standard assessment of all palliative care patients. We routinely assess patients and their family members for collusion and use those strategies to manage it. Our goal was also to spread the principles espoused by this project to other departments and other hospitals within our health cluster. We achieved the latter by making numerous presentations to senior management committees and in such settings as clinical forums and team meetings.

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

Acknowledgments
We also thank the following people who helped in planning our project: Tan Kim Ann, SRN; Lim Hui Li, SRN; and Widya Zulkassim, Katharine O’Moore-Klopf, ELS, of KOK. Edit provided editorial assistance.

References

Figure 4. Patient awareness of diagnosis between December 2004 and June 2008.

... one very important deciding factor that affected the family’s decision about whether to break collusion was ... the patient’s wish to know the truth.
Abstract

Background: The majority of medical adverse events are secondary to errors in communication. The Joint Commission (known until 2007 as the Joint Commission on the Accreditation of Healthcare Organizations) reports that 70% of sentinel events are the result of communication failures. Review of nonperioperative adverse events at Cincinnati Children's Hospital Medical Center in 2007 found similar statistics: 57% were related to failure to recognize abnormal vital signs and to communicate or address parents’ or nurses’ concerns.

Objective: To increase by 80% the number of days between near misses in pediatric neurosurgical patients because of failure to address abnormal vital signs or parents’ or nurses’ concerns during the night shift.

Materials and Methods: Baseline data on near misses from the previous night were collected with the use of a written questionnaire completed the next morning by the interns, patient-care facilitators or charge nurse, and attending physicians. Laminated cards with three standardized questions were created to guide a late-evening review of patients’ status by residents, attending physicians, and nurses: the Night Talks discussion. After initiation of Night Talks, data were collected for issues addressed by Night Talks as well as for preventable adverse events.

Main Outcome Measure: Number of days between near misses.

Results: During a two-month period before the introduction of Night Talks, there was an average of 3.8 days between near misses on neurosurgical patients. After the initiation of Night Talks, days between near misses due to the failure to address abnormal vital signs or parents’ or nurses’ concerns increased to 201 days, a 5360% change.

Conclusion: Instituting standardized Night Talks substantially reduced near misses in neurosurgical patients at our institution at night.

Introduction

Background

The majority of medical adverse events are secondary to errors in communication. Analysis of 5632 sentinel events reported to the Joint Commission (known until 2007 as the Joint Commission on the Accreditation of Healthcare Organizations) since January 1995 reveal that 70% are the result of communication failures. In response to these overwhelming national data, the Joint Commission’s 2009 national patient safety goals have challenged the medical profession with improving effective communication among caregivers.3

We reviewed root cause analyses of nonperioperative serious safety events (SSEs) at Cincinnati Children’s Hospital Medical Center (CCHMC) in 2007 and found failure in team communication or team situation awareness (SA) to be a common cause. Four of seven SSEs (57%) involved poor recognition of abnormal vital signs or poor communication of parents’ or nurses’ concerns. Many of these events occurred during the night shift when resources are at their lowest, there are multiple sign-outs of physicians and nurses, and communication among nurses, physicians, and patients’ families is less frequent. Although SSEs are rare and always resulted from a series of errors, we believed that errors in communication and in SA were commonly resulting in lesser harm, or near misses, more frequently. With the release of the new Institute of Medicine3 regulations about hours for residents and the potential for increased discontinuity...
of care and increased transfers of care (handoffs), we recognized the need to improve SA and communication. We believed that a strategy to reduce near misses would ultimately result in avoiding more SSEs.

Despite evidence that adverse events can occur secondary to communication failures, the literature poorly addresses how to prevent these errors. Other than suggestions on improving the handoff process itself with formalized training sessions on sign-out techniques, there is little information on how to integrate elements of SA into the daily operations of an inpatient unit. Situation awareness, as defined by Wright et al, is a person’s perception of elements in the environment, comprehension of that information, and the ability to project future events on the basis of this understanding. Because much of patient-care activity occurs in settings with multidisciplinary teams, it is important to consider team SA. According to Cooke et al, team SA encompasses two foci: 1) shared knowledge that does not overlap and is complementary and 2) common shared knowledge among team members.

**Intended Improvement**

At CCHMC, the nurses discuss concerns with other nurses and the charge nurse, and similar discussions occur among the covering residents. However, there is not a formalized discussion between the physicians and nurses. In addition, neither group has a formal method to incorporate elements of team SA, nor are concerns systematically reviewed with an attending physician.

An improvement team was developed consisting of the pediatric residency program director, pediatric chief residents, interns, and senior residents rotating through the service, the nursing clinical manager of unit A7NS, two night-shift patient-care facilitators (PCFs), and a quality-improvement consultant. A7NS was chosen for this study because that unit houses all the pediatric neurosurgical patients. Other subspecialty services typically have patients on more than one unit because of census issues, age restrictions, and required level of care. In addition, the pediatric chief residents serve as pediatric co-attending physicians on the neurosurgical service so that they could not only participate in project implementation but could also monitor project progress.

This project was designed to enhance communication and team SA during the night shift to decrease the number of adverse events, or near misses, in the neurosurgical population on an inpatient unit. We defined a near miss as any event that has the potential to result in patient harm or is perceived by families as an error in care. We chose near misses as an outcome measure to capture and address issues before they became SSEs. SSEs traditionally are events reported at the time that something happens; we wanted to prevent SSEs from occurring. As mentioned, residents noted the common issues that arose in root cause analyses of SSEs with communication being the main issue. Thus we gathered a group of front-lined clinicians to create a list of common near-miss events. Examples of near misses included laboratory tests not ordered or performed overnight that would have affected patient care, critical laboratory values not addressed, any medications or intravenous fluids ordered incorrectly, or parental concerns not addressed in previous shifts. We elected to use days between near misses as our primary measure.

Our primary goal was to increase by 80% the number of days between near misses in all neurosurgical patients admitted to the neurosurgical unit during a three-month period. At baseline, as measured during one month, the neurosurgical service averaged 3.8 days between near misses. Thus, our goal was to increase the number of days between near misses to 6.8 days. To achieve this goal, we instituted a standardized Night Talk among interdisciplinary and multilevel clinicians.

**Methods**

**Setting**

CCHMC is a tertiary-care center in southwestern Ohio with four neurosurgical attending physicians. A7NS is a 34-bed inpatient unit that houses neurology patients, neurosurgical patients, and general pediatrics overflow. The neurosurgical census ranges from 0 to 12 patients per day. The average nightly census is three to five patients. The average yearly neurosurgical census is 600 patients per year. Each pediatric intern rotates through the neurosciences rotation, which includes both neurology and neurosurgical teams and patients. Each team consists of four interns, two senior residents, neurology and neurosurgical attending physicians, and the pediatric chief residents, who serve as neurosurgery co-attending physicians. The pediatric chief residents have clinical responsibilities as general pediatric attendings. They have medical staff privileges and assume the pediatrician ownership of patient care on the neurosurgical patients. Each of the neurosciences interns and senior residents take call (30-hour shifts) every fourth night. A senior resident from another hospital service assumes patient-care responsibilities the two nights of the call rotation when the neurosci-
Decreasing Adverse Events through Night Talks: An Interdisciplinary, Hospital-Based Quality Improvement Project

The improvement team used the standard methodology at CCHMC, which involves the use of the Model for Improvement.7 The team developed an aim statement, a run chart of the outcome, and a key-driver diagram (Figure 1) to formalize its hypothesis. Through multiple plan-do-study-act (PDSA) cycles, we tested our intervention, a formal multidisciplinary discussion focused on team SA that we named Night Talks.

By means of a series of tests, it was determined that 1:30 AM was the best time for all parties to meet. Built into the system, though, was some flexibility needed to accommodate the patient census and the condition of patients on the floor. Testing showed the discussion could not occur prior to 11:30 PM because the nurses starting at 11 PM needed time to adequately assess their patients. Furthermore, we wanted to include the third-shift nurses because they are the staff members most removed from the decision making in morning rounds and least informed about the plans for the day. In addition, testing showed that after midnight was also the best time for the residents, who tended to delay decision making until morning rounds when the whole team was available.

Testing also allowed us to formalize the issues discussed to improve team SA. Three questions were developed that were based on the common causes of adverse events at CCHMC. A laminated card was distributed to the nurses and residents that detailed the questions to guide the discussion (Figure 2).

After evaluating several PDSA results, the patient-care facilitator (PCF), or charge nurse, and intern were chosen as the representatives at the meetings. The PCFs had the time and availability to attend the meeting consistently, as they did not have direct patient-care responsibilities. The interns had more in-depth knowledge of the patients, particularly on the nights when there was a senior resident from another hospital service covering the neurosciences service. The senior resident was not chosen, owing to less availability because senior residents are required to cover an additional service other than neurosciences at night. Our testing resulted in a reliable standardized process improving team SA during the high-risk overnight period.

Testing showed that a call to the attending physician

Figure 1. Key-driver diagram.

Figure 2. Laminated card used to guide the Night Talks.

PCF = patient-care facilitator
was important to ensure that the process was thorough and decisions were reviewed by a more senior clinician. Night Talks also standardized the involvement of patients' parents, often key providers of subtle changes in patients.

The Night Talks Process

The Night Talks proceed as follows:

- Bedside nurses ascertain parents' concerns.
- The PCF asks the questions on the laminated card of all the bedside nurses taking care of neurosurgical patients. At the same time, the senior resident and intern perform the same task.
- Each night, around 1:30 AM, the PCF or intern coordinates the schedules of the two parties for Night Talks.
- When both parties are prepared, the PCF and intern meet on the unit to perform the Night Talks and compare the issues that have arisen in their individual reviews.
- After the PCF and intern have completed the Night Talks, an evaluation of the patient is performed if there are any abnormal vital signs reported or any concerns. For these patients, the senior resident, intern, bedside nurse, and PCF are all required to go to the patient’s room for an assessment. Once the patient has been assessed, a plan is put in place by the medical team to address the particular concern.
- Finally, after the Night Talks and assessment, the intern calls the attending physician to review the Night Talks discussion.

We chose a time series to study the effectiveness of Night Talks at increasing days between near misses on A7NS. We developed a plan to collect data daily throughout the baseline and testing phase. The measurement plan included the following steps:

1. A written questionnaire was completed each morning by the interns, PCF, and attending physician. This questionnaire (Figure 3) contained various elements of SA and was designed to identify any near misses overnight. We chose multilevel as well as interdisciplinary participation to validate results and decrease the reporting bias inherent to having only a single observer.
2. Visible reminders were posted in the resident conference room and the PCF office to ensure that all parties returned provided data daily. The forms themselves, as well as the collection boxes, were placed in each of these locations. An administrative assistant paged the pediatric chief co-attending physicians on service to distribute the forms.
3. The questionnaires were collected and reviewed by the team leaders each week to determine the number of near misses per week. The information was entered into a Microsoft Office Excel 2003 Version 11 spreadsheet (Redmond, WA), which permitted the development of a chart depicting the outcomes data (days between near misses). Data was entered weekly. The x-axis reflects the timeline of dates when events occurred. The y-axis represents the days in between events. The control limits are automatically calculated by the program and are three standard deviations about the mean.

In addition, the pediatric chief residents completed a journal of events discussed at each Night Talks to track issues.

Results

Review of the baseline data before implementation of Night Talks revealed that near misses overnight were occurring in neurosurgical patients an average of every 3.8 days (Figures 4 and 5). During the same baseline period, the longest time period without adverse events was 10 days, with a range of 1 to 10 days. Events reported during the baseline period included:

- Unaddressed family and nursing concerns about inadequate pain control
- Nonperformance of a shunt tap to evaluate for infection in a patient who had undergone shunt revision, because the neurosurgeons were not informed that the patient had a fever
- Nonperformance of a postoperative complete blood

Figure 3. Questionnaire used to identify near misses.
count to evaluate for anemia, because blood for it was not drawn

- Lack of treatment for eight seizures that occurred overnight in a patient who had just undergone surgery, because the resident was not informed about the seizures.

During the early test phase, no significant change was noted. After addition of the standardized questions to the process, the number of days between near misses significantly increased—up to 201 (5360%) (Figure 4). The failure at day 201 occurred when the intern forgot to tell the attending physician about a patient transferred in from the intensive care unit who had hypertension. Had the attending physician been aware of the issue, an anti-hypertension medication would have been administered in the middle of the night instead of the next morning. There was not any adverse outcome for the patient, but the delay in treatment was considered a near miss. In a review of the pediatric chief residents’ journal, a sampling of issues discussed included the following: closer monitoring of a patient who had recently had surgery and had low blood pressure and tachycardia; changing a patient’s baclofen dose from oral to intravenous while the patient had emesis instead of withholding the dose, to avoid baclofen withdrawal; and obtaining an emergency computed tomography scan of the head for a patient with increasing lethargy. Typically one to two times per week, the discussion between the pediatric chief resident and the intern during Night Talks prompted a call to the neurosurgery fellow or attending to defer to their expertise to adequately address an issue.

Discussion

By implementing a standardized night discussion focused on improving team SA, we were able to substantially increase the number of days between near misses in the neurosurgical patients during the overnight period. Key components in our design were standardized questions, formal discussion time, inclusion of nurses and residents, and follow-up discussion with the attending physician. Our testing and study were not designed to demonstrate which of these components are most crucial. We were able to show that a combination of these components into a Night Talks approach significantly decreased the rate of near misses.

No SSEs occurred during the study phase, but these events are too rare to know for sure if a decrease in near misses will be associated with a decrease in SSEs. We also believe that there were additional effects on the culture of safety. Night-shift nurses reported feeling more a part of the team because they are now involved in the patients’ plans. The residents also appreciate the attending physicians supervising their decisions at a point in the night when they feel most vulnerable. Finally, the attending physicians are more aware of the issues at night so that plans can be initiated earlier and adverse events can be prevented.

Front-line staff ownership of the improvement effort from the beginning was instrumental in the success of the project, making it easy to implement the changes in a practical and efficient way. At the same time, teaching SA to the caregivers in direct contact with the patients provided them with basic mental skills to recognize high-risk situations that have high error potential. Producing an efficient, effective, and streamlined process...
reduced stress and decreased the additional amount of time required of staff. Tests of the actual time involved demonstrated that the whole process added only 15 to 20 minutes more work to the caregivers’ schedules. At the same time, the project’s success did require time and resources. We had to change the culture as well as achieve buy-in from all parties. We continuously reevaluated and revised the process when it was not working. Specifically creating a reliable system for collection of the baseline data sheet took longer than expected, particularly with insuring collection on the weekend. Visible reminders in the workspaces of the residents and nurses helped. The addition of an administrative assistant to hand the forms to the pediatric chief resident each week improved the return. During the testing phase, before seeing any results, we had to achieve buy-in each month as a new set of residents rotated through the service, which was time consuming. Assuring that we maintained balance between learning, education, and service was a priority. Lastly, convincing the pediatric chief residents that a phone call every night in the middle of the night would improve patient care and patient safety is a continuing challenge, but has improved as the data has demonstrated an impact.

Unintended consequences also emerged from the project. After the institution of Night Talks, morning rounds became more efficient because plans could be developed in rounds. Involving the residents in the process also improved education about quality-improvement strategies and fostered quality-improvement training. In addition, a discussion at night between intern and attending physician offers another opportunity to learn and teach. Finally, Night Talks forced action on the residents, so that decisions were made when issues arose instead of delayed to the morning, holding the residents to a higher degree of accountability to prevent adverse events. The success of the implementation of Night Talks on the neurosurgical unit has prompted other units and services to incorporate the principles of SA and enhanced communication at night into their daily practice.

Improvement was shown by a decrease in the number of near misses in this clinical microsystem, but there are limitations to our design. Participants in the testing were also responsible for documenting the outcome measure. This might have resulted in bias in reporting. In addition, self-reporting of near misses might have been intimidating to participants who did not want to implicate themselves in adverse events. We attempted to decrease these biases by instituting an interdisciplinary evaluation of the previous night’s events. The majority of the near misses reported were corroborated by at least one other discipline, but more work needs to be done in teaching situation awareness to all disciplines, which will increase reliability.

Another limitation was that baseline data were collected for only two months. A longer baseline period would allow the reader to have additional confidence this intervention resulted in improvement. However, the considerable improvement in the number of days between near misses sustained for months after the intervention lessens this concern.

Context will likely be important for other organizations considering similar interventions. In our project, the pediatric chief residents or co-attending physicians are typically on service for only one week at a time. This format may not be generalizable to other services where attending physicians are on service for an entire month, which means a phone call in the middle of the night every night. In addition, for services with patients on more than one nursing unit, the time involved may make the intervention more difficult. Services reporting to more than one attending physician may have more trouble with communication. The role of subspecialty fellows (post-residency trainees) will be important to clarify at our center and other academic institutions.

We plan to test various options as we spread Night Talks to additional services and units. Currently we are testing on the gastroenterology (GI), oncology, neurology, and adolescent units and services. In these units, we are evaluating different styles of communication after residents and nursing staff have reviewed the required information. In the GI unit, the process is testing a conference call between attending, fellow, and residents. In the neurology unit, the process is testing a talk to fellows followed by a discussion with attendings prompted by very specific guidelines for the attending call. In the adolescent unit, they are testing the process of talking directly to the attending. In addition, we will incorporate more elements of SA (eg, Pediatric Early Warning Score [PEWS], high-risk medications) into the process, which will standardize the question of “are there any nursing concerns?” Finally, and perhaps most importantly, we are formalizing the process of assessing family concerns through a Family Engagement process, which includes an algorithm to address and ascertain family concerns in a standardized way.
Conclusion

Instituting a standardized Night Talk between the bedside nurse, PCF, intern, senior resident, and attending physician substantially reduced near-miss events in the neurosurgical patients on one unit. Because of the restriction in work hours, medical practice is evolving into more shift work, which in turn brings more discontinuity of care. By improving communication during high-risk times such as the night shift, as well as by improving team SA, adverse events can be substantially reduced. More effort must be put into improving handoffs and training caregivers in SA. To meet the demands of the Joint Commission's national patient safety goals, more focus must be placed on an interdisciplinary and multilevel improvement in communication.

Disclosure Statement

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

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References


Be Prepared

There is no such thing as bad weather, just unprepared people. The weather just happens; it is neither bad nor good, cruel nor pleasant; it just is.

We interpret it as bad or good because of how it affects us, but in reality, weather is just weather.

All we can really do is be prepared.

— Larry Wilson and Hersch Wilson,
Play to Win!: Choosing Growth over Fear in Work and Life
Staff Solutions for Noise Reduction in the Workplace

Abstract

Setting: A comprehensive noise-reduction project was initiated in response to low patient-satisfaction scores on an inpatient neuroscience unit at St Luke’s Hospital and Health Network. The effects of noise on the health of patients and staff provided additional rationale for the project.

Methods: The performance-improvement model of Plan, Do, Check, Act, along with a literature review, was used to identify the negative effects of noise on patients and staff. Baseline decibel (dB) readings were obtained in ongoing data collection six times a day. Preproject and postproject patient surveys were completed. Comparisons of patient-satisfaction scores related to noise level were completed before and after staff education.

Results: Before project initiation, dB readings were found to be well above the hospital environment recommendations. Initial pre-education readings were as high as 78.1 dB; standard recommended levels are 40 dB. In April 2008, before project initiation, patient-satisfaction scores ranked in the second percentile in the Press Ganey large hospital grouping. Postproject scores rose to the 95th percentile by July 2008.

Introduction

The staff serving on the Professional Practice Council of the Inpatient Neuroscience Unit at St Luke’s Hospital and Health Network, Bethlehem Campus, recognized a department trend for low patient-satisfaction scores related to environmental noise levels. The group also used a direct patient-satisfaction questionnaire related to noise because they believed that it showed the patients’ true feelings and responses to the noise levels on the unit. The 40-bed unit has a variable census and semiprivate patient rooms and is part of the primary stroke center for the organization. The nursing station areas are shared by multiple care providers, including physicians, nurses, physical therapists, occupational therapists, case managers, and others, causing noise levels in work areas to grow to even higher. Noise levels on the unit rose to an all-time high in April 2008 and patient-satisfaction scores plummeted in relation to noise level beginning in February 2008. On the basis of this information, the council embarked on a unit-wide noise-reduction project to improve the environment for patients and families.

The staff also believed that noise affected the physiologic, psychologic, and overall health of patients. This assumption was based on staff interaction with patients and feedback from other caregivers, validated by a literature review by staff members. Call1 noted that “studies show that high levels of sound have negative physical and psychological effects on patients, disrupting sleep, increasing stress levels, and decreasing patients’ confidence in their caregivers.” Additionally, McCarthy et al2 wrote that “environmental noise and its potential effects on healing and recovery rate are of special concern to nurses in hospital settings where increased levels of noise and the effects of noise on patient sleep and cognitive function have been well documented in the literature. There is a growing body of literature suggesting that interventions to reduce noise or to promote patient relaxation enhance physiological measures of recovery and patient perceptions of well being.”

Methods

In the initial phase of this project, the Professional Practice Council Members reviewed research articles and studies related to this topic as well as information regarding decibel (dB) levels and sound intensity for common noises.
The methodology used for this project was PDCA—plan, do, check, act—the performance-improvement model adopted by St Luke's Hospital and Health Network:

An assessment is made in the Plan phase of the project where measurement is utilized to determine improvement opportunities. The Do phase incorporates using tools and methods of quality improvement as part of the investigation (eg, practice guidelines, patient education, and provider education). At the Check phase, an assessment is made to determine the impact of the interventions. The Act phase is the incorporation of the tested intervention into widespread daily practice, ensuring that benefits gained from the improvement are maintained and that the process is periodically monitored to ensure a high level of performance.

The goal of the project was to improve patient-satisfaction scores related to unit noise levels by 20% within six months. Evaluation methods were patient-satisfaction scores related to noise level, dB readings, and concurrent patient surveys. The team obtained baseline dB readings in five locations on the unit: at the main center nurses’ station and at the first and last room on each side of the unit (odd- and even-side hallways). Those data were provided to all staff, along with education related to noise and patient healing.

A vital part of the project was to teach nursing and ancillary staff about the effects of noise and the importance of noise reduction for patient healing. Educational materials included information about the effects of common dB levels, such as that a dB level of 80 may lead to hearing loss and that staff working in a noisy environment are vulnerable to exhaustion, burnout, depression, and irritability. In addition, constant noise can produce an increased heart rate, decreased confidence in the competence of clinical caregivers, increased stress, confusion, cardiac problems, disrupted sleep patterns, decreased cognitive function, and altered hormone levels in patients. Unit goals for acceptable noise levels were set at 40 dB during the day and 35 dB during the night, as recommended by the World Health Organization.

The staff developed a data-collection process, a data-collection tool, and a schedule for obtaining dB readings. These were completed at 0700, 1000, 1500, 2000, 2300, and 0200 hours each day for three weeks before staff education, after staff education, and after six months. Decibel readings were obtained with a handheld dB reader at five locations: the nursing station and the two farthest ends of each patient hallway. In addition, sound meters were installed in nursing stations to increase awareness by staff of noise levels (Figure 1). These meters have a green light for acceptable noise levels, a yellow light to indicate increasing

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**Table 1. Responses to in-room patient-survey questions about factors that contribute to the noise level on unit**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Before staff education</th>
<th>Immediately after staff education</th>
<th>Six months after education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patients slamming their doors</td>
<td>People up and down halls, carts in halls</td>
<td>Other patients</td>
</tr>
<tr>
<td>2</td>
<td>Double rooms, roommates, visitors</td>
<td>Very quiet; don’t pay any attention</td>
<td>Beeping machines, crowded rooms</td>
</tr>
<tr>
<td>3</td>
<td>Machines, other patients in room, traffic outside room</td>
<td>Doctors talking; wheels too hard—that’s what makes the noise</td>
<td>[No response]</td>
</tr>
<tr>
<td>4</td>
<td>Beeping machines, technology driven</td>
<td>[No response]</td>
<td>Heart monitors, call bells</td>
</tr>
<tr>
<td>5</td>
<td>None</td>
<td>IV pumps</td>
<td>Alarms</td>
</tr>
<tr>
<td>6</td>
<td>Telemetry beeps all night and day</td>
<td>Double rooms, visitors</td>
<td>What noise?</td>
</tr>
<tr>
<td>7</td>
<td>I like all the noise around and outside my room</td>
<td>Machines, typical hospital noise</td>
<td>[No response]</td>
</tr>
<tr>
<td>8</td>
<td>Chatter in the halls</td>
<td>Beeping noises, machines</td>
<td>Nothing</td>
</tr>
<tr>
<td>9</td>
<td>None</td>
<td>Roommate</td>
<td>Small room, roommate</td>
</tr>
<tr>
<td>10</td>
<td>Staff yelling</td>
<td>Carts and hallway noise</td>
<td>Noise is normal; I can shut the door</td>
</tr>
<tr>
<td>11</td>
<td>Jobs that need to be done; staff conversation</td>
<td>On occasion—next room</td>
<td>I wouldn’t say so</td>
</tr>
<tr>
<td>12</td>
<td>People talking; beeping noises</td>
<td>Talking; beeping machines</td>
<td>Talking in hallway; it’s fine—it’s been quiet</td>
</tr>
<tr>
<td>13</td>
<td>[No response]</td>
<td>Talking</td>
<td>No problem with noise</td>
</tr>
<tr>
<td>14</td>
<td>[No response]</td>
<td>Plumbing</td>
<td>It’s quiet here</td>
</tr>
<tr>
<td>15</td>
<td>Call bells</td>
<td>Hall; girls working</td>
<td>Monitors; hallway traffic</td>
</tr>
</tbody>
</table>

---

Figure 1. Sound meter installed in nurses’ station to raise awareness of sound levels.
noise levels, and a red light to indicate noise levels above the acceptable range.

Other interventions identified by team members as ways to decrease unit noise included obtaining and providing sleep masks and earplugs for patients, installing soft door closers, and removing rubber transitions between carpet and tile flooring at all doorways to decrease equipment noise. The team also reduced television and phone volumes, designated report areas away from patient rooms, coordinated patient-care activities to reduce patient disruptions, implemented random in-room patient surveys to assess perceptions of noise, and implemented unit quiet times. The team continued to communicate dB readings, patient survey results, and satisfaction scores to all staff.

Results
Preproject patient-satisfaction scores, as measured by Press Ganey Associates, Inc for noise level in and around room in the large-hospital category, ranked patient satisfaction for the Inpatient Neuroscience Unit at St Luke’s Hospital in the second percentile in June 2008. On completion of the noise-reduction initiative and staff education in July 2008, patient-satisfaction scores increased to the 95th percentile. Figure 2 shows monthly percentile rankings of patient satisfaction related to noise levels.

Variation in dB levels was noted, but there was improvement in all time frames and areas monitored after staff education was completed. Figure 3 shows the average daily pre-education, post-education, and six-month follow-up dB readings. Before staff education, dB readings ranged from 26.1 to 78.1 dB. The loudest area on the unit was the nurses’ station, which has the highest activity level and is the central area for call bell and telemetry monitoring. Overall, the highest dB levels were recorded at 0700, 1000, and 1500 hours. The two highest noise levels were at shift changes. Before staff education, the average noise levels for these times reached 65 dB, whereas after education average readings peaked at 61.3 dB. Six months after education, readings averaged a high of 56.1 dB.

Concurrent in-room patient surveys were also completed for comparison of qualitative and quantitative data. The surveys were conducted in patients’ rooms. The patients were asked to rate their overall satisfaction with the noise level throughout the day as very good, good, fair, or poor. They were also asked to list noise contributors (Tables 1 and 2). In reviewing survey results, we found that before staff education, our patients rated noise levels from poor to very good, with the majority of the responses being good. Patients relayed that the noise they experienced came from staff, hallway noise, other patients, double rooms, roommates, equipment, technology, and general hospital noise. Although many patients stated they understood that hospitals are noisy, they offered suggestions for decreasing noise levels, such as closing doors, having private rooms, limiting visitors or visiting hours, and improving technology. On surveys after staff education, improvement was apparent in fewer poor ratings and an increase in good to very good ratings. Surveys were repeated six months after the project. Patients’ perceptions of noise levels had improved, with no poor ratings and an increased number of fair, good, and very good ratings. At that point, patients noted that the noise levels they experienced were related less to staff than to external environmental noises such as technology and other patients (Figure 4).

Discussion
On our unit, noise reduction is a priority; it must be for us to make a difference. The noise-reduction strategies that we have implemented have resulted in a quieter
work environment, which is beneficial to both staff and patients. We have learned many lessons throughout this project. It is essential to involve committed, energized bedside staff if success is to be achieved. Begin by using evidence-based research as a foundation for your project; matching noise levels and patient outcomes is key. Educating all staff, including those in ancillary departments such as dietary and transport is necessary, as well as inclusion of patients and families in the project. Be certain to consider the environmental factors in your area, as they may have a major impact on noise levels. Always evaluate the process on an ongoing basis to allow for continual improvement opportunities. Use data to measure your success and to determine opportunities for future projects. Be certain to share your information and story with everyone: physicians, nursing staff, supervisors, senior leadership, patients, and family members.

Even small changes made to decrease noise levels can affect patient well-being and improve their satisfaction level. Ongoing educational updates are also important in successful management of noise levels on a nursing unit. Environmental causes should not be underestimated. Take the time to talk with patients and staff to find out where the noise is coming from and determine what steps you can take to minimize as many extraneous sources of noise as possible. To assist in controlling hospital noise that cannot be eliminated, consider providing sleep masks and earplugs to patients, depending on their condition and care needs. We provided these items on our unit; it was a successful intervention much appreciated by patients.

Possible biases in this project include measurement biases in dB readings and in patient surveys. Multiple individuals measured dB levels at different times, which might have led to variation in the actual times of measurement, the actual location of the measurement, and reading accuracy. Multiple people administered the patient survey and could have asked the questions differently. In addition, the surveys were conducted in patients’ rooms, which might not have put patients at ease enough to allow them to give their true or complete feelings. Some ways to repeat this project and to control these biases might be to have dB readers installed in the areas where sound levels are to be measured and to provide for confidentiality by allowing patients to place completed surveys in a drop box before their discharge.

**Disclosure Statement**

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

**Acknowledgments**

We thank the members of the unit-based practice council who worked diligently on this project to ensure its success. These individuals were the ones who helped to perform the initial review of the literature, create the educational plan for the staff, and then complete the decibel readings on the unit (Table 3).

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

Figure 4. Patient survey responses to the question “Please rate the noise level in and around your room” in a) “pre-,” b)”post-,” and c)”six-months post-“ education time frames.
Table 2. Responses to in-room survey question: What suggestions do you have to help decrease the noise level?

<table>
<thead>
<tr>
<th>Patient</th>
<th>Before staff education</th>
<th>Immediately after staff education</th>
<th>Six months after education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have noisy patients keep their doors closed</td>
<td>Keep voices down; very pleasant unit, efficient people</td>
<td>Can’t be helped; answer noisy calls</td>
</tr>
<tr>
<td>2</td>
<td>Eliminate double rooms</td>
<td>No</td>
<td>I’ve noticed vast improvements in noise level; staff is very conscious of raising voices</td>
</tr>
<tr>
<td>3</td>
<td>No comment</td>
<td>Get the wheels to make less noise</td>
<td>[No response]</td>
</tr>
<tr>
<td>4</td>
<td>Decrease telemetry, but you get used to it, so forget it</td>
<td>[No response]</td>
<td>Can’t control these things</td>
</tr>
<tr>
<td>5</td>
<td>None, thank you</td>
<td>Nothing</td>
<td>Keep the door closed</td>
</tr>
<tr>
<td>6</td>
<td>Find some technology to eliminate the noise or control it at night better</td>
<td>Private rooms</td>
<td>[No response]</td>
</tr>
<tr>
<td>7</td>
<td>If there was not any noises, the nurses wouldn’t know the patients needed something</td>
<td>[No response]</td>
<td>[No response]</td>
</tr>
<tr>
<td>8</td>
<td>Limit number of visitors or [have] 11 p.m. curfew</td>
<td>No, it is understandable</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Very happy here; everything good</td>
<td>Sleep aids</td>
<td>None</td>
</tr>
<tr>
<td>10</td>
<td>Need to keep door closed</td>
<td>Close door</td>
<td>I don’t think so; I guess it’s okay</td>
</tr>
<tr>
<td>11</td>
<td>More quiet at change of shift</td>
<td>Carts and hallway noise</td>
<td>I don’t mind noise</td>
</tr>
<tr>
<td>12</td>
<td>Don’t think it can be improved, I guess we need the beeping noises, (alarms, call bells)</td>
<td>[No response]</td>
<td>It’s been quiet</td>
</tr>
<tr>
<td>13</td>
<td>[No response]</td>
<td>Carts and hallway noise</td>
<td>[No response]</td>
</tr>
<tr>
<td>14</td>
<td>[No response]</td>
<td>[No response]</td>
<td>No, everyone is nice and polite</td>
</tr>
<tr>
<td>15</td>
<td>Call light bell goes off after several rings, but light stays on</td>
<td>No suggestions</td>
<td>It’s expected hospital noise</td>
</tr>
</tbody>
</table>

Table 3. Staff contributors

<table>
<thead>
<tr>
<th>Name</th>
<th>Title or degree(s)</th>
<th>Practice council role; study role(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katherine DiGirolamo</td>
<td>RN, BSN</td>
<td>Co chair; data collection and interpretation, literature review, education, interventions</td>
</tr>
<tr>
<td>Vanessa Brown</td>
<td>RN</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Shana Gibson</td>
<td>Patient care assistant</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Daisy Cintron</td>
<td>RN</td>
<td>Secretary; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Scott Christ</td>
<td>Patient care assistant</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Cathleen Cooper</td>
<td>Patient care assistant</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Meredith Dull</td>
<td>Patient care assistant</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Giulia Genova</td>
<td>Patient care assistant</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Kristy Kennedy</td>
<td>Patient care assistant</td>
<td>Member; data collection, literature review, education, interventions</td>
</tr>
<tr>
<td>Britta Jacobson</td>
<td>RN, BSN</td>
<td>Member; data collection, education</td>
</tr>
</tbody>
</table>

References

Developing a Unit-Based Family Advocacy Board on a Pediatric Intensive Care Unit

Christine McMullan, MPA, Margaret Parker, MD, FCCM, Jeralyn Sigwart, RN, MS, PNP

Abstract

Context: The pediatric intensive care unit (PICU) of Stony Brook University Hospital (Stony Brook, NY, USA) developed a family advocacy board to assist staff in providing patient- and family-centered care. The PICU Family Advocacy Board works in partnership with the medical center’s leadership to promote and enhance family-centered pediatric care and services. The advocacy board is founded on the understanding that families play a vital role in ensuring the health and well-being of children.

Methods: Using the “Are Families Considered Visitors in Our Hospital or Unit?” self-assessment developed by the Institute for Family-Centered Care, we asked pediatric critical care staff to assess how well family presence and participation is supported on the unit. The data obtained from the assessment was used to help determine priorities for the advocacy board.

Results: The greatest improvement in the postimplementation assessment concerned questions related to patients and families as advisors. Answers for four questions in this category showed a statistically significant improvement (p = 0.0001) in the postimplementation data in comparison with the preimplementation data. Staff perception of the level of family involvement during anesthesia induction and after induction increased from 42% before implementation to 78% after implementation (p = 0.0343). The perception of inclusion of family members during resuscitation increased from 28% before implementation to 90% after implementation (p = 0.0001).

Conclusions: Patients’ family members and unit staff have responded positively to the development of the parent advisory board and the deployment of board members’ recommendations. Family members bring valuable experience and insight into the development of unit processes. Patients’ and family members’ ideas and participation in decision making should be embraced, not feared.

Introduction

Although patient- and family-centered care was a popular topic in many 2007 quality forums, very few hospitals at that time could truly claim to offer patient- and family-centered health care. Select members of our team had the opportunity to view a presentation made by a community hospital regarding the development of their patient and family advisory group at our Institute for Healthcare Improvement (IHI) Critical Care Learning Collaborative meeting in Texas in October 2007. Our members returned from the meeting eager to institute a similar program at Stony Brook University Medical Center.

Patient- and family-centered care is defined by the Institute for Family-Centered Care as “an innovative approach to the planning, delivery, and evaluation of health care that is grounded in mutually beneficial partnerships among health care patients, families, and providers.” Taking IHI’s recommended approach of small tests of change, our staff decided to create a small unit-based group of family members to act as advisors in the targeted unit’s delivery of care. Because our pediatric intensive care unit (PICU) often had family members return to offer their gratitude and express their interest in helping other families, our PICU was identified as the pilot unit for this initiative.
Development of the Advocacy Board

So that we could identify possible members for this group, a report was generated listing all patients discharged from the unit within the preceding 12 months. Unit staff were asked to identify families from the list whom they thought would be interested in participating in the advocacy board. Staff were instructed to identify those families whom they believed would offer feedback regardless of the outcome of their previous experiences on the unit.

Thirty-seven families were identified as potential PICU family advisors. Invitations to participate in the introductory meeting to discuss the advocacy board were sent to the identified families early in January 2008. Families were asked to attend an informational meeting to discuss what we hoped would be their participation with our performance-improvement team and the commitment associated with serving as family advisors. Of the 37 families who received the invitation, 8 responded positively to the request.

The first meeting of the PICU Family Advocacy Board (Table 1) occurred on February 14, 2008. We initially anticipated that some family members would withdraw from participation once they heard more about the program because of possible time-commitment issues. The time commitment for participation in this group was estimated to be between four and six hours each month. Surprisingly, all families attending the meeting expressed their desire to join our advocacy board.

Subsequent meetings have been held monthly, alternating between daytime and evening hours. Agendas are distributed to members for their review and input prior to each monthly meeting. Minutes are taken during meetings and reviewed at the following meeting to ensure accuracy and follow-through on outstanding issues.

For the group to work toward a tangible goal, a PICU family survival guide was developed by advocacy-board members. The guide provided helpful hints to assist families in navigating the hospital and surrounding area. It provided information regarding cafeteria hours, parent sleepover policy, parent participation during rounds, and so on. The same information was also formatted into a laminated poster and hung on the outside of each patient’s bathroom door.

The first administrative actions executed by this group included the creation of a mission statement and objectives and the renaming of the group to PICU Family Advocacy Board. Next, the members identified a need to provide support services to family members of PICU patients. As the members believed they were able to meet the emotional needs of patients’ family members, they expanded their scope of services to include participation in performance-improvement initiatives on the unit (Table 2).

Methods and Materials

Assessing Staff Perception of Unit’s Patient- and Family-Centered Care Practices

In an effort to assess staff perception of the unit’s commitment to patient- and family-centered care, pediatric critical-care staff were asked to complete a unit self-assessment prior to the formation of the PICU Family Advocacy Board. Using the “Are Families Considered Visitors in Our Hospital or Unit?” self-assessment developed by the Institute for Family-Centered Care, medical, nursing, and clerical staff were asked to assess how well family presence and participation is supported on the unit. The data obtained from the assessment assisted to determine priorities for the advocacy board. The first assessment was done during the spring of 2008; 50 assessments were distributed and 14 assessments were completed and returned.

Staff generally believed that the unit was emotionally supportive to family members. Nevertheless, many key elements required to provide an infrastructure for family-centered care were identified as not provided or needing improvement. Shift-change reports, treatments and procedures, anesthesia induction and after induction, and resuscitation were identified as areas needing

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas Archer</td>
<td>Parent advocate</td>
</tr>
<tr>
<td>Trevor and Mo Connolly</td>
<td>Patient advocate</td>
</tr>
<tr>
<td>Kathleen Culver, NP</td>
<td>PICU nurse practitioner</td>
</tr>
<tr>
<td>Barbara and Robert Mongillo</td>
<td>Parent advocate</td>
</tr>
<tr>
<td>Jeannie Morano</td>
<td>Parent advocate</td>
</tr>
<tr>
<td>Paul Murphy</td>
<td>Data analyst</td>
</tr>
<tr>
<td>Donna Panico, CNS</td>
<td>PICU clinical nurse specialist</td>
</tr>
<tr>
<td>Margaret Parker, MD</td>
<td>PICU medical director</td>
</tr>
<tr>
<td>Madeline Queck</td>
<td>Chaplaincy</td>
</tr>
<tr>
<td>Arlene and Thomas Reith</td>
<td>Parent advocate</td>
</tr>
<tr>
<td>Dawn Walsh</td>
<td>Parent advocate</td>
</tr>
</tbody>
</table>

PICU = pediatric intensive care unit.

... the PICU Family Advocacy Board identified a need to provide support services to family members of PICU patients—meeting their emotional needs ... and ... including them in performance-improvement initiatives ...
Improvement regarding inclusion of families. Lack of inclusion of patients and families as advisors in the developing, implementing, and evaluating of policies and quality improvement was also highlighted. Environmental factors such as adequate space for family members were recognized as needing improvement and a perceived priority for change.

Instituting Change

Rather than initially focusing on improving hospital facilities, the advocacy board chose to concentrate on process-related elements requiring improvement. Members believed process-related changes required minimal funding and were within the scope of the advocacy board’s initial realm of influence. In response to the outcome of the assessment, several changes were implemented by the Family Advocacy Board in conjunction with PICU medical and nursing leadership. Members of the Family Advocacy Board were asked to join the unit’s performance-improvement team charged with reducing complications due to infections and ICU mortality. The team meets twice a month to review performance data related to infections and high-risk processes and to offer recommendations to improve patient outcomes. Team members also provide oversight and measurement in the implementation of new processes to determine whether the improvement achieved the desired outcome.

In an effort to champion one of the National Patient Safety Goals of the Joint Commission (www.jointcommission.org/patientsafety/nationalpatientsafetygoals/), our hospital organized a medication retreat to identify potential patient safety issues related to adverse drug events and to suggest process improvements. Two of our family advocates were asked to participate in the medication retreat to offer their insight as to potential risks to medication safety. Participants provided their perceptions and concerns regarding communication in the prescribing and administering of medications to their family members.

Several family advocates also worked with our Corporate Education and Training Department to develop a module to educate staff regarding effective communication with patients and family members. Families were asked to identify real experiences (both positive and negative) for incorporation into the training program as learning opportunities for staff. Application of the educational modules led by our family advocates with members of our training department began April 2009. Unit staff expressed positive feedback regarding the content and delivery of the training program. Because of the success of the program, the scope of participants in the training session was expanded to include all pediatric (general pediatrics, pediatric hematology and oncology) medical, nursing, clerical, and ancillary staff.

One of our family advocates identified a concern in the delay of her son’s admission from the Emergency Department (ED) to the PICU. Although she was instructed

<table>
<thead>
<tr>
<th>Date</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2008</td>
<td>Designed and distributed a parent survival guide and informational poster in both English and Spanish for family members of newly admitted PICU patients</td>
</tr>
<tr>
<td>June 2008</td>
<td>Developed a mission statement and objectives for the PICU Family Advocacy Board</td>
</tr>
<tr>
<td>June 2008</td>
<td>Purchased and installed a table for the parent respite room</td>
</tr>
<tr>
<td>July 2008</td>
<td>Organized a “PICU coffee hour” on the unit for PICU family advocates to offer refreshments, emotional support, and assistance to family members of PICU patients</td>
</tr>
<tr>
<td>September 2008</td>
<td>Created voice mail hotline for PICU family members to leave messages in order to reach out for assistance from PICU family advocates</td>
</tr>
<tr>
<td>September 2008</td>
<td>Created PICU family advocate e-mail address for patients’ families to contact family advisors and for advisors to communicate with one another</td>
</tr>
<tr>
<td>October 2008</td>
<td>Developed a protocol for offering one-to-one family advocacy services</td>
</tr>
<tr>
<td>October 2008</td>
<td>Participation of PICU family advocates on our PICU performance-improvement team</td>
</tr>
<tr>
<td>December 2008</td>
<td>Two PICU family advocates participated in our hospital-wide medication retreat to identify potential patient safety issues related to adverse drug events and to suggest process improvements</td>
</tr>
<tr>
<td>March 2008</td>
<td>Inclusion of families in nursing change-of-shift report</td>
</tr>
<tr>
<td>April 2009</td>
<td>Development and deployment of a “communication to family members” educational module for PICU staff</td>
</tr>
<tr>
<td>Spring 2009</td>
<td>Created performance-improvement team with family advocate representation to improve and accelerate the process of admission from the Emergency Department to the PICU</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>Creation of a video on patient- and family-centered care by PICU Family Advocacy Board members</td>
</tr>
<tr>
<td>Winter 2009-2010 (anticipated)</td>
<td>Created end-of-life protocols with family advocate participation</td>
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</table>

PICU = pediatric intensive care unit.
by her physician to bring her son to the ED so that he could be admitted to the hospital’s PICU, her son waited in the ED for more than four hours before he was moved to the PICU. As a result, the family advocate was asked to be part of a performance-improvement team to improve and accelerate admission process from ED to PICU. Team members believe that the parent’s perspective of this difficult and sometimes overwhelming process is helpful in identifying and eliminating obstacles that cause unnecessary delays.

**Results**

A postimplementation survey was distributed and completed in March 2009, nearly 12 months after baseline data were collected. Of the 50 assessments distributed to the PICU staff members, 11 were returned completed. Improvements were noted in several of the targeted family-centered care elements included in the assessment.

Questions related to patients and families as advisors noted the greatest improvement in the postimplementation assessment (Figure 1). Answers to all four questions in this category showed a statistically significant improvement (p ≤ 0.0001) in the postimplementation data from the preimplementation data. Eighty-five percent of staff completing the preimplementation assessment believed that patients and families were involved in developing, implementing, and evaluating hospital policies and practices. In the postimplementation assessment, 100% of the staff believed families were involved in these arenas.

Twenty-eight percent of the staff who completed the preimplementation assessment, as compared with 100% in the postimplementation assessment, believed that patients and families were involved in responding to and finding solutions to concerns and providing suggestions about family presence and participation. Twenty-eight percent of staff who completed the preimplementation assessment believed patients and family members were involved in developing, implementing, and evaluating quality-improvement initiatives, as compared with 98% in the postimplementation assessment.

In the preimplementation assessment, 15% of staff believed that patients and families were involved in hospital or unit committees and work groups, as compared with 100% in the postimplementation assessment.

Of the questions relating to patterns of care and collaboration in caregiving, five of the six elements showed an increase in positive responses (Figure 2). However, for only two of the five questions was there a statistically significant improvement in postimplementation data. The percentage of staff perceiving family involvement during anesthesia induction and after induction increased from 42% before implementation to 78% after implementation (p = 0.0343). The percentage of staff perceiving inclusion of family members during resuscitation increased from 28% before implementation to 90% after implementation (p ≤ 0.0001).

The percentage of staff perceiving inclusion of family members during resuscitation increased from 28% to 90% ...
increased from 28% before implementation to 50% afterward, but the increase was not deemed to be statistically significant because of the small response rate. Coincidentally, the unit is in the process of testing the inclusion of families in nursing shift-change reports. Family advocates were active in scripting and role playing as means of assisting staff in the preparation for inclusion of families during this process, one that traditionally excludes patients and families.

One area pertaining to patterns of care and collaboration in caregiving where the staff believed that unit staff were more inclusive of patients and families in the preimplementation assessment was treatments and procedures. Fifty percent of staff said that patients and families were included during treatment and procedures, as compared with 30% who said so after implementation. It is unclear why the staff believed the unit was more inclusive of families during the preimplementation period. This information is expected to be reviewed and addressed by the Family Advocacy Board members.

Conclusions
Patients’ family members and unit staff have responded positively to the development of the parent advocacy board and the implementation of board members’ recommendations. Family members bring valuable experience and insight into the development of unit processes, and thus patients’ and family members’ ideas and participation in decision making should be embraced, not feared. Although staff were initially reluctant to incorporate patient and family input into the development or modification of unit-based processes, their reservations were alleviated once they observed the positive impact that such involvement had on patient care.

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References
James Sens is a retired Health Plan Representative and Marketing Manager from the Ohio Region. He has been painting in various media since high school and is primarily self-taught. “Two Floats” is a painting of floats typically used by fishermen in the Great Lakes region.
Service Score Segmentation of Diverse Populations to Improve Patient and Physician Satisfaction—A Multicase Quality Improvement Study

David Newhouse, MD, MPH

Abstract
The changing demographics in the country require new strategies for providing culturally competent care. The Northern California Region Member Patient Survey provides detailed information for the clinician when the data is segmented into subsets by age, gender, and race/ethnicity. Any gaps identified allow for the clinician to focus on key areas for improvement in an efficient manner respecting the time constraints of a busy practice.

Introduction
The Context
The intent of this article is to tell a story, to share a method so others can emulate it, to present data, and to guide further study, all to improve care, service, and satisfaction. The incentives for physicians to improve their service scores may include: 1) to attain partnership in the medical group, 2) increased compensation in salary or incentive payments, and 3) higher professional satisfaction. Organizational incentives include higher patient retention rates and lower physician turnover rates. It has been well documented within Kaiser Permanente (KP), by Kristen Gregory, PhD, Director of Patient Satisfaction Assessment for The Permanente Medical Group (TPMG) in charge of the member patient survey Member Patient Satisfaction (MPS) survey, that higher satisfaction scores correlate with patient retention.

A young Asian woman physician from China is labeled as a low performer because of her service scores and ultimately transfers to a different facility. In the Internal Medicine Department, a man, age 20 years, is told by his physician that his fatigue is from partying too much; after a car accident, the patient is diagnosed with leukemia. A Spanish-speaking woman travels to Mexico to be treated because without adequate interpretation services available to explain her condition, she lacks trust.

Complex Demographic Picture
The demographic picture in California is changing, creating a complex demographic challenge for the physician, for the facility, and for the organization. The impact is felt in service, brand image, membership growth, and physician satisfaction. A strategy to deal with the changing landscape requires a new approach to the evaluation of demographic data. The following service improvement program combines patient satisfaction “service scores,” data segmentation, and data analysis. It has demonstrated successful outcomes dealing with increasing complexity of demographic change in our facility. It has also shown that addressing ethnicity issues alone is not sufficient to provide culturally competent care; other factors such as gender and age are critical for understanding the service needs of patients. It has also demonstrated that the interaction between clinician and patient is extremely complex and both may have biases that have to be identified. Bias can be either positive or negative but the area of bias tends to be ignored as it is seen as a negative attribute by the clinician. The use of data segmentation and analytics offers recognition for clinicians in the demographic subsets at which they excel. It identifies areas of opportunity for the clinician to improve, which was not identified until pointed out by the data. Once the area of opportunity is identified, appropriate resources can be applied to assist the clinician. The work is strategic in that the clinician only focuses on the demographic gaps and not his/her entire schedule. This is critical given the time constraints and busy schedules of physicians and of clinicians.
Multiplural Population

Southern Alameda County in northern California (NC) has a multiplural population—no population segment over 50%—and has unique populations including a large Afghan population and a large population of hearing-impaired patients. Asians are the fastest-growing group in Fremont and are underrepresented as KP members (Pierre Adler, personal communication, 2009). Latinos and other smaller demographic groups are also growing. Small companies with nonwhite and women ownership are rapidly growing in number. The KP Northern California (KPNC) staff, both physician and nonphysician, is increasingly diverse, reflecting changes in the surrounding communities and requiring new strategies for service improvement and professional satisfaction.

Demographic Shifts

It is critical to understand that there may be demographic variation even within the same facility. Variation occurs by individual clinician and at the department level. In Hayward, for example, the percentage of Asian patients seen in Internal Medicine was 24% whereas the percentage of Asian patients seen in psychiatry was only 8%. The reluctance to be seen in the Psychiatry Department was discussed in a Filipino focus group when talking about postpartum depression. There was a fear expressed by the participants that family members or friends might find out that they had been seen in psychiatry.

Figure 1 shows variation by Primary Care Departments in a KPNC facility. The graph shows that whites are the predominant group seen in Internal Medicine; whereas Latinos have the same percentage of survey returns as whites in the Pediatric Department. Ob/Gyn, which has a blend of younger and older patients, was in the middle. This same pattern is seen in other facilities with heterogeneous populations, although the pattern in pediatrics may be shifting from predominantly Latino to Asian. These changing dynamics have implications such as in hiring physicians and staff for the various departments even within the same facility.

My Own Clinic Service Scores

The innovation project began with my own clinic service scores in the Fremont Ob/Gyn Department. When I joined TPMG in 1979, there were very few female Ob/Gyn physicians and the options for women to choose a woman physician were limited. Over the years, this situation has changed as more women have entered the field of Ob/Gyn. Over time this changing expectation became apparent as women in younger age groups evaluated me lower than women in older age groups. It was common to be told by a younger patient that she did not want to see me because of my sex; over time this created a negative bias toward seeing women patients in the younger age group. It was apparent that I needed to change the bias I developed over the years if I was to improve my service scores. One intervention I employed was to attend the Four Habits Communication Program. My other key intervention was to improve the clinical experience of young women when they came in for care. This focused work paid off with a 60-point improvement in this population segment with a 10-point gain in my overall score over a six-month period.

Fremont Internal Medicine Department

The next phase of the project involved ten physician volunteers from the Fremont Internal Medicine Department who, over the next year, all improved their service scores by targeting key segments in their demographic data. As a result, the Fremont Internal Medicine Department became a Significant Improver (physician or group measured relative to themselves). On the basis of these results, the program was offered throughout the Hayward/Fremont facilities and to other facilities in the Northern California Region. Long-term tracking has the Hayward/Fremont facilities improving at a faster rate than the regional average from 2007 to 2008. Training programs have been developed for the physician, the

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**Figure 1.** Member Patient Satisfaction survey scores in internal medicine, gynecology, and pediatrics. Sorted by race/ethnicity in a San Jose Medical Center. Three-year average: 2005-2007.
chief, and diversity and communication consultants. Programs are now in development for staff, managers, and the support departments of the Laboratory, Pharmacy, and Radiology Departments.

**Methodology**

The Data, Diversity, and Demographics Program (DDDP)—a response to the MPS survey, which evaluates service—was developed at the Fremont/Hayward facilities located in northern California. Although this article describes the DDDP to demonstrate some early results, it is not meant to be an objective evaluation of the program.

**Member Patient Satisfaction Survey**

TPMG has long employed the MPS survey, which returns results on an average of 100 patient-survey results per year per clinician. Scores are tabulated quarterly and biannually and are broken out by categories including familiarity, gender, age, and ethnicity in five broad ethnic segments: African American, Asian, Latino, white, and other. A physician’s overall score is displayed on page one of the report and has been emphasized as the indicator of a physician’s service. The more granular data is found on page two, which was often ignored: its potential value not understood. Over time, the overall service score became an important component of an individual physician’s performance evaluation, with critical implications.

**The Program**

The DDDP uses the existing service-score database from the MPS surveys and resources from other organizational areas: diversity, service, marketing, and human resources. Initially, focus groups were conducted with key demographic groups including Muslim, Indian, Chinese, Filipino, and young adults, which contributed specific cultural and demographic perspectives to the program design. An integrated marketing team works with the diverse population in the Fremont/Hayward area to create a positive brand image (with personal attention to patients of all ages and ethnicities) and with the Service Department to ensure service expectations are met. Human resources is included as a critical partner to support the needs of a diverse physician and staff population.

The training program consists of an hour of individual consultation with each clinician who is interested in the program after having received an MPS score. The consultation is confidential as issues may be raised that are quite sensitive. Part of the hour is spent talking about how MPS works and what to look for on the survey. The segmentation section is carefully examined letting the data open areas of discussion. High-scoring areas are recognized and commended and low-scoring areas are identified as opportunities. One or two tipping points are identified. A tipping point is defined as an area that will have the biggest impact on moving the overall score upwards. Physicians who score greater than 85% will have a small demographic subset on which to focus. Physicians with lower overall scores should look for a larger demographic subset on which to focus. Resource materials are then made available that will help the physician improve the targeted subset score.

**Data Validity**

At the beginning of the program some physicians offered resistance because of concerns about the validity of the data—the issue was statistical significance. With only a hundred surveys per physician per year, some segment categories represented only three to five survey returns whereas other survey categories could have 50 survey returns or more. This is a legitimate concern as there is normal data fluctuation, especially with smaller sample sizes. The solution was to track small sample sizes over a longer period of time observing for consistent trends.

**Results**

**Population Intervention—The Chinese Patient**

The Chinese population scores physicians the lowest in the MPS survey, whereas the white patient population scores physicians the highest. Some Chinese-speaking physicians with large panels of Chinese-speaking patients were having difficulties with their overall service scores. At one point, morale was suffering and physicians were either transferring or refusing to take on new Chinese-speaking patients. A workgroup of physicians was formed to study the issue and to create a strategy for improving professional satisfaction. Two Chinese-patient focus groups were held to better understand the needs of both Chinese patients and the physicians who care for them.

Some of the questions probed patients’ medical care experiences in China compared with their medical care experiences in the US. In China, for example, many patients didn’t make appointments but dropped into the clinic expecting to be seen. Patients would often bring family members with the expectation that they would be seen as well.
Successful interventions that supported physicians included: expression of the awareness of the issues faced by Chinese physicians and acknowledgement of their hard work to satisfy patients. This led to retention of the Chinese-speaking physicians, which is a key strategy for membership growth and service score improvement. Other changes included: educating the chiefs about the issues, stronger interpreter services, cultural understanding of the Chinese MPS survey tool, and bilingual medical assistant support. Because it is not feasible for Chinese-speaking physicians to care for all Chinese patients in the service area, it is an expectation as a business imperative that all physicians be responsible for their demographic patient subsets. To meet that goal requires strong interpreter services, bilingual support staff, diversity training programs, translated materials, and leadership’s understanding of the issues faced by bilingual physicians with large non-English-speaking panels.

The intervention in Fremont started in 2002 and the work in San Francisco started in the summer of 2008. San Francisco has a strong diversity program and is a leader in innovation such as the Chinese module and Chinese translation services. Figure 2 shows the impact on service scores at the facility and regional level. San Francisco and Fremont, with large Chinese populations, are moving the regional average up; however, Fremont scores dropped when the Chinese interpreter services were temporarily reduced.

Population Intervention—The African-American Patient

One physician who had consistent overall scores in the high 80s (top of range 100) had only one low-group (segment) score over a three-year period: the African-American score of 40 to 50, which was based on only three to four surveys returned per year. This was consistent with the population ratio in Fremont. The physician agreed to focus on this population subset and over the next year this subset score moved up, as did the overall score, now in the low 90s. The physician used cultural information such as the Handbook on Culturally Competent Care for the African-American Population available from National Diversity.

System Intervention—Urologists

Systems issues are critical and understanding their impact on service scores is crucial. A low service score number does not define the problem but gives direction on which areas to focus. For example, in the Fremont Medical Center Urology Department, physicians were receiving lower scores from older men but those at the Hayward Medical Center were not, even though the same five urologists were working at both campuses (Figure 3). We found that the Fremont campus had no ultrasound machine to diagnose prostate cancer, so the men had to be rescheduled a month later at the Hayward campus. After an ultrasound was purchased the urologists’ service scores went up in that particular age group. The problem lay with the system and not with the physicians. A problem area was identified in the MPS score and deeper exploration found the solution.

Context—Work Environment

Seeing data in context is critical to understanding what the data shows. Numbers by themselves have no meaning out of context. An example was...
a physician who normally scored in the 90s, then had a drop-off of her overall MPS score into the 70s for one quarter. The physician was puzzled; however, it was the quarter during which she went to another facility to help out while they trained on the HealthConnect electronic medical record. The physician saw all new patients and never had the same office or medical assistant. After she returned to her regular department, her scores rose again to the 90s. Statistical variation is normal—even 15 to 20 point swings between quarters with survey returns only numbering 20. Too often physicians and chiefs, caught up in short-term statistical swings, don’t look at the overall trend.

Tenure and Physician Retention

Tenure is an important factor in understanding a physician’s service scores. A new physician has a large proportion of new members and a small proportion of regular patients. Over time this corrects itself as patients bond with the physician and the percentage of returning patients increases. This alone accounts for much of physicians’ improving their scores over time. However, it may take longer for physicians who come from other countries and for whom English is a second language.

Figure 4 shows a common pattern for a new physician in that a service score drop in the second or third years of practice are common. This physician started in the year 2000 with a score of 70 and then had a decline for the following two years. After year three, the physician showed steady improvement and now scores consistently in the high 80s to low 90s. The improvement did not happen, however, until after the time for a partnership vote had passed. If physician A had quit or not made partnership in 2003, a new physician being hired would start the process over again. The patients in the panel of Dr A would have to be reassigned to a new physician with an overall negative impact on service scores.

Looking at score subsets gives a chief more information on which to evaluate a physician’s true performance.

Discussion

Even though the program is still in an early phase, we believe some observations will prevail over time. The MPS survey is extremely accurate in evaluating service scores with demographic subsets, and, as a corollary, it has been very difficult for some physicians to improve service scores by just focusing on the overall score. Using the knowledge they gain from examining their demographic subsets is an efficient and effective use of the physicians’ time because they can target those subsets that bring down the overall score: sex, age, ethnicity, or some combination of those factors. Another observation is that physicians are often unaware of which subgroups of patients mark them low, and it is only with this data that weaknesses are identified. Furthermore, there are demographic subsets that are of critical importance to the organization for membership growth and retention—new members, young adults, and emerging ethnic markets are critical for long-term success yet lag other groups in satisfaction. The program not only improves service scores it also becomes part of the business case for attracting key membership growth.

The Golden Rules of Service

There are two basic guidelines for a clinician to follow to do well with a diverse patient population. The golden rule is to treat someone like you want to be treated. Having areas of cultural similarities helps to create trust between the patient and clinician. It is much easier for a physician to create an established panel when there are areas shared by both patient and physician. An example was one woman from the Filipino focus group who shared her preference for an Ob/Gyn physician. Her first choice was a female Filipino; second choice, male Filipino; and third choice, any Asian physician. She felt it necessary to have the “Asian issue” out of the way before she could trust a physician. With a female Filipino physician she would
have immediate common interests, whereas with a non-Asian physician she would have to work to establish a trusting relationship. A caring physician who takes the time to establish trust can usually succeed in creating a positive clinical experience.

The Platinum Rule of Service

If a patient differs culturally from the physician, however, follow the platinum rule: treat a person how they want to be treated. One can never stereotype because there are always exceptions to the rule. Three sisters in the Muslim focus group had very different expectations about whom they wanted for a physician. One dressed very conservatively in a black hijab and would not see a male physician under any circumstance. Another would see a male physician if her husband was present in the room. The third, wearing casual Western attire, had no issues seeing a male physician. Taking extra time to learn about a culture different from the physician’s, and investing extra time in creating a positive experience, will create a professional relationship with the majority of patients.

KP has well-developed educational materials regarding effective ways for clinicians to communicate with patients of diverse backgrounds.

Focus on Three Areas

There are three key areas to focus on to improve service scores and membership growth. Physician retention is crucial as a long-term strategy because patient trust is built over time, and the result of physician turnover is the patient again seeking a physician they trust. Second, system issues may affect scores or create physician dissatisfaction resulting in physicians leaving. The third component of segmenting scores is to recognize physicians for the value they bring, while pointing to areas for improvement.

Service Score Analysis

When going through the service score analysis, generally physicians are very reluctant to discuss their scores especially if they are low. They may have doubts about the validity of the numbers, be cynical about the value of these scores, or not see the importance. When diversity issues are raised, physicians are very concerned about being perceived as biased or prejudiced. It is absolutely critical to create a safe environment when discussing service-score issues. Recognition of physicians’ areas of excellence is critical. To be complete the discussion must contain systems’ issues and physician retention.

Conclusion

The DDDP, which started in 2003 with a single physician, has now been implemented in seven KPNC facilities; there are three more on the waiting list. The program is entirely voluntary and has expanded based on the results that have been seen—a true grassroots program. The core concept is using segmented data and analyzing the numbers to identify tipping points at the department and individual level. It recognizes areas of excellence for each physician and identifies areas of opportunity. The balance between recognition and accountability is a key aspect of the success of the program. Identifying systems’ issues is a key component that adds credibility to the program. The analytic component though key is only as strong as those doing the analysis. Having trained physicians to mentor and coach other physicians on how to provide consistent care across all demographic groups is crucial. Recognizing the value that all clinicians bring is the final piece for success. On the basis of learnings to date, the concepts from the DDDP are being applied to other areas. A program is now in development looking at hospital scores (HCAHPs). Health care disparity is another critical issue where segmented data is crucial to identify groups at risk. The last area is unconscious bias, which is a contributing factor to health care disparities. It is believed that the DDDP will play a significant role in identifying unconscious bias when present in both the physician and the patient. This work is being done in collaboration with Massachusetts General Hospital.

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Disclosure Statement

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Mosaic

We have become not a melting pot but a beautiful mosaic.
Different people, different beliefs, different yearnings, different hopes, different dreams.
— Jimmy Carter, b 1924, 38th President of the US and 2002 Nobel Peace Prize recipient
“Peace and Prayers in Bhutan”
photographs

By Anita Kulkarni, MD

Dr Kulkarni is an Emergency Medicine Physician at the Santa Clara Medical Center in Santa Clara, CA.

The Bhutanese people believe that prayers inscribed on each prayer flag are being recited every time the flag flutters in the breeze. Walking across a bridge being surrounded by peace and prayers … .
Peripartum Cardiomyopathy: Case Reports

Mary Wang, MD

Abstract
Peripartum cardiomyopathy (PPCM) is a dilated cardiomyopathy defined as systolic cardiac heart failure in the last month of pregnancy or within five months of delivery. PPCM, which affects thousands of women each year in the US, was first described in the 1800s, yet its etiology is still unclear. Its diagnosis is often delayed because its symptoms closely resemble those within the normal spectrum of pregnancy and the postpartum period. When PPCM is misdiagnosed or its diagnosis is delayed, the consequences for patients are deadly: The disorder carries a high mortality rate.

Introduction
Peripartum cardiomyopathy (PPCM) is associated with one in every 3000 to 4000 live births, affecting thousands of women in the US each year. The definition of PPCM includes four criteria: 1) development of cardiac failure in the last month of pregnancy or within five months of delivery, 2) absence of an identifiable cause for the cardiac failure, 3) absence of recognizable heart disease before the last month of pregnancy, and 4) left ventricular (LV) dysfunction (ejection fraction of less than 45% or reduced shortening fraction).

Risk factors include multiparity, black race, older maternal age, pre-eclampsia, and gestational hypertension. Symptoms of PPCM, which include fatigue, edema, and dyspnea, are similar to those for the normal spectrum of peripartum states and pregnancy comorbidities such as pulmonary emboli and eclampsia. Therefore, diagnosis is often delayed and the disorder is under recognized, with devastating consequences: Mortality is as high as 20% to 50%. The following two case reports illustrate a typical presentation and an atypical one. This article also reviews the etiology, clinical symptoms, treatment, and prognosis for PPCM, which must be understood to provide patients with the most efficient and appropriate care.

Case 1
A white woman, age 29 years, presented to our urgent-care clinic five days after giving birth, reporting dyspnea and fatigue that had lasted two days. She said that because this was her first pregnancy, she thought her symptoms to be normal after delivery. However, when her husband insisted, she went to the clinic for evaluation. She was found to be dyspneic and hypoxic with saturation on room air in the low 80th percentile and was sent to the Emergency Department (ED) for further treatment.

Her medical history included obesity, but the patient was in relatively good health until approximately her last month of pregnancy, when she developed gestational hypertension (without other significant pre-eclampsia signs and symptoms), dependent peripheral edema, as well as some symptoms of an upper respiratory infection. She was given labetalol, 200 mg orally, twice daily, for blood-pressure management.

During examination in the ED, the patient was noted to be afebrile and had a blood pressure of 156/88 mm Hg, a pulse rate of 90 beats per minute, a respiratory rate of 20 breaths per minute, and an oxygen saturation of 95% while receiving oxygen through a 2-L nasal cannula. Her lungs were clear to auscultation and her heart rate was regular, with an S3 gallop. Her extremities were nonedematous, and she had no calf tenderness. Urinalysis results were negative for any proteins. Plasma levels of D-dimer and circulating levels of B-type natriuretic peptide (BNP) were 1981 pg/mL and 864 pg/mL, respectively. An electrocardiogram showed a normal sinus rhythm. Chest radiographs showed cardiomegaly with increased vascular congestion bilaterally. A computed tomography (CT) chest scan to evaluate for possible pulmonary emboli showed evidence of pleural effusion and cardiomegaly but no emboli.

The patient was subsequently admitted to the hospital for new-onset PPCM and was given furosemide intravenously for diuresis. A transthoracic echocardiogram done at admission showed an LV ejection fraction of 35% to 40%, with trace aortic and mitral regurgita-
tion. Her fatigue and dyspnea greatly decreased with diuresis; she was discharged from the hospital three days later and instructed to take lisinopril and labetalol. Follow-up examination at six months showed a stable cardiomyopathy and well-controlled hypertension, and a repeat echocardiogram at the same point showed an improved ejection fraction of 55% to 60%.

**Case 2**
A white woman, age 25 years, presented at the ED with dyspnea six days after having given birth for the first time. She reported not having had any coughing, chest pain, or calf pain. Her medical history was significant for hypothyroidism, for which she was taking levothyroxine. Her pregnancy had been otherwise noneventful, except for flulike symptoms approximately one month before childbirth that included coughing, nausea, vomiting, and diarrhea.

In the ED, the patient appeared to be slightly anxious. She had a blood pressure of 159/87 mm Hg, a pulse rate of 58 beats per minute, a respiratory rate of 20 breaths per minute, and an oxygen saturation of 100% on room air. Physical examination showed no jugular venous distention, S3 heart sound, edema, or hepatosplenomegaly. She was slightly tachypneic but not in any acute respiratory stress. Laboratory tests revealed no proteinuria and a BNP level of 272 pg/mL. Echocardiography showed a normal sinus rhythm at 46 beats per minute. Chest radiograph findings were noted to be normal, with no cardiomegaly or pulmonary congestion. A CT scan of the chest was negative for pulmonary emboli.

The patient was discharged from the care of the ED physician with a diagnosis of dyspnea secondary to breast enlargement versus chest wall pain. She kept an appointment in our family medicine clinic four days later for a follow-up examination and still had the same symptoms. An echocardiogram ordered at that time showed left atrial and LV dilation, global LV hypokinesis, and an estimated ejection fraction of 25% to 30%. A cardiology consultation was done and the patient was given appropriate medications for heart failure, which alleviated her symptoms. Her follow-up echocardiogram three months later showed normalization of her ejection fraction to 60%.

**Discussion**
Approximately 60% to 70% of women experience a sensation of dyspnea during the course of normal pregnancy. Although historically PPCM risk factors occur in older women and in black women, contemporaneous trends show that there is an increasing incidence (24%–37%) in young primigravid and white patients. The details of the two cases reported here support this trend; the women are both young primigravidas and are white. Because dyspnea is a common finding in normal pregnancy and even in the initial postpartum state, PPCM is often missed, especially if the patient population does not fit the typical epidemiology.

**Etiology**
A possible relationship between pregnancy with dilated cardiomyopathy was recognized as early as the 1870s and was classified as a distinct clinical entity in the 1930s. Yet the cause of PPCM is still unknown. Most postulate that it is related to the cardiovascular stress of pregnancy (increased fluid load); others have suggested myocarditis. Felker et al found that 26 of 51 women with PPCM had histologic evidence of myocarditis on endomyocardial biopsy. Other researchers further postulate that PPCM may be an inflammatory response in pregnancy, citing an elevation of tumor necrosis factor-alpha and interleukin-6 levels. Some evidence also suggests that it may be a pathologic autoimmune response to fetal cells that lodge in the maternal circulation and cardiac tissue. There is also conflicting evidence whether nutritional deficiencies—more specifically, selenium deficiency—is a cause for PPCM.

**Clinical Features and Diagnosis**
Clinical features of PPCM include symptoms of congestive heart failure and chest pain. Signs can include tachycardia, tachypnea, pulmonary rales, an enlarged

| Table 1. Signs and symptoms in peripartum cardiomyopathy vs normal pregnancy, pulmonary embolism, and upper respiratory infection |
|------------------|-----------------|----------------|----------------|
| **Pregnancy** |
| Fatigue |
| Tachycardia |
| Dyspnea |
| Edema |
| Chest pain |
| DOE |
| PND/orthopnea |
| Rales |
| S3 heart sound |
| Cough |
| Hepatosplenomegaly |
| **PPCM** |
| Fatigue |
| Tachycardia |
| Dyspnea |
| Edema |
| Chest pain |
| DOE |
| PND/orthopnea |
| Rales |
| S3 heart sound |
| Cough |
| Hepatosplenomegaly |
| **PE** |
| Fatigue |
| Tachycardia |
| Dyspnea |
| Edema |
| Chest pain |
| DOE |
| PND/orthopnea |
| Rales |
| S3 heart sound |
| Cough |
| **URI** |
| Fatigue |
| Tachycardia |
| Dyspnea |
| Edema |
| Chest pain |
| DOE |
| PND/orthopnea |
| Rales |
| S3 heart sound |
| Cough |

DOE = dyspnea on exertion; PE = pulmonary embolism; PND = paroxysmal nocturnal dyspnea; PPCM = peripartum cardiomyopathy; URI = upper respiratory infection.
heart, and an S3 heart sound. Such signs and symptoms overlap with those of many other conditions, ranging from normal pregnancy to pulmonary emboli and upper respiratory infection (Table 1).

Diagnosis of PPCM includes the four criteria described at the start of this report. There are no specific laboratory abnormalities for PPCM, although BNP is often elevated. However, other exclusionary laboratory studies should also be considered, including cardiac enzymes assessment and a pre-eclampsia workup. Imaging studies include electrocardiography, chest radiography, and echocardiography. Electrocardiographic findings are often normal but can include sinus tachycardia, nonspecific ST- and T-wave abnormalities, and voltage abnormalities.37 Chest radiographs can show signs of pulmonary congestion, cardiac enlargement, and even pleural effusions in some cases.9 Echocardiograms usually show decreased contractility and LV enlargement without hypertrophy.16

Treatment and Prognosis
The treatment for PPCM is the same as for other forms of congestive heart failure (fluid and salt restriction, β-blocker, diuretic, and digoxin), except for angiotensin-converting enzyme inhibitors and angiotensin-receptor blockers, which are contraindicated in pregnancy.1 Hydralazine can be used during pregnancy to reduce afterload.1 Diuretics can be used cautiously during pregnancy to prevent dehydration and placental insufficiency. Patients with PPCM are also at high risk for thrombus formation,9 thus, anticoagulation should be considered especially for high-risk patients with severe LV dysfunction. In addition, physical activity should be encouraged according to patients’ tolerance of symptoms.

The best time to discontinue these medications is unknown, but their use should be continued for at least one year.7 If medical treatments are not successful, heart transplantation is often the last resort. Fortunately, in recent years, the rate required transplantation has decreased to about 4% to 7%.80 Transplantation success rates are good with favorable long-term survival rates.21

In about 50% of patients, the ejection fraction normalizes. Regardless of recovery, however, a second pregnancy is usually not recommended for these patients because PPCM recurs in more than 30% of subsequent pregnancies, which puts both mother and baby at great risk.1

Conclusion
The cases presented here demonstrate the variability of clinical presentation of PPCM. Case 1 illustrates a typical PPCM presentation, with gestational hypertension, S3 gallop, hypoxia, an elevated BNP level, cardiomegaly, and pulmonary congestion on chest radiographs. Case 2 illustrates an atypical PPCM presentation, with no abnormal findings on physical or imaging studies, yet with a lower ejection fraction shown by echocardiography. Thus, it is important that physicians be familiar with PPCM and therefore consider it when diagnosing dyspneic patients to expedite medical treatment for a potentially lethal condition.

Disclosure Statement
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Developing and Sharing Knowledge

2008 Kaiser Permanente-Authored Journal Articles

At Kaiser Permanente (KP), creating knowledge and translating it into clinical practice is a core aspect of how we give back to our communities. Our unique combination of highly experienced investigators at clinical sites and research centers; a large, diverse, and stable membership; and the ability of a state-of-the-art electronic health record to document care provides a major advantage for clinical and health services research. The benefits of this research extend far beyond KP.

It’s critically important that the success of research efforts throughout KP are documented and acknowledged. Gathering and reporting all peer-reviewed journal articles written by KP authors can prove to be a daunting task, given our size and scope. If you have (co-)authored a journal article that is or will be published in a peer-reviewed journal in 2009, we’d like to hear about it. Please e-mail the citation and a copy of the article, along with your contact information, to jeff.braff@kp.org.


### Gastric Antral Vascular Ectasia (Watermelon Stomach)—An Enigmatic and Often-Overlooked Cause of Gastrointestinal Bleeding in the Elderly

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#### Abstract

Gastric antral vascular ectasia (GAVE) syndrome, also known as watermelon stomach, is a significant cause of acute or chronic gastrointestinal blood loss in the elderly. It is characterized endoscopically by “watermelon stripes.” Without cirrhosis, patients are 71% female, average age 73, presenting with occult blood loss leading to transfusion-dependent chronic iron-deficiency anemia, severe acute upper gastrointestinal bleeding, and nondescript abdominal pain.

#### Case Report

A woman, age 63 years, with a chronic hepatitis C infection, esophageal varices, and hemodialysis-dependent end-stage renal disease secondary to diabetes and hypertension presented at our institution and reported several weeks of intermittent generalized abdominal pain and vomiting and daily minimal stools that appeared blood-streaked on wiping but without hematemesis or melena. Laboratory findings showed a hemoglobin of 6.8 g/dL; a hematocrit of 20%; and normal hepatic function, platelet count, prothrombin time, and international normalized ratio. Although the anemia was consistent with iron deficiency, the low hemoglobin level invariably decreased to pretransfusion levels within days of blood transfusion. Contrast computed tomography scan of the abdomen revealed hepatomegaly but no other significant gastrointestinal pathology. Because our patient had had endoscopically proven portal esophageal varices and PHG two years before we examined her, which had been treated with sclerotherapy and propranolol, esophagogastroduodenoscopy was repeated in anticipation of further sclerotherapy for esophageal varices, PHG, or peptic ulcer disease.

Instead, a repeat endoscopy revealed extensive vascular ectasias and patchy erythema in the distal antrum that were diagnostic of GAVE syndrome, but no esophageal or gastric varices. A colonoscopy showed hemorrhoids. It was thought that hemorrhoidal bleeding alone could not explain the severe and relapsing anemia, and GAVE syndrome was considered a more plausible cause of severe anemia from gastrointestinal blood loss. The endoscopist considered primary medical therapy with laser photocoagulation but because of the presence of diffuse and advanced vascular ectasias did not believe that this would be sufficient and would...
not produce long-lasting results. The patient was notified of the higher risks of definitive surgery in light of her multiple comorbidities and underwent an uncomplicated subtotal gastrectomy without a long-term need for blood transfusions.

Discussion

Although GAVE syndrome is a rare medical condition, it is a relevant possibility in older patients with severe acute or chronic gastrointestinal blood loss, because it accounts for up to 4% of nonvariceal upper gastrointestinal blood loss. The initial presentation may include occult blood loss leading to transfusion-dependent chronic iron-deficiency anemia, severe acute upper-gastrointestinal bleeding, nondescript abdominal pain, or even gastric outlet obstruction, as described in a prior case report. This disease entity was first described by Rider et al in a patient with severe chronic iron-deficiency anemia and gastroscopy showing “fiery red changes with marked hypertrophic mucosal changes, and scattered profuse bleeding.”

A majority of patients without cirrhosis but with GAVE syndrome are female (71%) with a median age of 73 years, whereas the majority of patients with both cirrhosis and GAVE syndrome are male (75%) with a mean age of 65 years. Associated medical conditions include heart, liver, and kidney diseases; diabetes; connective-tissue diseases; hypothyroidism; and status as a bone marrow transplant recipient. The epidemiologic features of GAVE syndrome are attributed to the age and sex distributions of the underlying medical conditions, of which connective-tissue diseases and cirrhosis are the most commonly related.

The syndrome has the name *watermelon stomach* because of the pathognomonic endoscopic appearance (columns of red tortuous ectatic vessels along longitudinal folds of the antrum) that resembles watermelon stripes (Figure 1 and 2). Typical histologic changes include superficial hyperplastic antral mucosa, capillary ectasia with thrombosis, and fibromuscular hypertrophy of the lamina propria. GAVE syndrome is often misdiagnosed on endoscopy as PHG. Unlike watermelon stomach, PHG causes predominant changes in the fundus and corpus. GAVE syndrome does not respond to measures that decrease portal pressures in PHG, including transjugular intrahepatic shunt and β-blocker therapy.

Therapy for GAVE syndrome can be separated into three categories: pharmacologic, endoluminal, and surgical approaches. Pharmacologic therapies have been described with the use of corticosteroids, estrogen–progesterone combinations, tranexamic acid (with a significant risk of ischemic events and pulmonary emboli), thalidomide, α-interferon, calcitonin, and cyproheptadine. However, the effectiveness of all these medications has been described only in reports of single cases or small case series. Endoluminal therapies are the mainstay of conservative management and include endoscopic band ligation, sclerotherapy, heater probe, and argon plasma coagulation, which is emerging as the preferred endoscopic therapy. Although multiple intraluminal treatment sessions may be required for cessation of transfusion dependence, the safety of endoscopic therapy is well documented, and there is only a single case report of a complication—gastric outlet obstruction secondary to argon plasma coagulation. Further, a recent case report described successful endoscopic mucosal resection of lesions in GAVE syndrome with resolution of anemia.

There is a paucity of reports of controlled studies of GAVE syndrome in terms of medical versus surgical therapy. The consensus, however, is that primary surgical therapy is not advocated, because of reports of high morbidity and mortality from patients undergoing surgery with GAVE syndrome who often have multiple other serious medical comorbidities. However, Novitsky et al have argued for a somewhat more aggressive surgical approach as second-line therapy, especially in patients in whom a short trial of endoluminal treatment fails. They argue that antrectomy is the only reliable therapy with definitive and curative potential, especially for unresponsive or severe disease. Minimally invasive laparoscopic antrectomy has also been advocated as a novel approach to the therapy of GAVE syndrome. Furthermore, treatment of underlying medical conditions can lead to resolution of GAVE syndrome. For instance, liver transplantation
has been reported to lead to complete resolution of GAVE syndrome.1,2

Our case presentation demonstrates the therapeutic dilemmas in this problematic disease, whereas reports of controlled studies comparing efficacy are lacking. Our patient possessed multiple medical comorbidities that placed her at higher surgical risk. Thus, she was initially referred to an endoscopist for the purpose of conservative intraluminal therapy with argon plasma coagulation. However, the endoscopist concluded that the patient’s particular mucosal lesions were so advanced and so diffuse that even intensive intraluminal therapy would be inadequate and would surely result in the need for multiple therapies that would produce questionable long-term control. This was significant because the patient had a history of lack of compliance, including regarding taking medications and keeping appointments for multiple medical evaluations across different specialties. The patient was advised about the risks and benefits of intraluminal versus surgical therapy, the latter of which the surgeon believed offered a more conclusive and definitive cure; the outcome was favorable.

The pathogenesis of GAVE syndrome, principally considered an idiopathic disease, is unknown, and theories about it are controversial.1,2 An understanding of the pathophysiologic changes that lead to GAVE syndrome is lacking because most theories are based on single case reports or on reports of smaller series of fewer than 15 cases. However, a leading and plausible theory suggests antropyloric motility dysfunction.5 Quintero et al.6 first conceptualized a theory of mechanical stress, where disordered peristaltic waves may cause partial prolapse of distal gastric mucosa through the pylorus, leading to formation of ectatic vessels.5,6 This disordered peristalsis and loss of gastric propulsive activity and motility may occur secondary to denervation of the digestive autonomic nervous system, which is primarily parasympathetic.5 The characteristic histologic finding of fibromuscular hyperplasia in GAVE syndrome further supports this hypothesis.1,6

We speculate that the altered gastric and antral motility in some patients with GAVE syndrome may be modulated by vagal denervation and sympathetic overactivity, which are already known to exist in many of the associated medical problems.5,6 Chronic liver disease is known to impair cardiovascular autonomic reflexes, whereas sympathetic overactivity is implicated in the pathogenesis and progression of renal diseases and heart failure.11–13 For several decades, it has been known that plasma norepinephrine levels are elevated in chronic renal failure, indicative of increased sympathetic nerve activity.12 Interestingly, recent research has hypothesized a role for the sympathetic nervous system in the modulation and expression of autoimmune lymphoproliferative and connective-tissue diseases such as systemic lupus erythematosus.13 Thus, these diverse medical conditions may share a common autonomic dysfunction with GAVE syndrome.12–14 In a retrospective chart review of our patient, we discovered that she had multiple symptoms suggestive of autonomic neuropathy and dysfunction, including neuropathy of the lower extremities, orthostatic hypotension, frequent hypoglycemia, and gastroparesis.

Conclusion

GAVE syndrome is an important diagnosis to consider in older patients with severe anemia and occult or profuse gastrointestinal bleeding, especially in the setting of heart, liver, or kidney diseases.1–4 The main inherent teaching point is that GAVE syndrome can be inadvertently overlooked as a remediable cause of gastrointestinal bleeding because there are more frequent causes of gastrointestinal bleeding (esophageal or gastric varices, PHG, and peptic ulcer disease) among patients with renal or hepatic diseases, which are the same medical conditions in which GAVE syndrome occurs. The endoscopic appearance of GAVE syndrome often mimics that of PHG or antral gastritis. Further, the case we reported here demonstrates that GAVE syndrome may be underdiagnosed because observational studies of screening gastroscopies in patients undergoing liver transplantation show that 1 in 40 patients has GAVE syndrome.1,2 Because this is a single-case report, we speculate that in larger case series, further studies of neurohormonal factors that may be involved in sympathetic nervous system dysfunction and disordered peristalsis in GAVE syndrome may provide more insight into the pathogenesis of this enigmatic disease.11–14

Disclosure Statement

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

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Gastric Antral Vascular Ectasia (Watermelon Stomach)—An Enigmatic and Often-Overlooked Cause of Gastrointestinal Bleeding in the Elderly

References

No Bagel
When dealing with an intra-abdominal problem
the clinician’s greatest ally is the radiologist.
As a matter of fact, gastroenterology without expert radiology is like lox without a bagel.
— Gerald S Foster, 1977

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Introduction

Thousands of people fail to achieve the desired therapeutic outcomes from their medications because they are not taking them appropriately. As noted in The B-SMART Appropriate Medication-Use Process: A Guide for Clinicians to Help Patients—Part 1: Barriers, Solutions, and Motivation in the Winter 2009 issue of The Permanente Journal, reasons include: a lack of knowledge about the medications; side effects or adverse events; forgetfulness; lack of social support; cultural, health and/or religious beliefs; denial of conditions; financial challenges; poor relationships with clinicians; and lack of health literacy. Concrete solutions were provided for these nine common practice challenges.

Part 2 describes the B-SMART process: adherence tools and reminders, relationships, and triage. This multifaceted approach used before, during, and after any patient-clinician interaction creates a consistent method to help patients more effectively use their medications. Elements include: involving patients in the decision making, simplifying dosage regimens, education about the medication, self-management training, ongoing reinforcement and motivation, and positive relationships.

Adherence Tools and Reminders

The Sprinter versus the Marathon Runner

Think of running a 100-meter sprint versus a 4220-meter (26.2 mile) marathon. What if there were no spectators (motivators) to cheer you on, no drinks or water (resources) to keep you hydrated, no other runners running alongside you (support and motivators), and no mental preparation—would you successfully complete the 4220 meters? Maybe or maybe not. Many marathon runners have attributed their success in completing this grueling task to support, motivation, other runners, and cheering along the challenging stretch. This is less so for a person who runs a 100-meter dash. Similarly, a patient who is given a seven-day course of antibiotics does not need motivators and support in the form of reminder phone calls, health coaches to encourage them, health education classes for sharing ideas, or newsletters to keep them informed. However, a patient on a chronic medication (for example, antihypertensive medication), like the marathon runner, will need some of the following tools and reminders for motivation and adherence to the plan.

Follow-up and Reminder Phone Calls

Complex medication regimens contribute to a revolving door of rehospitalizations for patients with heart failure and other comorbidities. Therefore, follow-up phone calls within three to five days of appointments to review treatment plans can significantly reduce errors, patients misunderstanding their regimens, and medication nonadherence—all of which can result in hospital admissions or readmissions.

Devices

Devices, such as pillboxes, calendars, and diaries, simplify adherence by linking dose schedule to daily habits, and by reducing the complexity of a medication regimen. Also, this linking improves outcomes. More complex electronic devices such as pill containers with
alarms or beepers, and even cell phones with programs to prompt patients to take their medications at the appropriate time.

**Written Information**

Studies note that patients forget up to 50% of the information from their clinician,1 therefore written information about a medication reinforces verbal information given by the clinician.

**Visual Aids**

**Pictures**—“A picture is worth a thousand words.” Pictures help patients remember medication information, understand how a medication works, and remember what they’ve learned. The Web site www.thepatientcard.com has charts that can be used as training adjuncts.

**Medication Charts**—Medication charts improve patients’ understanding about how to use medications and can simplify complicated regimens. This is especially important for patients with low literacy or who are non-English speaking. A sample medication card may be seen at www.picturerxcard.com.

**Instruction Labels**—Medication labels use universal illustrations to depict proper use.

**The Teach-Back Method**

The teach-back method is an effective way to check patient understanding. In this method, the provider explains the medication directions and asks the patient to explain them back. For example, a provider might say, “We’ve discussed some strategies for taking your medication regularly. To help me know whether I’ve explained things thoroughly, please tell me how you plan to take your medications.” Based on the patient’s response, the provider can determine if additional explanations or interventions are necessary.

**Newsletters and Letters**

Although research has shown that mail reminders, especially to patients taking medications for chronic conditions, increase compliance over time by 28%, it is expensive to mail reminders to all patients on chronic medications. Targeting patients with certain nonadherence tendencies (for example, patients with diabetes who have a history of not picking up medications three or more times) is a good start. Newsletters and informational letters provide patients with the knowledge boost needed to stay on track.

**E-mail**

Many of the pharmacy patient data computer systems identify and can target patients who frequently miss appointments, or who are not at goal (for example, LDL >100 or HbA1c >9). However, patient permission is needed for e-mail encounters and reminders.

**Coaches and Care Managers**

Health coaches help patients change their behavior and become more adaptive by listening, supporting, and advising patients about medical choices, treatment plans, preventive care, and overcoming barriers.

**Classes and Support Groups**

Health education classes and support groups can be beneficial to patients with various medical conditions (especially chronic conditions) in the following ways: answer questions about their condition; discuss feelings and develop coping skills; provide hope that one can cope and work through emotions; support from others who are going through the same situation; deal with the negative thoughts and feelings about the condition; and create a support infrastructure.

Many people who benefit from these classes or groups help others within the group by providing hope and reassurance. By sharing personal experiences, patients who have successfully controlled their conditions calm the fears of people new to the class or group.

**Handbook and Self-Care Resources**

As in the saying “teach a man to fish,” teaching patients about their chronic condition and how to manage it provides them with confidence to better manage their condition and achieve their goals. There is robust evidence from a recent systematic review that self-care manuals, such as the Kaiser Permanente Healthwise Handbook,2 are regularly used and associated with increases in self-efficacy (or confidence in performing recommended actions), self-care skills, and overall patient satisfaction.3 Benefits increased for self-care interventions when reinforced by a clinician in a group or individual visit, in both English- and Spanish-speaking populations.4 Provision of these materials improves access by reducing outpatient visits and advice calls as demonstrated by the following:

1. Significant decreases in utilization occurred in half of the randomized, controlled trials (RCTs) from the systematic review
2. In the Kaiser Permanente (KP) Northern California cohort study, outpatient usage dropped 6.5%, whereas usage at the two comparison sites increased 4.8 and 2.1% respectively
3. In a programwide random phone survey, 52% of patients reported that use of the Kaiser Permanente Healthwise Handbook saved a call
to the advice nurse and 45% said it saved a physician office visit. Similar results were found in an RCT based in Northern California.

Having a team of clinicians and/or partners in health (for example, family member, provider, etc) is also beneficial to improve patients’ confidence and their goal achievement through long-term encouragement and support, especially when the patient feels s/he cannot do it alone.

Web-Based Resources
Research shows that Web-based tools augment provider teaching. Use of online self-care information may increase skills and self-efficacy.5

In the last few years, Internet use has substantially grown: more than half the nation is now online and Internet use is increasing for people regardless of income, education, age, race, ethnicity, or gender.6 Recent studies found 40% to 52% of Internet users go online for information about health care, rating it equal or better than information obtained during a doctor’s office visit.7,8

However, patients don’t always know which Web sites are accurate. There are many reputable and reliable Web sites and physicians may want to invite their patients to visit there.

Clinician Aids
Pharmaceutical Pearls—“nuggets” of medication information, that focus on why and how to use a medication to achieve optimal outcomes. The two common types of pearls are knowledge-based and side-effect management.

Knowledge-Based—(two examples) A patient is prescribed furosemide 40 mg (a diuretic), one tablet daily. Taking the diuretic in the daytime can improve their quality of life, whereas taking it at night may cause the patient to wake up frequently to urinate, adversely affecting sleep.

When patients know a side effect is temporary, they are more likely to cope with the side effect.

Side-Effect Management—(two examples) A patient gets a prescription for hydrochlorothiazide, 25 mg daily, which may cause dizziness for up to one week. When patients know a side effect is temporary, they are more likely to cope with the side effect.

A patient is prescribed morphine, 80 mg, every four hours for pain. Because of the common side effect of constipation the patient should switch to a high-fiber diet (vegetables, bran cereal) and drink plenty of fluids. S/he may also consider a stool softener and/or gentle laxative for more serious constipation.

Clinician Follow-up Management
As noted previously, patients with complex medication regimens should be called within three to five days to review their treatment plan.

Follow-up management is especially helpful for patients taking chronic medications. There are software programs that identify patients who do not pick up their medications on time (determined by the day’s supply entered in the system, or missed appointments, or those not at goal, for example: LDL > 100 or HbA1c > 9). Phone calls (automated or live) or postcards/letters are a gentle reminder. Follow-up management is particularly effective when a patient has a good relationship with his/her clinician.

Relationships and Roles of the Health Care Team
A positive patient-clinician relationship is one of the strongest predictors that a patient will take medications as prescribed. Studies show that patients who have good relationships with their clinicians and do not feel judged by them will be more honest about medication use, and more likely to share issues and barriers that impede appropriate medication use.6,9,10

Health Care Team Identification and Roles
The health care team—consisting of the patient, providers (physicians, staff pharmacists and nurse care managers), support staff, community pharmacists, and employer groups—plays a significant role in improving appropriate medication use. The involvement of the entire team is vital to reduce adverse outcomes.

Patient’s Role—When patients are actively involved in decisions about their overall therapies and have a clear understanding of medication actions and benefits, their confidence about outcomes improves.

Clinician’s Role—One of the most important roles for physicians, clinical pharmacists and nurse care managers is to develop relationships with their patients and create an environment that fosters optimal patient-clinician communication. This is one of the strongest predictors of medication adherence and optimal outcomes.11

Outpatient (Retail or Community) Pharmacist’s Role—Since patients visit an outpatient pharmacy approximately three to four times more often than a physician’s office, the KP or community pharmacist can detect appropriate medication use, especially when a patient’s medication profiles are connected from pharmacy to pharmacy. For
example, the pharmacist can detect if patients are filling their prescriptions, taking their prescribed doses, or skipping doses. With this information the pharmacist can work with the patient and clinician toward solutions.

Pharmacist or Nurse Care Manager—When interacting with a patient (by phone or in person), the care manager reviews current medications, dosage, consistency of use, and last refill date and quantity. If adherence is optimal (above 80%), the care manager will give the patient positive feedback and reinforcement. If adherence is poor or inconsistent, the care manager will identify readiness and barriers and intervene to reinforce treatment. A care manager will monitor the patient over time, providing support and encouragement, and, when appropriate, triage patients to other services in the health care system such as health education, social medicine, and financial assistance.

Clinic/Module Registered Nurse Role—The Registered Nurse (RN) plays a major role in medication adherence through patient education by explaining the reason for each medication, the importance of taking medication as prescribed, ensuring patient understanding of instructions through the teach-back method, offering memory techniques such as a daily pill box and crossing off doses taken, and teaching skills (for example, insulin injection). The RN also ensures that the patient has the medications and supplies needed, answers any medication questions, and refers the patient to the pharmacist or a health education class.

Medical Assistant/Support Coordinator/Technician Role—These staff members can help clarify which medications the patient is taking during the patient visit with his/her provider, provide tools (as prescribed), remind patients to pick up and take their medications as ordered, as well as remind them to come in for laboratory tests and follow-up appointments.

Health Care Organization’s Role—Health care organizations provide infrastructure for developing systems, training, tools, and an environment that supports prevention and treatment interventions.

Employer Group’s Role—Employer groups can collaborate with their health plans and their employees’ health goals through educational programs in the workplace.

Triage: Directing Patients to Other Resources in the Broader Health Care System

Once the clinician has identified barriers and applied various solutions to improve appropriate medication use for the patient, to ensure the patient receives continuous support it may be necessary to coordinate the patient’s medication therapy management plan with broader health care-management services.

The services patients will be linked to depend on the patient’s need. Many health care organizations have some or all of the systems below to augment the patient-clinician relationship. These systems can provide additional support through more detailed screening for nonadherence, identifying issues and barriers, exploring readiness to change, encouraging goal setting, and providing more detailed education.

Care/Case Management

A collaborative process that assesses, plans, implements, coordinates, monitors, and evaluates the options and services required to meet patients’ needs, promotes quality and cost-effective interventions and outcomes, enhances access to care for patients with chronic conditions, and improves the continuity and effectiveness of services.

Behavioral and Social Medicine

Referrals to the Behavioral or Social Medicine Departments will be reviewed on a case-by-case basis using criteria that support social service or behavioral health intervention at each organization.

Health Education Classes

Health education classes will provide patients with an additional opportunity to learn about the importance of medication adherence for a healthier lifestyle.

Community Programs

There are many support programs in the community to assist patients with their chronic conditions. Usually, the Public Affairs or Human Resources Departments have this information for clinicians to give patients. The various departments may also provide this information for the members.

Web Site Tools (See Adherence Tools Section)

Clinicians and patients of KP may access the Web site: KP.org: Drug encyclopedia and health encyclopedia.

Summary

“Increasing the effectiveness of adherence interventions is likely to have a far greater impact on health than any improvement in medical treatments, including highly promising advances in biomedical technology.”

By identifying barriers that prevent patients from taking their medications as prescribed, by providing patients with targeted solutions to the identified barriers, by motivating and empowering patients, by
providing tools to keep patients on track, and by referring patients to other services when needed to address other needs, we will significantly improve adherence to therapy plans and improve overall outcomes more than any one component alone. Part 2 completes this B-SMART approach to medication optimization, by discussing: adherence tools and reminders to keep patients on track; relationships: building positive relationships; and triage: direct patients’ medication management plan into the broader health care system.

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

References

Distal End of the Stomach
Before prescribing multiple doses of this size physicians should try several doses on themselves.
The human stomach differs from a glass beaker ... there is an intestine attached to the distal end of this stomach.

Image Diagnosis: Interesting Computed Tomography Scans from the Emergency Department

Gus M. Garmel, MD, FACEP, FAAEM

**Figure 1. Subarachnoid Hemorrhage, acute**
Noncontrast computed tomography scan of the brain demonstrates extensive subarachnoid hemorrhage. The white star-shaped distribution is blood in the ventricular system. Blood is also found within the peripheral sulci. Because this is a noncontrast image, cerebrospinal fluid should appear dark unless there is blood, which appears white in the acute setting. The temporal horns of both lateral ventricles are prominent, and the third and fourth ventricles are enlarged given the patient’s age, brain composition, and level of image. These findings are consistent with obstruction.

**Figure 2. Subdural Hemorrhage, chronic**
Large left frontal-parietal subdural hemorrhage with extensive midline shift. Although it appears as if this patient is rotated, the mass effect of the large subdural is causing movement of brain parenchyma to the right, compressing the left lateral ventricle. This is likely a chronic subdural hemorrhage, as the blood does not appear white as in Figure 1.

**Figure 3. Basal Ganglia Intraparenchymal Hemorrhage, acute**
Large intraparenchymal hemorrhage deep in the left basal ganglia. There is neither midline shift nor obstruction. This hemorrhage is acute, as the blood appears white.
Corridor Consult

What Do I Do with My Morbidly Obese Patient? A Detailed Case Study of Bariatric Surgery in Kaiser Permanente Southern California

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Abstract

Unfortunately, many of the traditional methods for weight loss, such as dietary restriction, exercise, meal replacement, psychosocial and behavioral interventions, and medications, have limited effectiveness in long-term weight maintenance and regulation of chronic diseases such as type 2 diabetes. This has led to the development of surgical approaches to weight loss, generally referred to as bariatric surgery. Most bariatric surgery studies have shown excellent weight-loss rates for up to two years after surgery, with patients losing an average of 61% of their excess weight (losing 100% of excess weight would return patients to their ideal weight). There is also some evidence that most patients maintain some level of weight loss for up to ten years after surgery.

In addition to aiding in weight loss, bariatric surgery decreases rates of serious obesity comorbidities such as type 2 diabetes, hypertension, and sleep apnea. There is now compelling evidence that bariatric surgery procedures are effective in resolving type 2 diabetes in 48% to 98% of patients. Although the number of bariatric surgeries performed annually has increased exponentially throughout the world since 1991 there is still very little research concerning best practices for managing patient health before and after surgery.

The purpose of this article is to provide primary care physicians and other clinicians with some background regarding bariatric surgical procedures and their risks and benefits. We also summarize the bariatric surgery process at Kaiser Permanente Southern California (KPSC), and then provide a detailed case study as an example of how KPSC screens patients referred for surgery, prepares them for the surgery, and cares for them once they have undergone surgery.

Introduction

Unfortunately many of the traditional methods for weight loss, such as dietary restriction, exercise, meal replacement, psychosocial and behavioral interventions, and medications, have limited effectiveness in long-term weight maintenance and regulation of chronic diseases such as type 2 diabetes. This has led to the development of surgical approaches to weight loss, generally referred to as bariatric surgery. Most bariatric surgery studies have shown excellent weight-loss rates for up to two years after surgery, with patients losing an average of 61% of their excess weight (losing 100% of excess weight would return patients to their ideal weight). There is also some evidence that most patients maintain some level of weight loss for up to ten years after surgery.

Overview of Bariatric Surgery

The National Institutes of Health guidelines for bariatric surgery and a recent update from the American Society for Metabolic and Bariatric Surgery (ASMBS) have provided guidelines and updates for bariatric surgery.

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recommend bariatric surgery for patients who have clinically severe obesity (a body mass index [BMI] ≥40 kg/m²) with or without comorbid conditions or a BMI of 35 to 39.9 kg/m² with serious comorbid conditions.

Comorbid conditions include life-threatening cardiopulmonary problems (severe sleep apnea and obesity-related cardiomyopathy), nonalcoholic steatohepatitis, gastroesophageal reflux disease, uncontrolled diabetes, and/or hypertension. Other possible surgery indications include obesity-induced physical problems that interfere with daily functioning (eg, cannot leave the house, cannot work, cannot care for family members).

Shinogle et al18 provide an excellent overview of bariatric surgery and its complications, and the most recent ASMBS guidelines for perioperative care of obese patients also provide an extensive review of procedures as well as published health-related outcomes from these procedures.24 This information is easily accessed on the ASMB Web site: www.asbs.org. Currently there are two surgical options available for KPSC patients: restrictive procedures (laparoscopic banding or sleeve gastrectomy) and those that restrict with partial malabsorption (commonly referred to as Roux-en-Y gastric bypass [RYGBP]). Some older procedures require careful monitoring of after-surgery weight loss and nutritional status25 and thus are not commonly used. The most common of these is the biliopancreatic diversion with (BPD/DS) or without (BPD) duodenal switch.

**Surgical Procedures**

**Roux-en-Y Gastric Bypass**

Because it produces superior long-term weight loss compared with other procedures that only restrict food intake, RYGBP is the most prevalent procedure in the US.14 In the 1980s, RYGBP was considered to be major surgery, with a number of peri- and postoperative risks.19-23 Most RYGBP surgeries are now performed laparoscopically and require minimal recovery time. Reported death rates directly related to the procedure vary from less than 1% at 30 days after surgery13 to 6% after five years.14,24 Rapid weight loss ensues after surgery in part because stomach restriction prevents patients from consuming the volume and types of foods and beverages that they did before surgery.

The risk of mortality due to suicide in US patients who have undergone RYGBP is higher than the national rates of suicide for men and women of similar age who have not undergone the procedure.25 This could be in part because of the psychologic state of many severely obese patients who are referred for RYGBP surgery.

Given that food cannot be fully absorbed in these patients, it would stand to reason that medications such as psychotropics may not be absorbed adequately and thus dosage would have to be adjusted and carefully monitored after surgery.

**Laparoscopic Band**

Laparoscopic banding surgery26 has recently received extensive media and commercial (www.lapband.com) coverage. Consequently, obese patients are asking their PCPs about the procedure and for referral to a bariatric surgery center. Although the procedure does not result in the same weight loss outcomes as RYGBP surgery,2 it is far superior to results produced by meal replacement,9 and recent evidence supports its use as a treatment for type 2 diabetes in the severely obese.12 Complications in the newest generation of laparoscopic bands are most often due to port infections, band disconnection or slippage, or port disconnections.26 Of these, the most serious complication is slippage, which can lead to gastric obstruction, esophageal dilation, erosion into the lumen of the stomach, and esophageal dysmotility.19

**Sleeve Gastrectomy**

Sleeve gastrectomy, or gastric sleeve, is a procedure that results in weight loss by restricting food intake. Approximately 60% of the greater curvature of the stomach is removed in the procedure, resulting in a tube or “sleeve.” The typical patient for this procedure is one who has a BMI ≥40 kg/m² or for whom RYGBP is deemed to be too great a risk. Gastric sleeve is meant to serve as a bridge to a bypass procedure at a later date, once the patient has achieved sufficient weight loss.27 However, some patients do well with this procedure alone and never progress to a bypass procedure.

**Bariatric Surgery at Kaiser Permanente Southern California**

Approximately 2400 surgeries, primarily RYGBP, are performed per year on Kaiser Permanente (KP) patients nationwide. Half of these surgeries are done for patients in the KPSC Region. Currently, KPSC has two internal bariatric surgery centers. The South Bay Medical Center, recently accredited by the American College of Surgeons (ACS), has been performing surgeries since 1998 and handles approximately 30% of all KPSC bariatric surgeries. The West Los Angeles Medical Center recently began in 2009. Most KPSC patients are still referred to outside bariatric surgery centers in Los Angeles, Riverside, and San Diego counties with whom KPSC has contracted. Although there is a brief
period after surgery (up to six months) when patients are monitored by the surgery centers, all patients return to KPSC for treatment by their PCPs. KPSC also provides care for patients who have had bariatric surgery in other health care systems before joining KPSC (including those who have had surgeries in other countries). In general, patients who have bariatric surgery at KPSC are women (76%), non-Hispanic white (46%), and 30 to 60 years of age (72%). These data are similar to that reported for other insured populations.14

**Overview of the Role of the Primary Care Physician**

The PCP determines surgery eligibility (Table 1) and refers an eligible patient to the Options surgery preparation program coordinator, whose office is in either Health Education or Preventive Medicine at the patient’s medical center. The Options program is explained in the “Surgery Preparation” section of this article. The PCP is kept up to date about patients’ progress through the program by the Options coordinator or the bariatric care manager at the medical center and is notified when a patient undergoes physiologic and psychologic evaluation for surgery.

Once the patient has finished the Options program, the bariatric care manager arranges a surgery consultation and the PCP takes over the patient’s care (in collaboration with the bariatric care manager) after surgery, although the patient may also be seen at the surgery center for up to one year after surgery. The bariatric care manager works closely with the surgery centers and will continue to send periodic reports to the PCP about any surgery complications, revision procedures, and any other post-surgery issues. As with any program or procedure for rapid weight loss, the PCP must monitor the patient’s medications, blood pressure, comorbid conditions, and psychologic state.

**Eligible comorbid conditions**

- Established coronary heart disease, including a history of myocardial infarction, angina pectoris (stable or unstable), coronary artery surgery, or coronary artery procedures (eg, angioplasty)
- Type 2 diabetes, defined as a fasting plasma glucose ≥ 126 mg/dl or 2-h postprandial plasma glucose ≥ 200 mg/dl
- Moderate-to-severe sleep apnea (eg, Respiratory Disturbance Index [Apnea/Hypoxia Index] defined by apnea plus hyperpnea/>19 hours of sleep) requiring use of a CPAP machine
- Other clinically significant conditions directly related to obesity and placing the patient at high risk for obesity-associated morbidity or mortality as recommended by an appropriate specialist to the regional bariatric champion and approved by the medical director at the respective medical center.

**Referral Process**

Table 1 summarizes the criteria for referral of a KPSC patient for bariatric surgery. In general, patients must be at least 18 years of age and have a BMI of ≥40 kg/m². In addition, patients with a BMI ≥35 kg/m² with comorbid conditions, such as type 2 diabetes and sleep apnea, can be referred for surgery. Disease burden and potential for surgical complications are just a few of the issues a surgeon must consider in proceeding with bariatric surgery. Other issues include severe mental illness, poor social support for behavioral changes required after surgery, and failure to lose some weight (typically 2.5%–10% of body weight) before surgery. These factors are not necessarily contraindications to surgery. Some patients who have not lost weight or have gained weight before surgery may be good candidates for surgery. Surgeons, the regional bariatric surgery steering committee, the regional bariatric medical director, and the local champion for adult weight management oversee decisions regarding patient referral and eligibility. If the PCP has any questions about this process, s/he should contact their adult weight management champion.

**Surgery Preparation**

In an effort to provide responsible medical treatment and the best possible outcomes from surgery, KPSC has institutionalized a program called Options, administered either through the Department of Health Education or through Preventive Medicine at most medical centers, which prepares all patients for surgery. The Options curriculum is designed to help patients lose weight; master behavior-change techniques; educate them about surgery and post-surgery care, including nutrition and vitamin supplementation; inform them of possible complications of the surgery; and help them set realistic goals for both their weight loss and their behavior change after surgery. Each patient has a personalized exercise program to use outside of the classes. The Options program is provided to each patient free of charge, however, patients can enroll concurrently in a meal-replacement program of-
ferred at their KPSC medical center (low-calorie and very low-calorie diet programs) to help them lose weight before surgery. There is an additional cost associated with all meal-replacement programs.

**Surgery Eligibility**
In addition to meeting the criteria necessary for referral to Options (Table 1), patients must attend all Options classes, with makeup sessions provided for those who miss classes. Patients have a clinical and psychologic assessment during Options before meeting with the bariatric surgeon. A set of laboratory tests must be done before week ten of the Options program (Table 2). These are usually ordered by the bariatric care manager. Tests are also done within 30 days of the surgery consultation. These tests differ somewhat by surgery center and thus will vary depending on where the patient will undergo surgery. Patients with serious psychiatric or physical illness are referred for treatment before they can advance to surgery, regardless of their performance in the Options program.

**Postoperative Follow-Up Care**
For those KPSC patients who have surgery at one of the contract surgery centers, their follow-up care is often handled by surgeons at these centers. However, the PCP should also see the patient during this time to monitor medications, comorbid conditions, and psychological state. The laboratory part of this care is handled at KPSC facilities. Suggested post-surgical laboratory tests are shown in Table 3. Surgery centers monitor complications and weight loss and provide this information to bariatric care managers for review. This information is then scanned and appended to patients’ charts. The timing of follow-up visits varies, but patients generally are scheduled for multiple laboratory tests and examinations in the first weeks after surgery, and then for laboratory tests and examinations at three- to six-month intervals thereafter. In addition, patients’ body weight should be checked annually for life.

**Malnutrition**
The recommended tests for nutrition monitoring are shown in Table 3 and are available as Smart Sets through KP’s HealthConnect system. These recommendations are based upon those of the ASMBS as well as the experiences of KPSC nutritionists in caring for bariatric patients. For the first two years after the surgery, the PCP should work closely with a staff nutritionist and refer patients who are having persistent dietary problems. In general we recommend that all bariatric patients take a daily serving of a *balanced* multivitamin that has minerals including zinc, folic acid, selenium, and copper.

Patients should also take a calcium citrate supplement for 1000 mg (Laparoscopic Band) or 1500 mg per day (Gastric Sleeve and RYGBP) in divided doses not to exceed 500 mg. For the first six months after surgery, all bariatric patients should take 50 mg of thiamine (Vitamin B1) daily. Only RYGBP patients need to continue thereafter. Finally, because there is evidence that some patients continue to have deficiencies in the B vitamins even after supplementation, 1000 μg B12 should be given to RYGBP and Gastric Sleeve patients three times a week sublingually or once per month intramuscular injections.

**Mental Health**
In addition to nutritional monitoring after bariatric surgery, these patients also need close monitoring for depression, suicide, and substance abuse. Although not extensively studied, preliminary research has shown that these patients are at increased risk for suicide and drug overdose, especially one year or more after surgery. If a change in mental health status is suspected, the PCP is encouraged to follow the KPSC clinical practice guidelines for major depressive disorder. Patients who were taking medications for mental health conditions before surgery should be monitored carefully because dosages will likely have to be adjusted.
Chronic Health Conditions

There is mounting evidence⁴,⁵,¹⁹ that bariatric surgery leads to normalized indicators of cardiovascular and metabolic function. In the case of type 2 diabetes, bariatric surgery may lead to full remission.¹³ The PCP should monitor comorbid conditions and their medications very closely after surgery. Patients will likely need lower doses of medication as they continue to lose weight and may even be able to discontinue medications. Table 2 contains recommended postsurgery laboratory tests; however, the PCP should order any additional tests relevant to the patient’s comorbid conditions throughout this period.

Pregnancy and Reproductive Health

A new review of recommendations regarding bariatric surgery and pregnancy was published in 2008.²⁸ Women who are planning to become pregnant or who are already pregnant after surgery should be referred to an obstetrician and a registered dietitian who handle high-risk pregnancies. General practice at KPSC is to advise women to wait 18 months after having surgery to become pregnant to insure that they are not losing weight during pregnancy. Even for women of reproductive age who do not plan to be pregnant, bariatric surgery shows promise for resolving polycystic ovary syndrome.²⁹ A woman’s fertility may increase with weight loss, and thus she should be advised to use birth control if she does not want to become pregnant. Women who have had RYGBP or BPD±DS and are using oral contraceptives should use additional forms of birth control.

Cosmetic Surgery

Depending on the amount of weight lost and the patient’s level of exercise after surgery, there is often some amount of excess skin that does not retain its elasticity after bariatric surgery. KP will cover a panniculectomy if the PCP or plastic surgeon details the skin conditions that result from this excess skin and if the pannus extends below the pubis. However, no other skin removal is covered, so patients should be made aware of this possible outcome of bariatric surgery.

Case Study

JR is a man, age 36 years, with a BMI of 45 kg/m² who was referred to the Options bariatric surgery preparation program in June 2006 by his PCP after being unable to sustain weight loss and after developing comorbidities. JR had tried multiple commercial weight-loss programs but could not achieve and maintain a healthy body weight. He had never had a bariatric surgical procedure. He had numerous comorbidities related to his weight, including type 2 diabetes for more than 13 years, with diabetic nephropathy and polyneuropathy, hyperlipidemia, hypertension, erectile dysfunction, gastroesophageal reflux disease, gout, and depression. His diabetes had been steadily worsening despite his taking multiple oral hy-

### Table 3. Laboratory tests recommended for post-bariatric nutrition assessment for Kaiser Permanente Southern California bariatric surgery patients

<table>
<thead>
<tr>
<th></th>
<th>RYGBP and BPD/DS</th>
<th>Gastric Sleeve</th>
<th>Laparoscopic Band</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2–8 weeks</td>
<td>2–5 months</td>
<td>6–11 months</td>
</tr>
<tr>
<td>Creatinine</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Electrolytes</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CBC w/o diff</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Albumin</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Thiamin</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Calcium</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Parathyroid hormone</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>25-hydroxy vitamin D</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Iron</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Vitamin B₁₂</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Liver panel</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Uric acid</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lipid panel</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fasting glucose</td>
<td>X</td>
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RYGBP = Roux-en-Y Gastric Bypass; BPD/DS = Biliopancreatic Diversion with Duodenal Switch; CBC w/o diff = Complete blood count without differential; ± = not required
What Do I Do with My Morbidly Obese Patient? A Detailed Case Study of Bariatric Surgery in Kaiser Permanente Southern California

poglycemic agents as well as insulin. His medications included pioglitazone HCl (Actos), metformin, glyburide, insulin, ezetimibe–simvastatin (Vytorin), felodipine (Plendil), lisinopril, atenolol, tadalfil (Galis), famotidine, naproxen, and paroxetine (Paxil).

At his referral to the Options program in June 2006, he weighed 332 lb (150.6 kg). He started the Options program in August 2006 and finished in May 2007. Afterward, he weighed 302 lb (137 kg), corresponding to a loss of approximately 10% of his total body weight. He was then evaluated by the bariatric care management nurse practitioner under the supervision of the program’s medical director. Although he had lost the recommended amount of weight, his diabetes was still uncontrolled, with worsening fasting blood glucose levels and hemoglobin A1c (HbA1c) of 8.2%. The care manager advised JR that he would have to reduce his HbA1c to <7% in order to have surgery. JR was able to change his diet and improve his use of insulin, so that six months later—in August 2007—his HbA1c was improved to 6.4%. He was then reevaluated and referred for surgery, which was scheduled for November 2007.

At surgery, JR weighed 337 lb (153.2 kg; BMI of 45.7 kg/m²), having gained 35 lb (15.9 kg) by the end of his participation in Options. Despite the weight gain, he underwent a laparoscopic RYGBP and had no complications. He responded well to the surgery, losing an average of 29 lb/mo (13.2 kg/mo). By his five-month postoperative appointment, JR had lost 102 lb (46.4 kg). In addition to having achieved excellent weight loss, he no longer needed any medications, including those he was taking for depression, diabetes, hypertension, and hyperlipidemia. His HbA1c was 5.5%, and he had a normal blood pressure of 128/86 mm Hg. He has been monitored by the bariatric care management team and has been following the recommended diet and exercise regimen. The only complication that he has experienced has been occasional nausea and vomiting after eating large meals. As of October 2008, JR had lost 103 lb (46.8 kg), had a BMI of 31.7 kg/m², and was still free of chronic illness.

Conclusions and Recommendations

A PCP who decides to refer a patient for bariatric surgery must be aware of the proper criteria for surgical referral, preparation, and follow-up care. The Options bariatric surgery preparation program at KPSC was developed to provide patients with comprehensive information about the surgery so that they could make an informed choice about treatment options. The case study presented here illustrates the process of preparing for, undergoing, and recovering from regional bariatric surgery within KPSC. The KPSC Department of Research and Evaluation has formed a partnership with the regional bariatric surgery program to develop an interactive patient registry to track patients from their referral to the Options program, through their surgery, and throughout the years after surgery. This registry will be used to assist care managers and clinicians in treating these patients as well as providing KPSC leadership with information to make decisions regarding the expansion of the bariatric surgery program.

Disclosure Statement

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

Acknowledgment

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

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what do I do with my morbidly obese patient? A detailed case study of bariatric surgery in kaiser permanente southern california


The body too thick

This is a very great deformity, especially in young women. There are different ways of curing it, the most certain is: 1) not to sleep too much; 2) to drink plenty of tea and coffee; 3) to abstain from chocolate, beer, and everything that is capable of producing too nourishing juices; 4) to eat and drink very moderately, and if you must drink wine, let it be white wine; 5) take a great deal of exercise on foot; 6) take every day, for several weeks, a little of the ashes of crayfish mixed with an egg or diluted broth. These ashes are very effective to hinder the body from growing fat.

— Orthopaedia, or the Art of Preventing and Correcting Deformities in Children, Nicolas Andry, 1658-1742, French founder of the orthopedics specialty
“Mystery Valley”
photograph

By Eric Brody, MD

This photograph was taken in Monument Valley, Arizona with a 4x5 view camera on black and white negative film.

Dr Brody is a retired physician from the Northwest Permanente Department of Pediatrics. Photography has been his passion for over 40 years.
What Is a Drug Allergy?

Formally, a drug allergy is a clinically significant adverse reaction mediated by IgE that is reproducible on rechallenge. To cause a drug allergy, a drug must be an intact multivalent allergen, such as a protein with a molecular weight greater than 5000, or be able to haptenate an endogenous protein. Functionally, all drugs listed in the “drug allergy” section of a medical record are drugs for which the patient’s physicians believe exposure carries significantly greater risks than benefits, judgments based primarily on what happened the last time the patient took the medication or on some underlying patient-specific condition. The majority of adverse drug reactions and thus reports of drug allergy in the medical record are nonallergic and even not immunologically mediated. There are other significant, immunologically mediated adverse drug reactions in addition to IgE-mediated drug allergy. Drug-specific IgG can cause nephritis, hemolytic anemia, and reactions similar to serum sickness. Delayed-onset adverse drug reactions mediated by T cells are primarily cutaneous and cannot result in acute anaphylaxis. Individuals with reactions mediated by IgG or T cells cannot be desensitized. T-cell-mediated reactions can be blunted with corticosteroids. Fortunately many such reactions are quite mild. Some can be identified by patch testing.

Risk Factors for Multiple “Allergies” in Medical Records

I looked at the “drug allergy” field in HealthConnect, the electronic medical record system for Kaiser Permanente (KP), for 411,543 San Diego County KP members who had at least one outpatient visit in 2007. There were 275 individuals who reported 10 or more drug “allergies”: 92% were women, mean age 67 ± 15 years, and 60% had a diagnosis of depression or serious mental illness. Fifteen of these patients had been seen in the Allergy Department and had undergone at least one allergy test: 12 had negative penicillin skin tests and oral challenges, two had negative lidocaine skin test and challenge, and one had a negative latex blood allergy test.

Risk Factors for Antibiotic Allergy

Antibiotics accounted for the majority of drug allergy entries. Penicillins, sulfonamides, cephalosporins, tetracyclines, macrolides, and quinolones were the classes of antibiotics evaluated. Antibiotic classes with higher historical use have higher “allergy” prevalence. Women take more antibiotics than men do and have higher “allergy” prevalence rates for all classes of antibiotics. There is a steady increase in antibiotic “allergy” prevalence with aging for both sexes. Women also have higher “allergy” incidence rates for all classes of antibiotics. Antibiotic “allergy” incidence in women is highest for sulfonamides, at 3.4%, compared with 1% to 1.5% for all other classes of antibiotics. Antibiotic “allergy” incidence in men is also highest for sulfonamides, at 2.2%, compared with 1.1% for penicillins and 0.5% to 0.6% for all other classes of antibiotics. Female sex, higher use, and increasing age are the primary factors that account for higher antibiotic “allergy” prevalence.

How to Minimize the Number of Drug Allergies a Person Develops

The single most important thing that clinicians can do to minimize the number of drug “allergies” that patients develop is to not use antibiotics outside the setting of bacterial infections. Most often, nasal pharyngitis and other acute upper respiratory infection syndromes are...
not helped by antibiotics. Chronic or recurrent sinus disease should be documented radiographically and appropriately treated with nasal saline lavage, a short course of oral steroids, and at least three weeks of an appropriate antibiotic. Repeated empiric short-term antibiotic therapy for individuals with facial pain contributes to antibiotic resistance and adverse drug reactions. Often facial pain attributed to sinusitis is migraine or another headache syndrome worsened in the setting of an acute viral infection. Also, most ear pain is not helped by antibiotics. Even though a patient expects or even demands an antibiotic for symptoms associated with upper respiratory infection, the chance that you will cause a problem by giving an antibiotic is often greater than the chance that you will ameliorate symptoms.

**How to Deal with Individuals Who Are “Allergic” to “Everything”**

Individuals who report multiple allergies should be evaluated by an allergist. Though it is important to avoid reexposure to an antibiotic when there is a high probability of another reaction, it can also be just as important not to needlessly avoid the preferred antibiotic for an infection because of an inaccurate drug allergy record. Not giving the drug of choice when it could be tolerated can result in more severe problems even when an alternative antibiotic is given. Think of vancomycin-associated red man syndrome and the growth of *Clostridium difficile* after broad-spectrum antibiotics are used when a more appropriate narrow-spectrum penicillin could have been used.

**Specific Actions the Allergy Department Can Take for Individuals with Possible Drug Allergies**

Skin testing is available for penicillin and local anesthetics.

Penicillin skin testing can be safely done in advance of need. There is no significant resensitization with penicillin skin testing. Penicillin allergy is becoming less common than it was in the 1980s and 1990s. Fewer than 1 in 20 individuals with a history of penicillin allergy had positive skin test results in 2008. Blood allergy tests for penicillin allergy have no clinical utility and should never be done.

There is no clinically significant penicillin-cephalosporin allergy cross-reactivity. Even patients whose penicillin skin test results are positive can be safely given cephalosporins. The current drug interaction software in HealthConnect must be changed to reflect this. Cephalosporin skin testing has not been adequately validated, and specific cephalosporin allergy is rare. Patients who have had an adverse reaction to a particular cephalosporin that could be immunologically mediated should avoid that particular cephalosporin and cephalosporins and other β-lactams that share the same side chains.

Fluoroquinolone skin testing is not useful. There is significant intraclass cross-reactivity with fluoroquinolone-associated reactions, and thus the entire class should be avoided after a significant reaction to one class member.

Macrolides are intrinsically irritating to the skin and thus cannot be effectively used as skin test reagents.

Local anesthetic provocative dose testing should be done on all individuals with a history of local anesthetic allergy. Virtually none of them will be found to be truly allergic. A very few will have an IgE-mediated allergy to methylparaben, the usual preservative in multidose vials. Some patients will have a contact sensitivity to local anesthetics but will be able to tolerate parenteral local anesthetics.

Blood allergy testing, enzyme-linked immunosorbent assay (ELISA) or ImmunoCAP [Phadia, Uppsala, Sweden], should be done on everyone with a history of latex allergy. Those with positive ELISA findings for latex should avoid natural rubber protein containing latex. Those with delayed-onset rashes and negative ELISA findings for latex should consider undergoing patch testing for contact dermatitis.

Challenge tests are available for individuals with a history of certain sulfonamide antibiotics and for adverse reactions to nonsteroidal anti-inflammatory drugs (NSAIDs).

With sulfonamide antibiotics, the reaction rate with rechallenge is about 20%. The widespread use of sulfonamides for the treatment of urinary tract infections probably contributes to the very high prevalence rates of sulfonamide antibiotic “allergy” in older women. Because these antibiotics are becoming an important treatment option for methicillin-resistant *Staphylococcus aureus*, consideration of less widespread use of them for routine urinary tract and upper respiratory tract infections may be warranted.

Individuals with NSAID sensitivity, nasal polyps, sinusitis, and asthma should be evaluated by an allergist. Aspirin desensitization is available and significantly helps these individuals.

Many other people have a history of hives or angioedema associated with NSAIDs; they should also be evaluated by an allergist. Many will be able to tolerate reexposure to certain NSAIDs. Individuals with active
chronic urticaria, defined as recurrent hives for more than six weeks, and/or angioedema may not be able to tolerate reexposure to any NSAIDs, until the chronic urticaria resolves.

Specific allergy testing or rechallenge is inappropriate for patients with any of the following histories: Stevens-Johnson syndrome, toxic epidermal necrolysis, hemolytic anemia, nephritis, hepatitis, or oral and/or skin blisters associated with or attributed to previous drug use. Such individuals should continue to avoid the specific drug or class of drugs implicated. No test provides useful information in these situations, and the risk presented by rechallenge is too great. These patients may still benefit from an allergy consultation, particularly if their medical records list multiple drug “allergies.”

Patients who have a history of anaphylaxis, respiratory problems, hives, swelling at local injection sites, other rashes, gastrointestinal symptoms, unknown index symptoms, and other mild symptoms not specifically excluded here can have allergy testing if available, and they could potentially be rechallenged or desensitized if necessary.

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

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

Additional Reading
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Mr Larsen is a clinical microbiologist, at the Northern California Kaiser Permanente Regional Laboratory. This photograph depicts yellow growth of thermophilic bacteria with green algae growing in a Yellowstone National Park hot spring “petri-dish.” The mesmerizing beauty of these harmless organisms is unlike the pathogenic bacterial agents of infectious diseases Mr Larsen works with on a daily basis in cultures submitted to the laboratory from Northern California Kaiser Permanente facilities.
No Respect: Research in Quality, Safety, and Process Improvement

Ilan S Rubinfeld, MD, MBA
H Mathilda Horst, MD

Abstract

The need for good quality and safety research has never been more imperative, but even as we encourage and promote such work, we seem to suppress it through institutional bias and inertia. Indeed the culture of health care seems to have a love-hate relationship with quality-improvement work as a whole. In this commentary we explore some of the implications of the application of pure science standards at the sharp end of clinical practice, where the down-and-dirty street-level improvement work happens.

The realm of biomedical publications is an ever-expanding multidisciplinary collection of books, journals, Internet and multimedia resources. The diversity of material and types of authors in that realm has exploded. Concurrently, many of the old guard would say that the number of high-quality projects has diminished commensurate with the increase in competition for dwindling research funds and the widening gap favoring bioscientific staff over physician researchers in awards for scarce National Institutes of Health resources. Additionally, newer kinds of research, mature and well developed in other industries, are now emerging in health care to meet the burning needs associated with behavioral and process issues in our industry.

Among previous generations, even in the 1990s, current successes in quality health care would not have been well received. It was not previously acceptable to quote Edward Deming, MD, to a medical audience, nor could we have elevated individuals like Donald Berwick, MD, to rock-star status in the 1970s unless his work had revolved around laboratory rats or resulted in naming a few syndromes. Hospital chief executive officers were not then coveting a Malcolm Baldrige National Quality Program award, creating budgets for the 5 Million Lives Campaign, or planning to eliminate harm of all sorts and “never events.” Yet we still hold on to the view of research and scientific inquiry as being traditional: the necessary and only means by which we can effect change. This traditional perspective positions level 1 data generated from prospective, randomized, controlled, blinded, multicenter trials (RCTs) as the holy grail of all research. Indeed, within our institution’s training programs, we teach this same gospel and analyze our journal club articles applying the levels of evidence-based medicine. We can recall the fateful day we heard Terry P Clemmer, MD, speak at the Institute for Healthcare Improvement (IHI) about “pragmatic research” and the repugnance it inspired in us; he is now a visionary in our view.

This commentary is meant not to criticize traditional scientific inquiry, its purity or its capability of answering our questions; it is meant to ponder the new question: how do we look at real-world, problem-solving solutions in the realm of process and performance improvement using newer methods more appropriate to evaluate these activities?

“I don’t get no respect,”
—Rodney Dangerfield

So much of the improvement literature demonstrates the necessity to solve problems based on local needs and operational issues, a concept that lessens the effectiveness of a multicenter trial. Indeed, many brilliantly conducted prospective trials have limited effectiveness once study conditions are no longer present and findings are implemented in diverse and disparate environments. A tradition and track record for operational effectiveness work is that of the factory where statistical tolerance and variability is monitored closely and improved based on historical local controls.

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This is automatically second- and third-tier literature for health care. It may be responsible for explaining the market decline of the American automobile industry and worth literally billions of dollars to companies such as Honda and Toyota for focusing on real-world improvements, quality, and customer satisfaction. As we pursue ideals of our medical product being reproducible, reliable, and excellent, is there nothing we can learn from such success?

Under a medical journal’s traditional editorial review process, Toyota would have faced stark criticism for not randomizing its factories to lean and not lean in some way. Maybe they could have been lean by the week or month and tracked the vehicle identification numbers? Maybe automakers could have made Toyota about customer dissatisfaction and Lexus about satisfaction for better control? Perhaps they could have manufactured a few random vehicles in Detroit to see if quality and satisfaction were maintained. Or, like a classic health care stance, they could believe that their vehicles are more complicated and harder to manufacture than the vehicles of others. Perhaps these examples seem irrelevant compared with scientific research. Perhaps typical medical readers think that we are far from any medical relevance to their practice or clinical realm.

Nothing could be further from the truth as long as at the greatest of US hospitals, individual patients suffer unacceptable outcomes.

This invited commentary came in response to our experience in submitting a paper to this journal, in going through the process of receiving reviewer comments and in our responses to them. We knew our manuscript didn’t represent a defining moment in clinical quality research. The article simply described our improvements in the realm of tight glycemic control in the population of patients undergoing bariatric surgery. After a broad flurry throughout the literature of initial publications regarding individual institutions’ successes and problems, we pursued our project as a second-generation one. Specifically, our article addressed how we adapted our institutional protocol to a high-risk group that did not apparently benefit from the broader protocol. For those of us working in multidisciplinary teams trying to make sense of the literature, the logistics of these protocols and how to apply them to our various populations, we thought our approach would be valuable to others asking similar questions. We wished someone had written such an article for us two years earlier to share their experience and offer guidance, so we wrote the article with the intention of sharing the results of our pain and suffering. We chose The Permanente Journal because of its intention to publish articles regarding quality and outcomes.

Our manuscript received comments by four reviewers, all of whom provided detailed questions and concerns. Along the review-revision pathway, we noticed that the reviewers’ questions displayed the weakness of the traditional-research view in this pragmatic research literature realm. This is not a personal criticism of our reviewers or the community of reviewers who do outstanding, thankless volunteer work with a high level of investment and commitment. We raise the issue of whether the traditional review parameters and traditional-minded reviewers can serve this type of research’s intention, as noted in the report by Davidoff and Batalden advocating quality-improvement publication guidelines.

Most process-improvement research is done by evaluating existing processes and changes implemented for improvement. The artifacts and evidence of process tend to be found in various data sets available to the committees and teams that work on these issues. Much like tuning up the plant floor operations in the automotive industry, similar statistics, metrics, and chosen performance improvement benchmarks are monitored. Tools such as clinical dashboards are routinely reviewed with the intent to make improvements in patient care and outcomes. Certain outcomes may be process outcomes whereas others are the more direct objective related to actual patient outcomes. For example, a group seeking to improve ventilator-associated pneumonia (VAP) may choose to implement a VAP treatment protocol bundle. As a process measure, bundle compliance may be monitored as a whole or by bundle component. In the end, group members are most interested in decreasing measured rates of VAP, but they must assess their process to see how they are doing before claiming success or rejecting the current mechanism. These clinical dashboards are critical to the ongoing logistics and maintenance of hospital care, yet are apparently weak and useless to the purest scientific researcher.

In traditional clinical research, the inclusion and exclusion criteria are critical. A savvy reviewer can often uncover clear errors or weaknesses in the methodology by careful focus. For our bariatric article, several reviewer comments were focused on this topic. Indeed, in anticipation of this focus we carefully and clearly detailed our inclusion criterion. In our study all patients were included.
include. The comparison came from those bariatric patients included in all before the targeted change and those patients included in all after the change. This disconnect was based on philosophical differences in process. In the process and safety realm, it is preferable to treat as many populations in as similar a way as possible to eliminate unnecessary complexity. Exceptions are made based on data, but not without some substantiation.

Similarly, administrative and quality data are observational and retrospective in nature, unlike a prospective trial where a data-collection sheet is created ahead of time and with any luck anticipated variables are collected prospectively. In the world of quality improvement as a day-by-day struggle, we often need to be opportunistic and pragmatic using existing and limited data as best we can. Indeed, we are not even usually specifically engaged in the explicit pursuit of research as much as we are engaged in the care process, trying to fix what ails our systems of care and to uncover what risks and harm our patients face. Prospective trials exist in quality, though they are rare and difficult to accomplish. The Keystone collaborative is such a process, and we are excited and engaged participants in this method. Neither approach is better or best: they are different and must be judged using different tools.

Both perspectives are iterative. Purely scientific researchers do increasingly complex and subspecialty work on new concepts they have developed. They describe a scientific observation, validate it, then work to deepen the understanding and limits of knowledge. This process works for choosing the right operation, deciding which antibiotic to give for a certain infection, or documenting the effects on cell culture of a novel enzyme or viral probe. In process improvement the iterative nature is developed through improvement cycles called total quality or plan-do-check-act cycles, which set up the iterative process as a multiyear effort to improve. If made to meet the burdens of traditional scientific research, each iteration would be rejected soundly. Similarly, the incredible results attributed to rapid-cycle improvement both in health care and other industries would not have occurred in the environment of rigid controls necessary for good traditional science.

As already mentioned, several years ago we were fortunate to hear a presentation by Dr. Terry Clemmer at a national IHI conference. He presented an introduction to pragmatic research. We sat in anger and frustration, alarmed by his words, fiercely clinging to our then traditional view of medical research. In academic surgery circles the traditional “success” defining a physician combines a great clinician, teacher, and laboratory researcher. To be successful in all three was necessary for advancement and recognition, and the expectation existed that all faculty would want to be a true “triple threat.” Clinical articles have always lacked the prestige of excellent basic science, with the rare exception of RCTs, of which there are relatively few. In this reality, the quality and safety enthusiast may be viewed as a scoundrel of little merit. The chief quality officer was often symbolic rather than someone with teeth and real influence. Perhaps with the now ever-present push for real quality and outcomes data that are based on acuity adjustment and the need for transparency for our communities and patients, we can begin to treat process work as its own important world in need of understanding, nurturing, and development.

Our institution and our Department of Surgery have taken on the National Surgical Quality Improvement Program (NSQIP) processes as a way of life and operational improvement. Patients are sampled and their outcomes extrapolated. Yet interventions to improve our data are based on the entire population. The NSQIP, as a nationally accepted and celebrated process, has created the opportunity to use acuity-adjusted outcomes data to compare between hospitals and level-set expectations. This represents a key validation that process is important and does affect outcomes. In practice, the majority of research productivity from NSQIP relates to perioperative care issues.

Even our own institutional review board (IRB) has difficulty with process work. The traditional IRB is staffed by basic scientists and many nonclinicians. To an immunologist or geneticist, pragmatic research is inelegant. Emphasis on sample size and research design are critical in a front-loaded process such as a prospective trial, where all contingencies must be analyzed before exposing patients to such risk or the purchase of expensive reagents. In quality process research we can pull seemingly endless amounts of data if necessary, but we may not always find what we want. We can go back to the computer and pull more variables if we like. We might generate more questions as we go and incur no added risk by re-exploring the data sources. We may be put down as “data miners” and as engaging in “hypothesis-generating research.” It seems that only in the nonmedical halls of academia, the business school, and the occasional engineering doctoral candidate can appreciate a well-executed rapid cycle improvement.

Yet the future is rosy, and progress can be made. As recently as 2003, at our departmental grand rounds, a
brave resident presented some hard-won data on our tight glycemic protocol in cardiothoracic patients. The carnage was memorable and we as his faculty advisors were similarly gored. Yet, in the spring of 2008, during the annual research presentations of our residents, more than six projects were presented in the realm of quality and process improvement. No blood fell on the floor; the residents and faculty were engaged and full of questions as they saw the relevance and importance to their patients’ care. Since 2006, we have conducted a quarterly NSQIP reporting session and operations meeting. We have plans to pursue multispecialty status with NSQIP. Pragmatic research is a street-level bedside struggle to improve patient care with tools that focus on people, behavior, and process. It is a long-term, team struggle in the trenches with nurses, physicians, pharmacists, respiratory therapists, and many others. It is a soccer game of continuous action rather than a football game’s brief glorious moments of action. It is the long-shunned relative of traditional bench research, worthy of support and nurturing.

Pragmatic research should be judged and held to high standards like those recommended by Davidoff and Batalden, Berwick, and Thomson in 2005, using standards different from those used to analyze traditional bench research. We cannot use a German test to evaluate a student studying Spanish. Evaluation methods used for traditional scientific studies do not serve the root cause of quality-improvement studies; square pegs will not fit round holes. Dr Berwick illustrated this evaluation chasm in what has occurred with rapid-response team outcomes reported by individual hospitals (beneficial) versus a cluster RCT (nonbeneficial), creating a continuing controversy over the scientific worth of these teams. We favor Dr Berwick’s argument that quality-improvement initiatives, such as rapid-response teams, are “a process of social change,” requiring changes in the evaluation approach for these reports. We call upon our industry’s wise journal editors and reviewers to take heed of the differences between traditional science and the science of improvement to enact long-needed change in the evaluation methods for quality-improvement publications.

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Question

In research, and probably also in practice, maintaining and fostering curiosity—the ability to ask questions each time a new phenomenon occurs is indispensable.

— Baruch S Blumberg, b 1925, 1976 recipient of the Nobel Prize in Physiology and Medicine
Health Care Delivery Performance: Service, Outcomes, and Resource Stewardship

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Abstract
As competition intensifies within the health care industry, patient satisfaction and service quality are providing the evidentiary basis for patient outcomes. We propose a conceptual model of three interrelated areas, service, health outcomes, and resource stewardship, all affected by the clinician-patient relationship. Our model considers the perspectives of the health care organization, the clinician, and the patient to define a more comprehensive measure of health care delivery performance. Research and managerial aspects, including implementation, are discussed.

Introduction
Managed health care in the US, intended to reduce the cost of health benefits while improving the quality of care, has grown rapidly during the 21st century, leading to an increasingly competitive health care industry. As competition intensifies, patient satisfaction, service quality, and efficient resource management are providing the evidentiary basis for measuring patient, clinician, and organizational outcomes. With emphasis on “quality outcomes,” it is becoming increasingly critical for health care organizations to develop and implement a sound strategy for providing effective care that is appealing to patients and focuses on controlling costs. Health care as a whole faces the challenges of attracting and retaining patients and talented employees while delivering consistently effective and efficient care.

To that end, we propose a conceptual model of three critical and interrelated outcomes of health care delivery: service, quality, and resource stewardship. The model explicitly recognizes the perspectives of the health care organization as well as the perspectives of the clinician and the patient, and it defines appropriate and comprehensive measures of health care delivery performance.

Although a growing body of evidence links a clinician-patient relationship defined by effective communication with improved patient outcomes, our model uniquely takes into account the psychosocial components of both the clinician and the patient while closely linking and integrating a business-management model of health care delivery for which there is a paucity of research in the current literature. Through the explicit recognition and eventual empirical examination of the relationships among these critical elements, the model will allow health care organizations to explore the impact of various operational improvement strategies.

Determinants of Health Care Performance
Assessing the quality of care is not new in health care; the rapid growth of the managed-care industry in the US has led to a variety of definitions and perceptions of quality. Today, several well-established agencies and organizations address improving health care quality and patient safety through a process known as continuous quality improvement. Organizations such as the Agency for Healthcare Research and Quality,1 the National Committee for Quality Assurance (NCQA),2 and the Joint Commission, to name a few, have emerged with the specific intent to support quality, safety, efficiency, and effectiveness of health care in the US. These organizations define or assist in defining nationally derived measures or standards that are used to assess the quality of health care. The NCQA continues to raise the bar on health care quality. In early 2008, it launched a new version of its Physician
Practice Connections program designed to assess how medical practices are functioning as patient-centered medical homes. The new Physician Practice Connections—Patient-Centered Medical Home emphasizes the systematic use of patient-centered, coordinated care-management processes. Although likely relevant to our proposed model, that new program is beyond the scope of this article.

Clearly, as health care competitive dynamics continue to evolve, it is no longer sufficient to define health care performance in terms of clinical outcomes alone. The inclusion of patient satisfaction is fast becoming an important dimension because the notion of consumer-driven health care increasingly applies to patient choice in the health care industry.4-7

Figure 1 explicitly defines the broad determinants of performance necessary to adequately assess the multiple dimensions of health care delivery performance. Items listed in Box A of the figure are intended to capture those aspects of performance that are currently defined and emphasized in the industry as indicators of quality. These measures include the more technical and objective guidelines and standards used to assess clinical and health outcomes.

The items in Box B of the figure are concepts that represent an opportunity for the health care industry to more effectively integrate into the process or functional side of service quality. Relevant process-related determinants of quality include patient satisfaction and perception of service delivery (by patient and clinician). These are typically a function of subjective assessments that are based on the nature of interactions with staff, nature of communication with clinicians, degree of personalized care, accessibility of care, and responsiveness and timeliness of care. Although inherently more complex to define and measure, these concepts may play an essential role in measuring service quality in health care today. The challenge for health care organizations is to define and track comprehensive measures of health care delivery performance that include elements from both Box A and Box B.

As shown in Figure 1, Box A and Box B items are affected by the design of the health care delivery system. Typical design elements include how processes and procedures are developed and implemented; what clinical standards are in place and enforced; and clinic accessibility in terms of hours, location, available transportation, insurance, coverage/copays, the level at which the clinic is staffed, how staff are trained, and how staff are scheduled. In other words, a clinic can affect both its outcome and process measures of performance by changing its design elements. For example, patient satisfaction might increase if a clinic were staffed at a higher level. Of course, such a design change would have to be evaluated in conjunction with an assessment of the cost of such a change.

Figure 1 also depicts the important feedback between Box B process-related measures and Box A outcome measures. It is well documented that patients who perceive an encounter with their clinician to be patient-centered show better recovery and better emotional health and need fewer diagnostic tests and referrals up to two months after the baseline visit.8 In general, if patients are satisfied with clinician-patient interaction, they are likely to be more compliant with their treatment plan, to understand their role in the recovery process, and to follow through with the recommended treatment. Subsequently, improved health outcomes are more likely. Thus, our model recognizes the interdependence of process and outcome measures.

**Health Care Delivery Triad and Performance**

To appropriately define and fully understand relevant performance measures in the health care industry, it is necessary to consider each of the three key players or entities in the service triad: the health care organization, the clinician (team of physicians, nurses, medical assistants, and office staff), and the patient. Each of these three entities has a unique but interrelated perspective on the needs associated with health care performance. Figure 2 defines each player in the health care encounter. By considering the perspectives and associated needs of each of these players, we can derive...
The development and application of triads in health care is not a new concept. As pointed out by Glickman et al., Avedis Donabedian’s triad, with its structure-process-outcomes framework, provided a solid foundation in which to think about quality-improvement efforts, “… but his view of structure needs to be updated to account for current tools and management capabilities that drive quality improvement.” In their work, Glickman et al discuss key elements of organizational attributes from a management perspective in an effort to develop a definition of structure for transforming quality-improvement initiatives.

With respect to health care organizations, for example, a number of indicators related to responsible resource stewardship may be of primary concern. From the health care organization perspective, measures related to the effective and efficient use of its valuable and scarce resources are critical to assessing performance. Specific measures related to costs, times, and rates of service would define operational efficiency, whereas various clinical performance measures would indicate operational effectiveness. Risk-management costs and benefits would also fall under the organization’s need for responsible resource stewardship.

From the patient’s perspective, we are primarily interested in defining and capturing needs associated with both subjective and objective indicators of “satisfaction” with the care provided. As noted earlier in the “Determinants of Health Care Performance” section, patient satisfaction is based on a range of characteristics and experiences, including subjective perception of the service and care, the degree of personalization of care, the expectations and psychosocial needs of the patient, and the ultimate health outcome.

Because of the established link between patient satisfaction and clinician satisfaction, our model explicitly includes clinician needs related to job satisfaction and organizational support. In fact, we believe that clinician satisfaction is also tied to the organizational need for resource stewardship. Clinician satisfaction is based on factors such as clinicians’ subjective perception of their ability to deliver quality care and whether there are adequate organizational support and resources for them to effectively perform their jobs.

**Conceptual Model of Health Care Delivery Performance**

We now expand on the health care delivery triad by considering the interrelationships among the three members of the triad. Adapted from the general service management literature defining a service encounter triad, we consider the possible ways in which the perspective or needs of each party supports or detracts from the needs of the other parties. In fact, the performance measures derived from each perspective are, in general, functions of the other perspectives and dimensions of performance. They are also dependent on the design of the health care delivery system and on other organizationwide factors. Figure 3 displays these interactions among the triad members and resulting performance and quality measures. We will discuss each of the three pairings or relationships in turn.

The primary consideration when evaluating the relationship between health care organization and patient is...
the impact of the operational design of the health care delivery system. For example, the design defines issues of accessibility, process structures, procedures followed versus required, ratio of staff to patients, degree of reliance on clinical practice guidelines, etc. Clearly, the specification of these parameters is significant to the organization’s measures of resource stewardship and also to the patient’s measures of satisfaction. These measures of resource stewardship and patient satisfaction, then, are clearly not independent. It is, in fact, quite possible that they are at times in direct conflict. For example, a lower ratio of staff to patients would help the organization keep costs low (better operational efficiency), but it may result in longer patient wait times or less responsive service and therefore lower patient satisfaction. However, the reverse is also possible. Wanless13 has identified a number of specific organizational benefits that can occur as the result of increased patient satisfaction, including specific operational, financial, and marketing benefits.

Consider next the relationship between the health care organization and the clinicians (team of physicians, nurses, assistants, and staff). We define the nature of this relationship in terms of the nature and degree of support and resources provided by the organization to clinicians and its expectations of the clinicians. These variables are, in general, set or defined by the organization (ie, the administration thereof) and have implications for the culture of the organization, incentives (formal or informal) for clinicians, degree of time or other resource pressures on medical staff, scheduling (level and pace), and training. These in turn affect clinician satisfaction as well as operational efficiency and effectiveness. As in the organization–patient relationship, how these resource and support variables are set may result in tradeoffs when viewed from the organization’s perspective versus the clinician’s perspective. Tight scheduling may improve the organization-level operational efficiency measures but may create conditions under which clinicians feel less able to deliver personalized care, which may in turn lower clinician satisfaction. To highlight this point, a 2009 article14 in the journal Academy of Management Perspectives discussed health care innovations that often lead to implementation failure because of the perceived notion that the innovation is an “additional and distinct activity from their core task of patient care delivery.”

Finally, we consider the clinician-patient relationship. We explore this relationship in terms of the nature and effectiveness of communication and level of patient advocacy (real or perceived). We know from empirical studies that the nature of this relationship and interaction is significant in determining patient satisfaction.15–20

Commonly cited reasons for quality of care complaints include the following:

• the clinician did not make eye contact
• the clinician did not sit down
• the clinician did not seem to listen
• the clinician seemed rushed and/or uncaring.

Empirical studies have shown that health care organizations offering higher levels of patient-centered care—that is, those in which interactions are characterized by better patient–clinician communication, such that the clinician showed more empathy and allowed for the patient’s perspective—see better recovery rates, better emotional health, fewer follow-up tests and referrals, and fewer malpractice lawsuits.8,21–26 Thus, it appears that there is a direct association between a patient’s observation of poor verbal and nonverbal communication skills on the part of the clinician and the patient’s negative assessment of the quality of care received. Conversely, more favorable personal interactions result in higher patient satisfaction and quality-of-care assessments.

The Clinician-Patient Relationship

Of the three dyadic relationships defined among our health care delivery triad, it is the definition of the clinician-patient relationship that we find particularly critical for understanding and improving the quality of health care delivery. This relationship, however, is perhaps the least well defined. Here we identify a number of characteristics that threaten the effectiveness of this relationship. Among a multitude of challenges faced by health care organizations, the ability to recognize and successfully manage barriers to effective clinician-patient interactions will ultimately serve as determinants of success.

By its very nature, the clinician-patient relationship is inherently complex and thus difficult to reliably measure. To begin with, the interaction is in real time and subjectively experienced. For example, factors such as expectations, personalities, anxieties, and external conditions, affect both patient and clinician perception in their assessment of whether or not a specific clinician-patient interaction resulted in effective communication and/or patient advocacy. Attempting to meaningfully measure and interpret results, then, will clearly be difficult.

The interaction can be further strained or constrained because of the nature of the subject of discussion.
... traditional clinician skills and competencies (ie, technical medical training) are often at odds with the personal skills and competencies required for sensitive, effective communication across a wide range of patients.

during the office visit. Health care and health-related concerns are inherently personal and are often coupled with patient uncertainty and anxiety. Thus, the subject may be difficult for the patient to talk about, resulting in uncomfortable communication or even insufficient information from which the clinician must try to make an appropriate diagnosis.

Studies have shown that patients may not express their chief physical complaint at the onset of the clinician-patient encounter. Use of open-ended questions, however, can help elicit the chief complaint and is a proven approach for drawing out the most pressing health issues or concerns.\textsuperscript{56–29} The time for use of such questions may not be available in a routine visit.

It is also possible that at times, the clinician’s agenda and the patient’s agenda are at odds. For instance, the clinician needs to gather specific information from the patient (eg, current medications, most recent examinations and procedures), whereas the patient may have the need or desire to discuss a wide range of life and health concerns with the clinician. The resulting conversation would likely seem frustrating and unsatisfying to both clinician and patient.

Further compounding the challenges of this relationship is the fact that traditional clinician skills and competencies (ie, technical medical training) are often at odds with the personal skills and competencies required for sensitive, effective communication across a wide range of patients.

Finally, it is conceivable that organizational requirements for efficiency, particularly important for financial viability in a highly competitive health care industry, may not be consistent with requirements for facilitating personalized, empathetic clinician-patient interactions.

Implications for Policy and Practice

As part of a highly competitive industry, health care organizations and their administrators must adopt a more comprehensive view of health care delivery quality. Initiatives to improve health care quality must address patient satisfaction in addition to more traditional quality indicators. Further, it is the clinician-patient relationship that is central to patient perception of quality and satisfaction with the care. Although this relationship is inherently complex, the recognition of the determinants of this complexity and the creation of strategies for effectively managing these are essential challenges for successful health care organizations. Health care organizations must also better define and track appropriate measures of patient satisfaction. It is possible that current survey tools are not adequate for effectively capturing the scope and nature of information necessary for identifying the underlying determinants of patient satisfaction and how elements of the health care delivery system impact these. Finally, it is likely that current models of health care delivery are not optimal for the new age of health care competition. Redesign of processes and organizations will be required to overcome barriers to service quality improvement and to allow for more balanced health care delivery.

Our work to date defines factors that are essential for a more comprehensive assessment of health care quality. It provides a conceptual framework from which to better understand the relevant determinants of quality, how they are interrelated, and how they relate to the process design characteristics. The need to demonstrate that these relationships are linked to operational aspects of the health care delivery system warrants further investigation that would combine both quantitative and qualitative dimensions.

Through empirical validation of our model of health care delivery performance, we intend to quantify the impact of alternative health care delivery-system design features on service quality and patient satisfaction. The resultant tool will allow health care organizations to systematically evaluate and implement a range of potential operational improvement strategies.

Disclosure Statement

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Service

I have weighed in a nice and scrupulous balance whether it be better to serve men or be praised by them, and I prefer the former.

— Thomas Sydenham, 1624-1689, English physician, known as the “father of English medicine”
This photograph was taken from a tour boat on the Seine. Dr Levy says that he has never been very good at drawing, so he attempted to make a line drawing from the original.

Ira Levy, MD, is a retired physician from the Southern California Permanente Medical Group.
Patient–Physician Language Concordance: A Strategy for Meeting the Needs of Spanish-Speaking Patients in Primary Care

Abstract

The Hispanic/Latino community increased by 58% in the last decade (1990-2000) and it is estimated that Hispanics/Latinos will be 30% of the population by 2050. Many of the Hispanic/Latino households (40%) surveyed by the census bureau in 2000 spoke Spanish. Because of its location, the Southern California Permanente Medical Group, which provides the medical services for Kaiser Permanente Southern California (KPSC) serves a large and growing Hispanic/Latino community. It is estimated that by 2010, the KPSC region will be between 30-50% Hispanic/Latino. A Spanish language task force (the task force) was created in 2006 to address the needs of the KPSC Spanish-speaking membership using primary care services. This task force examined data from a variety of sources including electronic medical databases and focus group reports from Spanish-speaking members. Using the task force findings and the literature in this area, we make recommendations to increase patient-physician language concordance in other health care settings so that organizations can effectively serve a growing Hispanic/Latino, Spanish-speaking patient population.

Introduction

As of 2008, 15% of the US population was Hispanic/Latino,¹ the majority of whom had Mexican ancestry (66%).² The size of the Hispanic/Latino community increased by 58% between 1990 and 2000, and it is estimated that Hispanics/Latinos will comprise 30% of the population by 2050.¹ A supplemental survey for the US census in 2001 estimated that 33% of Spanish speakers had limited English proficiency.³ Many health-related settings provide interpreter services for their non-English-speaking patients; however, there is mounting evidence that patients need to communicate with a language-concordant physician, not simply an interpreter, in order to receive the best medical care, to bond with the physician, and to be satisfied with the care experience.⁴–⁶ Having patient-physician language-discordant pairs (ie, a Spanish-speaking patient with an English-speaking physician) may also lead to greater medical expenditures and thus higher costs to a health care organization.⁷,⁸

Because of its location, the Southern California Permanente Medical Group (SCPMG), which provides medical services for the Kaiser Permanente Southern California (KPSC) Region, serves a large and growing Hispanic/Latino community. We estimated that by 2010, the makeup of the KPSC Region will be between 30% and 50% Hispanic/Latino. A Spanish-language task force (the task force) was created by the first four authors in 2006 to address the needs of this growing KPSC Spanish-speaking membership using primary-care services. Primary Care Departments were chosen because of their long-term relationships with patients and because they are the initial point of contact for any patient in the KPSC system. The leadership of KPSC chose to explore issues for Spanish-speaking patients first (as opposed to other languages) because this was

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the largest group of patients in KPSC with limited English proficiency (11% of the membership). Using the task force’s findings and the literature in this area, we make recommendations in this article to increase patient–physician language concordance in other health care settings so that organizations can effectively serve a growing Hispanic/Latino, Spanish-speaking patient population.

Methods
Formation of the Task Force

The task force was designed to include a variety of KPSC stakeholders who were directly involved in providing primary care for Spanish-speaking patients or were involved in the administrative work to provide culturally and linguistically appropriate services for these patients. Physicians were invited to participate in the task force if they passed a Spanish-language test to objectively verify their self-reported proficiency. Initially, 433 primary care physicians (PCPs) were invited to be tested for Spanish-language proficiency, 45 (10%) agreed to be tested, 23 were invited, and 16 agreed to join the task force. An effort was made to have at least one PCP represented from each KPSC medical center. Other stakeholders who were invited to serve on the task force included medical directors; medical group administrators; regional chiefs of Family Medicine, Pediatrics, and Internal Medicine Departments; and other physicians and administrators who were key to the implementation of any cultural or linguistic initiative in primary care.

Focus Groups

To begin its efforts, the task force used the data from a series of six focus groups of Spanish-speaking KPSC members that were conducted by KP National Market Research. These focus groups were designed to determine the experiences of Spanish-speaking Hispanic/Latino patients with their care at KPSC. A total of 29 people participated with 4 to 7 members in each focus group. All focus groups were conducted by Poza Consulting Services (Los Angeles, CA) in December 2004. Focus groups were designed to have participants who had been active KPSC members for two or more years as well as those who had been active members for less than two years. Groups contained men and women and participants ranged from 21 to 65 years old. The following topics were discussed: 1) getting help in Spanish, 2) interacting with a physician, 3) issues with the language barrier, 4) experiences with in-person interpreters, 5) experiences with the language line, 6) quality of treatment when speaking English vs Spanish, 7) adequacy of Spanish-language services in different health care settings, and 8) experiences with the Health Education Department. Data from these focus groups were qualitative transcripts that were summarized by KP National Market Research. This summary is presented in the Results section of this article.

Administrative Data Analyses

In addition to seeking the opinions of Spanish-speaking members, the task force examined a number of indicators related to language concordance and patient care from existing 2006 electronic data sources: actual rates of language concordance and the unmet need, rates of patient bonding, primary-care visit rates, and rates of missed appointments in primary care. Language concordance was defined as a patient having an appointment with his or her assigned PCP who was highly proficient in the patient’s preferred language. Member language preference was obtained from medical records. Patient bonding was defined as the number of visits a patient had with his or her assigned PCP, divided by the total number of visits the patient made to primary and urgent care. Visit and missed appointment rates were based on scheduled appointments in primary care.

To present a convincing case to the PCPs so that they would increase the number of Spanish-speaking patients on their panels, we analyzed data to determine how language concordance affected visit rates, missed appointments, and patient–PCP bonding. All three of these indicators are often considered when assessing how satisfied a patient is with the care s/he received. High rates of bonding and low rates of missed appointments may serve as an indicator of how “connected” a patient feels to his or her PCP, which may in turn increase the patient’s compliance with medical instructions and improve the patient’s perception of the care provided.

Results

Focus Groups

Spanish-speaking patients reported that they mostly had English-speaking physicians and understood approximately half of what the physicians told them. They reported being able to understand a routine visit and simple after-care instructions in English. However, they raised a number of concerns because they could not fully communicate the details of a situation, injury, or condition to the PCP in order to receive comprehensive care. In addition, if members received information in English, they worried that they did not fully understand the instructions and did not have any recourse for asking questions in Spanish about this information.
Those patients who had Spanish-speaking PCPs self-reported a high degree of satisfaction with their care and confidence in treatment decisions made by their PCPs.

KPSC offers both face-to-face and over-the-phone interpreters for a number of languages. The service available by phone is called the AT&T Language Line because it is offered as a commercial service by AT&T. None of the focus-group participants had heard of this service. They asked why it was not advertised. Some patients also gave reasons related to confidentiality and culture for not wanting to use the language line, including a perception that it was not personal enough (they believed that the person on the phone would not care about their situation) and that they would be insulting their English-speaking physician by using the service.

In addition to providing the language line, KPSC provides a number of its health-education classes in Spanish. Focus-group participants expressed that they did not know about these classes, and many said they would use this service. They mentioned that having a physician refer them to a class would be the best way to ensure that they attended. Interestingly, members said that even if they did not attend the classes, just knowing that KPSC made the effort to provide these classes in Spanish would substantially improve their opinion of the organization.

**Language Concordance in Primary Care**

Actual rates of Spanish-language concordance as well as of the unmet need for Spanish-speaking PCPs for 2006 are shown in Figure 1. There were a total of 7,866,522 primary-care visits for KPSC in 2006. Of these visits, 800,322 were with patients who preferred Spanish (10% of all visits). Of the visits with Spanish-speaking patients, only 199,549 (25%) were with a highly proficient Spanish-speaking PCP. This left a patient need of 600,733 visits for highly proficient Spanish-speaking PCPs in 2006. In comparison, highly proficient Spanish-speaking physicians had 917,746 visits in primary care. Of these visits, only 199,549 (22%) were with patients who indicated they preferred Spanish. The remainder of the visits with highly proficient Spanish-speaking PCPs was with non-Spanish-speaking patients. Thus, the unmet patient need for Spanish language was 600,733 visits, and the potential supply of highly proficient Spanish-speaking PCPs was 718,197.

**Rates of Visits, Missed Appointments, and Bonding in Spanish-Speaking Patients**

Table 1 presents the results for the KPSC rates of bonding, visits, and missed appointments during 2006 for language-concordant and language-discordant patient–PCP pairs. Visit rates were highest for language-concordant pairs (either English or Spanish). The number of missed appointments was comparable for all patient–PCP language pairings, although marginally higher rates were seen when a Spanish-speaking patient was scheduled with an English-speaking PCP. The clearest effect of language concordance was seen for bonding rates. Bonding rates ranged from 42% for Spanish-speaking patients paired with English-speaking PCPs to 72% for Spanish-language-concordant pairs.

**Discussion**

There was a clear need for Spanish-language PCPs at KPSC, as only 25% of the demand for Spanish-speaking PCPs was being met. This was not necessarily because KPSC did not have enough Spanish-speaking physicians. When the patient panels of these Spanish-speaking physicians were examined, only 22% were with Spanish speakers. When Spanish-speaking patients had an appointment with a PCP who was fluent in Spanish, they expressed in focus groups that they were very satisfied with the encounter. These sentiments were also supported in analyses of bonding rates. Bonding rates were higher for Spanish-speaking patients who were matched with a Spanish-speaking PCP than they were for such patients who were matched to an English-speaking PCP. Spanish-speaking participants in focus groups said that being connected to and respected by their physicians was important to their use of KPSC primary care services.

**Initial Task Force Plan**

On the basis of the findings from the focus groups and from
The concordance, bonding, and visit rates analyses, it was estimated that if KPSC could improve visit rates of Spanish-speaking patients with a Spanish-speaking PCP from 22% to 87%, this would meet the entire need for Spanish-speaking patients. This increase necessitated a multifaceted strategy that included the following: testing all PCPs with self-identified moderate- to high-Spanish proficiency to verify their skills, increasing the number of Spanish-speaking patients on the panels of highly proficient Spanish-speaking PCPs, increasing the recruitment and retention of Spanish-speaking PCPs, and improving the Spanish-language ability of existing nonfluent Spanish-speaking PCPs.

Barriers to the Plan and Solutions

It was estimated that as much as 65% of the members of a panel for a fluent Spanish-speaking PCP would have to be reassigned to an English-speaking PCP for 100% language concordance to be achieved. This strategy was not well received by the Spanish-speaking PCPs on the task force. In addition to the obvious disruption in their relationships with their English-speaking patients, Spanish-speaking PCPs often did not have fluent bilingual staff in their units to support the care of these patients. Thus, there would be a “hidden” cost to the Spanish-speaking PCPs because they would be the only ones in their units who could explain after-care instructions, listen to complaints, and guide the patients through their visit.

In response to these objections, it was recommended that newly hired PCPs who were fluent Spanish speakers be targeted to receive a patient panel that had a majority of Spanish speakers. In addition, the KPSC leadership would provide an incentive for both newly hired and existing PCPs who were fluent Spanish speakers to add Spanish-speaking patients to their panel when they had openings. This could not be done by adding patients to an already full panel (~2000 patients). In addition, Spanish-fluent PCPs’ numbers of English-speaking patients would be gradually reduced through normal attrition and replaced by Spanish-speaking patients. It was recognized that this process would take time but that it would be less disruptive to existing patient–physician relationships.

Conclusions

The task force began implementing its language-concordance initiative in 2008, and its evaluation is ongoing. Plans have been made to examine not only visit, bonding, and missed appointment rates but also patient health outcomes. It is our hope that sharing the process of KPSC’s task force may provide other organizations with a guide for making changes to accommodate patients from multiple cultures, speaking any number of languages.

First and foremost, physicians should be given a formal test for language proficiency. We have found that this can be easily done with large numbers of physicians. Fluency is an essential component of effective patient-physician communication in any language. Once this is done, the current state of concordance in an organization should be calculated, and then a plan can be made specific to the needs of the organization for increasing patient–physician language concordance. We found that knowing the rate of concordance was an important tool for enlisting the help of medical center leadership to change how physicians were trained and how patient panels were formed.

Consideration should be given to public reporting of language concordance rates among health plans to promote greater transparency and allow both employers and patients to be better able to choose

Table 1. Bonding, visit, and missed appointment rates in 2006 by concordance category

<table>
<thead>
<tr>
<th>Physician language</th>
<th>Patient language</th>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patient language</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>English</td>
<td>48% (1,775,957/3,662,640) bonding</td>
<td>42% (129,031/304,509) bonding</td>
</tr>
<tr>
<td></td>
<td>1.88 (3,622,538/1,922,533) visits per member</td>
<td>1.74 (366,287/209,918) visits per member</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11% (43,321/3,909,990) missed appointments</td>
<td>14% (57,784/416,481) missed appointments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spanish</td>
<td>55% (356,154/651,946) bonding</td>
<td>72% (115,134/160,103) bonding</td>
</tr>
<tr>
<td></td>
<td>1.58 (692,551/439,356) visits per member</td>
<td>1.86 (198,962/106,771) visits per member</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11% (83,285/764,825) missed appointments</td>
<td>12% (29,056/234,898) missed appointments</td>
<td></td>
</tr>
</tbody>
</table>

Bonding rate was defined as the total number of visits to patients’ assigned primary care provider divided by the total number of visits to primary care. Visit rates were calculated as the total number of visits to primary care divided by the total number of patients for those visits. Rates for missed appointments were obtained by dividing the total number of missed appointments in primary care by the total number of scheduled appointments in primary care.
their health plans. Given that the US population will be 30% Hispanic/Latino by 2050, at least 33% of whom may be monolingual Spanish speakers, having high concordance rates will present a substantial advantage to any health plan.

Finally, language concordance is only one element of effective care delivery for non-English-speaking patients. Efforts should also be made to improve the health literacy of these patients in their native languages. In addition, in view of the findings from our patient focus groups, these efforts should be coupled with foreign-language medical and health-related vocabulary training for both physicians and translators.

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

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

References

A Common Language
The call for the “old-time physician” is not a call for a wise old man with a little black bag and a few harmless (and useless) nostrums, but a yearning for communication in a common language.

—The Midnight Meal and Other Essays, Jerome Lowenstein, physician and professor of medicine at New York University
Tethered

Kelly Sievers, CRNA

—for my brother, diagnosed with Parkinson’s Disease

My brother, a boy running a kite on a white beach.
This can only be a dream.
His dragon kite falters and I am a girl stretching her arms skyward.
When he calls,
“Coming down, Mary, coming down,” I catch the kite.
When his voice arches,
“Ready?” I spring to straighten the kite’s tail, “Ready!”
“Let’er rip!” My brother yells—
I am my arms, my laughter, my brother’s laughter,
ascending.

Virginia Night Pastoral

Kelly Sievers, CRNA, is a retired staff anesthetist from Kaiser Permanente Northwest. Her poems can be found in literary journals and in eight anthologies, the most recent, A Call To Nursing, Nurses’ Stories about Challenge and Commitment. The journal, Rattle, included her poems in A Tribute To Nurses.
High Satisfaction: Thank You Survey Respondents!

Tom Janisse, MD

Survey Ratings

At the end of 2008, in its 12th year of publication, The Permanente Journal (TPJ) conducted its fifth reader survey and found continued high satisfaction. Of the 2910 respondents—70% physicians, 15% clinicians, 11% nurses, 4% academics, researchers, leaders, managers—33% rated TPJ “excellent,” 49% “good,” 12% “average,” 4% “fair,” and 2% “poor.” Overall satisfaction was 94% (including “average” because respondents are comparing to other national medical journals, many with more focused specialty content). The response rate from each Kaiser Permanente (KP) Region was equivalent with 58% specialists and 42% primary care.

In response to the question “In the last two years, do you feel the quality of the journal has improved, stayed the same or declined?” 60% of those who responded said TPJ had “improved” or “significantly improved.” Another 22% who marked “stayed the same” rated the journal “excellent.” Ninety percent of 2696 respondents accessed TPJ in print, preferring to read the journal off-line or at home, though a common request was to receive an electronic Table of Contents (eTOC) by e-mail with links to articles on the Web site. Also, 33% of respondents were “extremely likely” or “very likely” to use video-based education Web services.

Currently TPJ has a quarterly print circulation of 25,000 (95% KP); sends an article-linked eTOC to 2700 readers on request (90% non-KP); and in 2008, TPJ’s Web site was accessed by 506,000 unique visitors from 164 countries.

Reader Comments

We received comments from 1421 readers, which were more illuminating than the statistics cited above (Table 1). Included are

<table>
<thead>
<tr>
<th>Table 1. Sample verbatim physician comments</th>
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<tbody>
<tr>
<td>Rating (percentage of respondents)</td>
</tr>
<tr>
<td>Comments</td>
</tr>
<tr>
<td>Excellent (33%)</td>
</tr>
<tr>
<td>Very worthwhile reading and attractive, high-quality print journal. I never miss reading it from cover-to-cover. Nice artwork. –SC</td>
</tr>
<tr>
<td>This journal is an excellent general read, as good as any subscription journal. I especially like the discussion on topics not usually seen in medical journals but important to us, like your article on the Southern California new physician orientation. –SC</td>
</tr>
<tr>
<td>TPJ is a source of pride to the organization. It adds to the prestige of KP and is a showcase to the world of the excellence of KP. –PC</td>
</tr>
<tr>
<td>There is a lot of great stuff in TPJ, though it seems to go unnoticed. What I like about it is that there are many articles on the delivery system—which we are —where we are unique. –PC</td>
</tr>
<tr>
<td>I enjoy the journal very much—it is a great representation of Permanente values. –SC</td>
</tr>
<tr>
<td>I am very impressed with the depth and quality of articles in the journal. –SC</td>
</tr>
<tr>
<td>Good (49%)</td>
</tr>
<tr>
<td>Well-respected journal with good articles, I have enjoyed reading it during my residency and now as a hospitalist. –PC</td>
</tr>
<tr>
<td>This issue, with seven or more clinically significant articles is more interesting to me than past editions. Social/management articles are okay. Art/poetry/stories are GREAT! –SC</td>
</tr>
<tr>
<td>Quality writing, clear scientific reports and reviews, great art. –PC</td>
</tr>
<tr>
<td>The journal has become a good blend of medical information and living. –SC</td>
</tr>
<tr>
<td>Clinical-based journal that at times gives very surprising papers. –PC</td>
</tr>
<tr>
<td>I never read TPJ but show it to physician applicants. –SC</td>
</tr>
<tr>
<td>TPJ offers a good and improving mix of investigative studies, commentary, reviews, art, etc. I look forward to receiving each issue. –SC</td>
</tr>
<tr>
<td>Being able to take the journal home in hard copy is wonderful for me and the folks I share it with. –PC</td>
</tr>
<tr>
<td>I enjoy all of the articles. I read them like I read my New Yorker! –PC</td>
</tr>
<tr>
<td>I really enjoy reading TPJ topics. The last issue with the poetry was very personal and enjoyable. –PC</td>
</tr>
<tr>
<td>Average (12%)</td>
</tr>
<tr>
<td>Unfortunately I don’t have much time to read many of the articles, but the ones I am able to read are generally interesting. –SC</td>
</tr>
<tr>
<td>If the Web site would pop up on my computer, I would prefer online—I need a reminder. –PC</td>
</tr>
<tr>
<td>Fair (4%)</td>
</tr>
<tr>
<td>Too much emphasis on the softer side—art, essays, photos. Not a place I would ever turn to find peer-reviewed, breaking scientific studies, but would like to find best practices and ideas from other regions. –SC</td>
</tr>
<tr>
<td>Primary Care is dying. We don’t have time for a “Rah Rah” Kaiser Journal. Great graphics. –PC</td>
</tr>
<tr>
<td>Poor (2%)</td>
</tr>
<tr>
<td>I know of no one who reads TPJ. –PC</td>
</tr>
<tr>
<td>The information contained in TPJ is rarely of interest to me. In truth, I do not feel it is a useful or a good expenditure. –SC</td>
</tr>
</tbody>
</table>

SC = Specialty Care; PC = Primary Care; KP = Kaiser Permanente, TPJ = The Permanente Journal

Tom Janisse, MD, is the Editor-in-Chief of The Permanente Journal and publisher of The Permanente Press. E-mail: tom.janisse@kp.org.
“Fair” and “Poor” comments to give a balanced representation of responses.

Reader Requests

Reader requests, and responding to those requests, is of utmost importance to the journal editors and staff. Table 2 illustrates a representative verbatim sampling of those requests.

2009 Actions

In 2009, on the basis of these reader survey responses and in our ongoing effort to improve the quality of original articles, review articles, case studies, clinical medicine, and commentaries, TPJ is actively working to improve our electronic capability and to include quality improvement articles.

Quality Improvement

In support of readers’ interest in articles that help them improve their clinical practice and in alignment with KP’s partnership with the international Institute for Healthcare Improvement, this Fall issue features four quality-improvement studies selected by TPJ for Service Quality Awards at last December’s 20th Annual National Forum on Quality Improvement, this Fall issue features four quality improvement articles.

New Electronic Capabilities

1. In response to a common request to receive an article-linked eTOC, already this year with the help of five regions, TPJ has built a quarterly e-mail distribution to 9000 Permanente physicians.
2. Google Analytics implementation is complete for statistical analysis of future issues.
3. A manuscript submission system, called ScholarOne Manuscripts, used by 300 publishers and 3000 journals internationally, was implemented to offer a state-of-the-art capability to improve the manuscript review process for authors and editors. http://xnet.kp.org/permanentejournal/instructions.html.
5. TPJ is developing a content management system (CMS) to sort and display reader-selected content from the entire journal archive.
6. A video-based education Web service is in progress.
8. Because of high interest in, and growing submissions of visual art, poems, and stories we implemented a literary-arts e-journal called leaflet on the journal Web site: http://xnet.kp.org/permanentejournal/leaflet/.

Table 2. Representative verbatim physician requests sorted by journal section

<table>
<thead>
<tr>
<th>Section</th>
<th>Requests</th>
</tr>
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<tbody>
<tr>
<td>Original Articles</td>
<td>More peer-reviewed scientific papers.</td>
</tr>
<tr>
<td></td>
<td>Original first author publications, and clinical trials being run at KP.</td>
</tr>
<tr>
<td></td>
<td>Research in primary care—what works, what doesn’t, and new models of care.</td>
</tr>
<tr>
<td></td>
<td>More international studies that pertain to clinical medicine.</td>
</tr>
<tr>
<td>Review Articles</td>
<td>More reviews on clinically relevant topics.</td>
</tr>
<tr>
<td></td>
<td>Editorial reviews of emerging tech or biomed science advances.</td>
</tr>
<tr>
<td>Clinical Medicine</td>
<td>Operational best practices from KP Regions.</td>
</tr>
<tr>
<td></td>
<td>Guidelines for clinical practice—primary and specialty care.</td>
</tr>
<tr>
<td>Case Studies</td>
<td>Case reports from various specialties with updates on progress.</td>
</tr>
<tr>
<td></td>
<td>More clinically relevant articles—practical information that I can use in my practice.</td>
</tr>
<tr>
<td>Commentary</td>
<td>More subspecialty related material (commentary or editorials).</td>
</tr>
<tr>
<td></td>
<td>Collections of articles in my area of practice or interest.</td>
</tr>
<tr>
<td>Other</td>
<td>Publish a table of contents with link to online journal to all TPMG physicians, nurses. NEJM does this—it’s great!</td>
</tr>
<tr>
<td></td>
<td>Innovations among different regions.</td>
</tr>
<tr>
<td></td>
<td>Themed issues with calls for participation.</td>
</tr>
<tr>
<td></td>
<td>More CME—print and online.</td>
</tr>
<tr>
<td></td>
<td>Listing in NLM on PubMed.</td>
</tr>
<tr>
<td></td>
<td>Highlight the journal as part of the orientation and recruiting process.</td>
</tr>
</tbody>
</table>

CME = Continuing Medical Education; KP = Kaiser Permanente; NEJM = The New England Medical Journal; NLM = National Library of Medicine; TPMG = The Permanente Medical Group

Direction

The editors’ purpose is to create excellent medical content bringing new knowledge and practice improvement to readers of TPJ. One result this year has been acceptance by the National Library of Medicine, after scientific evaluation, for indexing in PubMed Central—the open-access, full-text, electronic archive of articles in biomedical and life science journals. In addition, TPJ’s improved electronic capability enhances the communication of Permanente Medicine through the Web to a world-wide readership. ✤
From Microscope to Comfy Chair: Imaging Control in Interview Situations

Susan Fairbairn
Gavin Fairbairn

Abstract

We present a simple model for thinking about control in interview situations that was developed as a tool for use in analyzing clinical interviews during research on the teaching of communication skills in nurse education. It takes the form of a series of metaphorical images—microscope, picture frame, mirror, and two comfy chairs—that correspond to different levels of control. We focus on two areas: clinical interviews and the discussions that go on between student nurses and their clinical supervisors. However, it is clear to us that what we have to say is just as relevant in the other situations listed and in many that we have not mentioned.

Origins of the Model

Many years ago, one of us was involved in research about the teaching of communication skills in nurse education. This research focused on the ways in which clinicians conduct interviews with patients, and it included reference to, for example, clarification, structure, and control. A series of metaphorical images were helpful in achieving interrater reliability on control among research staff who rated these interviews:

- A high-powered microscope
- A picture frame
- A mirror
- Two comfy chairs.

These four images were used to represent a continuum from a highly specific and focused approach to interviewing, suggested by the image of the microscope, all the way through to the more relaxed and easy approach represented by the image of two comfy chairs. They corresponded to different levels of control on the part of the clinicians who were its subjects.

 Whereas a clinician in microscope mode would zoom in on very particular details of the patient’s life, the message conveyed to a patient by a clinician using the comfy chair approach was typically something...
such as “Here, let’s sit down together. What shall we talk about?” Between these extremes, picture-frame clinicians allowed patients more room to decide what they talked about than those working in microscope mode, and those who adopted mirror mode gave them even more room, though they were less open than comfy chair clinicians.

**From Microscope to Comfy Chair: A Continuum**

Though this set of images was developed as a research tool, we have subsequently found it useful in discussing many situations in which dyadic communication plays a significant role, including clinical interviewing and the support and supervision of student nurses undertaking placements. Our particular concern is with the way in which in such situations one person—the clinician or teacher/supervisor—exerts control over what is talked about and when it is talked about. The images are as follows.

**Microscope**

The microscope is about focus. In the context of nurse education, for example, it is about the kind of encounter with a student where a nurse teacher might say, “Did you manage to take Ms Royton’s blood pressure today?” By doing so, they give students permission to refer to problems or achievements in their work, but the extent to which students feel empowered to share issues outside this context, including personal concerns about, for example, classroom examinations or relationships, is likely to be limited. In other words, in mirror mode clinical teachers will simply reflect things back to students, thus in a sense inviting or even just leaving them to take responsibility for their own growth and development. This might be viewed positively, as an exemplar of student-centered learning. It might be viewed as modeling reflection, helping students to examine their practice and their feelings, as well as their use of knowledge and skill. However, it might be viewed negatively. For example, someone who believes that clinical teachers should offer supportive feedback in relation to what they have observed and heard might frown on teachers who simply reflect back to students whatever they say, all the while expecting them to assess how well they are doing, rather than drawing attention to observed weaknesses.

This question gives the student no room to maneuver. By focusing on one clinical skill, the teacher imposes a fixed and limited topic for discussion and has no interest in anything else for the moment. In a clinical context, a community nurse working in cancer care who scored “microscope” might, for example, enter a patient’s home and get right to the point by asking, “Are you coping better with the implants now?” or “Is the pain a bit less today?” or “Have your bowels moved yet?” To use educational jargon, the microscope approach is often about very closed questions and frequently leads to little more than a simple yes or no answer.

**Picture Frame**

The picture frame suggests more room for movement and choice about what to talk about, than the microscope, but it is still constrained. For example, in a clinical context, community nurses in picture-frame mode might ask patients, “How has the pain been since your medication was changed?” By doing so, they invite patients to reflect on and report any changes in their pain that have occurred. However, attention is still focused on one of the topics in which they are interested (the pain) rather than allowing patients to choose what to talk about.

In an educational context, nurse teachers in picture-frame mode give students some freedom to decide the agenda, to share concerns and worries, and perhaps to ask for advice, help, guidance, or information. However, their questions, some of which might be more open and others of which are gently leading, implicitly limit the answers that are possible. In other words, in this approach, nurse teachers bound discussion with students by a frame of relevance beyond which they will not go. For example, they might ask, “How did things go when you took Ms Royton’s blood pressure today?” By doing so, they give students an opportunity to elaborate on their experience of this simple procedure, thus leaving space for them to explain, for example, that although they managed to measure Ms Royton’s blood pressure successfully, they had taken a little time before doing so to talk about her problems with her washing machine.

**Mirror**

Clinical teachers in mirror mode are likely to ask questions that are more open than those that they might ask in picture-frame mode. For example, they might ask, “How are things going on the unit?” This question gives students permission to refer to problems or achievements in their work, but the extent to which students feel empowered to share issues outside this context, including personal concerns about, for example, classroom examinations or relationships, is likely to be limited. In other words, in mirror mode clinical teachers will simply reflect things back to students, thus in a sense inviting or even just leaving them to take responsibility for their own growth and development. This might be viewed positively, as an exemplar of student-centered learning. It might be viewed as modeling reflection, helping students to examine their practice and their feelings, as well as their use of knowledge and skill. However, it might be viewed negatively. For example, someone who believes that clinical teachers should offer supportive feedback in relation to what they have observed and heard might frown on teachers who simply reflect back to students whatever they say, all the while expecting them to assess how well they are doing, rather than drawing attention to observed weaknesses.
or strengths. At worst, this might be viewed as a lack of willingness to share responsibility for the students’ progress or lack of progress.

In a clinical context, community nurses in mirror mode might ask patients, “How have you been since you left the hospital?” The image of the mirror captures the fact that although they are giving patients a lot of freedom to decide what to talk about, what follows is not a genuine dialogue. Rather, they are simply reflecting back the things that patients say in a kind of parody of Rogerian counseling. However, it is worth noting that because clinicians who adopt this approach are “holding the mirror,” they still retain control over which topics are reflected or ignored.

Two Comfy Chairs

Comfy chair clinicians are motivated by the belief that the best way to help patients is to engage them as whole people, whose health both influences and is influenced by everything that happens to them. Comfy chair clinicians believe that the most efficient way of working out how best to help is to give patients the space to talk and the opportunity to identify health concerns in their own way. To do so, comfy chair clinicians need to put patients at ease, so that they feel able to talk about anything that might be affecting their health. That is why, for example, clinicians in this mode will typically use a very open style of interviewing, asking, for example, “How are things?” or “What would you like to talk about?” Apart from helping to put patients at ease, this personal style allows for the possibility that whatever a patient’s problems, they may be best helped at that moment by being given the opportunity to talk about aspects of life that may seem objectively to have nothing to do with their condition. For instance, cancer patients who, objectively speaking, are faring very poorly may have other things on their mind that it is important to address, because in addition to being a patient, they are also people with other concerns; they may, for example, be preoccupied with worry about a child who is underachieving at school.

The clinician who takes the comfy chair approach would probably agree with Tuckett et al1 that encounters between clinicians and patients are essentially “meetings between experts.” Those who share this view recognize that although patients will usually have limited clinical knowledge, they will always be experts on their own lives and symptoms. At the same time, however, they will also acknowledge that clinicians will typically have a greater grasp of what the patients’ symptoms might mean, even though they do not share directly in their experience.

In an educational context, the comfy chair approach is exemplified by nurse teachers who say to their students, “Here, sit down and tell me about it. What matters to you right now? What can I do to help and support you?” At times we all need to have the space to share what is worrying us, because unless we do, we may not be able to focus well enough on the work that we are doing, to be able to do it properly. Student nurses might want to use discussions with teachers or supervisors to clarify an understanding of some aspect of knowledge or skill relating to nursing. However, given the opportunity, they might appreciate support with aspects of their personal lives, because at the moment those are their highest priority. For example, they might be so distracted by concerns at being rejected by a friend, or by worries about rent or a troublesome neighbor, that they are unable to perform their roles on the unit as well as they might.

To function efficiently, nurses and practitioners in other professions that involve caring for human welfare and flourishing, such as medicine, counseling, and social work, depend, for example, on their ability to observe carefully, to make reasoned decisions, to act confidently and competently, and to make therapeutic use of their relationships to patients or clients. It is because important abilities such as these can be adversely affected by anything that impinges negatively on the physical and psychological functioning of the clinician that it will often be appropriate for teachers and clinical supervisors to adopt the comfy chair style of looking after students during their training. Of course, this is also an important reason that those who manage the delivery of health and social care should take seriously the need to provide all of their staff with opportunities for clinical supervision.

Some people might form the view that mirror mode and the comfy chair approach are rather similar, because both provide a context in which people can raise a range of issues. However, the comfy chair approach gives people more room than mirror mode to make their own decisions in relation to what they speak about. In addition, it is important to note that comfy chair practitioners are at least arguably more respectful of the other as a person because they structure their interaction in ways that are more mutual, and in doing so, they are more present as a person in their interactions.
Empathy and Control

So far we have described a way of thinking about two-way transactions of a kind in which one person has responsibility for the other. The examples we have discussed have related to two areas: interactions between clinicians and patients and interactions between nurse teachers and student nurses undertaking clinical placements. Our particular concern has been with the way in which, in such situations, one person—the clinician or teacher, exerts control over what is talked about and when it is talked about. However, some people might form the view that as well as differences relating to control, there are, in the examples we have discussed, also differences between the extent to which empathy plays a part in the ways that teachers or clinicians interact with students or patients. The claim would be that running alongside the continuum from microscope to comfy chair, there is a second continuum, from low to high empathy, with microscope representing the lowest level and comfy chair the highest. There is a sense in which, at first thought, this idea seems reasonable. However, the relationship of empathy to the model is not so simple.

Empathy has been much discussed in recent years, mostly because of its popularity in the caring professions, where it is perhaps most closely associated with the work of person-centered counselors and therapists, whose approach is modeled on the work of Carl Rogers.1,2 However, with the growth of what we might call the counseling culture in many countries, talk of empathy has become common even among laypeople, who often speak about empathizing in situations in which they might, in the past, have said that they understood or cared about another person.

We can empathize with others in their joy and in their sadness; in their excitement; in their confusion, anxiety, and distress. Potts3 wrote that “… most people feel they can empathize when necessary.” The truth is that whereas most of us cannot avoid being overcome with sympathy at times, empathy is another matter. Sympathy is an emotive response. Tschudin4 pointed out that it means “suffering with, feeling the same suffering.” I (GF)5 write that it “comes from the gut, and may for that reason overwhelm us whenever we identify closely with another’s situation.” By contrast, as Carkhuff6 suggested, when we empathize, “… we try to understand with our minds what a person feels in his gut.”

Whereas sympathy is an uncontrolled and immediate emotional response to another, empathy is more controlled. It allows caring practitioners to get alongside others in times of trouble and pain and is often described as the “ability to see the world from another person’s shoes,” in other words, as the developed ability to imagine what one might feel like were one to find oneself in a given situation. I (GF) disagree with this view6 and have argued that empathy is more demanding than this:

It is about the attempt to understand and to experience things as another human person understands and experiences them, about the attempt imaginatively to inhabit another’s world as that person, rather than to imagine what one’s own experiences, perceptions and feelings would be, were one in that world.

More pithily, perhaps, Burnard and Kendrick7 wrote that in empathy, “… the person tries to imagine how it is to be the other person. Feeling sorry for that person does not really come into it.”

As we move through the stages of our model from microscope to comfy chair, the level of empathy required of the interviewer might seem to increase. After all, at first glance it might seem that asking very direct and focused questions in microscope mode would take little thought, and that it need not, for example, involve any attempt on the part of the interviewer to understand the effects that the question might have on the other person. By contrast, the comfy chair approach seems, on the face of it, to demand the greatest attention to an individual’s feelings and experience and the greatest effort on the part of the questioner to hear and understand what is said, from a position of imaginative engagement with the speaker. However, as we have already said, things are not so simple.

For example, in an educational context, clinical supervisors might adopt what looks like a comfy chair approach in relation to students, simply because they find that this is in general the best way to fill sessions with talk, rather than because they want to engage with students at a deep level. And clinical supervisors might adopt microscope mode, not because they are lacking in empathy and in the intention to relate to and understand the student as a person, but because they have worked out that in order to give that student the best possible help with an identified problem, they need to gain detailed information about the ways s/he is thinking, and about his or her understanding of some part of nursing practice.
Finding the Right Approach

From what we have said about the four images that comprise our model, it might seem that we want to persuade you that *comfy chair* is superior in a number of ways to the other approaches we have outlined, and there is perhaps a little truth in this; for example, we suggested that it is at least arguably more respectful of the other as a person. We do both have a special liking for the comfy chair approach, which seems to embody the values of respect for people that we hold to be centrally important in all ethically grounded human interactions. However, it is best to be clear that we do not believe that any of these approaches is unequivocally the right way to frame communications with another person in all situations, whether they are, for example, a patient or a clinical supervisee. Depending on the circumstances each approach will be appropriate at different times.

Comfy chair mode provides an overarching approach to making people feel comfortable and able to communicate as easily and as naturally as possible. This can be helpful not only in clinical and supervisory interviews but also in interviews of all kinds, even though for many people, communicating about some topics—for example, about serious health problems or about personal difficulties—will be hard, no matter the personal and professional style of the other person. Providing a kind of umbrella or metalevel for the whole enterprise, the comfy chair approach can allow interviewers to select from a range of more or less distinct interviewing modes, aimed at exploring topics in a detailed way while still allowing respondents or interviewees the opportunity to feel as comfortable as possible.

Skillful and committed clinicians who believe strongly in an approach to patients that regards them in their wholeness as people with lives that extend far beyond their symptoms and who thus favor the comfy chair approach will nonetheless at times probe microscopically in order to determine the facts about patients’ experience that are necessary both for diagnosis and for making treatment decisions. At others, they will adopt picture-frame mode, allowing patients some room to digress from a focused approach, but less than they would in comfy chair mode; this might be appropriate in contexts where it is necessary to convey to patients not only the fact that they are important as people but also that time is unfortunately at a premium. Finally, if clinicians were exploring emotive territory with a patient—for example, news of a terminal prognosis—they might adopt mirror mode as a way of allowing the patient to move gradually to a realization of the gravity of her or his situation.

Concluding Remarks: Applying the Model to Other Situations

The series of metaphorical images we have described was developed as a tool for analyzing interviews in a clinical context, and we have discussed its use in thinking about clinical interviews and about the supervision of student nurses during placements. We want to end by briefly elaborating our view that it could also be useful in thinking about any two-way human communication in which one person directs the course of the transaction. For example, we think it will prove useful in any context in which supervision is provided as a way of facilitating the development of skills and understanding, including the supervision of research students and the supervision of students undertaking professional placements in school teaching, social work, and law, as well as in clinical areas.

Finally, the comfy chair model of control in interview situations may also be useful in thinking about the variety of approaches to research interviewing, which may be conceived as lying on a continuum between a questionnaire in which the interviewer records the respondent’s responses, through to narrative interviews. It seems to us that this continuum maps fairly well onto the model we have described. For example, research interviews whose purpose is to collect data for survey or questionnaire-type research seem to correspond pretty much to the microscope approach, whereas at the other end of the continuum the conversational interviews favored by narrative researchers seem to involve a kind of comfy chair approach, because they explicitly acknowledge the expertise of respondents in relation to their lives and experiences and give them a great deal of scope to talk about what matters to them.

Most medical and nursing practitioners will have received some training in communication skills and accumulated many hours of experience in interviewing situations. As a result, they will be able to
use a number of different skills in their interviewing. Our modest aim in this article was thus not to teach those who perhaps have more experience of interviewing than we have how they should engage in helpful dialogue with patients and students. Instead we wanted to share a way of thinking about control in interview situations that we have found helpful and that we hope colleagues may find of some use, both in reflecting on their own practice as interviewers and in enabling others to develop interviewing skills.

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References

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The Gift
We are born weak, we need strength;
helpless, we need aid;
foolish, we need reason.
All that we lack at birth,
all that we need
when we come to man’s estate,
is the gift of education.

— Jean-Jacques Rousseau, 1712-1778,
Swiss philosopher, writer, and composer
**BOOK REVIEW**

*The Color Atlas of Family Medicine*

by Richard P Usatine, Mindy Ann Smith, EJ Mayeaux, Jr, Heidi Chumley, and James Tysinger

Review by Susan Christenson, MD

*The Color Atlas of Family Medicine* is a wonderful compendium of 1500 clinical images supported by comprehensive, evidence-based information useful to any clinician. It is the kind of book that many of us who practice clinical medicine had hoped to find, but never succeeded; that is, until now. Whereas this book will definitely appeal to those who love to examine clinical photographs, it is also an excellent resource for almost every topic encountered in a standard primary practice.

This book was 23 years in the making. Its lead author began this project when he was a resident and has welcomed contributions from clinicians from all over the world. It reflects the wide variety of physical conditions that the family medical practitioner encounters with routine work. It also reinforces how difficult it is to keep these many images locked in memory for instant recall, as they are often encountered years apart.

The authors (four family physicians and an obstetrician/gynecologist) have thoughtfully created three different indexing systems, one of which is on the inside of the book covers, making immediate reference quick and simple. This atlas is organized into standard clinical and anatomic categories (eg, infectious disease, substance abuse, dermatology, the lung, the musculoskeletal system, etc) under which one finds common clinical topics (eg, Dermatology: Fungal/Tinea Versicolor). Each topic chapter has comprehensive and up-to-date, evidence-based, clinical information that is complimented by numerous, relevant photographs and figures. Each disease topic is usually introduced with an interesting patient story, followed by epidemiology, etiology and pathophysiology, diagnosis, differential diagnosis, management, patient education, follow-up, and resources (for both the patient and physician). A comprehensive and useful bibliography follows each topic review as well. This book brings to mind the saying: *a picture is worth a thousand words*. It is a great resource for the solo clinician and a wonderful teaching tool.

It is not surprising that the largest chapter is one that deals with dermatologic conditions. What separates this atlas from the colorful dermatology atlases with which we are all familiar, is the didactic primary care focus on diagnosis, differential diagnosis, management, patient education, and advice. Once one has mastered the layout of this book, easy access to its contents makes it a great resource to share with patients in appropriate circumstances. Supporting the various chapter topics are many interesting images of radiographs, sonograms, microscopic findings and even cystoscopic and hysteroscopic findings. There is much to discover in this atlas and you will definitely enhance your clinical acumen.

It is impossible to cover it all, and with this in mind, I do wish there had been even more material in the chapters on infectious disease, neurology, and pulmonary conditions. Nevertheless, these chapters are interesting, informative, and useful.

In this day and age when new products must compete with the convenience of computer-generated information, this atlas has a unique competitive edge. This entertaining and useful 1095-page resource is available 24/7, regardless of whether or not the electricity is running. I have a very rural practice and this atlas has become an invaluable adjunct to my database of information at hand. In my opinion, it is underpriced and well worth the investment. It makes a wonderful gift to any student of medicine or clinician and will entertain and educate for years. I am truly grateful for its creation.

Susan Christenson, MD, is a Family Practice and Emergency Medicine physician. She practices part time at the San Diego Medical Center in San Diego, CA and part time in rural Canada with Native Peoples. E-mail: dtcsac@yahoo.com.
BOOK REVIEW

Doctors as Patients

It is commonly said (especially by nurses and wives) that doctors make terrible patients. *When Doctors Become Patients* is a serious and insightful exploration of the point. Certainly, many physician-patients have written critically about the way they were treated as patients, mainly focusing on their treatment as human beings. This book takes on the more difficult task of analyzing our emotional responses to being sick, not our responses to disease or treatment. The author has done a superb job of interviewing a number of physicians who are seriously ill, deconstructing the interviews, and reassembling their responses around several core themes like life and death, certainty and uncertainty, loss and self-esteem, and anxiety and denial.

*When Doctors Become Patients* is thus structured quite differently from two earlier, equally important, and interesting approaches to the subject: *When Doctors Get Sick*, by Harvey Mandell and Howard Spiro, and *When Doctors are Patients*, by Max Pinner, MD, and Benjamin Miller, MD. These latter two books are valuable compendia of case report descriptions by several dozen different physicians of their personal experiences with several dozen diseases ranging from AIDS, brain tumor, and brucellosis through hemochromatosis to seminoma, tuberculosis, and ulcerative colitis. Their orientation is thus quite different.

Robert Klitzman, MD, makes the observation that personal illness is singularly difficult for physicians because we frequently define ourselves by our work and hence are resistant to relegating medical responsibility to others for our own evaluation or treatment. He points out how we are taught to treat disease, not about being sick. I am thus reminded how pleased I was some years ago, in the early stages of a cerebellar stroke, with my diagnostic acumen at recognizing the diagnosis. The thought never even crossed my mind to ask for help, which was done only at my wife’s insistence: I was a doctor, not a patient. Using more blunt terminology, denial of illness is a major point of focus in the book’s opening chapters, even if we avoid the very idea in medical practice by renaming it patient noncompliance. Feelings, after all, are not very often explored. Who of us ever asked a patient how they felt about having a myocardial infarction, lung cancer, or dying?

Dr Klitzman has a chapter on our coming out as patients, an interesting point reminding one of how obituaries refer to people passing away after prolonged illnesses instead of dying of some specified cancer. As one interviewed physician says, “I felt as if we were living double lives, as if we were prisoners twice”—because of both illness and secrecy. Part 2 deals with being a doctor after being a patient. A meaningful number of physicians sought alternative treatments in addition to conventional allopathic medicine. Workaholism and retirement are practical sections. Part 3 deals with subsequently changed patient interactions by those continuing to work. The chapter on improving medical education is excellent, a sorely needed topic of improvement.

All told, this is a significant book that will be meaningful to many physicians. Those of us administratively involved will do well to remember it when discussions again come up about improving physician morale. There is a lot to be said for understanding what is really going on, whether in patients or ourselves, including in ourselves as patients.


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Article 1. (page 4)
Computed Tomography Angiography in Patients Evaluated for Acute Pulmonary Embolism with Low Serum D-dimer Levels: A Prospective Study

On the basis of the results of this study, the prevalence of a positive pulmonary computed tomography angiography for acute pulmonary embolism in patients with D-dimer ≤1.0 μg/mL is:

a. 0%
b. <3%
c. >5%
d. >10%
e. >15%

For outpatients with a D-dimer ≤1.0 μg/mL and moderate or low Wells score, the next most appropriate step would be:

a. to order a pulmonary MRA
b. to order a pulmonary CTA
c. to order a ventilation-perfusion scan
d. to consider a diagnosis other than acute pulmonary embolism
e. to obtain a rheumatology consult

Article 2. (page 16)
Decreasing Adverse Events through Night Talks: An Interdisciplinary, Hospital-Based Quality Improvement Project

Any event that has the potential to result in patient harm or it is seen by families as a miss in care is called a(n):

a. serious safety event
b. adverse event
c. near miss
d. unintended consequence

Regarding situation awareness which of the following is NOT true?

a. lack of situation awareness is a common cause of serious safety events
b. situation awareness includes perception of elements, comprehension of that information, and projection of future events
c. team situation awareness includes common shared knowledge among team members
d. incorporating elements of situation awareness into caregiver’s practice will increase adverse events
### Objectives
1. To inculcate the use of evidence-based medicine as part of the science of medicine
2. To stress the art of medicine via enhanced patient-physician communication, improved care experience for patients, and more satisfying caregiving experience for physicians and staff through better teamwork
3. To review appropriate updates on the diagnosis and treatment of clinical conditions
4. To describe infrastructure and systems improvements that lead to improvements in outcomes and patient care experiences

### Section B. Referring to the CME articles and the stated objectives, please choose your level of agreement next to each statement as appropriate.

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- The article covered the stated objectives.
- I learned something new that was important.
- I plan to use this information as appropriate.
- I plan to seek more information on this topic.
- I understood what the author was trying to say.

### Section C. What change(s) (if any) do you plan to make in your practice as a result of reading these articles?

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### Section D. (Please print)

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