28 Practice Leaders Programme: Entraining and Enabling General Practitioners to Lead Change to Improve Patient Experience, Marion Lynch, PDRSc, MSC, MRCP, MRCS, OHNS, DRCOG, Consultant in General Practice, Bristol, UK. Results of a 5-year programme that trained over 50 general practitioners to lead change in their practice, driven by patient experience surveys. This programme has demonstrated significant improvements in patient experience, with a return on investment of £4 for every £1 invested.

12 Multiple Health Behaviors in an Ethnically Diverse Sample of Adults with Risk Factors for Cardiovascular Disease, Katie M Heinrich, PhD; Jay Mackle, PhD. In this study, results from a survey of over 1000 adults with risk factors for cardiovascular disease were analyzed to identify multiple health behaviors that may contribute to improved health outcomes.

19 The Relationship of Unemployment and Depression with History of Spine Surgery, M Sami Walid, MD, PhD; NMshida, PhD; Sato, PhD; Tajiri, MD. The study found a significant relationship between unemployment and depression and the history of spine surgery, suggesting that these factors may be important in understanding the epidemiology of spine surgery.

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Edited by Sarah Beekley, MD

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EDITORIAL

75 Innovation in Our Nation's Public Hospitals: Three-Year Follow-Up Interview with Five CEOs and Medical Directors—Part 1. Tom Janisse, MD

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CME credits are available online only at www.permanentejournal.org. The mail-in CME form can be found on page 95.

Survey Respondents Planning to Have Screening Colonoscopy Report Unique Barriers

Jennifer Vincent, DO  
Angela K Hochhalter, PhD  
Kristine Broglio, MS  
Andrejs E Avots-Avotins, MD, PhD

Original Research & Contributions

Abstract

Tailoring colorectal cancer screening interventions to address the needs of individuals for whom screening is recommended requires accurate identification of the barriers experienced by each targeted group. The primary purpose of this survey study was to test differences in the barriers to undergoing screening colonoscopy reported by men and women. In addition, we were interested in differences in barriers reported by 1) 50-year-olds versus those age 51 to 80 years, 2) persons reporting readiness for colonoscopy versus those not reporting readiness, and 3) persons who had had a primary care encounter in the preceding 12 months versus those who had not. Four thousand members of a health maintenance organization (Scott & White Health Plan) were surveyed. Response rate overall was 30.85%. No differences in barriers to screening colonoscopy were identified for men versus women. We did identify differences in barriers reported by persons reporting readiness versus those not reporting readiness. Findings suggest that interventions to increase rates of screening colonoscopy require addressing different sets of barriers depending on whether persons report readiness to have a colonoscopy within 6 months.

Introduction

Rates of adherence to recommended colorectal cancer screening remain suboptimal in the US. Targeted and tailored interventions have been used effectively to improve rates of cancer screening rates by motivating persons to seek and obtain recommended tests and may be one way to help address disparities in adherence to recommended screening that have been documented for gender, race, and ethnicity. The survey study we report was conducted as part of a quality-improvement effort undertaken to address lower rates of screening colonoscopy among men than among women in Texas and in our local system, especially younger men (ie, closer to age 50 years, when screening for average risk is first recommended). This trend is opposite of that in the US population overall, in which women are less likely to be screened or report being screened less often than men. The effort focused on screening colonoscopy because it is the preferred approach for colorectal cancer screening at our institution and per national guidelines, in part because of the demonstrated net benefit compared with other screening tests and because it is the only colon cancer screening tool that allows detection and removal of precancerous polyps. The purpose of the survey was to document barriers to screening colonoscopy for men and women age 50 to 80 years.

In addition to testing the hypothesis that men and women would report different barriers to colonoscopy, we were interested in testing for differences in barriers among other subgroups that may improve our ability to tailor future interventions in ways that address barriers most relevant to those groups. We hypothesized that patients who are not in regular contact with a primary care physician (PCP) would report different barriers to screening than those who had regular encounters with primary care because lack of recommendation from a physician is a barrier that is commonly documented in the literature. We
also hypothesized that persons reporting more and less readiness for colonoscopy would report different barriers, according to the Transtheoretical Stages of Change model.13-15 This model is the most commonly employed model on which informed decision-making cancer-screening interventions are based.15 The model proposes that likelihood of a certain behavior, such as undergoing colonoscopy, increases as one’s stage of readiness to change progresses, and interventions to move persons toward increased readiness should therefore increase the desired behavior.15 Finally, we were interested in whether barriers to colonoscopy are different for older patients than for those at about age 50 years, the age at which screening is first recommended for persons at average risk for developing colorectal cancer.

Methods
Participants were members of the Scott & White Health Plan, a health maintenance organization (HMO). They were identified as having been between 50 and 80 years of age (inclusive) between 2003 and 2008. Those in whom inflammatory bowel disease or colon cancer had been diagnosed and those with a family history of colon cancer were excluded because we were interested in barriers reported by those for whom the average risk guidelines for screening colonoscopy were most applicable.

Four samples of eligible members were selected: 1) the first 1000 men to turn age 50 years during the years 2003 to 2008, 2) the first 1000 women to turn age 50 years between 2003 and 2008, 3) a random sample of men ages 51 to 80 years between 2003 and 2008, and 4) a random sample of women ages 51 to 80 years between 2003 and 2008. No member was eligible for two lists; that is, members surveyed in the sample of 50-year-olds were not eligible to be randomly sampled in the samples of 51- to 80-year-olds. By oversampling 50-year-olds who were just reaching the age of first recommended screening, we sought to identify any unique barriers for persons who are just becoming eligible for recommended screening.

Member names and addresses were obtained through Scott & White Health Plan records for those sampled, in accordance with processes approved by the Scott & White Healthcare institutional review board. Anonymous surveys, marked only to indicate whether the person was sampled in a group of 50-year-olds or a group of 51- to 80-year-olds, were mailed to the four samples of health plan members between January and February 2009. No incentive was offered for participation, and no follow-up reminders were sent to encourage survey completion after the initial mailed survey.

Mailed surveys were accompanied by a prepaid envelope addressed for easy return, along with a cover letter describing the study and a brief description of the colonoscopy procedure for those who did not recognize the name of the test. The letter was signed by the study’s primary investigator (JV).

Two-page surveys (see Appendix: Colonoscopy Survey at: www.thepermanentejournal.org/issues/2011/winter/375-colonoscopy-survey-appendix.html) requested information about whether and when respondents had undergone colonoscopy, whether they intended to undergo colonoscopy within six months (readiness), gender, age, race and ethnicity, distance to a system clinic, and months since last primary care appointment. To keep the survey concise, we collapsed across stages of change proposed in the Transtheoretical Model and requested to know only whether respondents intended to be screened within six months (“yes” = “ready”). This six-month time frame captures whether respondents are in the “contemplation” or “preparation” stages of readiness, which precede the “action” stage in the model and indicate that one is likely open to health-promotion programs such as one that encourages colonoscopy.13

Respondents who had not had a colonoscopy in the preceding ten years were asked in the survey to choose from several possible barriers that have kept them from undergoing a colonoscopy. An “other” category was available for optional written comments.

Surveys returned between January and July 2009 were included in the analysis. Respondent characteristics were tabulated or described by median and range, as appropriate. Barriers to change were considered only among respondents who reported that they had not had a previous colonoscopy or who responded that their previous colonoscopy was more than ten years earlier. The primary comparison of interest was between men and women. We also compared respondents who indicated readiness for a colonoscopy versus those who did not, and respondents who had visited their PCP within the preceding year versus those who had not. Groups were compared using the χ2 test or Fisher’s exact test, as appropriate. Barriers to colonoscopy were considered for all age groups and for 50-year-olds only. Analyses
were performed with SAS 9 (SAS Institute, Cary, NC). All statistical tests were two-sided. P values of <0.05 were considered statistically significant.

**Results**

The overall response rate was 30.85% (1234 of 4000); it was 24.9% (498 of 2000) for 50-year-olds and 36.8% (736 of 2000) for 51- to 80-year-olds. Table 1 summarizes the demographic characteristics of all survey respondents. Seven respondents were included in the survey mailed to 50-year-olds, yet they stated that they were not 50 years of age and were excluded. Some respondents were 49 years of age yet had a birthday that year and so were included. Sixty-six percent of respondents had a previous colonoscopy, and most were within the preceding ten years. Only 25% were planning a colonoscopy within six months.

Owing to the skip pattern of the survey, data on barriers to colonoscopy were collected only among participants who had not had a colonoscopy in the preceding ten years. Therefore, the following analyses are limited to this group. Although 66% of respondents indicated that they had had a previous colonoscopy, many did not indicate a time frame, so this group was excluded.

Four hundred thirty-eight respondents answered that they either had not had a previous colonoscopy or that they had one more than ten years earlier. Table 2 summarizes the demographics and barriers to screening for this group overall and by gender. The most commonly reported barrier to colonoscopy was “My regular doctor has not told me I need a colonoscopy” (42%), followed by “I do not think I need the test” (21%). Compared with women, men were more likely to report that they did not think they needed the test (26% of men vs 18% of women; \( p = 0.042 \)), that they could not take the time off from work (7.3% of men vs 2.7% of women; \( p = 0.025 \)), and that they had had a bad experience with colonoscopy (2.2% of men vs 0% of women; \( p = 0.027 \)).

Table 3 shows the other comparisons of interest among all respondents who had never had a colonoscopy or who had their last test more than ten years earlier. Most barriers were significantly different between those planning a colonoscopy within six months versus those who were not. Respondents planning a colonoscopy within six months were less likely to respond that they did not think they needed the test (\( p < 0.0001 \)), that they were afraid it would hurt (\( p = 0.010 \)), that they would be embarrassed to take the test (\( p = 0.018 \)), that they did not want to do the test preparation (\( p = 0.001 \)), that they were not at risk for colon cancer (\( p = 0.003 \)), that the test cost too much (\( p = 0.020 \)), that the distance to the test site was too far to travel (\( p = 0.037 \)), or that they did not want to have the test (\( p < 0.0001 \)). People who had not visited their PCP in the last year reported that it was too far to travel to get the test more frequently than did people who had visited their PCP in the preceding year (6% no visit vs 1.4% visit; \( p = 0.036 \)).

Table 4 presents data only for the group of 50-year-olds, which included 319 respondents who reported that they had never had a colonoscopy or had had their previous colonoscopy more than ten years earlier. There was no statistically significant difference in

<table>
<thead>
<tr>
<th>Table 1. Demographics of all respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic point</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Survey</td>
</tr>
<tr>
<td>For 50-year-olds</td>
</tr>
<tr>
<td>For those age 51 to 80 years</td>
</tr>
<tr>
<td>Age (years)</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>Range</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Race/ethnicity</td>
</tr>
<tr>
<td>Black</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Previous colonoscopy?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Previous colonoscopy &gt;10 years earlier?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Information missing</td>
</tr>
<tr>
<td>Colonoscopy in next 6 months?</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Most recent visit to primary care physician</td>
</tr>
<tr>
<td>Don’t know who my primary care physician is</td>
</tr>
<tr>
<td>Do not have a primary care physician</td>
</tr>
<tr>
<td>&gt;1 year</td>
</tr>
<tr>
<td>Within preceding 12 months</td>
</tr>
<tr>
<td>Within preceding 3 months</td>
</tr>
<tr>
<td>Within preceding 6 months</td>
</tr>
</tbody>
</table>
barriers to colonoscopy between men and women in this subgroup. Table 5 shows the other comparisons of interest among the 50-year-old group.

**Discussion**

Contrary to our hypothesis, men and women of all ages reported similar barriers to colonoscopy. Those just reaching the age at which screening is recommended reported similar barriers to those reported by respondents ages 51 to 80 years. However, both overall and in the subgroup of respondents 50 years of age, barriers reported tended to differ between those planning a colonoscopy within six months (conceptualized as “readiness”) versus those who were not planning a colonoscopy within six months. The most commonly identified barriers to screening colonoscopy identified across groups was lack of physician recommendation.

Our findings point to the importance of tailoring colorectal cancer screening interventions, at least those designed to increase rates of screening colonoscopy, to individuals’ readiness for the procedure. In addition, it points to the opportunity to address rates of screening colonoscopy in part through improved

---

**Table 2. Barriers to colonoscopy overall and by gender**

<table>
<thead>
<tr>
<th>Barriers by category</th>
<th>Overall</th>
<th>By gender</th>
<th>p value</th>
<th>Overall</th>
<th>By gender</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N %</td>
<td>Female %</td>
<td>Male %</td>
<td>N</td>
<td>Female %</td>
<td>Male %</td>
</tr>
<tr>
<td>Afraid test will hurt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>False</td>
<td>404</td>
<td>92.24</td>
<td>93.05</td>
<td>163</td>
<td>91.06</td>
<td>0.445</td>
</tr>
<tr>
<td>True</td>
<td>34</td>
<td>7.76</td>
<td>8.94</td>
<td>21</td>
<td>11.73</td>
<td>0.574</td>
</tr>
<tr>
<td>Would be embarrassed to take the test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>False</td>
<td>391</td>
<td>89.27</td>
<td>89.96</td>
<td>158</td>
<td>88.27</td>
<td>1.000</td>
</tr>
<tr>
<td>True</td>
<td>47</td>
<td>10.73</td>
<td>11.73</td>
<td>26</td>
<td>11.73</td>
<td>0.373</td>
</tr>
<tr>
<td>Test costs too much</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>False</td>
<td>434</td>
<td>99.09</td>
<td>99.23</td>
<td>177</td>
<td>98.88</td>
<td>1.000</td>
</tr>
<tr>
<td>True</td>
<td>4</td>
<td>0.91</td>
<td>1.12</td>
<td>2</td>
<td>2.23</td>
<td>0.027</td>
</tr>
<tr>
<td>I have no one to drive me home after the test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>False</td>
<td>418</td>
<td>95.43</td>
<td>97.30</td>
<td>166</td>
<td>92.74</td>
<td>0.025</td>
</tr>
<tr>
<td>True</td>
<td>20</td>
<td>4.57</td>
<td>7.26</td>
<td>13</td>
<td>7.26</td>
<td>0.025</td>
</tr>
</tbody>
</table>

Continued in next column.
patient–physician communication about colonoscopy. However, any intervention that targets the patient–physician interaction must consider constraints on physician time for preventive care\cite{6,17}; more effective rather than longer discussions are likely important.\cite{5}

Our study was limited in several ways. First, we asked only about screening colonoscopy to the exclusion of other colorectal cancer screening tests. However, only 6.85% of those reporting barriers to colonoscopy said they had undergone another type of screening. Second, we surveyed members of an HMO receiving care within the same large integrated health care system. Less than 10% of those who had not undergone colonoscopy in the preceding ten years indicated that cost was a barrier. Nearly 85% had seen a PCP in the preceding year. The group was not representative of persons without adequate health insurance and did not include adequate representation of racial or ethnic minorities to test for differences based on these characteristics. In addition, the survey was

---

### Table 3. Barriers to colonoscopy by plans for future colonoscopy and by visit with primary care physician

<table>
<thead>
<tr>
<th>Barriers by category</th>
<th>Planning colonoscopy in next six months</th>
<th>Visit with primary care physician within last year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>Previous colonoscopy?</td>
<td>No</td>
<td>205</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td>Future colonoscopy?</td>
<td>No</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>—</td>
</tr>
<tr>
<td>Age (years)</td>
<td>Median</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>49–79</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>81</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>Black</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>177</td>
</tr>
<tr>
<td>Primary care physician visit?</td>
<td>Not within the last year</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Within the last year</td>
<td>177</td>
</tr>
<tr>
<td>I do not need the test</td>
<td>False</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>True</td>
<td>66</td>
</tr>
<tr>
<td>Had another kind of screening</td>
<td>False</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td>True</td>
<td>19</td>
</tr>
<tr>
<td>Too busy to take the test</td>
<td>False</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>True</td>
<td>11</td>
</tr>
<tr>
<td>Cannot take time off work</td>
<td>False</td>
<td>202</td>
</tr>
<tr>
<td></td>
<td>True</td>
<td>13</td>
</tr>
</tbody>
</table>

Continued in next column.
sent once without incentives or follow-up contact. We chose this method in part to help ensure that survey recipients did not misunderstand follow-up contacts as being tied directly to their health information. We believed that it was necessary to reinforce the accurate perception that responses could not be tied to clinical information or information held by respondents' health insurer. The trade-off was a survey response rate of less than 40%. However, we were satisfied that the diversity of respondents' characteristics was reasonable, given the demographics of the counties in which HMO members lived. Patients were given contact information if they wished to obtain more information about colon cancer screening.

Continued development of interventions to encourage colorectal cancer screening in general and colonoscopy specifically should consider similarities among barriers for men and women, similarities for 50-year-olds and those who are older than age 50 years, and differences in barriers for those not demonstrating readiness for screening within 6 months.

Disclosure statement
This study was supported by a grant from the Scott and White Research Grants Program.

Table 4. Age 50 years: barriers to colonoscopy overall and by gender

<table>
<thead>
<tr>
<th>Barriers by category</th>
<th>Overall</th>
<th>By gender</th>
<th>By gender</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N %</td>
<td>Female %</td>
<td>Male %</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>319</td>
<td>199</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Previous colonoscopy?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>314</td>
<td>98.43</td>
<td>197</td>
<td>98.99</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>1.57</td>
<td>2</td>
<td>1.01</td>
</tr>
<tr>
<td>Future colonoscopy?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>136</td>
<td>44.01</td>
<td>94</td>
<td>48.21</td>
</tr>
<tr>
<td>Yes</td>
<td>173</td>
<td>55.99</td>
<td>101</td>
<td>51.79</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>199</td>
<td>62.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>120</td>
<td>37.62</td>
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<td>11.06</td>
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<td>Hispanic</td>
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<td>16</td>
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<tr>
<td>Other</td>
<td>9</td>
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<td>White</td>
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<td>77.89</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td>15.77</td>
<td>27</td>
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<tr>
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<td>84.23</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>311</td>
<td>97.49</td>
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<td>2.51</td>
<td>5</td>
<td>2.51</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>307</td>
<td>96.24</td>
<td>194</td>
<td>97.49</td>
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<td>2.51</td>
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<tr>
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<td></td>
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<td>305</td>
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<td>True</td>
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<td>4.39</td>
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<td>3.02</td>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>271</td>
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<td>15.05</td>
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<td>16.58</td>
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</table>

Table continued in next column.
Table 5. Age 50 years: barriers to colonoscopy by plans for future colonoscopy and visit with primary care physician

<table>
<thead>
<tr>
<th>Barriers by category</th>
<th>Planning colonoscopy in the next six months</th>
<th>Visit with primary care physician within last year</th>
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<tr>
<td></td>
<td>No %</td>
<td>N</td>
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<tr>
<td>N</td>
<td>136</td>
<td>173</td>
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<tr>
<td>Previous colonoscopy?</td>
<td>No</td>
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<td></td>
<td>Yes</td>
<td>3</td>
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<tr>
<td>Future colonoscopy?</td>
<td>No</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>25</td>
</tr>
<tr>
<td>Gender</td>
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<td>42</td>
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<td>Race/ethnicity</td>
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<td></td>
<td>Hispanic</td>
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</tr>
<tr>
<td></td>
<td>Other</td>
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<td></td>
<td>White</td>
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</tr>
<tr>
<td>Primary care physician visit?</td>
<td>Not within the last year</td>
<td>24</td>
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<tr>
<td></td>
<td>Within the last year</td>
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<td>40</td>
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<td></td>
<td>Had another kind of screening</td>
<td>False</td>
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<td></td>
<td>True</td>
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</tr>
<tr>
<td></td>
<td>Too busy to take the test</td>
<td>False</td>
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<tr>
<td></td>
<td>True</td>
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</tr>
<tr>
<td></td>
<td>Cannot take time off work</td>
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</tr>
<tr>
<td></td>
<td>True</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Afraid the test will hurt</td>
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<tr>
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</table>

Continued in next column.

Acknowledgment

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

References


Survey Respondents Planning to Have Screening Colonoscopy Report Unique Barriers


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**Risking Your Life**

OK. You turned 50. You know you’re supposed to get a colonoscopy. But you haven’t. Here are your reasons:

1. You’ve been busy.
2. You don’t have a history of cancer in your family.
3. You haven’t noticed any problems.
4. You don’t want a doctor to stick a tube 17,000 feet up your behind.

Let’s examine these reasons one at a time. No, wait, let’s not. Because you and I both know that the only real reason is No. 4. This is natural. The idea of having another human, even a medical human, becoming deeply involved in what is technically known as your “behindular zone” gives you the creeping willies.

… And then it was time, the moment I had been dreading for more than a decade. If you are squeamish, prepare yourself, because I am going to tell you, in explicit detail, exactly what it was like.

I have no idea. Really. I slept through it. One moment, ABBA was shrieking “Dancing Queen! Feel the beat from the tambourine ...” … and the next moment, I was back in the other room, waking up in a very mellow mood.

But my point is this: In addition to being a pathetic medical weenie, I was a complete moron. For more than a decade I avoided getting a procedure that was, essentially, nothing. There was no pain and, except for the MoviPrep, no discomfort. I was risking my life for nothing.

—*Dave Barry, b 1947, Pulitzer Prize-winning American author and humorist*
Multiple Health Behaviors in an Ethnically Diverse Sample of Adults with Risk Factors for Cardiovascular Disease

Katie M Heinrich, PhD
Jay Maddock, PhD

Abstract

Background: Health behaviors of adults living with cardiovascular disease (CVD) risk factors affect additional risk, where lifestyle behavioral choices become even more important in controlling disease and preventing additional negative health outcomes. In addition, both lifestyle behaviors and CVD risk factor prevalence can vary by ethnicity.

Objective: We compared multiple health behaviors of adults with diabetes, hypertension, high cholesterol, and obesity to the behaviors of adults without those conditions in a diverse ethnic sample to determine if significant differences existed between groups.

Methods: Data were obtained from 30-minute random-digit-dial telephone surveys in 2007 (n = 3607). All data were self-reports. Healthy behaviors included meeting recommendations for intake of fruits and vegetables; consuming low or very low amounts of dietary fat; eating breakfast six or seven days per week; having a healthy diet; and meeting recommendations for walking, moderate, and vigorous physical activity. Unhealthy behaviors included frequent consumption of soda and fast food, smoking, binge drinking, and high stress.

Results: More than 6% of respondents had diabetes, 15.9% had hypertension, 16.4% had high cholesterol, and 18.5% were obese. Significantly fewer healthy and more unhealthy behaviors were reported for those who had CVD risk factors than were reported by those who did not have such conditions. Ethnic differences in CVD risk factor prevalence and health behaviors existed as well (p < 0.001). Logistic regression models indicated that not eating a healthy diet (odds ratio [OR] = 1.82) was a significant predictor for diabetes; not eating a healthy diet (OR = 1.52) and not doing vigorous physical activity (OR = 1.79) were significant predictors for hypertension; consumption of high amounts of dietary fat (OR = 1.70) and of fast food (OR = 1.51) were significant predictors for high cholesterol levels; and not eating a healthy diet (OR = 1.52), high consumption of dietary fat (OR = 2.20), not eating breakfast (OR = 1.33) and not performing vigorous physical activity (OR = 1.63), but less consumption of fast food (OR = 0.64) were significant predictors for obesity.

Conclusions: Specifically tailored and culturally sensitive interventions that address multiple health behaviors may be necessary for these high-risk populations.

Introduction

Cardiovascular disease (CVD) is the leading cause of death in the US and in the state of Hawaii.3,2 Predictors of CVD include hypertension, high levels of low-density lipoprotein cholesterol, obesity, elevated glucose levels (diabetes), tobacco use, inadequate stress management, physical inactivity, and poor diet.5 Individuals with these risk factors are more likely to develop CVD over time. For example, of all US deaths in 2004, 68% of people with type 2 diabetes died from CVD.3

For individuals living with CVD risk factors such as diabetes, hypertension, high cholesterol levels, and obesity, lifestyle behavioral choices become even more important to control the disease and prevent further negative outcomes.5,6 Recommended strategies to prevent and treat CVD include increasing healthy behaviors such as eating a diet high in fruits and vegetables, effectively managing stress, engaging in at least 30 minutes of physical activity each day, and avoiding unhealthy behaviors such as smoking and eating and drinking excessively salty or sugary foods and beverages, such as soda.7 However, many people with CVD risk factors do not meet these criteria. The 2009 Survey on Living with Chronic Disease in Canada found that among those people who had been told that they
had hypertension, 58% were physically inactive, 71% were overweight or obese, 58% reported not eating enough fruit and vegetables each day, and 17% reported smoking cigarettes.8

Populations with multiple behavior risk factors are at greatest risk for chronic disease and premature death compared with people with single or no behavioral risk factors.9 Multiple risk factors are common in the general US adult population, with >50% of the population estimated to have at least two of the following four behavioral risk factors: smoking, heavy alcohol consumption, obesity, and physical inactivity;10 however, little is known about health behavior profiles among individuals living with CVD risk factors.

Clear health disparities also exist for CVD. Minorities in the US are at higher risk for several chronic health conditions and often have lower treatment adherence rates.13 Asians in the US have an elevated diabetes risk.12 In Hawaii, Native Hawaiians and other Pacific Islanders also have a very high risk for CVD.13 In addition, diabetes rates for Native Hawaiians continue to increase.13

Despite the clear evidence that health behaviors are important in controlling chronic diseases, significant gaps exist in understanding these health disparities, and little has been published in this area in the US.10 Most studies focus on a single condition or a single behavior risk factors for chronic disease. Moreover, to our knowledge, there is no published evidence that examines multiple CVD risk factors and multiple health behaviors in such a diverse ethnic population.

Therefore, we sought to determine whether multiple health behaviors differed significantly between individuals living with the CVD risk factors of diabetes, hypertension, high cholesterol levels, and obesity versus those without these conditions. We hypothesized that those with CVD risk factors would display fewer healthy and more unhealthy behaviors than individuals without those conditions.

**Methods**

**Participants and Data**

For this study, we used data from the 2007 Healthy Hawaii Initiative cross-sectional random-digit-dial telephone survey. Using a computer-aided telephone interviewing system, we asked call recipients to complete a household survey about planning future health programs in Hawaii. More than 92% of adults willing to answer questions completed surveys (a 30.3% response rate overall), representing their household, for a total sample of 3607.

**Materials**

The full survey instrument was designed as a chronic-disease risk-factor surveillance system and included questions about attitudes, norms, behaviors, and perceptions for physical activity, nutrition, and tobacco use. We used a subset of questions that included CVD risk-factor health conditions, health behaviors, and demographic information.

**Cardiovascular Disease Risk-Factor Health Conditions**—Participants were categorized as having a CVD risk-factor health condition if a physician, nurse, or other medical professional had ever told them that they had diabetes, high blood pressure (hypertension), or high cholesterol.10 Those with diabetes were asked to specify which type: type 1, type 2, gestational, or borderline. For obesity, participants reported their height in feet and inches and weight in pounds. Body mass index (BMI) was calculated and used to indicate obesity (ie, BMI ≥ 30 kg/m²).

Respondents answered questions about their current health behaviors, including those related to nutrition, physical activity, cigarette smoking, alcohol consumption, and stress. As outlined in the following sections, each individual was classified as meeting or not meeting each behavior.

**Nutrition**—Participants were asked how many servings of fruits and how many servings of vegetables on average they ate per day. Respondents consuming five or more daily servings of fruits and vegetables were classified as meeting recommendations.17 Respondents were classified as having a low dietary fat intake (ie, making a conscious effort to avoid eating foods that were high in fat) if they indicated “often” or “always” doing so. Participants were classified as breakfast eaters if they ate breakfast six or seven days per week. Respondents were classified as eating a healthy diet overall if they indicated that they often or always did so. Unhealthy nutrition behaviors included frequent soda consumption, which was defined as drinking ≥12 ounces of sweetened soda per day, and frequent consumption of fast food, which was defined as eating at fast-food restaurants once a week or more.

**Physical Activity**—For each category of physical activity (walking, moderate, vigorous), respondents were asked the average number of days per week and total minutes per day that they engaged in each activity in a usual week. Respondents who reported walking or engaging in moderate physical activity for ≥150 minutes per week for at least
Multiple Health Behaviors in an Ethnically Diverse Sample of Adults with Risk Factors for Cardiovascular Disease

Participant Characteristics

The majority of participants were married (59.1%; n = 2131), had some college education (72.2%; n = 2604), female (65.3%; n = 2534), and had a household income of ≤ $70,000 (51.4%; n = 1853). The average age of participants was 53.9 ± 15.8 years. Participant ethnicities included white (36.5%; n = 1317), Asian (28.5%; n = 1029), Native Hawaiian or part Hawaiian (17.0%; n = 612), and multiple ethnicities (18.0%; n = 649).

As shown in Table 1, CVD risk factors were distributed as follows: 6.2% had diabetes (n = 222); of those, 62.0% had type 2, 15.9% had hypertension (n = 573), 16.4% had high cholesterol level (n = 592), and 18.6% were obese (n = 670). Almost 14% of the sample (n = 494) reported only 1 risk factor, and 8.2% (n = 298) reported 2, 4.2% (n = 153) reported 3, and 0.8% (n = 30) reported having all 4 CVD risk factors (data not shown).

Statistically significant differences were found between ethnicities for diabetes [F(3,1763) = 14.89; p < 0.001], with whites significantly less

Procedure and Analyses

The household member over age 18 with the most recent birthday was selected as the respondent. Verbal consent was obtained, and the study was approved by the University of Hawaii institutional review board. The survey took approximately 30 minutes to complete.

After summarizing participant demographics and health behaviors for the entire sample, we computed the prevalence of each health behavior by CVD risk factor. We compared differences for each CVD risk condition using the χ² test. We used one-way analysis of variance to examine ethnic differences for each health behavior. Then, to determine the prevalence of multiple behavioral risk factors, we created an index by summing all 12 health behaviors (after first reverse-coding the unhealthy behaviors of consumption of soda and fast food, smoking, binge drinking, and stress). Participants could score from 0 to 12 on this index, with higher scores indicating more health-promoting behaviors. Finally, we conducted separate logistic regression models, with having or not having each CVD risk factor (diabetes, hypertension, high cholesterol level, or obesity) as the independent variable and the health behaviors as dependent variables, controlling for age, sex, and ethnicity. All data were analyzed using IBM SPSS Statistics software (version 16.0; SPSS Inc, Chicago, IL).

Results

Table 1. Percentage reporting each cardiovascular disease risk factor by ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Diabetes (n)</th>
<th>Hypertension (n)</th>
<th>High cholesterol level (n)</th>
<th>Obesity (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>5.9 (37)</td>
<td>26.4 (165)</td>
<td>31.1 (193)</td>
<td>15.1 (195)</td>
</tr>
<tr>
<td>Asian</td>
<td>17.4 (90)</td>
<td>39.0 (200)</td>
<td>42.9 (222)</td>
<td>11.7 (118)</td>
</tr>
<tr>
<td>Native Hawaiian or part Hawaiian</td>
<td>17.7 (53)</td>
<td>38.5 (115)</td>
<td>30.3 (90)</td>
<td>35.4 (213)</td>
</tr>
<tr>
<td>Mixed</td>
<td>13.0 (42)</td>
<td>29.0 (93)</td>
<td>27.2 (87)</td>
<td>22.9 (144)</td>
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<tr>
<td>Total</td>
<td>6.2 (222)</td>
<td>15.9 (573)</td>
<td>16.4 (592)</td>
<td>18.6 (670)</td>
</tr>
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</table>

Table 2. Percentage reporting each health behavior by cardiovascular disease risk factor

<table>
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<tr>
<th>Behavior</th>
<th>Diabetes</th>
<th>Hypertension</th>
<th>High cholesterol level</th>
<th>Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits and vegetables</td>
<td>41.9</td>
<td>46.5</td>
<td>40.3</td>
<td>48.5</td>
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<tr>
<td>Low dietary fat intake</td>
<td>32.0</td>
<td>38.7</td>
<td>33.7</td>
<td>40.0</td>
</tr>
<tr>
<td>Breakfast 6 or 7 d/wk</td>
<td>68.5</td>
<td>66.1</td>
<td>66.3</td>
<td>66.6</td>
</tr>
<tr>
<td>Eating a healthy diet</td>
<td>50.5</td>
<td>66.6</td>
<td>59.5</td>
<td>67.0</td>
</tr>
<tr>
<td>Walking</td>
<td>37.4</td>
<td>40.6</td>
<td>35.1</td>
<td>42.7</td>
</tr>
<tr>
<td>Moderate physical activity</td>
<td>16.7</td>
<td>25.6</td>
<td>21.6</td>
<td>25.8</td>
</tr>
<tr>
<td>Vigorous physical activity</td>
<td>21.2</td>
<td>31.9</td>
<td>21.6</td>
<td>34.9</td>
</tr>
<tr>
<td>Soda consumption</td>
<td>4.1</td>
<td>6.3</td>
<td>5.8</td>
<td>6.2</td>
</tr>
<tr>
<td>Fast-food consumption</td>
<td>46.2</td>
<td>43.0</td>
<td>44.6</td>
<td>42.8</td>
</tr>
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<td>Smoker</td>
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<td>16.5</td>
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<td>17.2</td>
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<tr>
<td>Binge drinker</td>
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<td>10.6</td>
<td>14.2</td>
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<tr>
<td>High stress level</td>
<td>20.3</td>
<td>18.2</td>
<td>17.3</td>
<td>18.7</td>
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</table>

* p < 0.01; ‘p < 0.001; ‘p < 0.05.

d/wk = days per week
likely than all other ethnic groups to have diabetes. Statistically significant differences were also found for hypertension \( f(3,1755) = 9.20; p < 0.001 \), with whites less likely than Asians and Native Hawaiians or those who were part Hawaiian, and those of multiple ethnicities less likely than Asians to report hypertension. Statistically significant differences were also found for cholesterol levels \( f(3,1750) = 9.87; p < 0.001 \), with Asians significantly more likely to have high cholesterol levels than all other ethnic groups. Statistically significant differences were also found for obesity \( f(3,3525) = 55.68; p < 0.001 \), with whites and Asians less likely to be obese than both Native Hawaiians and those who were part Hawaiian and those of multiple ethnicities (Table 1).

As shown in Table 2, the most common behaviors were eating breakfast, a healthy diet and consumption of fast food. Eight percent of the entire sample were smokers (n = 289), and 6.4% were binge drinkers (n = 230). Using \( \chi^2 \) analyses, statistically significant differences emerged within each CVD risk factor (Table 2). As compared with participants without diabetes, those with diabetes were significantly less likely to report the healthy behaviors of having a low dietary fat intake (p < 0.05), eating a healthy diet (p < 0.001), and meeting moderate or vigorous physical activity guidelines (p < 0.01); however, they were also significantly less likely to report binge drinking (p < 0.01). Participants with high cholesterol levels were significantly less likely to report eating fruits and vegetables (p < 0.001), having a low dietary fat intake (p < 0.05), eating a healthy diet (p < 0.05), and meeting moderate (p < 0.05) and vigorous (p < 0.001) physical activity guidelines, as compared with those without high cholesterol levels. However, those with high cholesterol were also less likely to report the unhealthy behaviors of consumption of fast food (p < 0.05) and binge drinking (p < 0.001). As compared with all other participants, obese participants were significantly less likely to report the healthy behaviors of eating fruits and vegetables (p < 0.01), having a low dietary fat intake (p < 0.001), eating breakfast (p < 0.001), eating a healthy diet (p < 0.001), and meeting walking (p < 0.001), moderate (p < 0.01), or vigorous (p < 0.01) physical activity guidelines. Obese participants were also more likely to report the unhealthy behaviors of regular soda consumption (p < 0.01), consumption of fast food (p < 0.001), and having a high stress level (p < 0.01).

Using one-way analysis of variance, we found statistically significant differences between ethnic groups for all healthy and unhealthy behaviors except having a high stress level. Table 3 shows the percentage of participants reporting each behavior by ethnicity and provides the exact p value for each. Whites had the most favorable behavior risk profile overall, reporting more healthy behaviors and fewer unhealthy behaviors than all other ethnicities (except engaging in moderate and vigorous physical activity and having high stress levels). Asians reported the lowest physical activity but also the lowest stress levels. Native Hawaiians and those who were part Hawaiian reported the fewest healthy nutrition behaviors but were more likely than other groups to report walking and engaging in moderate and vigorous physical activities. However, they were also more likely to report the unhealthy behaviors of soda con-

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Ethnicity</th>
<th>White</th>
<th>Asian</th>
<th>Native Hawaiian or part Hawaiian</th>
<th>Multiple</th>
<th>p value</th>
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<td>Fruits and vegetables</td>
<td></td>
<td>54.7</td>
<td>37.1</td>
<td>38.2</td>
<td>52.9</td>
<td>0.000</td>
</tr>
<tr>
<td>Low dietary fat intake</td>
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<td>49.0</td>
<td>32.6</td>
<td>28.4</td>
<td>43.4</td>
<td>0.000</td>
</tr>
<tr>
<td>Breakfast 6 or 7 d/wk</td>
<td></td>
<td>70.5</td>
<td>68.2</td>
<td>55.7</td>
<td>60.1</td>
<td>0.000</td>
</tr>
<tr>
<td>Eating a healthy diet</td>
<td></td>
<td>78.4</td>
<td>56.9</td>
<td>52.7</td>
<td>67.9</td>
<td>0.000</td>
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<tr>
<td>Walking</td>
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<td>43.7</td>
<td>35.0</td>
<td>42.6</td>
<td>40.0</td>
<td>0.000</td>
</tr>
<tr>
<td>Moderate physical activity</td>
<td></td>
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<td>19.2</td>
<td>25.8</td>
<td>22.9</td>
<td>0.001</td>
</tr>
<tr>
<td>Vigorous physical activity</td>
<td></td>
<td>34.2</td>
<td>23.1</td>
<td>31.9</td>
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<tr>
<td>Unhealthy</td>
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</tr>
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<td>Soda consumption</td>
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<td>7.0</td>
<td>9.3</td>
<td>5.7</td>
<td>0.006</td>
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<tr>
<td>Fast-food consumption</td>
<td></td>
<td>33.2</td>
<td>52.0</td>
<td>50.5</td>
<td>40.3</td>
<td>0.000</td>
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<td>48.2</td>
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<td>Binge drinker</td>
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<td>38.4</td>
<td>23.8</td>
<td>0.000</td>
</tr>
<tr>
<td>High stress level</td>
<td></td>
<td>20.3</td>
<td>14.5</td>
<td>20.1</td>
<td>22.2</td>
<td>0.056</td>
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</tbody>
</table>

d/wk = days per week
Multiple Health Behaviors in an Ethnically Diverse Sample of Adults with Risk Factors for Cardiovascular Disease

Logistic Regression Models

After controlling for age, sex, and ethnicity, we found that the logistic regression for diabetes was significant at step 2 \( \chi^2(5) = 12.76; p < .05 \). However, the only significant predictor was being less likely to have a healthy diet \( p < 0.001 \). The logistic regression for hypertension was also significant at step 2 \( \chi^2(6) = 30.47; p < 0.01 \). Significant predictors included being less likely to eat a healthy diet or to meet recommendations for vigorous physical activity. The logistic regression for a high cholesterol level was also significant at step 2 \( \chi^2(7) = 31.94; p < 0.001 \). Significant predictors included being less likely to have low dietary fat intake but being less likely to eat fast food. The logistic regression for obesity was also significant at step 2 \( \chi^2(10) = 99.11; p < 0.001 \). Significant predictors included being less likely to eat a low-fat diet, eat breakfast, eat a healthy diet, or meet recommendations for vigorous physical activity but consuming greater amounts of fast food (Table 5).

Discussion

In our study, multiple health behaviors did differ significantly on the basis of CVD risk-factor health conditions. Our hypothesis was supported in that those with diabetes, hypertension, high cholesterol levels, and obesity reported fewer healthy and more unhealthy behaviors, compared with those without each condition. In general, key variables for those with CVD risk factors included being less likely to eat a low-fat diet, eat a healthy diet, meet recommendations for vigorous physical activity, or eat breakfast regularly and being more likely to eat fast food.

Despite having been told by a medical professional that they had one or more CVD risk factors, study participants still reported engaging more frequently in unhealthy behaviors and less frequently in healthy behaviors. However, differences did exist between the CVD risk factors. It is interesting that the worst health index overall was found for individuals with obesity. We did not ask people if they were obese; instead, we calculated their BMI on the basis of their self-reported height and weight. This possible lack of knowledge of obesity status may reflect that those who reported the other conditions had already begun to make some changes in health behaviors but still needed to make more changes. Future research might examine specific behavioral differences over time to determine when behavior changes may occur for those with diagnosed CVD risk factors.

The strongest correlate was not eating a healthy diet (significant for all CVD risk factors except a

| Table 4. Average health behavior index scores* by cardiovascular disease risk factor |
|---------------------------------|-----------------|-----------------|-----------------|
| Risk factor                    | Yes: mean (SD) | No: mean (SD)  | \( \chi^2 (p\text{ value}) \) |
| Diabetes                       | 6.76 (1.98)    | 7.18 (2.19)    | 22.03 (0.024)   |
| Hypertension                   | 6.86 (2.05)    | 7.26 (2.21)    | 35.65 (0.000)   |
| High cholesterol level         | 6.96 (2.03)    | 7.21 (2.23)    | 25.71 (0.007)   |
| Obesity                        | 6.49 (1.92)    | 7.58 (2.05)    | 161.50 (0.000)  |

*Higher scores indicate more healthy and fewer unhealthy behaviors; range, 0–12. SD = standard deviation

| Table 5. Logistic regression models for predictors of cardiovascular disease risk factors |
|---------------------------------|-----------------|-----------------|-----------------|
| Risk factor                    | Variables       | Odds ratio      | 95% Confidence interval | p value |
| Diabetes                       | Lack of a healthy diet | 1.82   | 1.09–3.03 | <0.05 |
| Hypertension                   | Lack of a healthy diet | 1.52   | 1.06–2.18 | <0.05 |
|                                 | Lack of vigorous physical activity | 1.79   | 1.26–2.54 | <0.001 |
| High cholesterol level         | Lack of low dietary fat intake | 1.70   | 1.22–2.36 | <0.01 |
|                                 | Fast-food consumption | 1.51   | 1.09–2.10 | <0.05 |
| Obesity                        | Lack of low dietary fat intake | 2.20   | 1.59–3.03 | <0.001 |
|                                 | Not eating breakfast | 1.33   | 1.01–1.75 | <0.05 |
|                                 | Fast-food consumption | 0.64   | 0.48–0.84 | <0.01 |
|                                 | Lack of a healthy diet | 1.52   | 1.13–2.03 | <0.01 |
|                                 | Lack of vigorous physical activity | 1.63   | 1.18–2.26 | <0.01 |
Individuals with each CVD risk factor were less likely overall to meet recommendations for physical activity than were those without the risk factors. Specifically, less vigorous physical activity was a significant correlate for both hypertension and obesity in our study. Most strategies recommend engaging in moderate physical activity,7 because many people with chronic disease are physically inactive.8 However, the importance of vigorous physical activity should not be overlooked.

Confirming the results of previous research, Native Hawaiians had significantly higher rates of diabetes, hypertension, and obesity than did other groups.3,13 Asians also had significantly higher rates of diabetes,12 as well as hypertension and high cholesterol levels, than did other groups. Clear differences also existed between ethnicities for healthy and unhealthy behaviors, similar to findings in previous studies,22 with ethnic minorities tending to report fewer healthy and more unhealthy behaviors than whites. Despite these ethnic disparities, significant behavioral correlates existed for each CVD risk factor after controlling for age, sex, and ethnicity.

Interestingly, rates for binge drinking were significantly lower for individuals with diabetes, hypertension, and high cholesterol levels than for those without. The frequency of consumption of fast food was also lower for those with high cholesterol levels than those without. Contrary to earlier research findings, no significant differences were found for smoking, although ethnic differences were found.20 Future research could examine whether these findings were intentional behaviors and if they could be built on to decrease other unhealthy behaviors.

Limitations of our study included the use of a cross-sectional design and self-reported data for all CVD risk factors and health behaviors. It is likely that the rates of obesity were underreported, as they were lower than the state average of 21.7%.23 These data cannot be used to indicate causality. Caution should be used in applying these results to other states, as the ethnic composition of Hawaii is unique. Also, because of the large number of variables, we chose to dichotomize the variables. This was essential for the logistic regression analysis and also for the interpretability of the tables. However, this may have caused the loss of some of the richness of individual variables. For many of the behaviors, there were no clinical guidelines for cut points. In these cases, we determined the most logical cut point in order to separate the healthy from the unhealthy level of each behavior. Thus, some items (eg, consuming fast food once a week) may not be clinically significant.

Conclusion
Culturally and behaviorally tailored interventions should be designed for different CVD risk factors, taking into account whether the person is aware of the risk factor and whether the person has already made any behavioral changes. When addressing diabetes, it is important to emphasize improving the diet overall to be more healthy. When addressing obesity, important areas to emphasize include improving the diet overall to be more healthy and increasing vigorous physical activity. When addressing high cholesterol, important areas to emphasize include decreasing dietary fat intake and continuing to avoid consumption of fast food. Enhanced interventions dealing with multiple health behaviors may be important in reducing the number of people with CVD risk factors progressing toward CVD.

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

Acknowledgments
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Katharine O’Moore-Klopf, ELS, of KOK

References


Health

Plain living and high thinking will secure health for most of us.

— The Use of Life, Sir John Lubbock, Baron Avebury, 1834-1913, English banker, biologist, archaeologist, and Liberal politician
The Relationship of Unemployment and Depression with History of Spine Surgery

Abstract

Background: Chronic back pain is a known risk factor for unemployment, disability, and depression. This paper discusses the interaction of unemployment, depression, and history of prior spine surgery.

Methods: We retrospectively reviewed the charts of 629 patients who underwent spine surgery and who were between the ages of 25 and 65 years. We collected data on their employment status, history of depression, and history of prior spine surgery (yes or no). Three types of spine surgery were included in the study: lumbar microdiscectomy, anterior cervical decompression and fusion, and lumbar decompression and fusion.

Results: Approximately 29% (183) of the patients were unemployed and 32% (200) had a history of depression. Unemployment was more common among depressed patients (44% vs 27%; p < 0.001), and depression was more common among unemployed patients (41% vs 24%; p < 0.001). A history of prior spine surgery was most prevalent in unemployed female patients with a history of depression.

Conclusion: Unemployment and depression were strongly associated with a history of prior spine surgery in the female cohort of our study population.

Introduction

Unemployment is one of the major distresses that can strike a human being. Unemployment rates in the general population surge during economic recessions, but unemployment may also occur to individuals as a sequela of physical injury or disease. People losing their jobs are very likely to experience psychological tension, mainly depression and anxiety, which negatively affects their health, their family’s security, and society’s stability in general.

Chronic back pain is a known risk factor for unemployment, disability, and depression. In a difficult period of economic restraint brought on by the recession that began in 2008 and with the US experiencing approximately $30 billion in lost productivity from chronic back pain each year, it is relevant to investigate the interaction of unemployment and depression and their relationship with a history of spine surgery.

Materials and Methods

We retrospectively reviewed the charts of 629 patients who underwent spine surgery between 2005 and 2008 and who were between the ages of 25 and 65 years. We collected data on their employment status, history of depression, and history of prior spine surgery, which were coded as nominal variables (yes or no). Three types of spine surgery were included in the study:

- Lumbar microdiscectomy (LMD), 171 patients
- Anterior cervical decompression and fusion (ACDF), 285 patients
- Lumbar decompression and fusion (LDF), 173 patients.

The $\chi^2$ and Fisher exact tests were used to determine significant differences between the rates of unemployment, depression, and prior spine surgery. Statistical analysis and graphing was accomplished using Excel (2003; Microsoft, Redmond, WA) and SPSS Statistics (version 16; IBM, Somers, NY).

Results

Approximately 29% (183) of the 629 patients were unemployed, and 32% (200) had a history of depression. Unemployment was 36% in the LDF group, 28% in the ACDF group, and 23% in the LMD group, which was statistically different (p < 0.05). Similarly,
The percentage of those with a history of depression was highest in the LDF group (35%), with 33% in the ACDF group and 27% in the LMD group having such a history, which was not statistically significant (p > 0.05). The average ages in the LDF, ACDF, and LMD groups of working age patients were 51 years, 50 years, and 48 years, respectively (Figure 1).

Unemployment was most common among depressed patients (44% vs 27%; p < 0.001), and depression was most common among unemployed patients (41% vs 24%; p < 0.001). A history of depression was most common in unemployed women in all types of spine surgery. A history of depression was reported by 34.62% of unemployed women in the LMD group, by 49.02% of those in the ACDF group, and by 60.00% of those in the LDF group (Figure 2). The difference was significantly different (p < 0.05) between the male members of the ACDF group and the female members of the LDF group.

A history of prior spine surgery was most prevalent in unemployed women with a history of depression: in 66.67% of unemployed women in the LMD group, 48.00% of those in the ACDF group, and 59.26% of those in the LDF group (Figure 3). In the ACDF group, the rates for a history of prior spine surgery were significantly different (p < 0.01) between depressed and nondepressed, employed men and between depressed and nondepressed, unemployed women.

**Discussion**

Unemployment depression, which particularly affects middle-aged persons, may manifest with physical symptoms such as headache, irritability, stomachache, and sexual dysfunction in its early stages. More serious symptoms may eventually arise, including fatigue, sluggishness, loss of interest in life pleasures, and, worst of all, suicidal thoughts, plunging individuals who lose their job into a vicious cycle of frustration and defeat that makes it even harder for them to find a new job. Our study shows that unemployment and depression are common among those who have had spine surgery, with depression being more common among unemployed patients. Women admitted for spine surgery who are unemployed and report a history of depression are more likely than other patients to have had spine surgery in the past.

Recent studies document a dramatic 220% increase in the rate of spinal-fusion surgery, yet Deyo et al note that these increases “have not been accompanied by population-level improvements in patient...
The Relationship of Unemployment and Depression with History of Spine Surgery

outcomes or disability rates.5 Our study sheds light on an important factor that may be behind this lack of better spine surgery outcome: the duo of unemployment and depression. A model can be suggested where unemployment causes depression, which worsens back problems via pain-threshold modification, leading to additional spine surgeries6,7 (Figure 4). Furthermore, depression strongly affects the ability of patients to achieve a good surgery outcome with significant improvement in symptoms, disability score, and walking capacity, as demonstrated recently by Sinikallio et al.8

With an ongoing economic recession and with soaring health care expenditures, it is important to quantify efforts to improve hospital efficiency and decrease hollow overuse of health care resources.9 In view of our findings, it may be extremely useful to perform a randomized, controlled trial involving social workers and cognitive-behavioral specialists who will work with the spine-surgery population to decrease the risk of “failed back syndrome”10 by performing the right operation on the right patient, which should supposedly improve the patient’s clinical outcome, quality of life, and depression symptoms.11 It would also be useful to incorporate length of stay, consumption of hospital resources, and change in employment status in the outcome analysis of these patients.

It is important to note, however, that the discovered association between employment status,
depression, and the number of spine interventions in US patients may not apply to other countries that have different health care resources and treatment protocols. More research is still needed into spine surgery cost-effectiveness, patient psychological markers, and sex-related differences in outcome.

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

Depression
Depression can seem worse than terminal cancer, because most cancer patients feel loved and they have hope and self-esteem.

—David D Burns, MD, author and professor in the Department of Psychiatry and Behavioral Sciences at the Stanford University School of Medicine
Behaviorally Supported Exercise Predicts Weight Loss in Obese Adults Through Improvements in Mood, Self-Efficacy, and Self-Regulation, Rather Than by Caloric Expenditure

James J Annesi, PhD

Abstract

Background: The relationship of exercise to weight loss, beyond minimal caloric expenditures possible in obese and deconditioned individuals, requires clarification.

Objective: We assessed whether changes in theory-based psychological variables associated with participation in an exercise treatment extended to psychologically based predictors of controlled eating and weight and waist-circumference reductions.

Methods: A group of 137 adults with severe obesity (mean body mass index, 42.2 kg/m²) volunteered for an exercise-support and nutrition-education treatment of 26 weeks’ duration that was based on social cognitive theory. Exercise- and eating-related measures of mood, self-regulation, and self-efficacy were obtained at baseline and at treatment end, along with weight, waist circumference, and exercise volume. Analyses were also conducted separately for women participants only (n = 102).

Results: Treatment-induced changes in total mood disturbance, self-regulatory skill usage for exercise, and exercise self-efficacy were significantly related to changes in self-efficacy to control emotional eating, self-regulatory skill usage for controlled eating, and overall self-efficacy for controlled eating, respectively (p < 0.001). Changes in the eating-related measures significantly predicted changes in weight and waist circumference with adjusted R² values from 0.15 to 0.21 and 0.28 to 0.30, respectively (p < 0.001). Post-hoc testing indicated a strong negative correlation between exercise completed and weight change (r = –0.62); however, only 12.4% of the observed weight change was accounted for through associated caloric expenditures.

Conclusion: Exercise may support weight loss primarily through psychological rather than physiological pathways. Although the models tested were viable, additional modifiable variables may further strengthen the prediction of weight and waist-circumference change and benefit weight-loss theory and treatment outcomes.
mass index (BMI) of 35 kg/m² to 50 kg/m², and participating in no regular exercise (< 20 minutes per week) in the previous year. Pregnancy and the use of medication for weight loss or a psychological or psychiatric condition were reasons for exclusion. We obtained a written statement of adequate physical health to participate from a physician, approval from an institutional review board, and written consent from all study participants (N = 137; mean age = 43.6 years [Standard Deviation [SD] = 9.9]; mean BMI = 42.2 kg/m² [SD = 6.6]; racial make-up: 53% white, 45% black, and 2% other races/ethnicities; socioeconomic level: mostly lower-middle to middle class).

**Measures**

Total mood disturbance (TMD) is an aggregate measure of mood derived from the six subscales of the Profile of Mood States Short Form. Respondents rate feelings during the preceding week for 30 items (5 items for each of its subscales: tension, depression, fatigue, confusion, anger, vigor) on a scale ranging from 0 (not at all) to 4 (extremely). The internal consistency ranged from 0.84 to 0.95, and test-retest reliability at 3 weeks averaged 0.69.

Measurement of self-regulation skills usage for both exercise (SR-Ex) and appropriate eating (SR-Eat) was adapted from a validated scale that was based on treatment content. Responses to the 10 items for each scale ranged from 1 (never) to 5 (often). Internal consistencies were 0.79 and 0.81, and test-retest reliabilities during a span of 2 weeks were 0.78 and 0.74, respectively.

The Exercise Self-Efficacy Scale (ExSE) measured perceived ability to overcome barriers to exercise. Responses range from 1 (not at all confident) to 7 (very confident). Internal consistencies ranged from 0.76 to 0.82, and test-retest reliability during a span of 2 weeks was 0.90.

The Weight Efficacy Lifestyle Questionnaire measured self-efficacy for controlled eating. It is made up of 5 subscales (4 items for each of its subscales: negative emotions, availability, social pressure, physical discomfort, positive activities). Item responses range from 0 (not confident) to 9 (very confident). For this research, both the total score (WEL-Tot) and the negative emotions subscale (WEL-NegEm) were used. Internal consistencies ranged from 0.70 to 0.90 and 0.87 to 0.88, respectively.

The Godin Leisure-Time Exercise Questionnaire measured exercise through study participants' entry of weekly frequencies of strenuous, moderate, and light exercise for more than 15 minutes per session. Responses are multiplied by 9, 5, and 3 standard metabolic equivalents (METs), respectively, and then summed. For adults, test-retest reliability during a span of 2 weeks was 0.74. Construct validity was indicated by significant correlations with accelerometer and maximum oxygen consumption measurements.

A recently calibrated digital scale was used to measure weight (kg). A tape measure was used to measure waist circumference at the umbilicus. Change scores were the difference from baseline to week 26.

**Procedure**

Participants were provided access to YMCA wellness centers and were enrolled in a treatment program that was based on tenets of social cognitive theory. The exercise support portion of the treatment consisted of 6 one-on-one meetings of 45 to 60 minutes each, during a span of 26 weeks. Instruction in an array of self-regulatory methods (eg, long- and short-term goal setting, cognitive restructuring, relapse prevention) was a primary focus. Exercise plans were based on each participant’s tolerance; however, the volume suggested for health promotion (150 minutes per week) was described, and it was suggested that any volume of exercise may have benefit.

The nutrition portion of the treatment consisted of six 1-hour group sessions over the initial 14 weeks. Components included 1) using the US Food Guide Pyramid, 2) developing a plan for snacking, and 3) using self-regulatory skills for controlled eating. Overall, attendance in treatment sessions was 72%.

**Data Analyses**

First, score changes in TMD, SR-Ex, ExSE, WEL-NegEm, SR-Eat, WEL-Tot, weight, waist circumference, and recalled exercise per week during the 26-week treatment were calculated. As in previous research, changes throughout treatment, rather than scores at a particular temporal point, were used to account for the dynamic nature of weight-loss treatment processes. Both actual score changes and changes controlling for baseline scores were used for analyses.

Next, linear bivariate relationships between changes in the following exercise-related and eating-related variables were calculated: 1) TMD and WEL-NegEm, 2) SR-Ex and SR-Eat, and 3) ExSE and WEL-Tot. Finally, the variance in changes in weight and waist circumference accounted for by changes in the three eating-related variables was derived using multiple regression analysis with simultaneous entry of the predictors.

Because treatments that include exercise (and hence may increase...
Behaviorally Supported Exercise Predicts Weight Loss in Obese Adults Through Improvements in Mood, Self-Efficacy, and Self-Regulation, Rather Than by Caloric Expenditure

Results

For both the entire sample and women-only subsample, independent t-tests indicated statistically significant improvements over a span of 26 weeks in all study variables (Table 1). In all subsequent analyses, results were similar whether actual change scores or changes controlling for baseline values were incorporated. Thus, only results from actual score changes are reported. For both the entire sample and women-only subsample, significant bivariate relationships were found between changes in:

- TMD and WEL-NegEm ($\beta = -0.30$, SE = 0.05, $p < 0.001$, and $\beta = -0.31$, SE = 0.05, $p = 0.002$, respectively)
- SR-Ex and SR-Eat ($\beta = 0.65$, SE = 0.06, $p < 0.001$, and $\beta = 0.61$, SE = 0.07, $p < 0.001$, respectively)
- ExSE and WEL-Tot ($\beta = 0.51$, SE = 0.23, $p < 0.001$, and $\beta = 0.53$, SE = 0.26, $p < 0.001$, respectively).

For both the entire sample and the women-only subsample, changes in WEL-NegEm, SR-Eat, and WEL-Tot accounted for a significant portion of the variance in weight and waist-circumference changes (Table 2). In each of the four multiple regression equations having three predictors, changes in SR-Eat explained a significant unique portion of the variance. In the women-only subsample, change in WEL-Tot was also a significant unique predictor. For both the entire sample and the women-only subsample, changes in SR-Eat and WEL-Tot accounted for a significant portion of the variance in waist-circumference changes in each of the multiple regression equations having two predictors (Table 2). In the two-predictor equations, both predictors explained at least a marginally significant ($p < 0.07$) unique portion of the variance.

Table 1. Changes in study variables during a span of 26 weeks

<table>
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<tr>
<th>Measure</th>
<th>Baseline Baseline</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>95% CI</th>
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<td>Mean  SD Mean  SD</td>
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<td></td>
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<td></td>
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<tr>
<td>All participants (N = 137)</td>
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<td>TMD</td>
<td>20.76 16.23 10.40 18.00</td>
<td>–7.84</td>
<td>136</td>
<td>&lt;0.001</td>
<td>–12.98, –7.45</td>
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<td>SR-Ex</td>
<td>19.74 5.60 27.36 7.42</td>
<td>10.62</td>
<td>136</td>
<td>&lt;0.001</td>
<td>6.20, 9.03</td>
<td>1.36</td>
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<td>ExSE</td>
<td>30.10 11.86 33.85 10.97</td>
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<td>136</td>
<td>&lt;0.001</td>
<td>2.00, 5.49</td>
<td>0.32</td>
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<td>WEL-NegEm</td>
<td>18.83 9.88 22.79 9.31</td>
<td>5.38</td>
<td>136</td>
<td>&lt;0.001</td>
<td>2.51, 5.42</td>
<td>0.40</td>
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<td>SR-Eat</td>
<td>21.07 6.64 26.64 7.23</td>
<td>8.87</td>
<td>136</td>
<td>&lt;0.001</td>
<td>4.33, 6.82</td>
<td>0.84</td>
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<tr>
<td>WEL-Tot</td>
<td>102.95 33.92 120.41 34.25</td>
<td>6.43</td>
<td>136</td>
<td>&lt;0.001</td>
<td>12.08, 22.83</td>
<td>0.51</td>
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<tr>
<td>Weight (kg)</td>
<td>120.28 18.61 116.74 17.42</td>
<td>–8.92</td>
<td>136</td>
<td>&lt;0.001</td>
<td>–5.19, –3.08</td>
<td>0.29</td>
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<tr>
<td>Waist circumference</td>
<td>123.57 14.01 119.44 13.70</td>
<td>–7.73</td>
<td>136</td>
<td>&lt;0.001</td>
<td>–13.82, 19.91</td>
<td>1.55</td>
</tr>
<tr>
<td>Exercise per week</td>
<td>10.17 10.91 27.57 19.97</td>
<td>10.95</td>
<td>136</td>
<td>&lt;0.001</td>
<td>–5.19, –3.08</td>
<td>0.29</td>
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<tr>
<td>Women participants (n = 102)</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>TMD</td>
<td>22.32 16.25 11.44 18.36</td>
<td>–6.68</td>
<td>102</td>
<td>&lt;0.001</td>
<td>–14.11, –7.65</td>
<td>0.67</td>
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<tr>
<td>SR-Ex</td>
<td>20.03 5.49 26.72 7.27</td>
<td>8.47</td>
<td>102</td>
<td>&lt;0.001</td>
<td>5.12, 8.25</td>
<td>1.22</td>
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<tr>
<td>ExSE</td>
<td>30.08 12.16 32.95 11.57</td>
<td>2.82</td>
<td>102</td>
<td>&lt;0.001</td>
<td>0.85, 4.88</td>
<td>0.24</td>
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<td>WEL-NegEm</td>
<td>18.32 9.86 22.42 9.02</td>
<td>4.85</td>
<td>102</td>
<td>&lt;0.001</td>
<td>2.42, 5.77</td>
<td>0.42</td>
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<tr>
<td>SR-Eat</td>
<td>21.99 6.75 26.40 6.97</td>
<td>6.56</td>
<td>102</td>
<td>&lt;0.001</td>
<td>3.08, 5.75</td>
<td>0.65</td>
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<tr>
<td>WEL-Tot</td>
<td>102.36 33.83 120.92 31.80</td>
<td>6.02</td>
<td>102</td>
<td>&lt;0.001</td>
<td>12.44, 24.67</td>
<td>0.54</td>
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<tr>
<td>Weight (kg)</td>
<td>117.68 18.76 114.74 17.25</td>
<td>–6.63</td>
<td>102</td>
<td>&lt;0.001</td>
<td>–3.81, –2.06</td>
<td>0.16</td>
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<tr>
<td>Waist circumference</td>
<td>121.39 13.64 117.81 13.12</td>
<td>–5.90</td>
<td>102</td>
<td>&lt;0.001</td>
<td>–4.76, –2.37</td>
<td>0.26</td>
</tr>
<tr>
<td>Exercise per week</td>
<td>10.16 10.49 27.74 20.03</td>
<td>9.13</td>
<td>102</td>
<td>&lt;0.001</td>
<td>12.19, 18.96</td>
<td>1.68</td>
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$d =$ Cohen’s measure of effect size; ExSE = exercise self-efficacy scale; CI = confidence interval; SD = standard deviation; SR-Eat = self-regulation for controlled eating; SR-Ex = self-regulation for exercise; TMD = total mood disturbance scale of the Profile of Mood States; WEL-NegEm = negative emotions subscale of the Weight Efficacy Lifestyle Questionnaire; WEL-Tot = total score on the Weight Efficacy Lifestyle Questionnaire. Exercise per week is expressed in metabolic equivalents (METs) per week.
Post-Hoc Test

When change in exercise volume per week for both the entire sample and the women-only subsample was converted to caloric expenditure on the basis of previous research, only 12.4% and 13.1%, respectively, of weight change was explained, although the correlations between changes in exercise and weight were strong ($r = -0.62$ and $-0.55$, respectively; $p < 0.001$).

Discussion

Carryover from improvements in mood, self-regulation, and self-efficacy, (associated with an exercise treatment using cognitive-behavioral methods) to improvements in corresponding variables associated with controlled eating was previously suggested, but empirical verification was largely missing. The present findings suggested that exercise’s association with weight loss was better explained through such psychological, rather than physiological (ie, caloric expenditure), pathways. This has considerable implications for weight-loss theory development and clinical applications, suggesting that attention should be given to the mood-enhancing properties and to improvements in self-regulation and self-efficacy that are possible through behaviorally based exercise treatments.

Table 2. Results of multiple regression analyses for prediction of changes in weight and waist circumference

<table>
<thead>
<tr>
<th>Prediction of weight change</th>
<th>$\beta$</th>
<th>SE</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>$F$</th>
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<th>$R^2_{adj}$</th>
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SR-Eat = self-regulation for controlled eating; WEL-NegEm = negative emotions subscale of the Weight Efficacy Lifestyle Questionnaire; WEL-Tot = total score on the Weight Efficacy Lifestyle Questionnaire.

The Delta symbol ($\Delta$) denotes change in score from baseline to week 26. $R^2$ values were adjusted for number of predictors in each model: $R^2_{adj} = 1 – (1 – R^2)(N – 1)(N – k – 1)$, where $k$ denotes number of predictors in the multiple regression equation.
Behaviorally Supported Exercise Predicts Weight Loss in Obese Adults Through Improvements in Mood, Self-Efficacy, and Self-Regulation, Rather Than by Caloric Expenditure

Replications should incorporate more controlled settings, direct measurement of eating behaviors and caloric consumption, and, possibly, inclusion of additional variables to extend the present prediction models. Continued testing within field settings with a variety of sample types (eg, persons who have undergone bariatric surgery, morbidly obese persons), however, may have more immediate benefits for practical application of findings.24 The directionality of the identified relationships also requires further investigation. Hopefully, behavioral interventions directed at eating behaviors can be paired with appropriately supported exercise to reliably improve lagging weight-loss treatment outcomes25 over the long term. 

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

Acknowledgments
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References
Practice Leaders Programme: Entrusting and Enabling General Practitioners to Lead Change to Improve Patient Experience

Marion Lynch, PDHSc, MSc, MSc, PgCMed Ed, PgCStComm RGN RMN
Nigel McFetridge, MB, BCh, MRCGP, DFPHM

Abstract
This program focused on practice-level service change as a means of improving patient care and developing leadership skills of 19 general practitioners (GPs) and aimed to: promote and support change in leadership thinking and practice, facilitate practice-led service improvement, support career development, support continuing professional development, and contribute to the development of extended GP specialty training. Nineteen GPs, in Milton Keynes, United Kingdom, both new and experienced, volunteered to participate. Milton Keynes was selected on the basis of it being an area of relative social deprivation and underperformance in national quality indicators. New and experienced GPs took part in biweekly Action Learning Sets, individual coaching, and placements with the national and local health organizations. Each participant completed a project to improve the quality of patient care. The learning sets supported the process and 11 of the GPs chose to complete a postgraduate certificate in General Practice. Evaluation consisted of analysis of development of leadership competencies recorded through Medical Leadership Competency Framework pre- and post-intervention assessment, analysis of learning recorded in participants’ reflective diaries, analysis of learning process recorded through participant focus groups, and analysis of learning and project outcomes recorded in project reports. Outcomes showed statistically significant increases in leadership competencies, changes in services and care, improved confidence and changed culture. GPs expressed increased confidence to “have a go” and motivation to “make a difference.” This innovative narrative, complex, neuroleadership-based program continues to inform educational policy and practice, increasing leadership competencies, and to improve the quality of patient care.

Introduction
The multicase system study reported here looked at the principles and outcomes of the Practice Leaders Programme (PLP), an innovative health care quality-improvement project in general medical practice in Milton Keynes, United Kingdom (UK). This report is an abridged version of an extended article that will appear online in 2011 at www.thepermanentejournal.org. The increasing need to lead innovation across many separate organizations in local health communities means that new thinking is required so that the involved organizations can develop a shared vision, implement change, and sustain quality improvement to improve health and health care. Through the PLP, general practitioners (GPs) improved their leadership competencies, created a culture of confidence in leading change, and gained knowledge of and experience in designing, implementing, and evaluating service improvement (Figure 1). Nineteen GP-led improvement projects during 2008-2009 affected more than 140,000 patients. In 2009-2010, the PLP continued as an educational model in Oxfordshire to address new solutions for unplanned admissions to hospitals across a population of 600,000, and it is now being used to rethink local solutions in preparation for GP-led commissioning of health care.

Background
With the shift in function, form, and funding of health services in the UK and the largest planned redesign of the National Health Service (NHS) in a generation, there is understandably some anxiety and excitement about how things can be done.

Equity and Excellence: Liberating the NHS1 sets the direction for the new NHS. It gives those working in the community in the UK an opportunity to design, commission, and deliver new community models...
of health care and create new ways of working. This will require GPs, most of whom have no leadership training, to rapidly think like leaders and lead in a way such that people across different organizations share the same vision and are positively energized to achieve it voluntarily. In 2008, we recognized this, realizing that a new leadership-development approach was needed that would work for leading independent, highly intelligent, adaptive professionals working in a variety of organizations to continuously improve individual care for patients within very tight funding constraints.

The Milton Keynes PLP was set up as a pilot to explore and try out a new way of delivering leadership development. It was iterative and based on coaching and facilitation to lead a practice-based improvement project, rather than being based just on education and training. A “Plan-Do-Study-Act” approach was set within a core framework.

The evidence and concepts underpinning the construction and content of the PLP are cognitive and cultural. Narrative medicine, neuroleadership, and complex adaptive systems theory provided some of the evidence base for this way of knowing, as well as the frameworks for understanding the context and environment and applying new knowledge and understanding. The new thinking was away from diagnosis-based problem solving and toward solution-focused vision, goals, and planning; away from closed, linear system thinking and toward complex adaptive system thinking; away from knowledge acquisition and toward knowledge creation and application.

Analysis of the demographics, deprivation, quality indicators, and patient satisfaction scores across the South Central Strategic Health Authority (the funding organization) highlighted specific localities in need of an educational intervention aimed at improving quality of care and clinical leadership. Assessment of the organizational cultures of the host organizations (Primary Care Trusts) pointed to those most resistant or responsive to innovation (Cultural Web). Further investigation of communities’ needs and general practice priorities allowed the project to invite those practices most in need or ready to change to join the program.

**Methods**

Milton Keynes was chosen because some practices provided care in areas with significant social deprivation and some also struggled with low patient access and low patient satisfaction scores. It was thought that their patients would benefit most from the program and that working with those practices would be the best test of the program. Also, the local commissioning organization was eager to try new and innovative ideas to improve practice performance.

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**Figure 1. Components of the “Cultural Web” used to map the Practice Leaders Programme.**

GP = general practitioner; NHS = National Health Service.
Intervention

Successful implementation of research into practice is influenced by three core elements: the level and nature of the evidence being used, the context or environment of the intervention, and the method of implementation. All three elements have been taken into account in the design and delivery of the PLP.

The evidence and concepts underpinning the construction and content of the PLP are cognitive and cultural. Understanding systems, patients, and mindfulness of oneself is crucial, and using narrative as a way of knowing is core to this process. Narrative medicine and neuroleadership provide some of the evidence base for this way of knowing.

The knowledge and skills needed to design and deliver the projects are both collective and individual. Complexity theory, complex adaptive systems, and health improvement models provide frameworks for understanding the context and environment and applying new knowledge and understanding.

Nineteen GPs took part, seven of whom recently qualified. The program ran from October 2008 to September 2009 and consisted of biweekly all-day learning sets, personal coaching, and general support for the design, delivery, and evaluation of quality-improvement projects in their practices. All participants were offered the opportunity to register for a higher degree with Oxford Brookes University, Oxford.

The 19 GPs were split into 3 learning sets of 6 to 8 people (one specifically for the recently qualified GPs). The participants elected to stay in the same learning sets through the program, and the content of the two learning sets for the established GPs stayed broadly similar.

The first action set was particularly important, as it was the first time that the new approach was used and was expected to be well outside most GPs’ comfort zones. The facilitator focused on building trust in the groups and on developing a willingness to try new ideas. Ground rules for behavior were established, and key barriers to success were identified, along with ways to overcome them. The ideas of a thinking environment and new listening skills were introduced through some simple exercises.

Subsequent learning sets were structured loosely within an overall framework (see Sidebar: The Learning Set Framework), with typical action learning combined with a mix of theory delivered by the facilitator. Content was introduced in response to the expressed needs of the participants, often to help them move toward solutions. Participants agreed on actions for their projects during each learning set and brought the outcomes to the next set. They learned to help each other find new solutions, plan further actions, and run the learning sets themselves. Each participant was also given access to eight telephone coaching sessions from an independent coaching company. The coaching model established personal success criteria and personal goals that were then, if wanted, integrated within the action learning sets.

Learning set content included an introduction to service-improvement models, change management, social marketing, health economics, lean thinking, leadership skills, neuroleadership, mythodrama, de Bono six hats thinking, presentation and communication skills, report writing, patient perspectives, Myers-Briggs Type Indicator and team leadership, chairing groups and meetings, public involvement, NHS structures, policy development and process mapping, and discussions and presentations of the individual projects.

At the end of the year, the participants described their personal journeys and project successes at a major presentation.

The Learning Set Framework

### Term 1. Start the Journey
1. Understand:
   - Change in a complex and adaptive world
   - Leadership competencies to deliver effective, personal, and safe health care for your patients
   - The culture and context of the patient, the profession, and the practice within National Health Service priorities.
2. Identify your personal development needs.
3. Define your service-improvement project.
4. Discover a compelling vision of a future culture that motivates individuals to change behavior, then set inspired and challenging goals.
5. Plan the big steps to your goals and start the first small steps.

### Term 2. Evolve, Lead, and Deliver
1. Think in new ways to make the best use of your brain—focus on solutions.
2. Develop your leadership competencies and experience transformational leadership.
3. Deliver service improvements.

### Term 3. Complete the Journey, Review, and Celebrate
1. Complete and sustain the service improvement.
2. Develop your leadership competencies further.
3. Evaluate the program, cultural change, and personal competencies.
4. Share your insights and reflections.
5. Write fantastic reports; celebrate and share your achievements.
Evaluation

The data were analyzed by independent researchers to identify changes in competency in individuals and emergent themes in learning process and project outcome. This higher-order analysis identified convergent and contradicting themes. The findings have been reported as organizational reports and academic papers. The outcome measures included the following:

• Medical Leadership Competency Framework self-assessment forms completed before and after the program.13
• Session evaluation forms completed for each learning set.
• Service-improvement project reports and reflective accounts from participants.
• Focus-group transcripts.
• Other evidence, such as program handbooks, videos of presentations, program documentation, and correspondence.

The evaluation methods took account of narrative and stories viewed through the lens of Kirkpatrick’s four levels of evaluation14 as well as quantitative data (which alone does not capture the complexities of modern health care organizations or educational interventions). The evaluation aimed to:

• Determine the nature and scope of any changes in leadership thinking and practice among participants in the context of the educational intervention.
• Record changes in the learning and continuing professional development needs of participants over the course of the educational intervention.
• Assess the scope and impact of the service-improvement projects.
• Identify supporting evidence to encourage future uptake of the program.

Data were analyzed by individual researchers independently of the program leader, facilitators, and coaches. Professional responsibility and lines of support were agreed on in relation to handling anonymous and confidential data. Content was gained from all participants, and learning contracts established roles and responsibilities. All program data were shared with the researchers, and no identifiable patient information was used in the study. No ethical approval was required for the program.

Results

The pre- and postprogram Medical Leadership Competency Framework 11 self-assessment demonstrated a statistical significant improvement in scores at the end of the program for 79 of the 80 items. This indicated that participants’ perceptions of their abilities in these competencies had improved (generally from 3 [“I need to improve this”] to 2 [“I do this satisfactorily”] or 1 [“I do this well”]). Of the 79 scores, 78 demonstrated significance at the p > 0.01 level (ie, highly statistically significant).

Themes from the Findings

Evidence

• “Challenged my ideas and made me think in different ways.”
• “Made me believe in what I am doing.”
• “Learned why we all think differently.”
• “I appreciate the link between neuroscience and leadership.”

As participants progressed with the program and the delivery of their service-improvement projects, their reflective accounts changed, showing recorded knowledge gradually being transferred into practice, linking with Kirkpatrick’s fourth level of knowledge.14

The service-improvement projects provided the vehicle for participants to put theory into practice and apply the knowledge gained while working in a supported environment. The success of this approach encouraged all participants to feel confident in leading and implementing further improvement projects in their current and future roles.

There was a realization among some participants that although they might previously have been eager to introduce changes into their practices, they were now able to see why attempts had been either unsuccessful or not well received. As a result of the program, participants noted a greater understanding of how to approach service improvement and change in a way more likely to engender success.

Context

• “Taught me how to get things done.”
• “Many small but significant changes.”

All participants reported having shared knowledge and skills acquired as a result of the program, with practice colleagues. This resulted in a cascade of learning beyond that of the immediate participants.

Facilitation

• “Time to learn about ourselves.”
• “We own our improvements.”
• “Solution focused will now be my way forward.”

Participants commented on how they had benefited from being able to draw on the knowledge and experience of those leading the program. Similarly, once trust had been established, participants valued the support that their peers provided in each of the learning sets. The sets were viewed as a safe environment in which to experiment, discuss new ideas, and request help in addressing problems.

The expressed value of individual
telephone coaching was mixed, with established GPs appearing to appreciate this component more than the newly qualified GPs.

**Leadership**

- “Permission to have a go.”
- “We now have a can-do culture.”
- “We now have less hierarchy.”

At the beginning of the program, participants were asked for their views on leaders and leadership. Although able to express their opinions on good leadership, several were concerned that they would not be able to become leaders themselves, feeling that leadership was innate. Their reflective accounts note that by the end of the program all participants had gained confidence and felt sure of their own ability to lead and to sustain service-improvement work.

**Learning Process**

Participants were initially apprehensive about delivering their projects. However, there was an early acceptance that a service-improvement project was an appropriate way to put knowledge and skills into practice. By the end of the program, the reflective accounts indicated that the projects were one of the highlights of the program. The initial apprehension had turned to feelings of immense personal and professional achievement, a real sense of a successful journey. New aspects of the projects emerged and the pace picked up as participants brought new solution-focused skills, new concepts, and new ways of thinking to each step they took. The learning sets provided a space where participants could bring problems and the group would work together to solve them and to find a solution. The sessions that introduced the model for improvement, Myers-Briggs Type Indicator, and neuroleadership were noted as being particularly helpful in relation to the projects. The projects also helped participants to acknowledge that as clinicians they can lead change and be more directly involved in the rollout of new services. It also widened their view of partnership and the need to learn with others as well as work with them:

“I think that it would have been better if we could have learned with non-GP colleagues who are also trying to improve the quality of care.”

Coming to the program at later stages in their careers meant that the experienced GPs were ready to learn and motivated to engage with the subject matter in a different way than were their newly qualified colleagues, who were still looking for the “right” answer. The newly qualified GPs observed that the program had given them the confidence to think about settling into a practice and actively contributing to the development of the practice, thereby improving services for patients from the start:

“We would like to set up our own practice together, the New Family Practice.”

However, the PLP had made the newly qualified GPs more aware of the need to take a long-term view of their career development and to consider this when applying for either salaried or partnership posts:

“A practice would have to be willing to support me as a future leader, not just treat me as a working GP.”

Established GPs noted that the new GPs gained a knowledge and skills base that had usually taken the established GPs more than 10 years to develop. This is a swifter movement from novice to expert than traditional learning experiences allow.

**Learning Outcomes**

All participants had a greater understanding of the following:

- The importance of prior research for fully understanding the nature of the project being undertaken.
- The necessity of collecting data to provide an evidence base to be able to subsequently discern and measure change.
- Greater self-awareness.
- Increased confidence.
- Recognition of the importance of engendering team support for successful service improvement and how this might be achieved.
- Excitement regarding the improvement of patient services.
- An eagerness to achieve greater patient involvement in future practice changes.

**Service-Improvement Project Outcomes**

“I am now involving patients much more.”

“Happiest admin team I have seen in 20 years.”

The service-improvement projects chosen by the GPs were very varied and practice specific. There was a wide range of development between the practices, so some projects that might seem very small to a highly developed practice needed huge cultural shifts to achieve in others. The projects could be grouped by:

**Access:** Improving patients’ access to different services offered by the practice through physical redesign of the office to make room for more consultation space, off-site medical record archiving, improved education for patients regarding available services through newsletters and other forms of communication, introduction of Web-based online booking and check-in, appointment reminders via text messages, online repeat prescribing.

**Quality of care:** Redesign of services from the patient’s perspective; formation of new patient-rep-
representative groups; development of health-promotion material and information packs; redesign of chronic-disease management systems, especially diabetes and kidney disease management; setup of a new obesity treatment service.

**Practice performance:** Becoming a training practice, introduction of internal performance management for physicians, expanding the breadth of the role of practices’ nurses, establishing a nurse-led minor injury treatment service, reorganization of practice administration to allow more time for staff–patient contact, increasing investment in staff training across the practice.

**Conclusion and Recommendations**

Improvement in the quality of patient care is a complex undertaking, and its evaluation can produce substantial amounts of quantitative and qualitative information. Quality improvement has a social nature, has a focus on changing performance, is context dependent, is a complex and nonlinear process, and features adaptation and reflection. The PLP has provided an innovative way of meeting the learning and development needs of both newly qualified and established GPs. It has proved itself highly effective in supporting participants to implement service improvement and their thinking during the program, they realized that the approach worked. This encouraged them to confidently try out their new learning with others. The program also drew on the developing field of neuroleadership, defined as “an emerging field of study focused on bringing neuroscientific knowledge into the areas of leadership development, management training, change management, education, consulting, and coaching.” The neuroleadership approach to understanding leadership proved very powerful for the physicians, as it started from their existing knowledge of neuroanatomy and neurophysiology from medical school.

Humans construct and share their knowledge through narrative rather than theory. The design of the intervention and the analysis of the findings were informed by a conceptual framework featuring narrative medicine and complexity theory. The stories of leadership and evidence of impact developed through this program weave patient stories with improved professional satisfaction and improved care and therefore bring the intervention to life.

Because it is rare for educational programs to be able to demonstrate this direct link between educational
processes and outcomes, this article is therefore a call to action to implement this research and develop a new way of learning to inform a new way of thinking, to inform new models of care. By enabling GPs to think differently and by empowering them to practice differently, new thinking, new relationships, new solutions, and renewed professional satisfaction emerged as a result of the complex, emergent, narrative-based program.

The PLP educational approach brings research into practice and education into action and is particularly suited to leading innovation in distributed-care systems, where health and social care in a community is provided by many independent but networked people and organizations. These care systems are typically complex and adaptive. This is important because these types of care systems will increasingly characterize 21st-century health and social care.15

With this in mind, the PLP approach will now inform higher-level academic programs and community-oriented inspirational projects. The PLP approach will underpin a master’s degree in person-centered medicine16 with Buckingham University, bringing narrative medicine, complexity, and quality-improvement processes together to improve patient care and, through local action learning sets, bringing the public, professionals, and policy makers together to improve thinking and to improve patient outcomes and the quality of care. The approach is becoming embedded in NHS education for leadership models17 and contributing to the evidence base for professional education programmes aimed at improving the quality of patient care in complex adaptive distributed systems.18

Disclosure Statement

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References

Dr Clarke is a former Gastroenterologist for Northwest Permanente. He is a Senior Scholar at the Center for Ethics at Oregon Health & Science University in Portland, OR, and lectures internationally on stress-related illness. This photograph was taken on a recent photo safari in Botswana.

More of Dr Clarke’s work may be viewed at: www.davetravels.shutterfly.com.
Implementation Study — Vobs National Quality Award

Community Implementation and Translation of Kaiser Permanente’s Cardiovascular Disease Risk-Reduction Strategy

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Abstract

Introduction: Since 2003, Kaiser Permanente (KP) has implemented innovative cardiovascular disease (CVD) risk-reduction clinical practices in Northern and Southern California that emphasize the use of cardioprotective medications—aspirin, angiotensin-converting enzyme inhibitors, and statins—in individuals at very high risk of experiencing heart attacks and strokes. Because an internal KP retrospective analysis demonstrated decreased morbidity and mortality among KP patients with diabetes, there is significant value in implementing this strategy in the broader community population, particularly in safety-net clinics serving the uninsured.

Methods: To implement this risk-reduction clinical practice in the community, clinical and programmatic sections of KP had to connect with a set of community partners that share a similar approach of evidence-based prevention. Successful implementation required a well-planned and coordinated collaboration between KP and the community entities that allowed for and supported adaptation in local delivery structures.

Results: Forty-six ambulatory clinic sites based at community health centers and in public hospital/health systems in California’s safety net have initiated KP’s CVD risk-reduction program. This resulted in 1125 community-clinic patients in Southern California and 1120 patients in Northern California receiving their first prescription for at least 1 of the 3 cardiovascular medications within the first 18 months of implementation. KP Colorado, KP Georgia, and KP Northwest are also implementing these strategies in their local communities.

Discussion: The results of program initiation demonstrate successful translation of the KP CVD risk-reduction strategy to the broader, non-KP member community: uptake of 46 community clinic sites in 2 KP Regions, with a projection of >11,000 patients being prescribed the 3 cardioprotective medications in subsequent years and in multiple Regions. This may be a model for further spread of CVD prevention measures, and prevention programs for other diseases, to all populations throughout the US, notably underserved communities disproportionately affected by chronic conditions.

Introduction

Cardiovascular disease (CVD) is the leading cause of death and disability in the US and in the world. A reduction in CVD of up to 80% has been projected for individuals at high risk for CVD who take cardioprotective medications, and prospective modeling predicted that the use of three cardioprotective medications (angiotensin-converting enzyme [ACE] inhibitors, aspirin, and statins) in high-risk individuals would be expected to reduce the number of myocardial infarctions (MIs) and strokes by 71% after five years of therapy with these medications. Nonetheless, despite this evidence supporting the benefit of a large-scale, population-based, risk-reduction medication program, the use of these medications in the larger community remains low. In 2004, <50% of people with diabetes achieved treatment goals and took appropriate cardioprotective medications. If the use of these medications increased by 10% in people with diabetes in the US, up to 32,000 MIs and strokes each year would be prevented.
Kaiser Permanente (KP) has successfully implemented CVD risk-reduction programs across its eight Regions with positive outcomes for patients at high risk for CVD; an internal review demonstrated a reduction of >60% in heart attacks and strokes after one year among Northern and Southern California KP patients with diabetes who took ACE inhibitors and statins.\(^5\) A study of 46,000 Northern California patients demonstrated that the number of MIs declined by 24% since 2000 and that the relative incidence of serious infarctions doing permanent damage declined by 62%.\(^8\) To achieve a broader and deeper population impact, CVD-prevention programs must be implemented in a variety of different delivery settings. In particular, populations with a disproportionate burden of diabetes and CVD should be targeted. Previous studies of large community-based CVD-prevention programs have not demonstrated significant decreases in cardiovascular morbidity and mortality.\(^7\) In this article, we demonstrate that two KP Regions, Northern California and Southern California, were able to successfully initiate a cardiovascular risk-reduction program in partnership with health care delivery organizations serving the broader community.

Kaiser Permanente's Community Benefit Mission

At the core of the history and mission of KP is the organization’s commitment to improving the health of its patients and the communities it serves. The most evident manifestation of this commitment is the practice of good medicine: providing health care that is of high quality, affordable, and readily available to purchasers, including employers, individuals, and government programs. Demonstrating superior clinical outcomes that are patient-centered, and doing this in a way that is acutely sensitive to affordability, is a hallmark of KP’s contribution to the greater good and safeguards its role as the largest private, nonprofit health care delivery organization in the country. Beyond that, KP has a long legacy of extending its influence to create healthy environments for the communities it serves, including programs that promote health and wellness among school-age children; investing in community efforts to combat pediatric obesity; developing a diverse workforce that emphasizes primary and community practice; and modeling responsible practices that respect and preserve the environment.

Another key component of KP’s community benefit mission is to improve health care quality and access to the most vulnerable members of the community.

Recognizing that KP members are part of families and neighborhoods where as many as one of every six people are uninsured, KP has dedicated resources, technical assistance, and investments to fortify the institutions that care for the medically indigent. This spirit of partnership recognizes that health care-delivery organizations must actively collaborate to achieve optimal health for everyone in a community, whether they are insured or not.

The Safety Net

Community health centers and public hospitals, often referred to collectively as the safety net, are critical partners in establishing successful health care practices and interventions that ultimately take hold across an entire geographic region. Particularly in the face of stubborn health care disparities that lead to disproportionate morbidity and mortality among members of low-income racial and ethnic minorities, these organizations are vital in demonstrating viable solutions for attaining a higher standard of clinical quality across a community.

KP has identified safety-net partners as critical to the establishment of evidence-based community practice.\(^10\) This was the basis for KP to pursue safety-net partnerships to establish a simplified pharmacologic CVD-prevention effort that would have much more far-reaching implications than if conducted solely as an internal KP member initiative.

Methods

Collaboration Between Kaiser Permanente Entities and Community Partners

The importation of KP’s CVD-prevention program required the coordination of a number of individuals and organizational units. One unique aspect of this effort was harnessing the expertise of groups within KP that had a limited history of mutual joint program coordination. Moreover, this coordination within KP had to result in a coherent package of assistance to community-based partners. The key stakeholders included the following:

- **Clinical experts:** The Care Management Institute (CMI)—a department supported jointly by the Kaiser Foundation Health Plan and The Permanente Federation—has been an incubator of evidence-based CVD-prevention activities for KP’s eight Regions. Over several years, CMI cultivated experience with internal spread of a KP CVD-prevention strategy focused on the use of cardioprotective medications. To ensure a sound underlying clinical premise of community spread, validated by internal KP practice,
CMI’s physician leader for diabetes care was retained for consultation to the national Community Benefit office and worked closely with the Medical Director of Community Benefit. The Northern California KP regional physician leader for cardiovascular care provided additional insight into regional implementation and practice. Thus, key clinical leads worked directly with the Medical Director at Community Benefit to ensure physician engagement in shared effective approaches to measuring and monitoring spread and to integration of clinical practice with program design.

- **KP clinicians and staff:** Additionally, it was important to involve experienced program managers at specific KP facilities and medical offices. These nurses, physicians, and managers of chronic disease provided firsthand accounts of overcoming clinician resistance and skepticism about the three-drug therapy to audiences and key leaders at community health centers. They provided authentic testimonials to successful implementation of this program. The Permanente Medical Group and the Southern California Permanente Medical Group (SCPMG) were early endorsers of the implementation of a broad community program to improve adoption of the cardiovascular medication protocol.

- **Community Benefit:** Concurrently, the resources of KP’s Community Benefit program were aligned to support the spread of KP’s CVD risk-reduction strategy into the community. Like many other operations at KP, Community Benefit is organized in successive units of geographic and service levels to facilitate movement from concept and resource allocation to execution.

Thus, the Community Benefit Department at the national Program Office worked closely with both the Northern and Southern California community benefit divisions to develop a plan that would leverage grant making against established, robust partnerships in the community, particularly among community health centers. Not only were grant dollars identified and secured for investment to launch this initiative, but also there was an assessment of community partners to determine their requisite interest, experience, and track record of deploying disease-management strategies. These relationships were assessed both at the regional and local (county) levels.

- **Safety-net partners:** In California, several years of quality-improvement work characterized KP’s partnership with the safety net. Indeed, a memorandum of understanding (KP—Regional Association of Clinicians Community Clinic Partnership, Adopted 2009 Jan 22) between regional consortia of community health centers, and the California Primary Care Association had been in place and provided the framework for shared learning in population management and quality improvement. Thus, there was already a significant compendium of experience regarding the applicability of KP practices in chronic-care management in the community health center environment.

Likewise, many of the community health centers had been involved in the federally supported Chronic Care Improvement Program, so there was residual familiarity and experience with population management strategies. California’s public hospitals had similar experience with prior initiatives supported by the California Health Care Safety Net Institute (www.safetynetinstitute.org/content), foundation philanthropies, and KP.

### Implementation with Northern California and Southern California Community Partners

Skepticism abounds across the US health care system regarding transfer of successful practices to other organizations. Many believe that successful practices are inherently bounded by their own organization’s parameters and culture, and that translation of successful practices inevitably gets buried in the slog of organization inertia. One critical strategy for the translation of the KP CVD risk-reduction program was to strip implementation to its barest, most essential components. In this case of community translation, the central focus was the simplified delivery of three cardioprotective drugs ... community partners could use tools, teams, and approaches that were unique to their own systems.
Riverside County Regional Medical Center (RCRMC), the Pasadena Public Health Department, and the Los Angeles County Department of Health Services. One specific example of local implementation was partnering RCRMC with a physician-champion from SCPMG for presentations to key physicians and clinicians in launching the program in 2008. As of December 31, 2009, the RCRMC program had enrolled 2207 patients who now benefit from the cardiovascular medication protocol.

The Northern California Region chose to work with community clinic consortia and public hospitals with geographic proximity to ensure that wherever patients entered the safety-net health system in that area, they could access KP’s CVD-prevention program. For example, staff members of the Northern California Region’s Community Benefit collaborated with senior staff at Community Health Center Network, a community clinic consortium that includes eight community clinics throughout Alameda County. Together, they reviewed clinics that were the most ready to pilot program translation and implementation. Readiness included experience with patient registries to identify and monitor patients at high risk for CVD, clinic leadership, and physician, clinician, and staff interest in participating in the project.

For both the Northern and Southern California programs, key elements included identifying and engaging dedicated KP clinical champions to serve as resources; providing a wide variety of KP training and technical assistance and, in some cases, as in Southern California, providing training and technical assistance from other grantees. Technical assistance included presentations by KP champions to clinic providers; site visits to KP facilities to learn about management of patient panels, protocols, and procedures; discussions with local program champions; informative lectures; transfer of successful practices, forms, and templates; patient-education material; and practical advice on patient tracking, clinical engagement, and follow-up care.

Participants also attended statewide grantee meetings, cohosted by KP Northern and Southern California Regions. Grantees who were initial participants became peer educators to other grantees regarding KP’s CVD-prevention program, the translation of the program to their community medical sites, and the sustainability of the processes. In Northern California, for example, clinics developed care-management teams for the evidence-based program, adapted in-reach and outreach techniques for recruiting and monitoring patients, and developed data-collection tools and feedback systems for translating the program to and implementing it in their unique community settings.

Although both California Regions provided tools and resources to help with translation and implementation, community partners developed an infrastructure to ensure successful implementation. Changes to a database and to data-management systems were the modifications most often employed for implementing KP’s program. Other changes included developing messages to be sent to patients to encourage regular medication use, creating procedures for identifying patients, and modifying existing clinic physician and staff responsibilities to include health coaching and management of patient panels.

Results

The impact of implementing KP’s CVD risk-reduction strategy in the community, focusing on the use of the cardioprotective medications, was assessed in several ways:

1. Clinical impact on community patients: The number of individuals given a prescription for aspirin, an ACE inhibitor, and a statin and who continued to take the medications was the primary metric used to evaluate successful implementation. An independent 2008 evaluation by the Center for Community Health and Evaluation (CCHE) of the efforts to implement the CVD risk-reduction program in California safety-net settings determined that—using conservative projections—1125 patients in Southern California and 1120 patients in Northern California were given their first prescriptions for the three medications. As of May 2010, 46 ambulatory clinic sites based at community health centers and in public hospital/health systems in California’s safety net have initiated KP’s CVD risk-reduction program. Successful implementation in the California community sites has catalyzed adoption among an increasing number of safety-net institutions across the US.

2. KP regional site implementation: After an initial planning stage in 2008, KP Colorado Community Benefit, in partnership with Colorado Permanente Medical Group, is now in active program implementation and translation with Clinica Campesina, a community health center serving a large Latino and homeless patient population. KP Georgia Community Benefit, in partnership with Georgia Permanente Medical Group, has worked with DeKalb County Board of Health since 2008 and is in the program implementation phase at a community clinic staffed by physician volunteers. KP Northwest awarded a grant in 2009.
to a local Native American clinic in Portland, OR, to implement the program.

3. Patient and clinician satisfaction: The 2008 CCHE report also assessed patient and clinician satisfaction. Clinicians reported that patients were:
- Very satisfied with the program
- Finding the extra support regarding compliance with medication regimens and lifestyle changes helpful
- Developing closer relationships to clinic staff
- Receiving more supportive care.

Clinicians were also enthusiastic about their enhanced roles in implementing a population management program and its positive impact on overall care delivery. Comments included this one:

“[KP’s CVD risk-reduction program] helped us to refocus our efforts on our chronic disease care. Also on quality improvement culture in general—clinic flow, and operations. It has created a better awareness of quality improvement. Our pharmacy assistance program has become a focus more now too—to help patients get their meds—in part because of the greater focus on patients getting their medications.”

KP’s CVD risk-reduction model has been so successful with some grantees’ populations of patients with diabetes that the grantees have used this for translation for other chronic conditions:

“We started doing this with other patients, not just cardiovascular and diabetes patients. So we’d use the action plan for asthmatics and other groups.”

Most significant is the benefit to a target population with disproportionate prevalence of disease among ethnic and racial groups and the persistence of suboptimal clinical outcomes among underserved populations. In addition, the “place” where the practice establishes itself has deep impact; in this case, that was among community-based institutions whose mission is to care for the medically indigent.

A standard-setting medical practice in these settings can lead to catalytic transformation of clinical care well beyond the clinics themselves.

Discussion

The results of program initiation demonstrated successful translation of KP’s CVD risk-reduction strategy to the community: uptake of 46 community clinic sites in multiple Regions, with a projection of >11,000 patients being prescribed the three cardioprotective medications in subsequent years.

Historically, large-scale programs that address a wide spectrum of CVD risk factors have failed to demonstrate significant impact. However, KP has successfully implemented a medication-focused CVD-prevention program that significantly reduced CVD events. Given the opportunity for an even larger population impact coupled with the KP Community Benefit mission, KP chose to disseminate this program into the safety net, which has several features similar to the KP integrated model—a focus on evidence-based medicine and prevention, a broad and community-based approach, and systematization of care delivery.

The observational analysis of this project has limitations related to generalization of results. The shared philosophy and approach between KP and the safety net about clinical care may be a unique predictor of success for this particular successful translation of clinical practice. However, responses gathered from the CCHE assessment, along with both a commitment to evidence-based practice and flexibility of implementation, suggest core elements for successful execution across different delivery systems. The particular role of KP grant making to initiate safety-net implementation may have factored into successful execution. Not only would the monetary investment but also the particular relationship between grant maker and recipient have to be considered. Finally, we do not have proof of sustainability or data validating a reduction in CVD outcomes. We will collect and report those data as they become available. As detailed in the “Methods” section, changing clinical practice for the benefit of broad, community-based patient outcomes requires complex multi-entity, multistructural, multiprocess, and multiperson change and integration—transformation. This is the foundational intervention described in this article, with the additional result that thousands of underserved patients are now receiving clinical treatment through a CVD-prevention program.

In summary, a program for CVD risk reduction, including a focus on a simple trio of medications and measurement of their use, along with other optional aspects, was translated from KP to select community programs by using the local site’s existing structure, function, and staff. Successful implementation in the safety net required a deliberate and well-planned collaboration between KP and a set of community partners that maintains central principles of evidence-based implementation but accounts for adaptation of local delivery structures.

This may be a model for further spread for CVD prevention, and other disease-prevention programs,
throughout various patient populations within the US, including the underserved. If the three cardioprotective medications were taken by all of the individuals in the US at high risk for CVD, there would be a profound impact on the cost and morbidity associated with potentially preventable CVD. According to a recent analysis, if an additional 10% of US patients with diabetes began taking and continued to take the bundled triad of cardioprotective medications, 32,000 MIs and strokes each year would be prevented.

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

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References


Suggested Readings
"Pathos of the Dispossessed"
20 x 19 x 19
Bronze sculpture

Lorenzo Mills, MD

Dr Mills is a retired Pediatrician from the Napa Medical Center in CA. Since 2000, he has addressed social concerns via narrative sculptural pieces. This bronze-plated sculpture focuses on the emotional cost of the recession.

More work by Dr Mills may be viewed at: www.lorenzomills.com.
Implementation Study

Implementation and Methodology of a Multidisciplinary Disease-State-Management Program for Comprehensive Diabetes Care

Abstract

Introduction: Before the implementation of a multidisciplinary disease-state-management program in the Kaiser Permanente Ohio Region, the primary care physician (PCP) worked with a registered nurse care manager (RNCM) and a clinical pharmacist with the degree of PharmD to control diabetes mellitus (DM). This occurred through PCP referral when patients required a higher level of care than could be achieved during initial PCP office visits and subsequent follow-up visits. However, not all PCPs consistently initiated referrals, and as patients in need of referral were typically identified through office visits, those without routine appointments were often missed. This practice translated into suboptimal 2008 comprehensive DM care Healthcare Effectiveness Data and Information Set (HEDIS) scores.

Methods: A quality-improvement disease-management committee convened for design and implementation of a multidisciplinary DM disease-state-management program, as well as oversight and analysis of the new process. This regional intervention required many members of the health care team to obtain additional education about comprehensive DM care, adopt new work flows, and learn to use tools for evaluating patient care gaps.

Results: Within one year, this regional multidisciplinary intervention resulted in improvements in blood pressure, lipid levels, and glycemic control as indicated by 2009 comprehensive DM-care HEDIS scores.

Discussion: Main contributors to the success of the program included executive support and sponsorship, the leadership of the oversight committee, systematic identification and assignment of patients, the blood-pressure service run by licensed practical nurses, continuous education efforts, dedicated panel-management time, use of a multidisciplinary team, and expanding treatment of the diabetic patient beyond glucose control to include blood pressure and lipid management.

Introduction

Background

The Kaiser Permanente Ohio Region (KPOH) comprises approximately 135,000 members who receive care at 10 medical centers located throughout Northeast Ohio. Typically, each medical center contains an internal medicine team that consists of primary care physicians (PCPs), nurse practitioners (NPs), registered nurse care managers (RNCMs), licensed practical nurses (LPNs), clinical pharmacists with the degree of PharmD, physician assistants, and registered dietitians. In addition, a centralized population care management (PCM) team that consists of RNCMs, LPNs, and analytic staff provides support to each of the 10 medical offices. Although each group has a different role, together they partner to support all aspects of patient care.

As high-quality care of diabetes mellitus (DM) has evolved to include more than just glycemic management, a DM disease-state-management program was initiated at KPOH in an effort to improve patient care and outcomes for those with DM. Primary literature as well as national Care Management Institute guidelines were consulted to construct a program that would reflect current evidence-based medicine.1–7

Problem

Before the implementation of a multidisciplinary disease-state-management program in KPOH, the PCP worked with an RNCM and a clinical pharmacist with the degree of PharmD to control DM. This occurred through PCP referral.
when patients required a higher level of care than PCP time allowed during initial office visits and subsequent follow-up visits. Examples of patients who typically received referrals included those with treatment-plan care gaps, multiple comorbid conditions, or previous nonadherence to medication regimens. However, not all PCPs consistently ordered referrals, and as patients in need of referral were typically identified through office visits, those without routine PCP appointments were often missed. This approach translated into suboptimal 2008 comprehensive DM care HEDIS scores, as seen in Table 1.

### Intended Improvement

After release and discussion of the 2008 Healthcare Effectiveness Data and Information Set (HEDIS) results (for calendar year 2007), the Medical Group set a goal to improve the 2009 comprehensive DM-care HEDIS scores to at least the 75th percentile with the intention to improve overall patient health. The executive leadership identified an existing quality-improvement team, the Advanced Care Management (ACM) committee, to develop a plan to achieve this goal.

### Methods

#### Planning the Intervention

The ACM committee consisted of nursing, pharmacy, and physician leaders, as well as information technology staff. They met for four hours each week to design, implement, and review current DM care at KPOH, with a mission to develop a strategy for diabetes care that used and reallocated existing resources. A review of current staff activities was conducted. It was determined that several work-flow changes had to take place to create an effective disease-management program with the currently available resources. These changes affected the PCPs, RNCMs, LPNs, PCM team, and clinical pharmacists. Before the restructuring, RNCMs worked on disease management for only a small percentage of their day, largely focusing on in-office procedures such as injections and blood-pressure checks. Clinical pharmacists’ involvement in disease management occurred through referrals typically centered only on cholesterol management. The PCM team’s primary function was to perform member outreach to patients in need of preventive care such as mammography, colorectal cancer screening, or laboratory updates without participation in disease management.

To accommodate patient telephone and office visits for disease management, RNCMs shifted several in-office duties to the LPNs. One important change was initiation of an LPN-run blood-pressure clinic; blood-pressure checks were previously done by the RNCMs. Clinic LPNs booked blood-pressure-check appointments at 15-minute intervals. Protocols were developed for management of out-of-range blood pressure, including immediate or electronic consultation with the patient’s PCP or an NP, depending on the degree of elevation of the recorded blood pressure. The clinical pharmacists’ referral capacity was expanded by minimizing nonclinical functions. Through restructuring, three RNs on the PCM team transferred to a central location to participate only in telephonic DM-related disease-care management. Additionally, outreach by the team was increased and standardized, as seen in Table 2.

### Patient Identification and Assignment

The first task was to identify members with DM-related care gaps using a database tool called

<table>
<thead>
<tr>
<th>Table 1. Comprehensive diabetes care 2008 HEDIS results</th>
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<tbody>
<tr>
<td><strong>Health parameter</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>HbA1c testing done</td>
</tr>
<tr>
<td>Poor glycemic control (HbA1c &gt;9%)</td>
</tr>
<tr>
<td>LDL cholesterol screening</td>
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<tr>
<td>LDL cholesterol control (&lt;100 mg/dL)</td>
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<tr>
<td>BP &lt;130/80 mmHg</td>
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<tr>
<td>BP &lt;140/90 mmHg</td>
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</tbody>
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*⁺Indicates statistical significance.
*⁻Lower rate indicates better performance.

BP = blood pressure; HbA1c = glycated hemoglobin; HEDIS = Healthcare Effectiveness Data and Information Set; LDL = low-density lipoprotein.
Implementation and Methodology of a Multidisciplinary Disease-State-Management Program for Comprehensive Diabetes Care

the RNCMs, who could more easily schedule patients for follow-up blood-pressure checks after medication adjustments. Patients with an HbA1c of <7.0% were considered low risk and were not included in the initial management strategy.

### Intervention Work Flow

The care manager work flow initially consisted of a chart review followed by a patient interview. Patient interviews were conducted primarily as telephone visits and were supplemented with office visits when clinically necessary. After an interview was completed, a care plan was developed. The care plan included an assessment of blood-sugar control (as represented by HbA1c values and patient-reported, self-monitored blood-glucose values), blood-pressure control, lipid control (as represented by low-density lipoprotein [LDL] cholesterol), immunizations (with a focus on pneumococcal vaccinations), diet, exercise, and medication regimen adherence. In addition, an emphasis was placed on starting all patients with DM on the ALL regimen, consisting of an aspirin, a lipid-lowering agent, and lisinopril (any angiotensin-converting enzyme inhibitor or angiotensin-receptor blocker was acceptable), as clinically appropriate. Care plans were sent to the patient’s PCP for review, modification (if needed), and approval. After approval by the PCP, plans were communicated to the patient through the care managers during subsequent telephone or office visits. Follow-up care was given as needed, until patients attained therapeutic goals regarding HbA1c values, LDL cholesterol levels, and blood pressure.

To assist with documentation of care plans and order entry and to increase efficiency, SmartSets were created within the electronic medical record. Figure 1 is an example of a small portion of a comprehensive DM care SmartSet.

### Intervention Assessment

Several tools were used to assess the intervention. On a regional level, a PCP dashboard tool produced a monthly summary of the PCP’s patient panel and allowed comparison with the panels of their peers. Dashboard calculations were based only on the individual physician’s panel of patients with DM. Measures related to DM performance included yearly HbA1c screening, HbA1c >9%, HbA1c <7.5%, yearly LDL cholesterol screening, LDL cholesterol <100 mg/dL, blood pressure <130/80 mmHg, and presence of ALL meds. On a national level, HEDIS measures related to DM were reviewed yearly.

### Training and Time

Extensive education of the health care team regarding patient assignments and standards of care for DM disease-state management occurred through both departmental and interdisciplinary team meetings. This included formal reviews of current American Diabetes Association guidelines, preferred medication use and titration schedules, patient-counseling techniques,
Implementation and Methodology of a Multidisciplinary Disease-State-Management Program for Comprehensive Diabetes Care

Patients were also educated through diabetes group classes led by either a member of PCM or a RNCM and a registered dietitian. Classes addressed diet and lifestyle changes, medication management, and disease-state progression.

For the first few months, clinical pharmacists mentored RNCMs through the process of developing and implementing a comprehensive DM-care plan. Panel-management time was created by blocking off two 20-minute patient-appointment slots each day. During this time, physicians met face-to-face or telephonically with RNCMs, the PCM team, and clinical pharmacists to review, discuss, modify, and approve the increased volume of care plans.

When smaller facilities contacted and completed interventions for all patients on their assigned lists, they partnered with larger facilities with larger DM patient panels to complete those lists. Because dashboard assessments allowed real-time feedback from individual physicians, the ACM committee could evaluate which physicians needed additional resources dedicated to their patient panel. Patients who could not be contacted after three phone attempts and one letter mailing were placed in a holding pattern for six months, and then another attempt at contact was made. The ACM committee addressed all barriers in their review of dashboards and workflows and analyzed outcome trends to ensure progress.

Results

As implementation of the intervention progressed, health parameters for dashboard panels began to improve; the release of the 2009 HEDIS results confirmed the progress seen internally. Table 1 compares 2008 with 2009 HEDIS data. The largest improvement was seen in the “poor control >9%” patient population. This can be attributed to an increase in screening frequency, as well as increased glycemic control. Improvement in control of blood pressure and lipid levels were also seen, serving as a testament to the KPOH strategy of treating the DM patient with a multidisciplinary approach.

In addition to improved HEDIS scores, decreases in several DM-related clinical hospital-admission parameters were seen, as shown in Figures 2 and 3. Short-term complications were defined as hospital admission rates for patients with a diagnosis of diabetic ketoacidosis, diabetic coma, or diabetic hyperosmolar state. Long-term complications, also based on hospital admission rates, were defined as renal, eye, neurologic, or circulatory complications. All definitions were based on specific codes from International Classification of Diseases, 9th Revision.

Discussion

Main contributors to the success of the program included executive support and sponsorship, the leadership and composition of the ACM committee, systematic identification and assignment of patients, the LPN-run blood-pressure clinic, continuous education efforts, dedicated panel-management time, use of a multidisciplinary team, and expansion of treatment of patients with DM beyond glucose control to include blood-pressure and lipid-level management.

Patient panel assignments to care managers helped create accountability for the total patient population and their care gaps. However, no system was in place to generate care-manager-specific outcome and productivity data reports. In addition, as seen in Table 3, although patient workload distribution was clearly structured, problems arose...
Implementation and Methodology of a Multidisciplinary Disease-State-Management Program for Comprehensive Diabetes Care

when PCP referrals deviated from the established work flow. These deviations occurred when PCPs were learning the new work flow or were more comfortable with their prior in-office referral processes.

The LPN-run blood-pressure clinic increased access to screening without a copay. Increased blood-pressure measurement opportunities enabled a more rapid medication-titratin process. Also, the adoption of a strictly LPN-run clinic freed time in the RNCM schedule to engage in disease management.

Because many shifts in roles had occurred and a new process was being implemented, a strong emphasis was placed on education of the entire disease-state-management team. These efforts were repeated in multiple forums and venues. Algorithms, national guidelines, and standards of care were distributed and reviewed at physician, pharmacist, and RNCM team meetings on an ongoing basis. These concepts were again reviewed at interdisciplinary team meetings. Patients were also educated through group diabetes classes led by either a member of the PCM team or an RNCM and registered dietitian. Classes addressed diet and lifestyle changes, medication management, and disease-state progression.

Panel-management time assisted in gaining physician buy-in and reduced the burden of increased DM-related in-basket messages. Although over time, it was found that panel-management time was not always strictly used for DM disease-state management, it did consistently allow physicians to feel more comfortable with integrating more disease management into their daily work flow.

One of the components most important to the improvement in HEDIS measures and patient care came from the strategy of treating all parameters of the patient with DM. Before the initiation of this program, less emphasis was placed on the control of blood pressure and lipid levels in patients with DM; care centered on lowering blood-glucose levels. With the use of the ALL mnemonic, emphasis shifted from a glucose-centered approach to one that started and titrated all applicable medications to reach comprehensive diabetic goals. However, as a consequence of the focused effort on diabetes care in 2008, less focus was placed on several other chronic diseases. Thus, not all 2009 HEDIS measures showed as large of an improvement as the DM related measures.

Despite the improvement seen in diabetes care, several limitations to this analysis exist. First, no demographic data for the cohort were available for collection. Therefore, it is unclear what role changing demographics might have had on the reported results. KPOH is currently implementing a process for demographic data collection. Second, the goal of this article was to describe the efforts and results of a multidisciplinary disease-state-management team, not to analyze cost savings or financial implications of such an intervention. Although we do believe that a strong DM-management program does decrease long-term health care costs, this hypothesis cannot be validated by the current

Figure 2. Long-term complications of diabetes mellitus (DM) per 1000 members per year with DM in the Kaiser Permanente Ohio Region.

Figure 3. Short-term complications of diabetes mellitus (DM) per 1000 members per year with DM in the Kaiser Permanente Ohio Region.
Implementation and Methodology of a Multidisciplinary Disease-State-Management Program for Comprehensive Diabetes Care

It is possible that because of increased screening, medication dispensing, and DM-related office visits, short-term costs may have increased in the KPOH region, but those data were not analyzed. Because of the success of this program, DM disease management has been integrated into daily work flows. In addition, the multidisciplinary approach to disease-state management has expanded to include hypertension, coronary artery disease, chronic obstructive pulmonary disease, and asthma. Increased teamwork has led to improved communication between departments and a greater understanding of each discipline’s strengths. The opportunity to provide more effective diabetes care has fostered a personal connection and sense of increased job satisfaction, although no employee surveys were administered to validate these findings.

Conclusion
A multidisciplinary intervention resulted in large improvements in blood pressure, lipid levels, and glycemic control. Although not likely attributable to the DM disease-state-management program alone, values for several regionwide measures of DM-related clinical hospital admission rates decreased.

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

Acknowledgments
We are grateful for the invaluable contributions of Ronald Adams, MD, and Audrey Callahan, RN, in their capacity as chairpersons of the ACM committee, and for the work of the entire ACM committee.

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

References

Practice of Living

Now the way of life that I preach is a habit to be acquired gradually by long and steady repetition. It is the practice of living for the day only, and for the day’s work.

—William Osler, 1849-1919, physician, clinician, pathologist, teacher, diagnostician, bibliophile, historian, classicist, essayist, conversationalist, organizer, manager, and author
Making the Hospital Safer for Older Adult Patients: A Focus on the Indwelling Urinary Catheter

Eric A Lee, MD
Camille Malatt

Abstract

The needs of hospitalized geriatric patients differ from the needs of hospitalized younger adults. In an attempt to improve systems of care for the older adult, the Centers for Medicare and Medicaid Services classified urinary tract infections related to the use of indwelling urinary catheters (IUC) as one of eight “never events.” The insertion of an IUC is a commonly performed procedure that can cause an array of iatrogenic complications. In addition, the placement of an IUC without medical indication is a risk factor for prolonged hospitalization and inpatient mortality. Foley catheterization has been documented as a culprit in urosepsis and as being associated with geriatric syndromes such as delirium and functional impairment. This article will discuss the indications for the IUC, the complications that can occur because of the IUC, and comment on the Kaiser Permanente Southern California Region’s efforts to minimize the unnecessary use of the IUC. Thoughtful and judicious use of the IUC, such as minimizing the use of urinary catheterization, either by not inserting an IUC or by removing it as soon as it is no longer needed, will most likely reduce inpatient morbidity and improve the health of the hospitalized older adult.

The Geriatric Imperative

The first cohort of baby boomers will be eligible for Medicare in 2011. In anticipation of this upcoming age wave and the dearth of geriatric-focused clinicians that is expected to continue, various regulatory agencies have increased their scrutiny of the proper care of older adults. In 2008, in an attempt to improve systems of care for the older adult, the Centers for Medicare and Medicaid Services (CMS) classified urinary tract infections (UTIs) related to the use of indwelling urinary catheters (IUC) (commonly called Foley catheters) as one of eight “never events.” This classification indicates that they are now considered hospital-acquired complications and are no longer eligible for additional reimbursement. The scrutiny of this preventable iatrogenic infection is well deserved, but other geriatric-specific issues associated with the misuse of the IUC are equally noteworthy. This article highlights IUC-related safety concerns in hospitalized older adults.

Appropriate Uses of the Indwelling Urinary Catheter

The IUC is a frequently ordered medical device that often is inappropriately used. Its insertion, which might be assumed medically necessary by patients and hospital staff, can complicate any admission. Because of the well-defined risks associated with the use of IUC, the placement of these catheters should be considered a minor procedure. However, unlike other minor procedures, the insertion of an IUC has not required informed consent. As a consequence, the indications for use of the IUC are rarely imprinted in the memory of seasoned clinicians. These indications are broadly as follows:
- Acute urinary retention or obstruction
- Incontinence in a patient at the end of life or with a perineal wound
- Critical monitoring of urinary output in the care of an incontinent patient
- Perioperative settings.

The placement of an IUC without medical indication is a risk factor for prolonged hospitalization and inpatient mortality. Although the design of the study on this matter precludes attributing the development...
of these negative outcomes solely to the catheter, it is certainly reasonable to consider it a causal link. Use of IUCs has been documented as a culprit in urosepsis and as being associated with geriatric syndromes such as delirium and functional impairment. Minimizing the use of urinary catheterization, either by not inserting an IUC or by removing it as soon as it is no longer needed, will most likely reduce inpatient morbidity and improve the health of the hospitalized older adult.

**Urethral Trauma as a Result of Indwelling Urinary Catheters Use**

The most immediate complication of insertion of an IUC is urethral injury. When an IUC is placed in either calm or agitated patients of any age, urethral trauma (often presenting as pain, bleeding, hematuria, or urinary obstruction) can occur. There were 14 iatrogenic urethral injuries due to catheterization in 4310 men admitted to a hospital consecutively in one study (for a baseline incidence urethral injury rate of 0.3% in all hospitalized men with or without catheterization). A recently published abstract reported that traumatic urethral complications occurred in 1.4% of IUC insertions placed in adults in Emergency Departments (EDs), in operating rooms, or on hospital wards. Urethral injury often requires surgical repair, leading to increased morbidity and costs.

**Delirium as a Result of Indwelling Urinary Catheters Use**

Deliurn, or an acute confusional state, is one of the classic geriatric syndromes known to complicate hospitalizations in the older adult. It is estimated to cost the American health care system $35 billion to $150 billion annually and is being considered for future classification by CMS as a “never event.” In 1996, the insertion of an IUC was demonstrated to be one of five hospital insults that could help precipitate new-onset delirium (ie, incident delirium). Later, a multicomponent intervention that included minimizing the use of the IUC was demonstrated to reduce the risk of developing an incident delirium in the hospitalized older adult patient. Although there was no clear explanation of how an IUC increased the risk of an incident delirium, at least two mechanisms can be surmised, using basic geriatric principles: deconditioning-related disability and IUC-related UTIs.

**The Indwelling Urinary Catheters as a “One-Point Restraint”**

Loss of function often precedes hospitalization in community-dwelling older adults. The improvement of function during hospitalization occurs in only 60% of geriatric patients discharged from the hospital for medical reasons. Failure to return to baseline activities of daily living after a hospitalization is a risk factor for long-term disability and death in the geriatric patient. The IUC should be considered a one-point restraint. Like other hospital-imposed physical restraints classically used to ensure patient safety (eg, four-point leather restraints), the IUC restricts mobility and prevents spontaneous activity. For the geriatric patient, supervised activities encouraging self-care during hospitalization are paramount in the restoration of function needed for a safe and lasting return home. The use of an IUC discourages independence. Unplanned hospital readmissions can be because of the sequelae of physical deconditioning. Minimizing the use of the IUC might reduce such readmissions from loss of function.

**Groups Frequently Affected by Inappropriate Use**

Two groups that have a disproportionately high frequency of inappropriate IUC insertions are patients with dementia and patients with congestive heart failure (CHF). IUCs are often inserted in these patients under the false assumption that it will provide them more comfort. However, patients with dementia and those with CHF are the least likely to recuperate from IUC-related loss of function; thus, this procedure may be detrimental to their recovery, because both groups have reduced functional levels of activity before presentation. For example, patients with dementia and infections are often subsyndromal for days to weeks, with lethargy and restricted activity as the subtle presenting signs of an acute illness. Similarly, older patients with poorly controlled cardiomyopathies often remain at home with minimal activity for days to weeks before presenting to an ED with florid CHF. EDs and hospitals are acknowledged venues where aggressive treatment of the primary disease process begins. However, they should also be considered the sites where aggressive restoration of function is initiated for the compromised older adult. The use of IUCs prevents maximal functional rehabilitation during hospitalization and should be avoided in hospitalized patients with dementia or CHF when there is no indication.

**Minimizing Indwelling Urinary Catheters-Related Urinary Tract Infections**

The use of IUCs increases the risk for hospital-acquired UTIs. The rate of bacteria colonization in the urinary tract is about 5% per day in hospitalized patients.
patients with IUCs. Four percent of IUC-related UTIs lead to bacteremia. Up to 40% of physicians may be unaware of the presence of an IUC in their patients, leading to its continued inappropriate use. IUC-related UTIs are considered a medical error under the 2008 CMS guidelines. Because UTIs account for up to 40% of all nosocomial infections, practice guidelines to minimize them have been published. However, the best way to avoid having patients develop IUC-related UTIs is to avoid initial catheter insertion or to minimize the duration of catheter use. Memorizing the indications for use of the IUC and always vigorously reviewing its continued use will improve patient care for patients of all ages, especially for older adults. Because hospital readmission rates will soon be published, hospitalists should remember that UTIs are the tenth most likely reason for a Medicare patient to have an unplanned readmission to the hospital.

**Efforts Within Kaiser Permanente Southern California to Reduce Inappropriate Use of Indwelling Urinary Catheters**

Kaiser Permanente (KP) Southern California is making an active effort to reduce the use of IUCs through four different interventions:

1. The 2010 “History and Physical” order set used to admit medical patients to the hospital has decision support codes (through its electronic medical records) to help guide the appropriate use of IUCs. When an IUC is ordered, the physician is required to specify the reason for its insertion by checking off the appropriate drop-down option. Orders for continued use of the catheter must be renewed daily.

2. Hospital nurses on the medical floors are expected to inquire about patients’ toileting needs every one to two hours and to assist patients to the toilet when needed. These expectations, as part of the nursing “4 P’s” (pain, positioning, personal needs, personal belongings) protocol (Linda Fahey, RN, NP, MSN, personal communication, 2010 June 27), establish an understanding by staff that use of IUCs should be minimized and patient ambulation should be encouraged.

3. In a pilot project using bladder ultrasonography to exclude a large urinary postvoid residual, KP Downey Medical Center recently demonstrated an 80% reduction in IUC insertions in its ED. On the basis of those findings and with the support of the Southern California Permanente Medical Group (SCPMG) Chiefs of Urology and Emergency Medicine, the Southern California Kaiser Foundation Health Plan elected to make bladder ultrasonography more widely available by purchasing the necessary equipment for some other departments, including all of its EDs.

4. All surgeons have been educated and are expected to remove IUCs as soon as possible, preferably on the first or second day after surgery, throughout all SCPMG Medical Centers unless an indication is specified.

**Improving Care for Hospitalized Older Adults**

Clinicians and nurses can ensure that older patients receive optimal care during their hospitalization not only by focusing on the principal diagnosis but also by looking at age-specific issues with an emphasis on improving functional status. Minimizing the use of IUCs will help keep older patients safer during their hospitalization.

- Regional Manager, Quality and Patient Safety, Patient Care Services, Kaiser Permanente Southern California, Pasadena, CA.

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

**References**

4. Holroyd-Leduc JM, Sen S, Bertenthal D, et al. The relation-
To Make the Matter Certain

Whatever probability there may be, that the bladder is empty, and that the disease is in the kidneys, it will still be advisable in every suppression to make the matter certain by the introduction of a catheter.

— Commentaries on the history and cure of diseases, 
William Heberden, 1710-1801, English physician

References:
Sustaining Primary Care Practice: A Model to Calculate Disease Burden and Adjust Panel Size

Belinda Potts
Ronald Adams, MD
Mark Spadin

Abstract

Introduction: In late 2008, the Ohio Permanente Medical Group (OPMG) faced severe staffing shortages in its primary care physician group. In addition, the local market for recruitment did not look promising. As a result, many OPMG primary care physicians had very large patient panels, resulting in physician burnout and the Region faced member dissatisfaction in getting appointments. One solution explored was to hire nurse practitioners (NPs) to fill the staffing gap. To do this, Kaiser Permanente Ohio needed to understand what its model of care would look like with NPs. How would the group use the NPs to support its primary care physicians, and which physicians needed the additional support?

Methods: In addition to looking at panel size, the group also wanted to know which physicians needed additional support with disease management. Their demand model estimated the number of each physician's office visits; however, it was important to consider the disease component (disease burden) of a physician's patient panel. With the recent implementation of the Permanente Online Interactive Network Tool (POINT), the group planned to use data from the tool to determine the disease burden of each physician's panel. By identifying six chronic diseases from the POINT data and attaching a value, they determined both the disease burden of a physician's panel and the necessary level of support needed from the NPs. This created a new delivery structure that partnered one or two physicians on a team with an NP.

Results: This process resulted in a recommendation to hire 4.5 to 5.5 total NP full-time equivalents to fill the gap identified in capacity and correctly identified the physicians who needed NP support. In 2010, OPMG had 10 NPs, compared with 4 in 2008. The majority of these NPs are working in small teams and successfully supporting physicians with large panels and/or high disease burdens.

Conclusion: On the Patient Satisfaction Survey, patients’ satisfaction with the time elapsed between scheduling an appointment and date of the visit went from 68% at the end of 2008 to 77% in the first quarter of 2010; the average days elapsed went from 33 in December 2008 to 23 in May 2010. Additionally, staffing shortages of 2008 have all been resolved, and the Region’s clinician-retention rate has improved. Physician feedback has been very positive.

Introduction

Primary care physician shortages are occurring throughout the US and are affecting the delivery of primary care services.\textsuperscript{1,2} In late 2008, this problem was adversely affecting the model of care in the Kaiser Permanente (KP) Ohio Region as the group faced both the loss of primary care physicians and the reduction of primary care physician sources to recruit from. Because KP Ohio represents a very small segment of the insured population and there are many big-name competitors in Northeast Ohio, recruitment for physicians was already challenging without the additional decrease in the number of graduating primary care physicians. For the remaining Ohio Permanente Medical Group (OPMG) primary care physicians, consisting of 37 internists and 8 family practice specialists, this shortage meant larger panel sizes. The average panel size at the time was 2650 members per physician full-time equivalent (FTE; range, 1061–4627 adult patients). These larger panels resulted in more appointments, more phone calls, and more work overall to provide care for panels, which was causing clinician burnout and work dissatisfaction, which in turn caused additional physicians to leave the group. For KP patients, this was causing an increase in wait time to get an appointment,
Sustaining Primary Care Practice: A Model to Calculate Disease Burden and Adjust Panel Size

increases in wait time at the medical site, and delays in getting other needs met.

Senior leadership charged the Primary Care Access Team with developing a new primary care delivery model that would provide high-quality care, be quick to implement (by early 2009), and incorporate nurse practitioners (NPs). The model must accurately project the number of NPs to hire, by Medical Center, and match them with the physicians who most needed their assistance. The area market indicated that NPs could be hired, but the Primary Care Access Team had to understand how to use them and where. KP Ohio had long used a demand model that projected the number of office visits and determined the ideal panel size for each physician on the basis of those data and FTE level. This model was detailed, including age and sex adjustments, yet it used an outdated disease burden model that was based on pharmacy use data for patients by physician panel, last updated in 2001 and no longer available. The team proposed using the newly implemented Permanente Online Interactive Network Tool (POINT), its more sophisticated database, and availability of updated information to develop a panel showing disease burden by physician.

**Methodology**

**Disease Burden**

After careful analysis and discussion, six chronic diagnoses from POINT were chosen to be included in this model. These diagnoses were selected according to the following criteria: whether they were critical Healthcare Effectiveness Data and Information Set (HEDIS) measures, whether they were one of the diseases being tracked in POINT, and whether they had the highest frequency of occurrence for chronic disease among KP Ohio patients. It was thought that other diseases, although potentially burdensome, did not have a high enough occurrence rate to be counted. The selected diseases are listed in Table 1.

Data was extracted from POINT listing all KP patients who had any of these six chronic diagnoses and their associated risk category. The POINT risk categories are low, moderate, high, and very high. The committee then decided to assign relative values to these categories: 1, low; 3, moderate; 5, high; and 7, very high (Table 2). A patient could have multiple chronic diseases and consequently be counted more than once. The total of these values for the six risk categories was summed for each physician, and then an average disease score was calculated. This number was then divided by the panel size to get an average disease burden for the Ohio Region (Table 3). For diabetes, for example, the sample physician’s panel had patients with diabetes with the following risk-category distribution: 389 moderate, 5 high, and 5 very high. The calculation for disease burden score for that physician would be as follows:

\[
\text{Score} = 389 \times 3 + 5 \times 5 + 5 \times 7 = 1167 + 25 + 35 = 1227
\]

The remaining calculations were made for all of the chronic diseases for that physician, for a total disease burden score of 3934. These calculations were then completed for every primary care physician, to get to a total regional score of 121,514, with the median score equaling 3016 for the physician group. Both internists and family practice specialists scored above and below the median. The regional score was divided by the total number of adult

---

**Table 1. Chronic disease burden: diseases**

<table>
<thead>
<tr>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
</tr>
<tr>
<td>Chronic Kidney Disease (CKD)</td>
</tr>
<tr>
<td>Coronary Artery Disease (CAD)</td>
</tr>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Heart Failure</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
</tbody>
</table>

**Table 2. Chronic disease burden: risk categories and values**

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Risk value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>High</td>
<td>5</td>
</tr>
<tr>
<td>Very high</td>
<td>7</td>
</tr>
</tbody>
</table>

**Table 3. Sample physician panel: number of patients in each risk category for the six chronic diseases**

<table>
<thead>
<tr>
<th>Acuity/risk</th>
<th>Diabetes</th>
<th>Coronary artery disease</th>
<th>Heart failure</th>
<th>Hypertension</th>
<th>Chronic kidney disease</th>
<th>Asthma</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0</td>
<td>141</td>
<td>17</td>
<td>142</td>
<td>21</td>
<td>61</td>
<td>399</td>
</tr>
<tr>
<td>Moderate</td>
<td>389</td>
<td>59</td>
<td>35</td>
<td>52</td>
<td>12</td>
<td>37</td>
<td>437</td>
</tr>
<tr>
<td>High</td>
<td>5</td>
<td>17</td>
<td>16</td>
<td>81</td>
<td>0</td>
<td>14</td>
<td>112</td>
</tr>
<tr>
<td>Very high</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>399</td>
<td>210</td>
<td>68</td>
<td>937</td>
<td>33</td>
<td>336</td>
<td>3934</td>
</tr>
</tbody>
</table>

| Score       | 1227     | 403                     | 202           | 1643         | 123                    | 336    | 3934  |
OPMG members (80,090) to get an average disease burden score of 1.52 per member (Table 4).

**Using Disease Burden to Adjust Panel Size**

Once the regional average disease burden score of 1.52 was calculated, a disease score factor was computed by dividing the average disease score per member by the regional average (Table 5). A minimum disease score factor of 0.79 was established, but no maximum value was considered. The minimum value, which was one standard deviation from the average, was used as the lowest possible factor to allow for the possibility that there were other risk categories that were not included that could potentially affect demand. This factor was then applied to the “projected patient visits” of the physician’s panel to calculate the “adjusted patient visit projection,” as shown in Table 6. The adjusted patient visit projection was then compared to the calculated capacity to determine if a variance or gap existed between the projected visits and the capacity to meet that visit demand (Table 7).

**Using Adjusted Panel Size, Demand, and Capacity to Determine the Nurse Practitioner Support Model**

To help decrease its shortage of primary care physicians, the KP Ohio Region needed to know how many NPs to hire and to determine which physicians the NPs would be teamed with. The belief was that potentially one NP could provide support to two physicians, and these three clinicians would act as a small team for their assigned patients. (Note: NPs do not have their own panels of patients in Ohio.) With this staffing plan in mind, the group then conducted an analysis to determine what level of NP support would be needed to eliminate the gap for each physician’s panel. The variance, based on the calculated capacity of 3646 annual appointments for an NP, was divided by the NP capacity to determine the NP FTE level necessary to support the physician(s) on the team. Table 7 shows several examples of this. For instance, Dr A would require 0.5 NP FTE to support her panel of patients. If a physician did not have a gap in capacity to meet anticipated office-visit demand (such as Dr E in Table 7), the calculated NP FTE need was not reduced for the team.

After the projected number of office visits for each physician’s panel was compared with that physician’s capacity to meet the demand, it was determined what each team’s total FTE needs were for NPs. In Table 7, the team needed 1.5 NP FTEs to manage the office-visit demand, with Drs A and B each needing 0.5

---

**Table 4. Regional average disease burden score calculation**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Ohio Permanente Medical Group adult patients in Region</td>
<td>80,090</td>
</tr>
<tr>
<td>Total disease score of adult patients</td>
<td>121,514</td>
</tr>
<tr>
<td>Median disease burden score</td>
<td>3016</td>
</tr>
<tr>
<td>Average disease burden score/member</td>
<td>1.52</td>
</tr>
</tbody>
</table>

**Table 5. Disease burden score—disease factor calculation**

<table>
<thead>
<tr>
<th>Bedford Medical Center</th>
<th>Average disease score per panel member</th>
<th>Regional average disease score per panel member</th>
<th>Calculated disease score factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr A</td>
<td>1.71</td>
<td>1.52</td>
<td>1.122</td>
</tr>
<tr>
<td>Dr B</td>
<td>1.81</td>
<td>1.52</td>
<td>1.192</td>
</tr>
<tr>
<td>Dr C</td>
<td>1.49</td>
<td>1.52</td>
<td>0.977</td>
</tr>
<tr>
<td>Dr D</td>
<td>1.74</td>
<td>1.52</td>
<td>1.142</td>
</tr>
<tr>
<td>Dr E</td>
<td>1.29</td>
<td>1.52</td>
<td>0.846</td>
</tr>
</tbody>
</table>

Average disease score per panel member = total disease score of physician panel from Permanente Online Interactive Network Tool divided by physician’s adult panel size. Regional average disease score per panel member = total disease score of all panels divided by total adult panel size. Calculated disease score factor = average disease score per panel member divided by regional average disease score per panel member (minimum of 0.79 where applicable).

**Table 6. Use of disease score factor to adjust patient visit projections**

<table>
<thead>
<tr>
<th>Bedford Medical Center</th>
<th>Calculated disease score factor</th>
<th>Projected member visits</th>
<th>Adjusted member visit projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr A</td>
<td>1.122</td>
<td>4370</td>
<td>4904</td>
</tr>
<tr>
<td>Dr B</td>
<td>1.192</td>
<td>4794</td>
<td>5713</td>
</tr>
<tr>
<td>Dr C</td>
<td>0.977</td>
<td>4597</td>
<td>4491</td>
</tr>
<tr>
<td>Dr D</td>
<td>1.142</td>
<td>3798</td>
<td>4337</td>
</tr>
<tr>
<td>Dr E</td>
<td>0.846</td>
<td>4469</td>
<td>3782</td>
</tr>
</tbody>
</table>

Calculated disease score factor = average disease score per panel member divided by regional average disease score per panel member (minimum of 0.79 where applicable).

Projected patient visits is an annual projection based on patient age, sex, and historical average visit rate. Adjusted patient visit projection = projected patient visits multiplied by calculated disease score factor.

… physicians get acknowledgment, adjustment of a patient panel with a heavy disease load, and the needed support from an NP on their team.
NP, Drs C and D together needing 0.5 NP, and Dr E needing no additional support.

Results

As a result of the analysis process, KP Ohio hired a recommended 4.5 to 5.5 total NP FTEs to fill the gap in primary care clinician capacity. In addition, the process also identified the appropriate physicians by panel size and disease burden to receive NP support. Before implementation of this model, the NPs were not linked to any specific clinician or patient panel. Small teams were formed on which typically two physicians and one NP work together, with the NP seeing patients from both physicians’ panels as needed, creating better access and linkage for patients and increasing patient satisfaction. On the Patient Satisfaction Survey, patients’ satisfaction with the time elapsed between scheduling an appointment and date of the visit went from 68% at the end of 2008 to 77% in the first quarter of 2010. Another critical measurement that showed significant improvement was the number of days to the third next available future appointment, a standard measure used in health care to represent the average wait time to a future appointment. In December 2008, the average wait length was 33 days; in May 2010, this had shortened to 23 days, reflecting a 30% decrease. Additionally, the staffing shortages of 2008 have all been resolved, and the Region’s clinician-retention rate has stabilized. Physician feedback to this approach and the staffing model has been very positive, especially regarding the fact that physicians get acknowledgment, adjustment of a patient panel with a heavy disease load, and the needed support from an NP on their team.

Discussion

Although this model is simple to implement, the Region has not analyzed the diseases used in calculating the need for NPs, whether additional diseases should be included, or whether the minimum factor of 0.79 should be adjusted. KP Ohio will analyze the diseases used in calculating NPE requirements. The model is very easy to implement, and the KP Ohio Region is committed to helping any Region interested in using it. We believe that this model is generically valid and applicable to any primary care clinician practice as an equitable and sensible way to arrange and forecast staffing and as an alternate way to staff a primary care clinic.

Table 7. Nurse practitioner staffing support calculation

<table>
<thead>
<tr>
<th>Bedord Medical Center</th>
<th>Adjusted patient visit projection</th>
<th>Physician visit capacity(a)</th>
<th>Variance</th>
<th>NPE calculation(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr A</td>
<td>4904</td>
<td>2936</td>
<td>(1968)</td>
<td>0.5</td>
</tr>
<tr>
<td>Dr B</td>
<td>5713</td>
<td>3718</td>
<td>(1995)</td>
<td>0.5</td>
</tr>
<tr>
<td>Dr C</td>
<td>4491</td>
<td>3718</td>
<td>(773)</td>
<td>0.2</td>
</tr>
<tr>
<td>Dr D</td>
<td>4337</td>
<td>3131</td>
<td>(1206)</td>
<td>0.3</td>
</tr>
<tr>
<td>Dr E</td>
<td>3782</td>
<td>3914</td>
<td>132</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>23,227</td>
<td>17,417</td>
<td>(5810)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

\(a\) Physician and NPE capacities are based on regional average annual clinic hours worked in 2009. FTE = full-time equivalent; NPE = nurse practitioner equivalent.

Physician visit capacity is per latest capacity-per-visit analysis (1.0 FTE = capacity for 3914 visits).

Variance = physician visit capacity minus adjusted patient visit projection.

NPE calculation = variance divided by 3646 (capacity for 1.0 FTE nurse practitioner) if negative variance (result is zero if there is a positive variance).

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


Suggested Reading


Surgical Care in Jamaica in the Laparoendoscopic Era: Challenges and Future Prospects for Developing Nations

Joseph Martin Plummer, DM
Patrick Oral Roberts, DM
Pierre Anthony Leake, DM
Derek Ian Mitchell, DM, FACS

Abstract
In an era of technology-dependent surgery, Jamaica and other developing countries must deal with the wide disparity between their surgical practices and those of developed nations. Although there is still a place for the well-trained surgeon, the current emphasis in developed nations is less on the individual surgeon and more on the surgery team and system, with increasing costs despite diminishing government support. At the University of the West Indies, we are challenged to continue providing appropriate service and training for the Caribbean region, but we hope that a combination of fellowship-trained team leaders and partnerships with resource-rich institutions will enable us to meet this challenge and to meet the health care needs of our populace.

Background
Jamaica, with an area of 11,424 km², is the largest of the English-speaking Caribbean islands. By air, it is 90 minutes (900 km) from Miami, Florida, and 30 minutes (150 km) south of Cuba. The most recent statistics indicate that Jamaica has a population of approximately 2.7 million persons, with more than 1 million living in the area of Kingston, its capital city.

The premier university in the Caribbean is the University of the West Indies (UWI). It was founded at the Mona campus in Kingston in 1948 with 33 medical students. At present, there are additional campuses in St Augustine (Trinidad and Tobago), Cave Hill (Barbados), and Montego Bay (Jamaica) and a clinical training site in Nassau, Bahamas. The UWI serves more than 17 English-speaking countries and territories in the Caribbean and accepts students from all parts of the Americas and from as far away as South Africa. The size of the medical faculty has increased significantly over the years, with 300 medical students accepted at the Mona campus in the academic year 2009-2010. Even though the university is less than a century old, it has produced 14 regional prime ministers, premiers, and governor generals; three Nobel Laureates (Derek Walcott, literature; Arthur Lewis, economics; and Anthony Chen, peace); one Miss World; and one director general of the Pan American Health Organization.

In its charter, UWI stated that the main purpose of its medical school was providing undergraduate medical training to satisfy the needs of the region. Initially, graduate training in surgery for English-speaking Caribbean nationals consisted of local supervised experience, followed by courses and examinations in the United Kingdom (UK) or enrollment in a North American residency program. There were problems with this arrangement, however. Those who became fellows of the British Royal Colleges usually returned to practice in the region, but the British examinations were designed to select candidates for training but not to assess their suitability for specialist appointment. Few such positions have been available to Caribbean nationals since the entry of the UK into the European Union in 1993. However, North American training programs provided both suitable exit-level qualification and the opportunity for more immediately rewarding practice appointments, with the result that few graduates returned to practice in the Caribbean.

In the 1970s, a graduate surgery program was started at the UWI, Mona, first in general surgery and later in otorhinolaryngology, producing the first graduate in 1977. In the 1990s, residency training programs were implemented in orthopedics, urology, neurosurgery, cardiothoracic surgery, and pediatric surgery. Since 1977, the surgery programs have produced more than 100 graduates. The majority have remained in Jamaica and the Caribbean region. Seventy-five percent of the current surgical attending staff at the UWI are graduates of the surgery program. In 2006, the first female
general surgeon, a graduate of Yale University, was appointed a staff member and is the first surgeon trained in North America to have joined the department in the last three decades.5

**Organization of the Health System in Jamaica**

The Jamaican health system offers primary, secondary, and tertiary care. There is a private and public (government) health care system. Ambulatory care at the community level is delivered through an islandwide network of 343 health centers. Secondary and tertiary care is offered via 23 government and 8 private hospitals, in addition to the University Hospital of the West Indies (UHWI). All together, they have a combined capacity of 4802 general-care and 28 intensive-care beds. Private-sector health services are provided through an extensive network of professionals offering specialist services and by family practitioners across the island.6

The UHWI is the premier teaching hospital in the English-speaking Caribbean. It comprises some 520 beds; all surgery specialties are represented, and most surgical procedures are offered. It is the only hospital in Jamaica at which adult open-heart surgery is performed and is one of three referral centers for neurosurgery. At the UHWI, there are some 4500 elective admissions each year to the various surgical units and 1100 trauma admissions.7 The vast majority of trauma admissions are done at the Kingston Public Hospital, the largest and oldest hospital in the English-speaking Caribbean and an important site for medical training on the island.

**Financing Health Care in Jamaica**

Since April 2008, health care at the 340 public health clinics and the 23 public hospitals (excluding the UHWI) has been free to all members of the general public; at that time, user fees that were introduced previously as a cost-sharing measure were abolished.7 For the 2010 national budget, 4% was projected to be spent on health—a decrease from 7% in 1998 and 4.7% in 2000.6 Health-sector financing comes primarily from governmental budgetary allocations that are supplemented by user fees (at the UHWI) and inputs from nongovernmental organizations and international development partners. Jamaica does not qualify for much donor funding because it falls in the category of lower-middle-income countries.7 The downturn in the global economy that began in late 2007 and the devaluation of the Jamaican dollar will likely further impair the government’s ability to provide adequate health services to its citizens.

**Challenges in the Implementation and Delivery of Care and Education in the Era of High Technology**

The health sector is faced with a shortage of health care personnel in many key areas. The total vacancy for registered nurses increased from 17% in 2003 to 26% in 2004.6 A recent World Bank report showed that the annual attrition rate of nurses from the English-speaking Caribbean area was 8%, with out-migration being the main cause. Canada, the UK, and the US represented the primary destination countries. The number of nurses trained in the region who were working abroad was three times the number working in the English-speaking Caribbean area. This ratio of migrant nurses to those who are locally trained is without parallel elsewhere in the world.8 Not only did it appear that emigration caused significant shortages of nurses in the region, but also the brightest nurses were the ones leaving to work abroad.8

Jamaica has a high crime rate and ranks second in the world for number of murders per capita.9 Trauma and the care of patients with injuries consumes up to 70% of surgical time at some hospitals and accounts for 30% of hospital budgets.4 The bulk of those affected are young (but often unemployed) men, and they contribute little to hospital resources.10

The National Blood Transfusion Service serves both public and private clients and receives blood from 10 collection centers. It is estimated that 50,000 units of blood are needed to meet annual demands in Jamaica. However, in 2008, only 26,300 units were collected, and just 30% came from voluntary donors.11 The shortage of blood products leads to delays in performing elective surgeries that will require transfusion. This shortage of blood is even further compounded by the nation’s high level of traumatic injuries.

There is a need for computerization of the health facilities in Jamaica. Most of the hospitals in Jamaica lack Internet access, an electronic database, and an inventory system. Our practice of medicine is largely paper based. This affects the ability to obtain and share information among hospitals, private health care facilities, and the health ministry and the rapidity of information exchanges. The lack of a database hinders the availability and quality of data that can be retrieved to conduct quality-control audits or other studies. Many times, inefficiencies in this system adversely affect patient care.

Though state-of-the-art technologies such as computed tomography, magnetic resonance imaging, and nuclear scanning are available in Jamaica, they are
predominantly available from private health care services. Importantly, they are also available at the three tertiary-care regional hospitals (UHWI, Kingston Public Hospital, and Cornwall Regional Hospital). Although this may hinder the ability of physicians in the smaller hospitals to confirm a diagnosis, especially if the patient cannot afford these tests privately, an efficient referral and transport system to the tertiary-care hospitals for investigations will reduce risks to patients. Sometimes this can take days to effect. Also because of financial constraints, servicing and maintenance of these machines in the public sector is often lacking, leading to downtimes of weeks to months.

New technologies are often expensive, and with lack of adequate funding for capital expenditures, technology is sometimes not a priority even if proven cost-effective in the long term. With a relatively small population and a nonperforming economy, aggressive marketing, incentives, discounts, and payment plans are not readily available from the large medical companies to Jamaica and the Caribbean region. In fact, major industry players such as Johnson & Johnson and Covidien do not have a direct presence locally. Instead, their technologies are often sourced and supplied by a third party (a local company) with an expected markup in price. These companies operate in an unregulated environment and often cannot provide servicing or technical support and cannot enforce warranties. An example of this is the fact that colonoscopic and laparoscopic equipment must be sent to the US for servicing and repairs. This has resulted in many new pieces of medical equipment going into storage when repairs are required, with some returns on investments never materializing. Understandably, this makes hospital administrators less enthusiastic about acquiring any subsequent new technology.

The implementation of new technologies in Jamaica has been challenging. Even though laparoscopic cholecystectomy was introduced in 1993, it took approximately 15 years for the technology to be applied to appendectomy and colon surgery. Even though the gynecology service at UHWI now performs a significant number of operations laparoscopically. These two services could do more to share resources, thus consolidating accumulated experience, and by the exchange of information on best practices, they could make the learning curve shallower and reduce the local challenges in implementing new technology. Although each specialty has its unique issues, there are many common issues, such as anesthetic considerations, the availability of energy devices (LigaSure [Covidien, Mansfield, MA] and the Harmonic Scalpel [Ethicon Endo-Surgery, Cincinnati, OH]), standardization of protocols to mandate single-use disposable products, postoperative care, education, simulation-training, and research. These could be effectively addressed through a multidisciplinary integrated team approach.13

The implementation of new technology can disrupt well-established hospital routines and create additional stress for staff.14 The combination of a high turnover rate of operating-room (OR) nurses and the national shortage of nurses in general means that nurses may not get to acquire all of the necessary skills, because they must constantly assist across subspecialties. This state of affairs places both new and experienced nurses in a situation of nonstop, intense learning, which can be very stressful and frustrating for the surgical team implementing the new technology. The surgeon may be further stressed by the fact that procedure complication rates are increased because of poor or inadequate assistance. Without proper planning and coordination from all members of the team, inefficiencies may multiply at a time when skeptics are watching. A poor outcome can affect how well the new technology is embraced by patients, by other surgeons, and by the institution, regardless of what the published literature says.

The last hospital to be built by the government was erected in 1974. Even though hospitals have been refurbished, the physical environment, which includes the layout and size of ORs, is less than sufficient for most new technologies. Many times there are not enough electrical outlets, and electrical voltage is improper. This leads to entangled electrical extension cords in ORs, increasing the risk of accidents. In addition, the ORs are often too small to accommodate several pieces of new equipment at any one time, such as monitors, fluoroscopic machines, and electrosurgical units.

A major obstacle to the implementation of new technology in Jamaica is funding. A free health care system without a national health insurance program and a small percentage of the population with private health insurance has made it less attractive for the private sector to invest in the public system. It is difficult to recover and earn returns on investment because patients cannot be charged. A private-sector partnership, however, must be explored at the UHWI, because that would involve fees for services.

Even though there are enough physicians in Jamaica, there is a major need for subspecialty training and
the formation of subspecialty high-volume centers of excellence. We are well aware that even in the US, the majority of general surgical procedures are done by community-based surgeons in low-volume practices; still, there are numerous examples of high-volume academic centers that are generating the next generation of innovative academic surgeons. This exposure to the developed world and subspecialty training is required not only for surgeons, but also for such groups as nurses, anesthetists, and intensivists.

Recent Progress in Implementing New Technology

In spite of the difficulties faced by the health care sector in Jamaica, there has been recent progress. There is some basis on which to build, regarding both infrastructure and personnel. For example, all of our general surgery staff and chief residents recently successfully completed the Society of Gastrointestinal Endoscopic Surgeons Fundamentals of Laparoscopic Surgery examinations after completing online training with the International Centre for Telesimulation and Innovation in Medical Education at the University of Toronto. All surgeons in training undergo structured instruction in basic laparoscopic techniques. Laparoscopic cholecystectomy has been a part of the general surgery training since 1993, patients with rectal cancer have neoadjuvant therapy when indicated, and total mesorectal excision is part of the standard training of the surgical residents in the UWI training program. These developments are oftentimes lacking in developing countries and in some middle-income countries such as South Africa. In addition, lower gastrointestinal endoscopy is now a part of training for general surgical residents. These latter developments came about because one of our UWI graduates who is a current staff member received colorectal fellowship training. Accordingly, other centers across the country and other Caribbean nations now refer to the UWI patients who require colorectal surgery. Currently, there are five Jamaican surgery graduates pursuing fellowship training in North America. Should they return to practice in Jamaica, they will be associated with residents training at the UWI (three in minimally invasive surgery, one in surgical oncology, and one in vascular surgery). In addition, there is another graduate in England doing hepatobiliary surgery.

A long-term strategic development plan is being implemented for the surgery services in Jamaica and at UWI. Now that some surgeons have obtained fellowships overseas, other critical needs for subspecialty training should be identified and sought. Most of the current fellowships are organized by individual surgeons; although this is commendable, if the process is not properly coordinated, there could be an oversupply in some subspecialties and a shortage in others. This strategic planning should also be applied to training and keeping highly qualified nurses in the local institutions. This increase in specialist training further opens the possibility of health tourism. Developing countries can begin to attract patients from the developed world with high-quality care at a fraction of the cost associated with developed countries. The modern medical tourist industry is determined by market forces, and although countries such as India have an early start, there is a large Jamaican community in the diaspora that can combine the benefits of a visit home with an elective procedure.

The Future

Currently, two surgical fellows are in training in Canada and are expected to rejoin the Department of Surgery at UHWI. The areas of training are surgical oncology and minimally invasive surgery. This should lead to the ability to offer procedures such as liver resections, other complex operations for cancers, and more laparoscopic procedures. The strategic plan includes the development of disease-based teams in centers of high academic merit for patient care and surgical training. Research will only grow in this environment. Already, we have received funding for a colorectal cancer registry to document familial cancers in our population. Once the registry has been established, it will be the only one for a population of predominantly African descent. We hope that there will be other, similar initiatives.

Creative methods of fundraising and cooperation with private partnerships will have to be explored amidst encouragement of a culture of philanthropy, something that is often lacking in the developing world. The purchasing of refurbished medical equipment and collaboration with hospitals in highly industrialized countries that are replacing equipment in good functional condition must be explored. The type and quality of medical equipment replaced and disposed of in some developed nations could revolutionize health care and have a major impact in the Caribbean. We should be not only seeking fellowships for subspecialty surgeons and elective positions for residents but also organizing courses and work experiences overseas for nurses. The administrative staff must also be a part of this renewal process so that we will all be working for
a common cause. This personnel development may also be achieved by collaboration with other universities and hospitals, leading to working visits and courses in the Caribbean, and we are actively seeking such partners in highly industrialized nations.

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

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

References

A Merciful Art
Surgery should be a merciful art; the cleaner and gentler the act of operating, the less the patient suffers.
— Berkeley George Andrew Moynihan, 1865-1936, English Surgeon and Professor of Clinical Surgery
CASE STUDY

Candida Mastitis: A Case Report

Louisa Hanna, MD
Stacie A Cruz, MD

Abstract
Breastfeeding has been demonstrated to have many benefits for both mother and child. Nipple pain in the breastfeeding woman is a common complaint; it is the second most common cause of breastfeeding discontinuation in the first six months after childbirth. This case report addresses the characteristics of breast pain induced by Candida mastitis and the risk factors for and treatment of mastitis. Educating family physicians and other clinicians about how to recognize and treat this often difficult-to-eradicate infection will hopefully increase the percentage of mothers who breastfeed their infants through the first six months of life.

Introduction
The benefits of breastfeeding for both mother and child are extensive and have been well described. Breastfeeding has direct clinical benefits for the infant as well as potential long-term benefits that are realized after the breastfeeding period. The direct benefits of human milk include improvement in the infant’s gastrointestinal function and host defense and prevention of acute illnesses (eg, acute otitis media) during breastfeeding. There is increasing evidence of the potential long-term benefits of breast milk for the child after breastfeeding ceases, including possible reduction of the occurrence of acute illnesses, decreased risk of specific chronic conditions (eg, obesity, diabetes mellitus, cancer, cardiovascular disease, allergies, certain cancers), and improved neurodevelopmental outcomes compared with formula-fed infants. Benefits to the mother include more rapid postpartum uterine involution than in mothers who do not breastfeed, weight loss, and reduced psychological stress. In the long term, women who have breastfed their infants have a decreased risk of breast cancer, ovarian cancer, and cardiovascular disease.

Despite these benefits, there is a high rate of breastfeeding discontinuation. Of children born in 2006 in the US, 73.9% were breastfed for at least some time, but by age six months, only 13.6% of that group were exclusively breastfed. Nipple pain is listed as the second most common cause of breastfeeding discontinuation, surpassed only by the maternal perception of insufficient milk supply. Of breastfeeding women in the US who experience nipple pain, it is estimated that about 18% have Candida mastitis. Although there are many causes of breast pain, Candida mastitis is likely an underdiagnosed and undertreated etiology.

Case Report
A woman, age 29 years, who has two previous pregnancies and two deliveries, underwent a cesarean section at term because of fetal intolerance to labor in her most recent pregnancy. Her immediate postpartum period was uneventful, and she was breastfeeding when she was discharged from the hospital.

Two weeks later, she presented to urgent care, where she was found to have a surgical wound infection and was given cephalexin (Keflex). She returned two weeks later, reporting that her infant son had oral thrush and that his pediatrician had recommended that she seek treatment. She reported experiencing intermittent mild breast pain, and the skin surrounding the areolas were pink. She was prescribed clotrimazole 1% topical cream and instructed to apply it after every breastfeeding session.

At her six-week postpartum visit, the patient reported continued painful breastfeeding. No breast examination was documented; the patient was prescribed topical nystatin and oral fluconazole, 150 mg to be taken orally each day for seven days.

Two weeks later, the patient called her primary care physician (PCP) to say that she had finished all treatments as prescribed and that although her nipple pain decreased while she was taking fluconazole, it had now returned and was becoming unbearable. The patient was promptly referred to a lactation consultant. At her lactation appointment, the patient’s main concern

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was dry, itchy nipples. She said that she had no breast pain and was treated for dermatitis with Eucerin and with hydrocortisone cream as needed.

Two weeks later, the patient was evaluated for painful intercourse and vaginal discharge. It was found that she had a history of recurrent vaginal yeast infections. Her current condition was diagnosed as a yeast infection and was treated with miconazole vaginal cream.

One week later, the patient called her PCP to report that the skin around her areolas were still pink and that she still had stabbing breast pain during breastfeeding. She was instructed to take fluconazole orally for an additional seven days. On completion of the therapy, the patient’s symptoms recurred, and she was evaluated in a clinic. She had been using a vinegar wash on her breasts to prevent recurrence of the yeast on her skin. A physical examination revealed mild erythema of the superomedial area of the right breast and no nipple discharge. She was instructed to stop using the vinegar solution, because it could be irritating her skin, and was advised to return for possible antibiotic treatment if her symptoms did not resolve. The patient later called and informed her PCP that the pain was not decreasing and that she now experienced a stabbing pain in her breasts during feedings. She was instructed to continue using topical nystatin.

At the most recent follow-up by phone, the patient reported that her son was nine months old and that she had been using a pacifier or a bottle as a risk factor. She attributed the resolution of her symptoms to extensive changes in her diet that included a reduction in her intake of processed sugars and the addition of daily yogurt and probiotics.

Discusson

Case Report

This case illustrates several important points regarding Candida mastitis. Many clinicians are not aware of the characteristic presentation, risk factors, and recommended treatments for Candida mastitis. It also illustrates the difficulty of eradicating this infection.

Several different Candida species may be found both in the oral cavities of infants and as part of breast skin flora. One study identified Candida species in the mouths of 34.55% of exclusively breastfed infants and in the mouths of 66.67% of strictly bottle-fed infants. Candida was found on the breasts of 34.55% of lactating women and on the breasts of 17.65% of nonlactating women. This information highlights the widespread colonization of Candida species both in infants’ oral cavities and on lactating mothers’ breasts. It also points to the use of artificial nipples (from either a pacifier or a bottle) as a risk factor for Candida colonization.

Candida colonization of the lactating mother’s breast is often asymptomatic, but overgrowth may cause it to become symptomatic. Symptoms can be anywhere along a continuum from red sore nipples that do not heal to debilitating breast pain. Breast candidiasis may start as a superficial infection but may spread to the ductal system. Once a ductal infection is present, treatment may become more challenging, given the poor absorption of topical antifungals. Pain may be the only presenting symptom; it is typically described as a stabbing pain associated with feedings.

Risk Factors

Several maternal risk factors for the development of Candida mastitis have been identified, including intake of large amounts of dairy products, heavily sweetened foods, and artificial sweeteners, for which the evidence is mostly anecdotal and patient-reported. Other maternal risk factors include recent antibiotic use and a history of recurrent yeast infections (e.g., vaginal yeast infections). The patient whose case is reported here had recently taken antibiotics and had a history of recurrent yeast infections. She also reported a reduction in her symptoms after reducing her intake of dairy products and processed sugar and adding yogurt and probiotics to her daily diet.

Treatment

The treatment of Candida mastitis initially consists of the application of topical antifungals such as nystatin, clotrimazole, ketoconazole, or miconazole by gentle massage into the mother’s nipples after every breastfeeding session, for 14 days, plus giving nystatin suspension to the infant. One study, a collaboration of lactation specialists and dermatologists, showed that nystatin cream may be less effective than clotrimazole, ketoconazole, or miconazole. Another study randomized 227 immunocompetent infants with oral thrush to either 25 mg of miconazole as an oral gel four times daily or 100,000 IU of nystatin suspension four times daily after meals. Miconazole gel was significantly superior to nystatin suspension with regard to efficacy, rapidity of achieving cure, and oropharyngeal yeast eradication.
Relapses and adverse effects did not occur more frequently with miconazole than with nystatin. If the pain persists beyond the course of treatment, 500,000 U/day of oral nystatin (Mycostatin) or 200 mg/day of fluconazole for two to four weeks is recommended for the lactating mother. Clinicians often hesitate to prescribe oral fluconazole to breastfeeding mothers because of a concern that it will pass into breast milk; however, oral fluconazole has long been used in neonates and immunocompromised children. This makes its use less concerning, given that <5% of the recommended pediatric dose passes from the mother into her breast milk. Therefore, even if the mother is given oral fluconazole, the infant still must be treated for thrush, because the amount of medication that passes into the breast milk is insufficient to treat the infant.

As evidenced by the high rates of Candida colonization in infants who use artificial nipples, eradication of the yeast on bottles, pacifiers, and breast pumos is an important part of treatment. It is commonly believed that this may be accomplished by boiling rubber nipples and by washing bras, bedding, and cloth diapers in hot water, possibly adding 1 cup (approximately 236.6 mL) of distilled vinegar to the rinse water.

## Conclusion

Candida mastitis in lactating women is an underrecognized and undertreated cause of breast pain. Some of the sources cited in this article date back to 1986 because there is a paucity of evidence-based data on diagnosis, risk-factor management, and treatment for this condition. Even when appropriate treatment is initiated, it is an often difficult to eradicate infection. Because of this, clinicians who treat breastfeeding mothers must be alert to the possibility of Candida mastitis in patients with characteristic stabbing breast pain and erythematous or dry nipples. Being aware of the risk factors for the condition will lead to increased accuracy in diagnosis and treatment. The hope is that with an increased awareness of this infection, more mothers will be appropriately treated and will thus be more likely to continue breastfeeding.

### Disclosure Statement

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

### Acknowledgment

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### References

ECG Diagnosis: Monomorphic Ventricular Tachycardia

The differential diagnosis of a wide-complex regular tachycardia includes supraventricular tachycardia (SVT) with intraventricular aberrant conduction, SVT conducting to the ventricles over an accessory pathway, and ventricular tachycardia (VT). The ECG characteristics of VT are A) wide QRS complexes; B) rate >100 (most commonly 150-200); C) rhythm is usually regular, although there may be some beat-to-beat variation, and D) QRS axis is usually constant. The most common predictors of VT are ischemic heart disease, especially acute myocardial infarction and prior VT. The presence of atrioventricular dissociation can be used to exclude the diagnosis of SVT, but is often difficult to identify on ECG. Wide-complex regular tachydysrhythmias that do not show regular sinus activity should always be treated as VT; inappropriate treatment of VT as an SVT may induce hemodynamic compromise.

References

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Image Diagnosis: Shoulder Dislocations

Shoreh Kooshesh, MD
Gus M Garmel, MD, FACEP, FAAEM

Figure 1A: Anterior Shoulder Dislocation, Anterior-Posterior view
The anterior dislocation is characterized by subcoracoid position of the humeral head in the anterior-posterior view. The glenohumeral joint is the most commonly dislocated joint in the body. Anterior dislocations are usually caused by a fall, but can occur spontaneously; they account for approximately 95% of all shoulder dislocations.

Figure 1B: Anterior Shoulder Dislocation, Lateral View
Figure 1B demonstrates the lateral view of an anterior shoulder dislocation. Loss of the deltoid contour and squaring of the shoulder is typically present. It is important to assess axillary nerve sensation over the “regimental badge” area and for deltoid contraction, as axillary nerve palsy may occur in cases of prolonged dislocation. Postreduction films should be obtained to look for fracture and confirm proper reduction. A Hill-Sachs fracture is a depression of the posterolateral aspect of the humeral head that is common with recurrent dislocations. Following successful reduction, the patient’s arm should be placed in a broad arm sling.

Figure 2A: Posterior Shoulder Dislocation, Anterior-Posterior View
Figure 2A is an anterior-posterior view demonstrating a posterior shoulder dislocation. This view shows the classic finding of a widened glenohumeral space (usually greater than 6mm). The incidence of posterior shoulder dislocations is estimated to be 3% of all shoulder dislocations. The humeral head has been described as having a light bulb or ice cream cone appearance on anterior-posterior view, depending upon the degree of rotation.
Image Diagnosis: Shoulder Dislocations

The transcapular Y view demonstrates the humeral head posterior to the glenoid. Posterior dislocations are caused by severe internal rotation and adduction. The mechanism of injury is an important clue to the type of dislocation. Posterior dislocations usually occur during a seizure, lightning strike, or fall on an outstretched arm. Reduction is performed with gentle traction on the humerus, in addition to gentle anterior pressure while coaxing the humeral head over the glenoid rim. Slow external rotation may be necessary to complete the reduction. Postreduction films are recommended.

**Figure 2B: Posterior Shoulder Dislocation, Transcapular Y View**

Posterior dislocations are caused by severe internal rotation and adduction. The mechanism of injury is an important clue to the type of dislocation. Posterior dislocations usually occur during a seizure, lightning strike, or fall on an outstretched arm. Reduction is performed with gentle traction on the humerus, in addition to gentle anterior pressure while coaxing the humeral head over the glenoid rim. Slow external rotation may be necessary to complete the reduction. Postreduction films are recommended.

**Figure 3A: Inferior Shoulder Dislocation, Anterior-Posterior View**

Figure 3A demonstrates an inferior shoulder dislocation, also known as luxatio erecta. This type of dislocation is rare, with an incidence of less than 1% of all shoulder dislocations. The arm is raised, abducted, and fixed, with the humeral head subcoracoid in position. The patient often presents with their arm resting on top of their head.

**Figure 3B: Inferior Shoulder Dislocation, Lateral View**

Figure 3B demonstrates the lateral view of the inferior dislocation. The mechanism responsible for this dislocation is an axial force applied to an arm while raised overhead or indirect forces hyperabducting the arm. The neck of the humerus is levered against the acromion and the inferior capsule tears, forcing the humerus out inferiorly. There is a high incidence of neurovascular damage, specifically to the axillary nerve and artery. To reduce an inferior dislocation, gentle axial traction on the humerus should be applied in addition to gentle abduction. Countertraction across the ipsilateral shoulder by an assistant during the procedure helps with successful reduction.
My fellowship in wilderness medicine challenges me to teach and practice medicine without the tools afforded by a modern Emergency Department. Strangely, one of my most valuable instruments is a smartphone—arguably as important as a stethoscope, a SAM (structural aluminum malleable) splint, or even flint and steel. Smartphones are devices that do more than handle phone calls and provide applications that integrated personal digital assistants into medicine in the 1990s. Not only are smartphones set up so that you can download and install an increasing number of applications for them but they also add many modern nuances, making them compelling products today—something I came to appreciate more than ever during my relief work in Haiti.

Popular smartphone models, such as those sold under the brand names iPhone, Nexus One, BlackBerry, and Palm and those running Android or Windows operating systems, all offer the basic substrate to aid your medical practice with a few core applications. At its most useful, the smartphone provides a place to store pharmacologic and diagnostic references, the capacity to take notes, and a medical calculator. These core functions are fulfilled by applications such as the Epocrates products (Epocrates, Inc; San Mateo, CA; www.epocrates.com) and Lexi-COMPLETE (Lexi-Comp; Hudson, OH; www.lexi.com), allowing users to look up medications and differential diagnoses, and are available for all platforms; thus, any smartphone will fit your medical needs.

My recent experiences in Haiti revealed the indispensable nature of my smartphone. On entering Port-au-Prince and starting work at the Hôpital de l’Université d’État d’Haiti (University Hospital) four days after the earthquake in January 2010, I found that there were no guarantees of food or water, let alone electricity to charge my smartphone. A small, low-cost, portable solar panel (Better Energy Systems; Berkeley, CA; www.solio.com) afforded enough daily energy to allow me to use my core medical programs, which were especially important in the fast-moving, low-infrastructure environment after the earthquake. Most solar-powered chargers can store ten hours of sunlight and can be used to fully charge a depleted smartphone.

In the absence of any uniform communications standard, I could not effectively communicate with other physicians or transfer patients to the USNS Comfort without text messaging. An unexpected Wi-Fi connection allowed me to refresh my knowledge of nerve blocks before a sufficient supply of morphine sulfate arrived.1,2 Similarly, a free Creole phrase book (Transparent Language, Nashua, NH; www.byki.com), downloaded to my smartphone, eased my transition through my first few days in Haiti before I had access to translators. Although I did not use a pediatric reference, unit converter, Snellen chart, or an antibiotic guide as much as I would have in a nondisaster setting, I felt more comfortable having electronic versions (QxMD Software; Vancouver, BC, Canada; www.qxmd.com; ABx Guide, Emergency Medicine Residents’ Association; Irving, TX; www.emra.org) of them at my disposal. During my return trip, while I began processing my experiences, I listened to audiobooks, but I could have just as easily listened to medical lectures such as those in the EMRAP.TV (Emergency Medicine: Reviews and Perspectives) series (The Center for Medical Education; Creamery, PA; www.emrap.tv), educational videos, or one of the many available medical podcasts (PodcastDirectory.com; Chesapeake Bay, MD; www.podcastdirectory.com).

I plan to bring my smartphone with me when I work at the Pheriche clinic of the Himalayan Rescue Association of Nepal in the Spring of 2011. I believe it will be even more helpful when used in a more traditional hospital setting. For instance, a smartphone can store and organize thousands of PDF references for immediate use or teaching purposes, which is quite helpful in view of the current emphasis on evidence-based practices. A specific example is the Macintosh-based

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application named Papers (Mekentosi BV; Aalsmeer, The Netherlands; http://mekentosj.com), which can efficiently search and store journal articles that are easily synchronized and viewed with an iPhone. The Air Sharing application (Avatron Software; Portland, OR; http://avatron.com) also allows users to transfer PDF files, Word documents, Excel phone trees, pictures, and presentations between a smartphone and a computer. In a similar fashion, Evernote (Evernote; Mountain View, CA; www.evernote.com) can store notes, pictures, and screen shots of items that once resided in the margins of a medical textbook or in a personal notebook. This information resides online until it is retrieved by a smartphone or by any computer. Many of my residency notes are backed up online through Evernote.

As more material moves online, it is becoming easier and more important to store pictures of physical examination findings. Some electronic health records (EHRs) such as the Epic System (Epic Systems Corporation; Verona, WI; www.epic.com) can integrate pictures taken from a smartphone, which is usually more accessible than a camera (though care must be taken to avoid violating the Health Insurance Portability and Accountability Act by inadvertently storing and sharing these photos). With an eye toward the future, some EHRs are accessible from a smartphone. Epic has partnered with Apple to launch Haiku, an application that provides smartphone access to EHRs to facilitate bedside documentation and document portability.

Apple took 600,000 preorders for fourth-generation iPhone on the first day that they were offered for sale, and Epic has a broad market share; both companies are in a position to define the direction and use of smartphone medical technology. There is not enough space for this article to discuss all of the applications that might enhance a clinical practice, but you can discover these through an Internet search using the proper search terms from any medical specialty. If you already use a smartphone, you may have encountered a new use or application for it in this article. But if you do not have a smartphone, then ask yourself this: Can I practice medicine without it?

Acknowledgments
I thank Gus M Carmel, MD, for his significant contribution to the idea for this article, its organization, and its editing. I could not have completed it—or my residency—without his help.

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

References

The Take-Home Message
The take home message is that we need to think of the smartphone as a medical device. The capability is there and it’s how we choose to use it.

— Ivor Kovic, MD, b 1980, Head of the Pazin Ambulance Service in Croatia and international presenter on smartphone healthcare technologies
soul of the healer

“Combatting the Chill”
16 x 20
oil on canvas

Philip R Brunner, MD

Dr Brunner is a retired Pediatrician from the South Bay Medical Center in Harbor City, CA. During his 35 years in the Pediatric Department, Dr Brunner was the Founder and Director of the Learning Center for Children with Learning Disabilities and Attention Deficits. He was Chief of the Pediatric Department for 24 years.
Social Media and the Health System

You know institutions tend to become static; they build walls around themselves to protect themselves from change, and eventually die. You should fight that by opening up your thinking and your ideas, and work for a change.

—Sidney Garfield, MD

Introduction

As early as 1960, Sidney Garfield, MD, the co-founder of Kaiser Permanente (KP), foresaw how computers would become powerful tools to help patients. It is in his maverick spirit that we examine the potential for social media to be powerful tools to help our patients today.

Social media, or content created and exchanged within virtual communities through the use of online tools, are used by millions of people to converse and to connect. Health systems can use social media to engage members and potential members by building trust and making large organizations more accessible and approachable. Social media can help patients manage their chronic conditions and make healthy choices; it also can accelerate knowledge acquisition and dissemination for patients and clinicians.

Social networking is not a program or a Web site; it is a community of people who share similar interests and activities who interact through online networks. Health systems can use social media to engage members and potential members by building trust and making large organizations more accessible and approachable. Social media can help patients manage their chronic conditions and make healthy choices; it also can accelerate knowledge acquisition and dissemination for patients and clinicians.

Social Networking and Social Media

Social networking is not a program or a Web site; it is a community of people who share similar interests and activities who interact through online networks and mobile technologies. Facebook, Twitter, and blogs are Web platforms used to connect people and transform the publishing of media from broadcast media monologues into social media dialogues. The rapid and extensive penetration into society of these sites is related to their ability to facilitate talking as well as listening, consuming as well as participating. Whereas it took nearly 40 years for computers to become mainstream, it took Facebook less than 6 months to add 100 million people. Today more than 500 million people use Facebook regularly. Among adults in the US, 42% use social networking sites. Among young adults (age 18-29 years), the figure is an impressive 86%.

Building Trust and Understanding

Because of the “no advertising rule” in the American Medical Association’s code of ethics, which existed from 1847 to 1975, health care organizations were barred from communicating that could subject physicians to allegations of “soliciting” patients. In the post-“no advertising rule” era, however, health care organizations have begun to adopt best practices of the public relations and issues management field. One key concept is the “bank

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of good will.” Good news generated by an organization strengthens its reputation in the marketplace and among policymakers and influencers. Good news also protects against potentially harmful messages. When this bank is depleted because of the absence of positive mentions, organizations face reduced effectiveness as the result of a damaged reputation. Adding to this understanding, large media outlets and organizations no longer generate all news and messaging. In today’s world of democratized influence, consumers generate news. A 2010 report by the Pew Internet and American Life Project confirms this reality: 37% of Internet users have actively contributed to the creation, commentary, or dissemination of news.

In practice, a successful organization tracks positive, neutral, and negative media “mentions.” Data show that KP has internalized the bank of good will best practice. Figure 1 demonstrates the visible change in media mentions (defined as a reference to the organization in print publications, television, and the Internet) from KP’s work.

Twitter and other social media exert leverage by using positive network effects. This means that one message reaches the direct followers, who then share the original message in an exponential fashion, increasing the value of the network to the individuals who participate in it. The positive network effect provides fast and free distribution of messages to health consumers. A recent demonstration of this effect occurred with the media release of KP’s electronic health record collaboration with the Department of Veterans Affairs in January 2010. Through the use of social networking tools such as Twitter, an audience of hundreds was expanded to an audience of over 75,000 within 48 hours, with 92% of the reach created by individuals not affiliated with KP.

An example that examines the reach of just one physician demonstrates the potential of building the bank of good will.

In Figure 2, the content generated by a single KP physician, in this case coauthor Jeffrey Benabio, MD, a dermatologist, (“Tweet Type” pie chart), is compared to the reach of each piece of content, copied and forwarded, and tracked through the Internet.

Following on this analogy, each impression equals a deposit to a bank of good will. The conservative approach to social media participation has typically been to use social media “handles” and profiles that avoid mention of organizational affiliation, as is the case above. The significant impact of positive mentions and the dominance of user-generated content in media mentions has changed this view, however, turning what was once thought of as a liability into an asset in the positioning of a care system as the model for the future. If the physician instead is identified as part of a Medical Group in their social media handle or profile, the deposit of good will goes to the organizational “account” in addition to the individual “account.” Combined with the network effect of multiple physicians participating, their impact in support of the health system’s efforts to support patient, family, and community health is multiplied exponentially.

### Knowledge Dissemination

Studies of the impact and accuracy of health information disseminated via social networks are only beginning to be published. Statistics clearly demonstrate a demand for social media in medicine, which provides an opportunity for clinicians and health care organizations to engage their patients. During the H1N1 outbreak of 2009, the Centers for Disease Control and Prevention (CDC) turned to social networking site Twitter to communicate with clinicians across the US. The CDC employs a Twitter feed for emergency information (more than 1.2 million followers) and also for flu information (46,000 followers). There are numerous examples of individual physicians using social media to educate and support pa-
tients in preventing and managing chronic illness. Additionally, we are seeing a growing effort within the health sector to embrace social media as evidenced by the creation of the Mayo Clinic Center for Social Media. Physicians involved in these efforts cite the use of social media as the enabler of societal purpose in their professional work, whether it is to “realign families with science” or “tap into the reason we all went into medical school, to make a difference in people’s lives.”

Mitigating Risks

A recent legal review of social media concluded, unsurprisingly, that “in the health care context, complex situations can arise.” For example, a physician unaccustomed to mass communication might be misquoted or contribute to negative perceptions of his or her practice or health system, intentionally or not. In addition, a broader perspective of risk must include the actions of physicians, staff, patients and their families. Employees have been terminated for tweets that violate the Health Insurance Portability and Accountability Act (HIPAA); discovered Facebook and MySpace conversations have led to insurance coverage litigation; civil complaints have been filed alleging libel/defamation of clinicians in the use of online rating sites. The protection of patient privacy is paramount and requires special attention. Multiplying the number of communicators and the number of environments can increase the risk of harm to those we serve and of harm to the organization’s integrity and ability to carry out its mission. Paul Levy, former CEO of Beth Israel Deaconess Medical Center in Boston, points out in his social media work that “any form of communication (even conversations in the elevator!) can violate important privacy rules.” For this reason, an approach to social media that is applicable across all forms of communication is fitting.

An organizational social media policy is a first step in acknowledging employee activity and managing risks, “to keep them and your company safe as well as responsive.” KP’s social media policy, ratified in 2009 has been freely available for organizations to learn from and is considered a model in the health care industry. Greater actualization of benefits, including maintaining and growing a bank of good will, requires a transition in thinking from prohibiting all social media activity to active, guided engagement of all who wish to participate.

Conclusion

Although health care’s understanding of the potential of social media is still in its infancy, more innovation is inevitable. Health care organizations and individual physicians are already using social media regularly to build trust, promote management of health and wellness, and disseminate knowledge. For health care systems and physician groups with a tradition of innovation and responsible growth, organized social media participation can extend the benefits of excellent communication with patients and potential consumers to enhance their relationship with us and promote achievement of their life goals through optimal health.

In an August 2010 conversation with the author (TE), Jack Cochran, MD, Executive Director of The Permanente Federation, the national umbrella organization for KP’s 15,000 physicians, stated: Today’s health system leaders are beginning to appreciate social media as “another societal asset that we need to be conversant in, and imagine how it will all link to a better future, instead of imagining that it will go away.” Leadership in the use of social media is an opportunity and a challenge for a health system to engage with a changing stakeholder group. On the basis of current life expectancy, it is possible that an individual over the age of 50 today could be cared for by a physician who is not yet born, and both these physicians and their patients will have different expectations for interaction than exist today. “Social media is already integral to how people now live their lives and, increasingly, it plays an important role in how they manage...
their health,” says Holly Potter, Vice President of Public Relations at Kaiser Foundation Health Plan. “If we want to be relevant partners, helping our members and their families manage their health, it is our obligation to learn how to engage—safely, respectfully, and authentically.”

A sustained educational effort will be required to address gaps in understanding, manage fears, and mitigate tangible risks. We see the enormous potential of these tools to help a care system fulfill its purpose. At the same time, we are mindful of the benefits of learning from and teaching colleagues about this significant change in the way we will interact, with encouragement from medical leaders:

“Social media is formidable, very real. It’s all around us and gaining momentum. We need to become savvy enough to help direct our colleagues to understand its potential, negative and positive.” Dr Cochran related to the author (TE) in their August 2010 conversation.

It may be normal one day for every physician and nurse to maintain a social media presence as health professionals committed to the health of individuals and populations. We are hopeful that this article will continue conversations already started about this future and the way we will shape it, in the interest of moving ahead together for the benefit of those we serve.
In the Winter 2008 issue of *The Permanente Journal*, we published an interview with five CEOs and Medical Directors (Table 1) from four public hospitals and systems, which was conducted at the Spring 2007 annual meeting of the National Association of Public Hospitals (NAPH) in Boston, MA. This year, at the 2010 annual meeting of the NAPH, we revisited leaders from the same four hospitals and systems, including three new participants and two returning from the 2007 interview (Table 2). Part 2 of this interview appears in the Spring 2011 issue and includes comments on: innovations in quality improvement, improving patients' experience, and approaches to health care reform.

**Community Interventions**

Tom Janisse, MD (TJ): In 2007, when we first talked together, all the participants spoke of many innovations in their public hospitals and systems, some of which were just beginning. To follow-up, Dr Hullett could you relate the outcome of the story you told about wanting to create a cardiovascular intervention in your community in Birmingham and the community decided they actually wanted an intervention for breast cancer. That was a story about listening to the community.

Sandral Hullett, MD (SH): We're still listening. And this is often a very difficult area because men at times don't come to the doctor or pay attention to certain health areas. We were listening more to the women who were saying that we need to take our husbands to the doctor. They're all dying on us. And so we said to the men, the women want you all to come to the doctor. What issue would you want to hear about? We did a poll and the response was prostate cancer. So we put together a health fair that offered testing for prostate cancer, both digital and the prostate-specific antigen (PSA) test. We took blood pressures, and screened for HIV, glucose levels; we even checked for sickle cell trait. You'd be surprised how many adults do not know they have the trait. The men were very open to the whole thing. What I found most interesting was the seminar, because in the past I have observed the men just sitting and not saying anything. This time they had so many questions, we ran late. We also had a smoking-cessation seminar; they asked a tremendous amount of questions about that. When the women came they said, “We weren't expecting any women. This was supposed to be for men.” The men actually signed up for medical appointments. Many men work in our county health system, where services are at almost no cost, and they weren't using it. So our next goal is to get the men in our system to use the system.

### Table 1. The 2007 participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Role and Hospital</th>
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<tbody>
<tr>
<td>Alan D Aviles</td>
<td>CEO, New York City Health and Hospitals Corporation, New York, New York</td>
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<tr>
<td>John W Bluford, III</td>
<td>CEO, Truman Medical Centers, Kansas City, Missouri</td>
</tr>
<tr>
<td>Sandral Hullett, MD</td>
<td>CEO and Medical Director, Cooper Green Mercy Hospital, Birmingham, Alabama</td>
</tr>
<tr>
<td>Gene Marie O'Connell, RN, MS</td>
<td>CEO, San Francisco General Hospital, San Francisco, California</td>
</tr>
<tr>
<td>Ramanathan Raju, MD</td>
<td>Chief Medical Officer, New York City Health and Hospitals Corporation, New York, New York</td>
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### Table 2. The 2010 participants

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<thead>
<tr>
<th>Name</th>
<th>Role and Hospital</th>
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<tr>
<td>John W Bluford, III</td>
<td>President and CEO, Truman Medical Centers, Kansas City, Missouri; Chairman of the American Hospital Association Board of Trustees</td>
</tr>
<tr>
<td>Susan Currin, RN, MS</td>
<td>CEO, San Francisco General Hospital and Trauma Center, San Francisco, California</td>
</tr>
<tr>
<td>Sandral Hullett, MD</td>
<td>CEO and Medical Director, Cooper Green Mercy Hospital, Birmingham, Alabama</td>
</tr>
<tr>
<td>Claire Horton, MD</td>
<td>Associate Medical Director, General Medicine Clinic, San Francisco General Hospital and Trauma Center, San Francisco, California</td>
</tr>
<tr>
<td>LaRay Brown</td>
<td>Senior Vice President, Corporate Planning, Community Health and Intergovernmental Relations, New York City Health and Hospitals Corporation, New York, New York</td>
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Tom Janisse, MD, is the Editor-In-Chief and Publisher of *The Permanente Journal*. E-mail: tom.janisse@kp.org.
Community Clinics and the Hospital

**TJ:** In San Francisco, former San Francisco General Hospital (SFGH) CEO, Gene O’Connell, spoke about her proposal to reallocate acute care hospital funds to external community clinics. This recognized that community clinics have an important relationship to the hospital—people who visit community clinics are healthier and thus have less impact on the SFGH Emergency Department and inpatient service.

**Susan Currin, RN, MSN (SC):** I can give you two examples of how we accomplished that. The first reallocation was from our inpatient medical-surgical and psychiatric areas. Over the years the number of acute patients has significantly dropped, so we used those resources to create a psychiatric urgent care drop-in clinic and acute diversion unit in the community. The need was in the community-based programs and it did not make sense to keep nonacute patients in expensive hospital beds. They were best cared for in the community. We also started a Medical Respite in the community for patients once they are discharged, and it was also a place chronic inebriates could go for care rather than being taken to hospital emergency rooms.

**TJ:** That’s innovative and highly beneficial for community members.

**Claire Horton, MD (CH):** Yes, a Medical Respite is a wonderful service for people who don’t have the acuity of medical problems requiring a hospital, and this community-based setting offers more support. And we could use those hospital beds for patients with acute medical conditions. After hospitalization, patients can get discharged to this community-based, supportive setting, where they can complete the hospital treatment plan (antibiotics, physical therapy, etc.). It’s a vast improvement on returning to the streets before being fully back to baseline. From the primary care side, we will sometimes admit homeless patients to Medical Respite to help facilitate important tests or screening procedures—such as colonoscopies for at-risk individuals.

**SC:** Another program that Gene Marie O’Connell spoke of was video medical interpretation services. Over the last four years, we have provided video medical interpretation services by mobile video conferencing at SFGH. It’s become a standard of practice and we partner with Alameda County to offer a broad range of languages. This can be done in any location. We now have 50 units within the hospital and we’re ready to expand to the community primary care clinics. This is a second example of using resources from the hospital to provide the services in the community clinics where they are really needed. And because the same technology for video medical interpretation is used for telemedicine, we’re also expanding our telemedicine services. We will be doing ophthalmology, dermatology and behavioral health via telemedicine over the next couple of years in the community primary care clinics.

**CH:** As a side note on the video interpretation, SFGH is a training facility, so the presence of the video interpretation services significantly contributes to the education of the next generation of physicians. Many of our trainees will work in the safety-net system of hospitals and clinics where many patients have limited English proficiency. If we train our residents to use interpretation services appropriately and with every encounter, they enter the work world understanding the importance of medical interpretation and with the skills to use interpreters well.

System Integration

**TJ:** Those are great and functional connections that are extremely instructive for any hospital in a community or health care system. Let’s continue to talk about integrated delivery systems, including how hospitals connect with community clinics and with the community, and, within hospitals, connections between departments and services. These are leading programs that create improved quality coupled with reduced cost, though it seems like every system has a different set of components or different barriers. So, we’re interested in your approach and your progress in trying to integrate your system.

**SH:** The New York City hospital system is a gigantic health system; in Birmingham we’re still a small entity—the only public hospital in the whole area—but we’re on the same street with all the other hospitals, like University of Alabama, and other major hospitals, such as the private children’s hospital, and the state health department. We integrate services with those institutions. We also have community-based clinics that the whole family uses. The integration comes by having a working relationship with these other hospitals. We are working with them on better referral patterns and on transfers from emergency rooms. Mental health is a big issue in our area; we get people out of emergency rooms into facilities where there are beds. One of the ways facilities like ours will survive is to have something unique; for example, we connect with the homeless programs and with churches that work with family issues: social behavior work. In addition, we work with the free clinics that give three visits to their patients, so we create continuity of care, and we have six satel-
lite pharmacies in the community to assist primarily outpatients who are scattered all around.

**John Bluford, III (JB):** Tomorrow, my short presentation is going to be on creating a healthy community and I am sure all of us are thinking in those terms, and trying to put it into action. So the premise is that ultimately we will be judged by the health status of the community we serve as opposed to what happens within our four walls. So that’s the underlying premise. And one of the things I am going to be most proud of is this Passport to Wellness program that we put in place. Originally it was targeted for frequent flyers, people who frequently access our system, hence the name. And what we’re doing is hands-on case management of four to five different cohorts (25 to 30 people). One cohort is frequent visits to our emergency room. Two others will have chronic diseases: diabetes and sickle cell trait. And the fourth will be employees with chronic disease conditions and/or excessive time loss and/or excessive use of our hospital. I’m really excited about it because we have a large research component built into the program. I’ve hired dedicated staff to work on this, and I’ve allocated $450,000 to make it work. We will do whatever we have to do to improve health outcomes and the quality of life for our patients. The other area about this that I’m pleased with is that we made a decision to work on this for two to three years to determine what difference it makes. We have our matrix in place and we’re not going to be grounded by the limitations of a grant or external funding.

**CH:** I wanted to mention a community-hospital linkage in San Francisco. There is a lot of attention now on transitions of care and how patient safety and quality of care suffer during transition periods. SFGH has a nurse practitioner (NP)-staffed “bridge clinic” for patients without a primary care physician after hospital discharge. This NP sees the patients after discharge, follows-up on important post-hospital treatment and workup plans, and arranges ongoing community-based primary care for the patient in the setting that’s most appropriate for him or her.

**SC:** As part of that transition-care program, we’re piloting an after-care plan which is an intensive discharge teaching process—within 48 hours the patients receive a phone call from the nurse to review their plan, their medications, the action they need to take if certain symptoms appear. This teaches people how to access the system. If they need to be seen, they go to this bridge clinic that Dr Horton described, and they have a follow-up call at ten days. We are observing now what impact that will have on readmission rates.

Leadership is critically important for us, so several staff of the San Francisco Department of Public Health are part of the current NAPH fellowship program: myself; Mivic Hirose, the CEO from Laguna Honda Hospital, (a 780-bed skilled-nursing facility); Tangerine Brigham, the Deputy Director of Health over our Healthy San Francisco program for uninsured patients; and Barbara Garcia, the Deputy Director of Health over community programs and community-based primary care. (She has just been named Director of Public Health, with the departure of Mitch Katz to Los Angeles). We have all the components for an integrated delivery system, but they’re not linked yet. We’re here to learn the current best practices so that we can prepare for health care reform, provide better care for our patients, and make sure that their care is provided at the right place, at the right time, and by the right staff.

**CH:** On my way to this interview, I was reflecting on working in the San Francisco County system compared to working in another county where the Department of Public Health, the public hospital and the community clinics were much less linked. I’ve really appreciated how linked those three San Francisco entities are. If there’s a major initiative going on, all three of those bodies are present at the table and the Department of Public Health actually directs a lot of those community-based programs. That creates cohesion and communication in San Francisco, which moves us towards a more integrated system. In addition, the Healthy San Francisco program of universal health care has been tremendous in teaching us to work together. Patient data is much more readily available and easily shared, and our approach to quality improvement initiatives in the San Francisco safety net has become more coordinated and cohesive as well.

**JB:** Some of the most exciting activities are the external partner relationships we are nurturing. The future will create different and meaningful partnerships that may have been unthinkable in the past. Just over the past year we have forged strong business relationships with the local Hyatt Hotel to support sleep studies; the local Blue Cross and Blue Shield franchise to support our fresh produce market; the Kansas City Chiefs to support community health initiatives; and meaningful connections with Federally Qualified Health Centers. This follows longer-standing relationships with Walgreens, JE Dunn Construction, US Bank, Cerner, Morrison Food Services, and Cardinal Health, all in extraordinary support of both our patients and employees through creative relationships and programs.
Integration of People in the System

**TJ:** Let’s complete our talk on system integration by also discussing the integration of people, like multidisciplinary teams, or integrating physicians and practitioners across primary care-specialty care departments and services.

**SH:** We do a lot of work in a multidisciplinary way in Birmingham. We train that way; in fact, I’ve done it that way all of my professional life. We have an inpatient-outpatient community base. We’ve got 600,000 people in Birmingham, and our one public hospital sees over 185,000 patients in the Outpatient Department alone. We work very hard to keep people healthy enough to stay out of the hospital. To make this work, for the people, we have 18 to 20 subspecialty services in our clinics because most of the people come for subspecialty care. Our community-based clinics are more primary care based. We have a staff integrated with NPs, physician assistants, and physicians; and have integrated primary care with subspecialty care. In many areas our people are cross-trained, so they can move where we need them. So we have multidisciplinary and interdisciplinary integration. It is cost effective to do it that way too.

In addition, in public facilities you find more social support services. Education is also very important. You want people to understand why they are there, and how to take care of themselves when they go home to prevent them from coming back. And you don’t get paid very much for these services, if at all.

**SC:** Part of our system includes a large number of community clinics that are not part of the Department of Public Health but are part of our safety-net system. We do not have enough primary care capacity just within the Department of Public Health to meet the needs of the residents of San Francisco, so we’ve expanded our network in the community to include these other clinics. One of the major changes over the years is that SFGH is not the hub of the system anymore. The hub is really primary care in the medical home. That’s been a major shift in the last three years, before people even thought to start the hard work of integration, which is the details that point, with a stronger trust factor, I think we can do it that way too.

In addition, in public facilities you find more social support services. Education is also very important. You want people to understand why they are there, and how to take care of themselves when they go home to prevent them from coming back. And you don’t get paid very much for these services, if at all.

**CH:** This electronic referral system that Susan Currin referred to did increase the communication between the primary care physician and the specialist, but also it increased specialist capacity for patients. As each of the specialty clinics agreed to participate and established guidelines for a referral, this increased communication back to the primary care physician. About 30% of all the referrals were able to be handled with specialist-primary care communication, rather than an actual patient appointment. That opened up appointments for other patients without hiring additional specialists. It was a good learning experience for everybody. It served the patients a lot better too. Part of the grant to develop the electronic referral system also allowed us to create, at the hospital, a Center for Innovation and Quality to support research in primary care-specialty care linkage projects.

**JB:** On graduate medical education, most of the hospitals affiliated with the NAPH are teaching institutions so the partnership, collaboration, integration, and alignment with the medical school is critical. I don’t have an answer for that yet. I do know that everybody’s talking about doing something. I think it needs to be a major paradigm shift in the delivery of medical education and how it compliments and better fits the needs of our patients, which should be priority number one. Another thing is critical: many of us have independent 501(c)(3) Medical Group practices that are not employee positions by the institutions per se but are connected at the hip. Nonetheless, a lot can be done relative to alignment with the physician group, for example, with the medical home a single bill can be submitted. First and foremost, however, there needs to be a fundamental understanding between management and physician leadership that we are one. This is the same for the medical school. And once we get to that point, with a stronger trust factor, I think we can start the hard work of integration, which is the details on how do we work within the confines of the legal construct to make things happen. This is the conversation of the times.

**TJ:** Those are extremely important innovations in all of your public hospitals and systems, and very informative for those seeking ideas and outcomes from implementing them. In the next section of the interview to be published as Part 2 in the Spring 2011 issue, we would like to hear from you about quality improvement efforts, improving patients’ experience, and finally about your approaches to health care reform.
Dr DuLong is a Plastic Surgeon, Assistant Physician-in-Chief, and recent past Chief of the Department of Plastic Surgery and Division of Maxillofacial Surgery for the Santa Clara Medical Center in CA. This is his first attempt at painting but he has always been drawn to the creative arts and particularly to faces and people as represented in art.
HAITI: The Kaiser Permanente Experience—Part 2: Personal Stories

Edited by Sarah Beekley, MD

Editor’s note: In the Fall 2010 issue of The Permanente Journal, we published HAITI: The Kaiser Permanente Experience—Part 1, a collection of commentaries that discussed: the political relationship between Haiti and the Dominican Republic, vector-borne diseases and the role of the Malaria Emergency Technical and Operational Response (MENTOR), the Disaster Medical Assistance Team (DMAT), disaster readiness, and other crisis issues from the perspective of some of those who went to Haiti following the January 12, 2010 earthquake. In Part 2, in this issue, we share the personal stories, challenges, triumphs, and failures of other medical volunteers whose lives were forever changed by: walking the line; “Next”; band-aids to stop a hemorrhage; everybody got something; “Good afternoon, my friends”; fear of eating fish; the place where vegetables grow; girls in frilly dresses and boys in their Sunday best; a four month old with hydrocephalus; medicine in the supine position with nose pinched; a 20 year old with supraventricular tachycardia and a creatinine of 7; children’s Tylenol, creams, pills, and Vicks Vaporub; and things you’ll never again take for granted. —Sarah Beekley, MD

Letter Home

Randy Bergen, MD

April 4, 2010
Dear Friends and Family,

Friday there was a training in town. It was a hilly section of town pretty near the Presidential Palace. Since it was Good Friday, a holiday here, there was very little traffic. The city had a less chaotic, less claustrophobic feel. We passed several Good Friday processions—people dressed up and singing, presumably on their way to worship. The training was on the grounds of a convent. It is the one and only place I have yet been in Port-au-Prince that deserved to be called beautiful. It had also sustained damage. We had to cross over rubble to get up the stairs and across a balcony supported by temporary supports to get to the meeting rooms. But the convent had a lovely central courtyard, through which a hallway led to a small chapel that opened onto a long balcony that gave a wide vista of Port-au-Prince and the Caribbean Sea below. It was far enough away from the noise of the city to be truly tranquil. I tried to have a brief conversation in Spanish with an elderly nun in an arm cast. She was trying to describe the events of the earthquake at the convent. She still seemed much traumatized.

Saturday was the first day without scheduled work. After catching up on paperwork, three of us asked the driver to take us up into the hills above Port-au-Prince. We went to an overlook that had a panoramic view of the city and coastline. We then drove further up and inland. There the hills were covered in terraced fields. The driver said that this is where most of the vegetables for Port-au-Prince are grown. It was cool and green and less crowded. It was hard to believe that these bumpy, winding roads were the main route for most of the vegetables that the city needs, just another example of how difficult even simple things like getting vegetables to market seem to be for Haiti. We then went to a national park at the end of a ridge, surrounded by pine trees, was Fort Jacques. There was a small parking lot, filled with children passing a soccer ball, women selling fried everything, and the sound of techno-punk something or other. Whatever the French or the Haitians were defending up here that required a fort bristling with cannons pointing in all directions is beyond me, perhaps cabbages were once more valuable. But here was the fort and the end of our day of playing tourist.

I started this on Saturday but will end on Easter Sunday. Gerald, one of our drivers was nice enough to drive me down the hill to the large Catholic church in the square not far from the house. It was overflowing with the congregation but I was able to find a place by a doorway where I could stand. It was a lovely service, in French, quite reserved, a very Presbyterian service in fact, no hand clapping or “Praise the Lords!” The church was filled with warm sunlight and all the usual suspects: teens in black “rebels army” t-shirts texting or playing games on their cell phones; little girls in brilliant white frilly dresses with bows in their hair; older women with fancy hats; and of course the little boys in their Sunday best with their shirt tails hanging out wiggling in their mothers arms. For a moment I could almost forget that many worshipping with me now live in tents in the square across the street—but only for a moment.

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Another day dawned in Haiti. The sun blazed over Port-au-Prince, streaming into our field hospital through the openings in the tent, warming the moist air that reeked of urine and feces. I inhaled the thick atmosphere and felt exhausted, unable to eat, drink, or sleep.

I felt nauseated whether I sat, stood, or ate. I paced in a vain attempt to flee the churning of my stomach. All morning long I took care of those in need, feeling slightly disassociated from the events around me. About 1:00 pm, a young woman in her early 20s walked uncomfortably into the emergency tent. Ms M had been “healthy” all her life. But now she had not eaten or taken liquids for several days, while exposed to the oppressive heat. Her heart rhythm raced in a supraventricular tachycardia. After several doses of adenosine (which I suspected was expired) and a beta-blocker her rhythm slowed. I was grateful for the cardiac monitor on the crash cart. There were no labs, no x-rays, and no EKG available. I hoped she would respond to intravenous fluids. I admitted her to the “med/surg” tent, among the hundreds of patients and their families who had been living there since the January earthquake.

The emergency tent was packed and crazy; as it had been since the day I had arrived. I had no time to count the number of critically ill patients I treated that afternoon. I had multiple “codes.” This was a new definition of hell. I had found a place where people in dire need of care, care that I knew how to deliver, could not get the medical care that they needed. I was simply the person from whom help was vainly beseeched. I continued to work as best I could until 1:00 am. At that point I lay down, more tired than I could ever remember.

A nurse woke me an hour later. Ms M was now having trouble breathing. I ran to the tent and found her in the corner in severe respiratory distress. Her oxygen saturation had already dropped to 60%, on a 100% nonrebreather mask. She had put out less than 30 cc’s of urine over the last 12 hours, after receiving 6 or 7 liters of normal saline. Her heart rate continued at 150-160. Systolic blood pressure had fallen to the 70s. Ms M was in acute pulmonary edema and shock. Her young face contorted in fear as she focused her concentration solely on trying to get enough air. We intubated her.

At 4:00 am her labs (on a jury-rigged version of an i-stat) returned showing a creatinine of 7 and a potassium of 8. She needed emergent hemodialysis. That night, as on all the other nights that I was there, no dialysis was available in Port-au-Prince. We tried everything we had available, but by the time the morning sun rose to roil the fetid air, she was dead.

I cried from exhaustion. I wept for her loss. I felt I had failed her—and failed others that day. The nurse consoled me. She offered that I had done everything that I could with what we had. The medical care Ms M received from me in those 24 hours was more care than nearly anyone in Haiti receives in an entire life.

I could cry for only a short time. Another code blue was called. This time, I cared for a young man. He died also, suffering an acute myocardial infarction and cardiogenic shock. I had no cardiac drugs and no echocardiogram. Where were our cath labs and our balloon pumps?

I vomited over and over again for a period of hours. At one point, I felt as if the sickness was not so much inside me as it was all around me. I believe I must have slept.

After I recovered a bit, and when I could, I sat next to the body of Ms M and recited the Lord’s Prayer. In the distance the sun was setting, slowly and beautifully, into the western sea.

Yours truly,
Dr Aloha from Port-Au-Prince in Haiti.
I arrived in Haiti in February, almost five weeks after the earthquake. As a physician, I treated medical illnesses in several of Relief International’s Port-au-Prince clinics. Our stationary clinic, situated next to the house where we stayed, opened about 8:30 am, but adults, children, and infants started gathering in the dark up to five hours earlier. We could often hear the murmuring of their voices outside the walls of our compound before daybreak. We were told that the gathering showed that the neighborhood had confidence in our clinic, which was staffed by Americans and Haitians. If the people did not show up, the clinic was in trouble.

Each day at 8:00 am sharp, a cadre of physicians, nurses, security personnel, and translators were expected to “walk the line” and review the people who were waiting to be seen. The purpose was to prioritize the patients according to the acuity of their illnesses, and we gave numbers to the sickest, indicating the order in which they would be seen. Most days, we were able to see everyone in the line at some point, but sometimes we had to turn people away if the numbers were too great. We saw people who were ill (some seriously), tired, and under stress, but who also must have been hungry, thirsty, and sore from sitting or standing for hours. The heat and humidity were constant. People were malnourished, and clearly few had received regular medical care. But what I noticed most was their patience while waiting in line. No pushing or shoving, no shouting or anger. The line was a model of acceptance and courtesy. That astonished me. How could that be in a small country that had just lost 230,000 of its own only a month before? What does that mean? For me, it means that I will go back. I’ll walk the line again so that maybe a few people will feel better, will know they haven’t been forgotten, and will wait a little less time in line again.

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Getting Back

Pascale Vermont Evers, PhD, CT

Whenever I mention to someone that I have spent two weeks in Haiti as a mental health worker, I am invariably asked: “Wasn’t it so hard to be there?” Each time I almost feel guilty admitting that the experience was a myriad of things: I felt humbled, challenged every second, fully alive, open to people’s pain, but never depressed or overwhelmed.

As a clinical psychologist with a specialty in death and dying and critical incident stress management, my job, along with Kaiser Permanente Psychiatrist Mason Turner, was to debrief 230 members of the staff of Nos Petits Frères et Soeurs St Damien Pediatric Hospital of their personal experiences of the quake, to train them to identify signs of trauma among colleagues, parents, and children, and to teach them simple psychological interventions (“psychological first aid”).

Being a native French speaker, I led the debriefing groups, and was struck again and again by people’s openness, readiness to talk about painful losses to complete strangers, conviction that if they had been allowed to survive the earthquake it was their duty to help their community, deep faith that God would ultimately take care of them and give them the strength to carry on, support of each other and their families in spite of having no shelter and getting little sleep and nourishment, pride in their appearance shown by their coming to work impeccably dressed while living on the streets, and inspiring courage. Of the 230 people we met with, only two were still able to live in their homes, some had
“Bonswa, mes amis” means “good afternoon, my friends” in the mixture of Creole and French that allowed many of us to look directly into our patient’s eyes, and make a deeper connection than relying completely on translators. This time, however, “Bonswa, mes amis,” introduced a talk about Haiti in San Rafael, CA. What a beautiful surprise when five or ten people in the audience smiled and said in a spontaneous unison rhythm, “Bonswa, mon ami” or “Good afternoon, my friend.” The delicate voices sent chills down our spines and brought back the memories of so many intimate encounters with people in Haiti, who had responded the same way.

There were several Haitians in the audience that day. As our audience listened to the presentation of the desperate living conditions, and stories of our friends, colleagues, and patients in Haiti, there was another sound from the audience: the sound of tears.

We presented our experience in Haiti. We shared our experience of being part of a collective international aid effort, one that focuses on a population with tremendous needs; needs that are unmet by the fractured Haitian governmental and private infrastructure. Needs that have not lessened at a time when the news media has shifted focus away from Haiti. Our presentation was a call to action, recognizing that the people of Haiti are part of our world community.

We avoided our most gruesome images in favor of pictures of the lives of survivors living in camps with plastic sheeting for homes, with no electricity, and with no reliable source of clean water or food. We showed pictures of people cooking and ironing with charcoal heat, pictures of people nursing their post-operative wounds, and one picture of a toy fire truck and police truck, built out of plastic scraps.

In spite of our efforts to present a positive call to action, the tears kept coming. The tears got in the way of more than one Haitian who stood up to share his story of his family in Haiti, and his efforts to help the ones who have survived.

That day in San Rafael, the tears of mes amis reminded us how deeply personal loss can be, to those in our communities, here and around the world. Bonswa.

lost up to ten members of their family, many had not been able to bury their loved ones, some university students had lost their school and professors and their dreams of becoming physicians, many had recurring nightmares, symptoms of severe anxiety and fear about their own and their children’s future. However, I never heard one person complain or give up, a lesson to me and to all of us.

I met with several staff who had been particularly traumatized and followed some of their healing process through communications with the hospital Director, Phadoul Amisial, who reports that some of them “have improved a lot.” All along our goal had been to teach the staff to take over after our departure, and I was very gratified to hear recently that they no longer feel the need for volunteers and that they believe it is “healthier psychologically” to take care of each other and to find a “new post-quake normal.”

I went to Haiti in many ways to give back to a community that had suffered such tremendous losses and ended up getting back so very much—a belief in human resiliency, the witnessing of incredible courage in the face of pain, a strong bonding among colleagues, and a deep spiritual life to support it all—and feeling so grateful to the people I met for their warmth and openness of heart.

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February 1, 2010

Suzy Fitzgerald, MD

It’s 11:00 am on the tarmac at the Port-au-Prince Airport and I’m waiting for the C-12 military flight that will begin my trip home. There is a mix of people around me, many in scrubs or nongovernmental organization t-shirts. There are large suitcases and small backpacks. There are many Haitian-Americans. Fatigue and sadness line many of the faces. We share stories of where we have been and what we have seen. We share water and trail mix. We share this experience, though most of us haven’t begun to comprehend what it has meant.

It seems a lifetime ago I was frantically packing my bags and making those last minute trips to REI. I remember the military helicopter from Santo Domingo to the US Embassy and the bumpy SUV ride through the rubble-filled Port-au-Prince streets. I remember my first day as a Medical Team Leader and the chaos at the Haitian Marine base where US Joint Task Force Bravo set up operations—military personnel barking orders in every direction, yelling to be heard over the constant rhythmic beating of helicopter blades overhead. I remember triaging the long lines of patients outside our Relief International clinic gates every morning.

Most of all, I remember a little four-month-old girl named Jeanty. We’d arrived at our third mobile clinic site at Tabanacle de Victoire to find her mother waiting patiently with the little one in her arms. Chronically ill at baseline with hydrocephalus and a ventriculoperitoneal shunt in place, she’d been acutely ill for several days with a cough, problems breathing, and diarrhea. The blood in her urine had started yesterday. We saw her first and transferred her almost immediately.

We were all incredibly shocked when the team member returned and told us she’d died shortly after arrival to the referral hospital. His hands shook as he spoke haltingly of finding meaning in being there to comfort Jeanty’s mother as Jeanty slipped from the world.

I struggle with many of the decisions I made as the Medical Team Leader, including those I made the day Jeanty died. I remind myself I made the best decisions I could given the information and resources at hand. I realize in the end, I would make them again. I forgive myself, but will wonder for the rest of my life if things might have gone differently for little Jeanty had I decided to set up our mobile clinic at Tabanacle de Victoire a day earlier.

I don’t think anyone ever knew I spent that night curled up in a ball in my sleeping bag, rocking back and forth under the Haitian sky, tears pouring down my face. I’ve been an Emergency Medicine physician for years, but never before felt such profound and aching awe of what it truly means to hold the lives of others in my hands. What it means to make decisions that may change those lives forever. Never before had I felt the anguish that comes when you can literally see the consequences of your choices, when the names and faces along the road you haven’t chosen come sharply into focus.

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February 1, 2010

Yesterday we dispatched an assessment team to the Fontamara orphanage, only a mile away from our clinic, after receiving word they needed help. All was well. The numerous sick and injured children had finally been taken for medical care when relief workers arrived two days earlier. The remaining children now had food, water, and shelter. Madame Jacques, the children’s elderly caretaker, thanked us for our visit. Then she shared the story of the 56 children who died in the earthquake. She reached into her shiny red purse and brought out glossy 4 by 6 photos of the 16 children whose bodies had been recovered. Forty children remain buried in the concrete rubble that was once their home.

I stood next to Madame Jacques as she passed the photos around. She handled the edges carefully. She didn’t say a word. Face impassive, she pulled out photo after photo of her dead children, their bodies laid carefully next to each other in the dirt. Some were clothed. Some were not. Only a few had obvious injuries. Most just looked asleep, though their bloated bellies and the flies dotting their dust-covered faces suggested otherwise.

We stood together in the shade, silent mourners in this spontaneous memorial service. Sunlight dappled the ground and the faint laughter of the surviving children could be heard in the background. Finally, the stream of photos stopped. I couldn’t help but realize we’d been only a mile away from them for over a week and yet knew nothing of their plight.

I couldn’t speak. I could only take Madame Jacques’ gnarled hand and wonder what might have been. Eyes raw with grief, she gave a single tight nod and tucked the photos away in her shiny red purse. She’d been so busy caring for the living, she’d only just begun to mourn the dead.

I can still see her eyes, dark brown like Jeanty’s. I roll my backpack toward the C-12 with the American flag on the tail. I drag my pack up the steps, throw it on the pile, and settle into my seat. I buckle my seatbelt. I reach overhead for the air vent.

I can still see their eyes.
Haiti was and remains an enigma. How can so much suffering affect so many people so many times? Despite this recurrent tragedy, the resilience of this Atlantic island is difficult to explain. My one-week trip to post-earthquake Haiti in February 2010 has redefined my life into pre-Haiti and post-Haiti. What was once an abstract concept of poverty and lack of resources despite growing up in India, took on new meaning. Our group had a mix of physicians and a pharmacist as well as supporting nonmedical youth who helped with arranging the supplies and with interacting with patients and their children among other chores. We stayed in a home that had survived and the owner was gracious to accommodate the large volunteer groups that kept coming through. We made friends; we took care of injured and sick children and adults in homes nearby. I can say that the most useful tool was a headlamp with LED lights that did a great job at night. The pain was there to see but it was masked by a sense of realism as well as the trademark Haitian smile. Of the hundreds of patients we provided primary care for in a makeshift clinic in a still-standing church, only one woman broke down and that too only for moments. My 12-year-old interpreter was a very smart kid. He instituted a time management system. He would tell the patients they had four minutes to tell their story and hurry them up. Patients obliged when he would call out “Swiwon,” obviously misspelled, but he told me that was Creole for next. “Next,” that is the operative word that Haiti is defined by now. What is the next disaster, where is the next meal from, who is the next victim. However, as I have heard before from Joel Osteen in his sermons, Haitians will probably transition to being victors and not victims. Life must go on. We saw fruit vendors, kids playing, well-dressed adults possibly going to work or perhaps to church. There were groups of men and women wearing blue overalls trying to clean the streets. The ruins were everywhere; surprisingly it appeared the hillside homes were intact in places. The views were amazing from higher up. We could see the USNS Comfort in the ocean not too far from the coast. The magnitude of the response was clearly juxtaposed as we raced to the airport on our way back to catch the last scheduled relief flight by the US Embassy to Santo Domingo from Port-au-Prince. The United Nations and varied aid agencies had their trucks milling about near the airport and the traffic was bad. In the bed of our pickup, we had an elderly woman we were trying to get to one of the field hospitals. She had shown up at our doorstep in severe pain, possibly malignancy related and with urinary retention. We found a nurse in the group staying at home who did an urgent Foley insertion and IV hydration. We were moved from one hospital to the next to get her relief. We had to leave because our flight was taking off really soon. The concept of Haiti came to a head at that point. How could we leave our jobs incomplete, how could we see this suffering and not be a part of it, and how could we return to our tree-lined, paved, sterile existence back home. Like the movies where some have to stay behind on the sinking ship, we felt we were the ones being asked to get on the lifeboats. Haiti is a country in dire need of help at every level. Human relationships manifest at their best when love is shared and that is what Haiti needs. Money and materials are important but we need to show Haiti that we recognize, truly understand that we have the same aspirations, dreams, and tribulations, and we truly are on the same boat. It is time to remake Haiti and the youth in Haiti are the key to this rebirth. I am grateful to Kaiser Permanente, The Permanente Medical Group, and other volunteer groups for making sure that our mission to help the sick is available where it is needed most and for documenting these experiences.

A hundred years from now, we can say that humanity cared when God challenged us. In the meantime, I would urge everybody to think of helping the Haiti in your own neighborhood. There are people all around who need assistance; we just have to look. We also need to conserve water and electricity. I was surprised at my own ability to use just about half a bucket of water a day for a week. It has been hard to duplicate that back home but the awareness has enhanced. Haiti truly gave me back more than what we contributed. I hope to be able to return some day. A recent text message from Ely, my friend the 12-year-old interpreter, summarizes what many are now feeling: “I miss you and keep you in my heart” and “Big shakehand.”

Lessons from Haiti

Sai Praveen Haranath, MBBS, MPH, FCCP

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I’m still not completely sure how I connected to the woman in LA who got me onto a relief flight out of Miami into Port-au-Prince on January 24, 12 days after the earthquake. What I am sure about is that I was lucky to be able to get down there as an individual, as opposed to a member of a sponsored team, and to have a destination once I landed: a hospital in Port-au-Prince for women and children, Hôpital Espoir: Hope Hospital.

I spent the first two days at Hôpital Espoir seeing a few patients who, by this point, presented with minor traumatic injuries but mostly people were coming for primary care. And they came. In droves. I saw people with headaches, chest pain, insomnia, colds, cough, vaginal infections, anorexia, rashes, abdominal and back pain. I decided early on not to let anyone leave without some kind of medication, even if it was only multivitamins and even if they were going to turn around and sell it.

The next few days I spent at a “mobile clinic” that we established in an area on the outskirts of town. My experience as Chief of the Emergency Department at the Kaiser Permanente West Los Angeles Medical Center where I endured tedious meetings developing patient flow plans actually paid off! I was the de facto “administrator” at our little clinic and was able to organize the process swiftly. We set up shop in an open-air church. There were three physicians, three nurses, translators, a few volunteers, medications, supplies and water to distribute. Word spread that the physicians were in town and we saw around 300 patients over those 2 days. Every adult brought 2 to 3 kids with them, most of whom had vague complaints, almost none of whom were really sick. Again, everybody got something: Children’s Tylenol, creams, pills, Vicks Vaporub (good for the whole family!).

The practice of medicine in these settings was a shocking experience. All the “luxuries” of modern medical care as I know it were either scarce or nonexistent (there are virtually no ventilators or computed tomography scanners available in Haiti, no monitors, no electrocardiogram machine at my hospital). And the therapeutic options, too, were so limited.

What do I do with a child with tinea capitus over his entire scalp? Even if I had the pills to give him that would cure this, do I take the risk of treating him without follow-up to monitor potential dangerous side effects of the medication? Will a two-week supply of antihypertensive medications really affect the long-term health of a patient? Is the chest pain musculoskeletal or cardiac related? Well, the kid with the fungus got a bit of Metronidazole cream that we had on hand to treat vaginal infections, the hypertensive lady got Enalapril with fingers crossed that her kidneys could cope with it, the patient with chest pain got aspirin. Band-aids to stop a hemorrhage. It was unsettling.

While I was there, I kept wishing that I were a surgeon. These were the physicians who were doing the heroic deeds and truly saving life and limb. But I realize that just using whatever skills I have to help a few people through this terrible calamity was a lesson in what it means to be a physician. It was a rich and rewarding experience.

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The Baby

Lydia S Segal, MD, MPH

There is no such thing as a risk-free life.

The baby came to the clinic living and left dying. Much like Haiti itself in a matter of seconds everything changed. She was a one year old with a slight fever and diarrhea, brought in by her 18-year-old mother. On exam I heard bronchitis, not an unusual finding with everyone sleeping in the streets. When I stepped away to get some medicine, I asked the 19-year-old translator, who came highly recommended by another team physician, if she knew how to give the prophylactic meds. The medications are standard in third world countries: antiworm and Vitamin A. And she said yes, she did know how to give these.

And so began a perfect storm of events. In a perfect storm everything lines up, against you, against the situation.

In a moment in time, with my back turned, and unknown to me, to any of us, that in Haiti, medicine is given in the supine position, nose pinched with a little water dripped in the mouth. No wonder the baby aspirated. No wonder I did not realize what had happened in the few minutes I was getting her medications. No wonder the folks in line waiting who saw it all did not think the way the meds given were unusual. It was not, at least not in Haiti.

This was a perfect storm: the day before the prophylactic medications would have been dispensed by our USA-trained nurses; two days before, the Kaiser Permanente protocol based on guidelines of the Centers for Disease Control and Prevention and Doctors Without Borders had yet to be adopted by our clinic.

And though we had been warned that training and culture styles differed, this was a first hand in-your-face experience.

For all the good we did, all the good I did, some bad was done. In a moment’s time, in a matter of seconds, more than 200,000 people lost their lives, 2,000,000 became homeless. By my order to give the prophylactic medications, I contributed to one more. For this, I will grieve the rest of my life, though it will not return the life that was lost. Someone wrote, “grieving is not a thing that can be convincingly shared with an audience,” and yet the whole country shares it at the same time. And shares it still daily for all those they have lost.

There is no such thing as a risk-free life. ✷

Lydia S Segal, MD, MPH, is a Family Practitioner and Founder of the Alternative Medicine Department for the Mid-Atlantic Permanente Medical Group in the Northern Virginia service area. E-mail: lydia.s.segal@kp.org.
Day 5: A list

Things I really appreciate having here:
- A shower
- A toilet
- A mat to sleep on
- No rain while sleeping outdoors
- At least one good meal per day and generally a good supply of sufficient food and drinking water
- A generator with a few hours of electricity each day

Things I will always try not to take for granted in the future:
- Ice
- A hot shower
- A running shower (as opposed to wetting down, shower off, soaping up, rinsing off—I took a bucket shower with < 5 cups of water)
- Not being devoured by mosquitoes
- Food always available
- Clean drinking water
- Electricity every time I flip the switch
- Sanitation
- A comfortable lifestyle and relative safety for my family

Less acute trauma, more wound checks and an increase in medical complaints and infectious disease: fevers, diarrheas, coughs. Two patients with complicated post-burn problems that needed more definitive intervention than they received initially and now needed surgical debridement. Certainly aware of the mental consequences of the trauma: lots of people complaining of “palpitations” and other anxiety-related issues. The latter is hardly surprising, but seems always somewhat different in its manifestations culturally. It’s also interesting how urban legends arise out of these situations: in Sri Lanka people were afraid to eat fish because of fear that the fish had been eating people killed in the tsunami, likewise here people are now shying away from meat afraid that the animals have been eating the dead.

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Day 8: First day of mobile clinic

I wonder at what point you become used to feeling your body at less than its best. I have bug bites on my feet, hands, back, and forehead. I’m not bitten badly compared to many, but I do have some nagging itching. I’m constantly sticky from sweat. Even minutes after showering (thank goodness I can shower every day) I begin to feel sweaty again. I have a rash on my thighs, I presume from heat. My body is holding up well, in general, no neck pain from sleeping funny or particular joint aches. It would just be nice if my skin came around.

146 patients at base clinic, 114 at mobile, 260 total.

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Day 9: “But my urine is yellow”

Switched teams today, I stayed at base clinic while others went out on the mobile team. At times it seems like some patients come in simply because we’re here, it’s free, and they can get free medications. They go down a list of complaints until they hit something for which we can give them medications: “I have flu (a cold).” Okay, so that’s a virus, will get better on its own. “But my urine is yellow.” Yes, that’s normal. “What about my ‘heartburn.’” Okay, winner, we can give you some meds for that.

Today I did see a young girl with a complex laceration now about two weeks old. She had some wound on the side of her face that had been repaired, but a quarter-plus-sized hole on her forehead that was open to the skull. I hesitated because it was so old, but felt it really needed to be repaired. Would have loved to have some sedation, but we don’t have anything available right now. So under local, with limited tools and not quite the suture material I would have preferred, I undertook the repair. I debrided back the margins to give some fresh tissue for the closure, undermined the skin so I could close the gap, and closed the muscle over the skull. I think it looked pretty good under the conditions, but it was difficult without the sedation. I hope it holds up.

181 patients at base clinic, 85 at mobile, 266 total.
Day 10: Death of a clinic child

With hundreds of thousands already dead from this disaster no doubt we’ve lost some patients. But for the most part we don’t know the outcome with the patients we transfer to other hospitals. However today early in the day at our mobile clinic a woman presented with her ill infant. The child had a history of hydrocephalus and had a significantly deformed head from same with a shunt in place. She was grunting but did not look that bad when my colleague, Vivian, asked me what I thought. We both thought she was best served at a hospital with some dehydration and respiratory compromise and a presenting complaint of hematuria, but we didn’t think she looked that terrible. She was loaded into a car for the ride with another of our team, Don, the retired dentist who’s throwing himself into being a jack-of-all-trades for this mission. Upon arriving at the hospital which was clearly still overwhelmed they were apparently redirected several times before finding the appropriate ward where the child promptly arrested and died during the hand off. Those of us in medicine and especially emergency medicine deal with the death of patients with some regularity, but for Don it was new. I don’t think it was an experience he had ever had before and it will take some processing. Even for the rest of us it was still a bit shocking since we hadn’t pegged her as that ill. We reviewed the circumstances and I really don’t think there was anything we could have done differently under our current conditions to change the outcome. Will think about that one for a while, though.

201 patients at base clinic, 165 at mobile, 366 total.

What They Need

Civil and political rights are critical, but not often the real problem for the destitute sick. My patients in Haiti can now vote but they can’t get medical care or clean water.

—Paul Farmer, MD, PhD, b 1959, American anthropologist and physician, one of the founders of Partners in Health
Dear Editors and Readers,

I thank the editors for this opportunity to respond to Vincent Felitti, MD’s comments on our article: *Effects of 12- and 24-Week Multimodal Interventions on Physical Activity, Nutritional Behaviors, and Body Mass Index and its Psychological Predictors in Severely Obese Adolescents at Risk for Diabetes,* for which I was the primary author. Although I wholeheartedly agree with Dr Felitti that providing basic education, alone, has not made even a dent in the obesity problem, I also have concerns with several of his statements made in his Letter to the Editor, which appeared in the Fall 2010 issue. Some issues may have their basis in my being a behavioral scientist (focused on health behavior change) within the emerging field of health psychology. For example, his concern that we, “and with many others,” lack focus on “Why these children became obese …” seems to be indicative of a common criticism of behaviorists who, admittedly, are more concerned with obtaining sustained behavioral changes than dwelling on possible underlying psychological factors. Many within our discipline believe that, in our quest for large-scale changes in health behaviors (within an epidemic of obesity and sedentarism), it is an inefficient use of our resources to seek out nuanced personal psychosocial factors that may or may not lead us to effecting changes. Rather, we seek to uncover meaningful patterns in psychological variables that may be used to reliably advance desired behavioral changes, with an eye on disseminating evidence-based treatments based on those findings to the many, rather than a few. In the real world, such interventions may best be delivered through referrals to trusted community organizations (eg, YMCAs), considering the reality of time restrictions that physicians are under.

Dr Felitti also stated that we “avoid exploration” of constructs such as “self-concept, general self, and overall mood,” but just the opposite is true. This article is just one of dozens of peer-reviewed reports that I have authored in which we used established behavioral models (here, social cognitive theory as developed by Albert Bandura) to derive treatments that focus on predictors of sustained improvements. Other researchers skillfully continue this quest through similar scientific means. For example, behavioral theory (specifically, self-efficacy theory) suggests that individuals feel an improved sense of accomplishment, self-concept, and self-efficacy when they perceive that they can make meaningful progress while applying themselves to a task they see as worthwhile. This leads to sustained health behavior changes. Thus, treatments following self-efficacy theory may incorporate systems where long-term goals are broken down to short-term goals. As a reasonable plan of action is facilitated and adhered to, and incremental progress is documented, feelings of self-efficacy emerge. Unfortunately, left on their own, people typically set lofty goals, get disappointed by slow progress, and relapse to their original behaviors. Although it is true that we have little knowledge of “Why” one person complies while most do not, we have been able to systematically empower the skills needed for sustained change—*and that's quite worthwhile.* Another example of this is when we teach self-regulatory skills such as positive self-talk, cognitive restructuring, and thought stopping. Although we do not know *why* negative self-statements emerge and undermine progress, we feel that a primary focus should be to teach how to realign self-talk when it becomes unproductive. In the treatment referred to in our article, a computer program was used to help in the large-scale dissemination of these and other behavioral methods.

I hope that this letter serves to clarify our perspective in designing the research and interpreting its findings. It is true that although the behavioral methods used succeeded in increasing the severely obese adolescents’ physical activity levels (just as theory predicted), the nutrition education portion failed to obtain much change. As mentioned in the Discussion section, we are preparing to better apply behavioral theory to the nutritional portion of the treatment in the future. In fact, through studies such as the one focused on here, we recently found that, when administered properly: A) exercise-induced mood change is associated with reduced emotional eating, B) self-regulation skills learned in an exercise context “generalize” to self-management for controlled eating, and C) self-efficacy derived from persistence with an exercise program carries over to confidence in sustaining improved eating. It stands to reason that our future weight management efforts build upon these findings. Such is the nature of applied research.

I hope that, ultimately, behavioral science will gain the trust of the medical community so that, as a team, we may contribute to the large-scale prevention and treatment of physical inactivity and overeating behaviors. To be of best service to society, we must efficiently use our resources, effectively incorporate the most current knowledge base of our fields, and accept the responsibility to facilitate meaningful health behavior changes.

James J Annesi, PhD, FAAHB
Director of Wellness Advancement
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References
Dear Editor,

I am writing in support of the article in the Spring 2010 issue by Felitti et al summarizing their work over the last 25 years running the Kaiser Positive Choice Weight Loss program, which details the struggles and successes of treating obesity using supplemented absolute fasting in conjunction with weekly group therapy.

For the last five years, I have been naively prescribing my obese patients a formula that goes something like this: to lose weight, calculate your basal metabolic rate, add on an activity factor and then eat 500 calories less than that each day. Using this formula, they would lose one pound a week and in time, they would shed the weight. In theory this is true.

My paradigm was recently broken when I read Dr Felitti’s recent article. Out of curiosity, I drove down to their San Diego clinic and also sat in on a prospective member orientation and a group that had been meeting for more than 12 weeks.

The following findings particularly struck me: As Dr Felitti points out, obesity is not a disease. It is a sign, similar to tachycardia or jaundice.

Then what is the cause? Well, rarely are people born obese. This was shown in Dr Felitti’s interview of 2000 obese patients with only one individual having been born obese. The only aspects of obesity that are genetic are a person’s distribution of fat (ie, do they hold excess weight in their abdomen, buttocks, thighs) and the maximal weight the human frame can hold (approximately 1100 lbs for men and 850 lbs for women). In addition, rarely do people gain weight in a linear fashion. It usually occurs in an abrupt fashion following a specific event in life.

If that is the case, then in obese patients, we have to ask two fundamental questions—what caused them to gain weight and what keeps the weight on.

To answer the first question, obese patients appear to be using the psychoactive benefits of food to heal past traumas. Thus, food is the “solution” and obesity is the result of too much of that “solution.” However, there are other ways to respond to past traumas. We as humans exert free will and thus the stimulus-response equation is different in all of us—some negative (nicotine, gambling, alcohol, high-risk sexual behavior, overeating), some positive (medications when appropriate, meditation, counseling). This explains why not all patients who have experienced traumatic events respond by becoming obese. Only those who choose to medicate themselves with food would travel this route. Easy access to food is also a necessity, explaining why those who suffer severe trauma cannot always use food to medicate these wounds if the food simply does not exist (ie, concentration camp victims, prisoners).

To answer the second question, obese patients appear to maintain the weight gain because it is beneficial to them socially, physically, and sexually. Sexually, because it wards off the unwanted attention of others; physically, because it provides a means of intimidation and power, and socially, because people tend to expect less from you.

When comparing the obese population to the lifelong slender population, the obese have more than double the rates of family discord, ie loss of a parent in childhood, at least one alcoholic parent, the suicide of a family member, current marital dysfunction, personal history of divorce. 2

This program appears to be successful although longer-term follow-up data are clearly needed. At present, at 18 months, half of the participants keep off more than 60% of the weight lost. Standard weight loss programs report weight loss of 5% to 10% of initial weight at 12 months. 3 Patients who have undergone bariatric surgery lose an average of 25% of their initial weight at 12 months and this weight loss appears to hold at greater than 48 months 4 although tracking these patients is difficult.

Medically supervised absolute supplemented fasting is safe, effective, and surprisingly well tolerated by patients. But that is not in dispute—if you take in fewer calories than you expend, you will lose weight. Maintaining the weight lost is the difficult part. Many methods exist and have been studied. 5 Dr Felitti’s approach of accompanying weight loss with ongoing counseling to reveal the underlying psychological need to use the psychoactive benefits of food to medicate oneself, and to address the benefits of keeping that weight on appears to be an effective strategy, at least within 18 months.

Finally, the immediate change in my practice is that I now ask my obese patients “at what point in your life did you become obese” and “what life event happened during this time.”

The above observations have changed my understanding and approach to obese patients. I am in favor of the above approach and hope that as obesity becomes one of Kaiser Permanente’s top clinical goals, this program will achieve widespread adoption throughout the Kaiser Permanente system and beyond.

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References
The Lived Experience of Violation: How Abused Children Become Unhealthy Adults
by Anna Luise Kirkengen, MD, PhD

Bringing clarity to the largest blind spot in medicine, Anna Luise Kirkengen, MD, PhD, offers information that can relieve unexplained symptoms and significantly reduce a major source of clinical frustration.

A primary care physician in Oslo, Norway for over 35 years, her subject here is the long-term consequences of child abuse (her PhD topic), particularly physical symptoms. She grabs our attention in the opening paragraph by stating she is “… convinced that the medical profession’s understanding of human beings is not only insufficient, but also misleading.” She presents a compelling case for this (over 400 references), but her most vivid teaching technique is detailed histories of individual patients.

These patients frustrate their clinicians with longstanding, undiagnosed symptoms. The first eye-opener is the story of Serena Sager. Beginning in her mid-teens, Ms Sager experiences headaches, eating disorders, left-sided paresthesias, pseudoseizures, abdominal pains, and then attempts suicide by overdose. Later she develops generalized arthralgias, left-sided abdominal and buttock pain, and visual symptoms in the left eye. During the 10 years of her illness, she underwent “… more than 40 consultations with primary care physicians and with specialists in 6 clinical specialties … 4 hospitalizations and … 4 years of psychotherapy.” Despite all that, the correct diagnosis was missed.

She needed someone to link the history of her symptoms with a chronology of her major stresses. Dr Kirkengen reveals how symptoms began when Serena’s father left home, leaving the patient with an alcoholic, physically abusive mother. While seeking respite with her aunt and uncle, the uncle rapes her; his hands and body, pressing against her left side where she subsequently develops numerous symptoms. The attack is not reported to authorities. Later, her symptoms flare after a man in a crowded restaurant presses himself against her left side long enough to trigger panic. She is asymptomatic when her uncle is away on leave, but other physicians see her symptoms as well as from undiscovered ongoing abuse, from a perceived need to be silent about her traumas, from the discomfort and risk of medical tests, and from self-doubt because of the lack of diagnosis. She was spared unnecessary exploratory surgery, but other patients reviewed by Dr Kirkengen were not.

Numerous similar tragedies are described, putting a human face on the literature that documents outcomes for sexually abused women: “… eating disorders, obesity, danger of suicide, self-injury, use of all kinds of intoxicants, chronic pain, chronic illnesses, various forms of self-destructive acts, isolation, unprotected sex, sexually transmitted diseases, fragmentary schooling, interrupted education, reliance on others’ support, poverty, re-victimization …” Many of these individuals are also mistreated by the medical and judicial systems.

My own experience with thousands of similar patients exactly mirrors Dr Kirkengen’s cases. However, she underemphasizes that good outcomes can be achieved in this population. Most patients will accept that stress can cause physical symptoms, if assured that their illness is not imagined. Nondirective opening questions such as “What sort of stress were you under as a child?” can lead, over several encounters, to obtaining a chronology of life stresses that is diagnostic. Once these issues are uncovered, mental health clinicians can develop therapeutic plans that usually provide hope, reduce self-doubt and improve symptoms, sometimes surprisingly quickly.

Most physicians know the importance of inquiring into sensitive areas such as substance abuse, sexual preference, and domestic violence. Dr Kirkengen’s book documents the diagnostic and therapeutic benefits of asking adults about their childhood experiences, particularly when their symptoms are unexplained. Her readers will enter the exam room with enough confidence to ask key questions. The answers will continue their education and one of the largest blind spots in medicine will close.

Reference

Bucharest, Romania: Zeta Books, 2010
Paperback: 340 pages
$34.00

David D Clarke, MD, is a retired Gastroenterologist from Northwest Permanente. He now lectures internationally on stress-related symptoms. His book They Can’t Find Anything Wrong? was published in 2007. His web site is www.stressillness.com. E-mail: DrDave@stressillness.com.
I chose mathematics as a major in college because I enjoyed being given a problem that had only one solution. In the end, I could prove that I had arrived at the correct answer, and so could everyone else who checked over my proof. That was why I thoroughly enjoyed this book. *The Poisoner’s Handbook* engages us with true puzzling stories of death and murder through the birth of forensic medicine during the jazz age in my hometown, New York City. Of late, I find myself addicted to the television shows, movies, and books depicting unsolved crimes with their myriad forensic and cold case files, finally coming to be solved through the persistent exploration of trace evidence, sometimes evaluated many years after the crime or event has taken place, because of the constant advances of new scientific methods and applications coming to the rescue.

A century ago, poisons provided the ideal method for the perfect crime of murder given the corrupt setting of the coroner’s office in New York City. That all changed with the appointment of Chief Medical Examiner Charles Norris in 1918 who, together with his toxicologist Alexander Gettler, put forensic medicine on a firm scientific footing forever. Through the presentation of actual cases, Pulitzer Prize-winning science writer Deborah Blum catalogs the chosen poisons of murderers and those that the environment added to the brew. You will become intimately familiar with chloroform, methyl and ethyl alcohols, cyanide, arsenic, mercury, carbon monoxide, radium, and thallium through her captivating narratives transporting you from the morgue to the courtroom, ultimately revealing “who done it.”

This easy-to-read book is difficult to put down until we conclude, chapter by chapter, what type of poison was involved and who or what was responsible for the ensuing sickness and death. Put your thinking caps on, dust off your memories of chemistry, physics, and mathematics, and mix in all of the experiences garnered from your reading or recollection of Dick Tracy comic strips, Sherlock Holmes mysteries, Perry Mason reruns, Forensic File thrillers, CSI series, or Cold Case sagas, and you will be ready for diving into this book full bore. Anybody who has ever had the full experience of a visit to the metropolis of New York City or still carries the battle scars of having lived there for some portion of his/her life, will be fascinated by the specific references to the actual crime scenes depicted that took place in different neighborhoods of the city they have no doubt come to know.

The book also serves as good refresher for physicians, medical personnel, and medical students of all ages regarding the inherent dangers of the numerous poisons that surround us, and that we so often take for granted in our environment each and every day. Norris and Gettler were armed only with the scientific knowledge they mastered in their studies, their test tubes, Bunsen burners, microscopes, their laboratory, and the tables and dissecting equipment at the Medical Examiner’s office outside Bellevue Hospital in New York City. You become their detective assistant and help solve the poisonings resulting in the deaths they confronted during the roaring 20s, the days of prohibition, the financial collapse of Wall Street, and the period between the two great wars. As well, the book relates the rapidly changing political and legal environment these two very interesting men of science had to deal with as scientists in the first half of the 20th century at Tammany Hall in little old New York.

Master storyteller Deborah Blum constantly reminds us that Norris and Gettler will go down in history as the pioneers of forensic medicine and forever have given the justice system the truths of their research and life’s work. One can only imagine what they could have accomplished in our day and age with DNA technology and other scientific advances that have come about since they carried on their work. In the end though, author Ralph Waldo Emerson said it best, “the surest poison is time.”

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CME Evaluation Program

Kaiser Permanente physicians (NUID required) may earn up to 4 AMA PRA Category 1 credits for reading and analyzing the four designated CME articles, by selecting the most appropriate answer to the questions below, and by successfully completing the evaluation form. Other clinicians for whom CME is acceptable in meeting educational requirements may report up to four hours of attendance. Please return (fax or mail to the address listed on the back of this form) to The Permanente Journal by May 30, 2011. Forms may also be completed and submitted online at: www.permanentejournal.org. You must complete all sections to receive credit. (Completed forms will be accepted until May 2012. Acknowledgment will be mailed within two months after receipt of form.)

Section A.

## Article 1. (page 12)
**Multiple Health Behaviors in an Ethnically Diverse Sample of Adults with Risk Factors for Cardiovascular Disease**

Which of the following ethnic group differences was not found for the cardiovascular disease risk factors?

- a. whites were the least likely to have diabetes
- b. those of mixed ethnicities were the most likely to have diabetes
- c. Asians were the most likely to have hypertension and high cholesterol levels
- d. native Hawaiian or part Hawaiians were the most likely to be obese

Your obese patient has a family history of cardiovascular disease on both sides of their family. According to the results of this study, what health behaviors should you address?

- a. dietary fat intake
- b. eating breakfast
- c. fast food consumption
- d. vigorous physical activity
- e. all of the above

## Article 2. (page 36)
**Community Implementation and Translation of Kaiser Permanente’s Cardiovascular Disease Risk-Reduction Strategy**

This paper demonstrates that a bundle of cardiovascular disease prevention medications, at times as part of a comprehensive program to prevent heart disease, can be implemented:

- a. in the population with health insurance
- b. within the safety net and undeserved population including those without insurance
- c. if the clinics adapt the methods used within Kaiser Permanente to be successful
- d. provided the implementation was done by enhancing the community clinics structure and personnel
- e. b and d
- f. a and c

The community clinics enhanced their programs to successfully implement the program by:

- a. developing care management teams
- b. using inreach and outreach techniques to recruit patients
- c. obtaining technical assistance from Kaiser Permanente clinical champions
- d. at times teaching each other
- e. all of the above
Article 3. (page 43)

**Implementation and Methodology of a Multidisciplinary Disease-State-Management Program for Comprehensive Diabetes Care**

Which of the following clinical parameters were not addressed by the Kaiser Permanente Ohio comprehensive diabetes care management program?

- a. glycemic control
- b. blood pressure
- c. lipid control
- d. c-reactive protein level

All of the following contributed to the success of the Kaiser Permanente Ohio comprehensive diabetes program, except:

- a. executive sponsorship
- b. dedicated panel management time for physicians
- c. asking physicians to manage more diabetic patients on their panel
- d. having a multidisciplinary team assist the physicians in managing comprehensive diabetic care

**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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<th>Article 1</th>
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<tr>
<td>The article covered the stated objectives.</td>
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<td>strongly disagree</td>
<td>strongly agree</td>
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<td>I learned something new that was important.</td>
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<td>I plan to use this information as appropriate.</td>
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<td>I plan to seek more information on this topic.</td>
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<td>I understood what the author was trying to say.</td>
<td>strongly agree</td>
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**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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