Utilization management (UM) skills are critical for the practicing primary care physician in the current era of managed care and cost containment. These skills will no doubt remain important for the generalist physician well into the 21st century, as even critics of managed care do not recommend returning to physicians the autonomy enjoyed in past decades [1]. UM education, therefore, is essential to prepare new physicians for effective practice.

The importance of UM training is well recognized among medical educators. A national survey of internal medicine residency program directors revealed that 47% designated UM (defined as quality assurance, quality improvement, risk management, and cost-effectiveness) as very important in their educational curricula, with another 49% regarding UM as somewhat important [2]. Furthermore, the Federated Council of Internal Medicine’s (FCIM) most recently published resource guide to curriculum development [3] includes a range of UM competencies under the integrative discipline “management of the quality of health care,” and the Residency Review Committee for Internal Medicine requires that internal medicine training programs address such issues [4]. Evidence that residency directors are including UM training in their programs and perceive this education as essential for preparing physicians for managed care practice was recently reported by Yedidia et al [5]. In their survey, the authors found that residency directors and managed care medical directors value mastery of many of the same specific clinical competencies in managed care. Among the 10 most important competencies on both participants’ lists were such UM principles as cost-effective clinical decision making, case management, and referral management (Table 1).

To better prepare internal medicine residents to enter the work force, we decided to supplement didactic noontime lecture teaching on UM with a regular monthly UM morning report at our institution. Recent innovations in morning report have included the outpatient morning report [6] and the inclusion of principles of evidence-based medicine [7]. Although training programs in areas of high managed care penetration may discuss UM as part of cost-effective patient management, we could find no description of morning report devoted to UM principles.

We chose the morning report format, a popular resident educational conference, for several reasons. First, morning report requires residents to prepare and present actual cases [8]. Because residents generally select cases for morning report that are of personal interest to them, we believed residents would be more responsive to UM discussions that related to cases they chose. Second, surveys show residents typically choose morning report cases from patients with diagnostic and management problems related to cardiac, infectious, or gastrointestinal disorders [9]. Residents do not expect morning report to include utilization principles [10], and they choose to present morning report cases involving “ethics or cost” issues only 3% of the time [11]. Thus, our intervention would encourage discussion of issues that would otherwise remain secondary topics for consideration at morning report. Finally, rather than send residents off campus to the offices of a local insurer for such practical education, we wanted to reinforce the applicability of UM to everyday patient management. Thus, this routine teaching conference would make UM the primary focus of discussion and emphasize the importance of UM in the daily work of residents and attending physicians at our institution.

In the new morning report, we planned to illustrate principles of clinical epidemiology, quality improvement, cost-effectiveness, evidence-based decision
making, population resource management, and appropriate application of clinical guidelines. Traditional morning report covers these topics; however, in UM morning report these topics would be the primary focus of the discussion rather than secondary issues to be explored after the correct diagnosis was established. Our goal was to heighten resident awareness, provide experienced faculty input and teaching, convey evidence about appropriate resource use to residents, and improve efficiency of inpatient and outpatient care across the Department of Medicine.

Two of the authors (GCK and RS) participated in the planning and implementation of the UM morning report. One of the authors (RS) serves as physician advisor to Utilization Management at our institution and, as such, was a natural faculty leader for planning the UM morning report. The third author (CH) was a second-year resident who selected and presented the specific case we highlight herein. In this paper, we describe our early experience with a UM teaching conference in a university hospital-based internal medicine residency program and discuss the impact and future directions for education in UM.

### Background

**Setting**

Thomas Jefferson University Hospital (TJUH) is a 600-bed tertiary care teaching hospital with an internal medicine residency program that trains 110 categorical internal medicine residents. The residency experience includes rotations at TJUH, a Veterans Affairs hospital, a community hospital in an urban neighborhood, a university-based clinic, university-affiliated practice sites, and private physician offices. Our curriculum, based on the FCIM model [3], is designed to address all aspects of clinical medicine as well as the integrative disciplines (e.g., medical ethics, cost-effective management of health care quality, medical informatics, and preventive medicine). Despite our intention to provide residents with an understanding of UM, in 1999 our annual survey of graduating residents indicated that residents’ self-reported experience in UM and managed care was less extensive than their experience in other integrative disciplines (Figure 1).

Currently our morning report is conducted 1 hour each weekday morning. One or 2 cases that have been selected by the residents are presented, with the chief resident leading the discussion. Cases generally are chosen to highlight an important diagnostic or therapeutic issue. Faculty members contribute as consultant experts but do not lead the discussion. To provide a broad educational experience, the weekday sessions are devoted to varying clinical areas: 1 day to critically ill patients (i.e., cardiac diagnoses or broad medical diagnoses), 1 day to ambulatory patients, 2 days to newly admitted patients from the prior night, and 1 day to patients who have had a confirmed diagnosis. Presenting residents are required to provide a didactic segment and supply relevant literature. The discussion typically focuses on clinical presentation, diagnosis, or therapy.

### Incorporation of UM into Morning Report

At the beginning of the 1999–2000 academic year, we designated 1 session monthly to serve as UM morning report (excluding summer and holiday blocks). We felt this would increase the total hours in the curriculum dedicated to UM, but maintain time for other curricular elements. Total time spent on UM education would be equal to time spent on other integrative disciplines, such as medical ethics, preventive medicine, and medical informatics.

Our main objective for the UM morning report was to focus discussions on relevant UM questions raised by
the selected case. Presenting residents were provided a list of broadly stated goals for the UM sessions (Table 2) and asked to select cases that addressed 1 or more of the goals by raising questions centered on specific UM principles. Goals for individual sessions varied depending upon the case. Chief residents reviewed the selected cases to ensure understanding on the part of the resident presenters and balance of UM principles discussed throughout the year. Residents also consulted faculty after selecting cases, to ensure that relevant UM questions were considered and researched. Appropriate subspecialists were invited to attend by the presenting resident or chief resident.

Table 3 lists examples of cases that were selected for discussion, the relevant UM questions raised by each case, and the underlying UM principles addressed.

Description of an Actual Session
To illustrate how UM morning report typically works in our program, we describe an actual session that focused on an important, common, and controversial topic—the management of dyspepsia.

Case Selection
Several factors influenced the decision to select this case for UM discussion. The complaint of recurrent upper abdominal pain or discomfort (ie, dyspepsia) is one of the most common reasons why otherwise healthy adults see a physician, with prevalence estimates ranging from 14% to 40% [12]. Yet, there is not absolute consensus on the management of dyspepsia, with ongoing debate over whether and when to perform endoscopy, whether and how to test and treat for Helicobacter pylori, and which antisecretory medication to choose first—an H2-receptor antagonist or one of the more potent but more expensive proton pump inhibitors (PPIs).

The resident who selected the case had recently seen a patient with dyspepsia while doing a rotation at an ambulatory practice. After clinical examination of the patient, a decision was made to initiate empiric therapy with an
H₂-receptor antagonist and to run a serologic test for *H. pylori*. When the test returned positive, the patient was started on *H. pylori* eradication therapy (ie, omeprazole, metronidazole, and clarithromycin). Although the patient improved, upon reflection the resident wondered, “Should this patient have been managed differently? How can we know for sure who needs endoscopy?”

**Case Presentation**

The UM session began with the resident’s presentation of the case. The patient was an otherwise healthy 40-year-old woman who had been seen in one of our ambulatory practices with a complaint of “stomach pain.” The patient, a married mother of 3 children, reported that she had experienced intermittent epigastric pain for many years, but for the 2 weeks prior to being seen the pain had occurred several times daily. The patient described the pain as aching or burning in quality and upper abdominal in location. It usually began after meals and lasted for several hours. She denied symptoms of heartburn or water brash regurgitation. She noted that over-the-counter

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**Table 3. Examples of UM Morning Report Cases with Relevant Questions and UM Principles**

<table>
<thead>
<tr>
<th>Case Synopsis</th>
<th>Relevant Questions</th>
<th>UM Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 65-year-old woman with metastatic adenocarcinoma and inability to wean from mechanical ventilation</td>
<td>What is medical futility? What factors influence use of resources in terminal illness? What are the costs of providing ventilator care for the terminally ill? What settings are available for ventilator care that can minimize costs? What are opportunity costs of ventilator care? What are strategies for improving end-of-life care discussions?</td>
<td>Population resource management Appropriate use of resources and level of care Case management Discharge planning</td>
</tr>
<tr>
<td>A 40-year-old woman with dyspepsia seen in the ambulatory setting</td>
<td>What are current best practices for diagnosis and treatment of dyspepsia? Which management strategy is more cost-effective: <em>H. pylori</em> testing and empiric therapy (ie, test and treat) or initial endoscopy? What are risk factors for adenocarcinoma that warrant initial endoscopy?</td>
<td>Appropriate application of best practices Cost-effective, evidence-based clinical decision analysis Application of clinical epidemiology to care decisions Population resource management Risk management (liability)</td>
</tr>
<tr>
<td>A 42-year-old man with Crohn's disease admitted for hyperalimentation</td>
<td>What are criteria for admitting a patient for hyperalimentation? How rapidly should inpatient consultations be completed? What factors can contribute to delays in scheduling procedures? How can outpatient tests and procedures be coordinated to streamline care? What are indications for hyperalimentation in patients unable to maintain enteral caloric intake?</td>
<td>Improving the quality and efficiency of medical care Appropriate application of best practices Cost-effective, evidence-based clinical decision analysis</td>
</tr>
</tbody>
</table>

DVT = deep venous thrombosis; *H. pylori* = Helicobacter pylori; PE = pulmonary embolism; UM = utilization management.
antacids provided partial relief. The patient reported consuming 3 cups of coffee daily but denied drinking alcohol or smoking. She used over-the-counter non-steroidal anti-inflammatory medications approximately once every 2 weeks. She denied any fever, chills, vomiting, or weight loss.

On physical examination the patient appeared comfortable and she was obese. She was afebrile, with a pulse of 72 bpm, blood pressure of 130/80 mm Hg, and respiratory rate of 16 breaths/min. Abdominal examination revealed mild tenderness in the left upper quadrant and epigastrium on deep palpation, normoactive bowel sounds, and no mass, abdominal distension, rebound tenderness, or guarding. A rectal examination revealed external hemorrhoids and hemoccult-negative brown stool. The remainder of the physical examination was unremarkable.

Open Discussion
After the resident presented the clinical examination findings, we initially followed the usual morning report format and opened discussion to the residents in attendance. The group concluded that the patient’s symptoms and signs were consistent with the general diagnosis of dyspepsia. The residents compiled a list of differential diagnoses for the dyspeptic symptoms, which included but was not limited to such etiologies as peptic ulcer disease, benign dyspepsia (without anatomic evidence of ulceration), gastric erosions, gastroesophageal reflux disease, gastric malignancy, pancreatic disorders, and cholelithiasis. The consensus opinion, however, was that a diagnosis of dyspepsia was most consistent with the findings presented.

Further group discussion led to the formation of a list of diagnostic and therapeutic options. These included initial endoscopy, initial noninvasive H. pylori testing, empiric treatment with an antisecretory medication (eg, an H2-receptor antagonist or a PPI), or H. pylori eradication therapy (ie, antibiotics plus PPIs). The chief resident facilitated the discussion by polling the residents in attendance as to which management strategy they would choose. The results were mixed, and the residents were asked to provide the reasoning for their choices. Those favoring initial endoscopic evaluation cited concern for excluding malignancy and the desire to limit antibiotic use. Those preferring non-invasive H. pylori testing voiced concern regarding the “cost-effectiveness” of widespread endoscopy when applied to the large population of patients with dyspeptic symptoms.

Next, the faculty members in attendance, including general internists and gastroenterologists, were invited to share their opinions. General internists highlighted a lack of consensus among the medical community and focused on the benefits of an empiric treatment approach. Gastroenterologists emphasized the importance of avoiding antibiotic resistance by limiting the use of antibiotics to patients with confirmed ulcers. In addition, they expressed concern for identifying populations at risk for malignancy or major bleeding. They favored endoscopy for most referred patients, who often are referred because they are unresponsive to empiric therapy. Potential legal liability over a missed esophageal adenocarcinoma was discussed, but generalists commented that defensive medicine could be costly when applied to the population as a whole. This wide spectrum of opinions set the stage for the resident’s discussion of the UM questions raised by the case.

Identification and Discussion of UM Questions
The presenting resident identified for the group the relevant UM questions that had been raised in the clinical decision making for this case. These were stated as follows:

- What are current best practices for diagnosis and treatment of dyspepsia?
- Which management strategy is more cost-effective: H. pylori testing and empiric therapy (ie, test and treat) or initial endoscopy?
- What are risk factors for adenocarcinoma that would warrant initial endoscopy?

Several UM principles relevant to the case were identified as critical for inclusion in the discussion of the above questions. These were as follows:

- Appropriate application of current best practices (ie, clinical practice guidelines, critical pathways)
- Cost-effective, evidence-based clinical decision analysis
- Appropriate use of resources and population resource management
- Application of clinical epidemiology to care decisions
- Risk management (defined here as reducing risk of liability)

Finally, the group would need to know the following:

- Available tests for H. pylori and their associated costs
- Risk factors for adenocarcinoma of the upper gastrointestinal tract
As the discussion unfolded, the presenting resident introduced evidence from the medical literature that addressed the relevant UM questions. The first task was to establish the current best practice for evaluating dyspepsia. Algorithms for the evaluation of dyspepsia from 3 current medical textbooks were presented [13–15]. Results of an evidence-based medicine literature search also were presented [16–18]. One study, sponsored by the American Gastroenterological Association (AGA), suggested initial endoscopy for patients over 45 years of age, patients with alarming historical features (ie, unexplained weight loss, recurrent vomiting, dysphagia, evidence of anemia or gastrointestinal bleeding, abdominal mass, or lymphadenopathy), or patients who fail to respond to empiric therapy [16]. The presenting resident summarized the current published studies and acknowledged the lack of prospective clinical trials comparing empiric therapy to endoscopic strategies. The limits of current best practices, however, were clear after examination of the available literature.

The discussion then turned to the question of what was the most cost-effective management strategy for our patient. A table was presented that compared the costs of various diagnostic and therapeutic interventions used in the management of dyspepsia (Table 4). Before considering the question, however, definitions of the terms cost-effective and decision analysis were provided for the group. “Cost-effective” was defined as less costly with equal efficacy, more costly with greater efficacy outweighing the increased cost, less effective and less costly when the added cost would outweigh the benefit, or of equal cost with improved outcome [19]. “Decision analysis” was defined as a quantitative method for estimating the financial costs and clinical outcomes of 2 or more competing strategies for approaching a problem [19]. Decision analysis aids in determining which strategy will lead to the best outcome or greatest value [19] and can be used to help develop policies for managing groups of patients. Furthermore, decision analysis is useful when the clinical problem is complex and information uncertain, because it can estimate the cost and outcomes of competing approaches.

The presenting resident next discussed in detail the methods and findings of a published decision analysis that had directly addressed which approach to managing dyspepsia would be most cost-effective [20]. The authors of this study had found that initial serologic H. pylori testing and empiric treatment would produce dramatic monetary savings for the population at large as compared to a policy of routine initial endoscopy for all patients with dyspepsia. This resulted in significant savings for a broad range of assumptions about the effectiveness of H. pylori testing, because endoscopy is 12 times more expensive than empiric therapy. The average cost savings for the test and treat approach to dyspepsia could range from $279 to $456 per patient versus initial endoscopic evaluation of all patients [18].

Finally, the presenting resident turned to the question of whether the patient had risk factors for adenocarcinoma that would warrant initial endoscopy, as concern for legal liability had been raised. The presented patient lacked alarming findings; there was no vomiting, dysphagia, weight loss, anemia, or blood in the stool. She was under 45 years of age. The risk for legal liability of an empiric strategy was felt to be low when alarming historical features always triggered initial endoscopy.

Table 4. Costs of Various Interventions Used in the Management of Dyspepsia

<table>
<thead>
<tr>
<th>Medical Service</th>
<th>CPT Code*</th>
<th>Cost ($)†</th>
</tr>
</thead>
<tbody>
<tr>
<td>General medicine office visit</td>
<td>99203</td>
<td>68.94</td>
</tr>
<tr>
<td>Gastroenterology office visit</td>
<td>99245</td>
<td>184.60</td>
</tr>
<tr>
<td>Gastroenterology office visit (return)</td>
<td>99214</td>
<td>48.66</td>
</tr>
<tr>
<td>Endoscopy without biopsy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper endoscopy</td>
<td>43235</td>
<td>264.11</td>
</tr>
<tr>
<td>Facility charge, including drugs</td>
<td>43239</td>
<td>291.50</td>
</tr>
<tr>
<td>Endoscopy with biopsy and pathology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathology fee, preparation, and stains</td>
<td>88312</td>
<td>92.88</td>
</tr>
<tr>
<td>Pathology fee, examination</td>
<td>88305</td>
<td>219.78</td>
</tr>
<tr>
<td>HMO pharmacy costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metronidazole (10 days)</td>
<td></td>
<td>1.15</td>
</tr>
<tr>
<td>Metronidazole, omeprazole, and clarithromycin (7 days)</td>
<td></td>
<td>67.98</td>
</tr>
<tr>
<td>Ranitidine (60 days)</td>
<td></td>
<td>72.13</td>
</tr>
<tr>
<td>Metronidazole, bismuth, and tetracycline (14 days)</td>
<td></td>
<td>25.23</td>
</tr>
<tr>
<td>Omeprazole (12 weeks)</td>
<td></td>
<td>438.84</td>
</tr>
</tbody>
</table>


†Data from 1995 Medicare Fee Schedule for area 20 and HMO pharmacy.
Further, it should be noted that, despite evidence showing a rising incidence of esophageal adenocarcinoma [21,22], gastric malignancy is known to be rare in patients with uncomplicated dyspepsia who are younger than age 55 [23]. However, the faculty felt that the rising incidence of adenocarcinoma of the esophagus would need to be followed closely and that the approach could be modified based upon future trials.

**Conclusion of Discussion**

In concluding the morning report session, we identified an algorithm in the AGA clinical guidelines for the diagnosis and management of dyspepsia that both preserved optimal clinical outcomes and was most cost-effective ([Figure 2]) [16]. A synopsis of the published literature promoted the clinical efficacy of limiting initial endoscopy to those patients who have risk factors for more serious disease, particularly malignancy. The presenting resident pointed out the potential cost savings for the population at large using such a strategy. The published decision analysis that had been presented [19] clearly illustrated the potential cost savings of such an algorithm. It was pointed out that the authors of the AGA clinical guidelines for evaluating dyspepsia had considered the same decision analysis, among others.

This common case scenario effectively illustrated several key UM principles including application of clinical guidelines, clinical decision analysis, and how risk management for legal liability can affect decisions. Implications for the population at large were not explicitly stated but could have been discussed in more detail.

**Impact of UM Morning Report**

At the time of this writing, we have completed a full academic year of monthly UM morning report sessions similar to the one described. These sessions were attended by 2 of the authors (GCK and RS). We are pleased to report that residents showed interest in and were enthusiastic about the UM morning report sessions and case discussions. Several residents said they felt empowered by identifying cases of poor utilization that demonstrated opportunities for improved use of resources (eg, decreased length of stay). We found residents often identified cases involving delays that frustrated them, admissions that were unnecessary, or attending physicians who insisted on completing evaluations in the hospital when outpatient follow up could have sufficed. These cases were ideal for illustrating the concepts of medical necessity, appropriate level of care, and appropriate application of best practices. In addition, after several UM morning report sessions, residents more actively sought out our case managers for discharge planning and more readily identified cases for future UM morning reports.

Faculty response also was positive. Participating faculty members found that the use of a case selected by one of the residents made the teaching less abstract and more compelling. Moreover, they believed that the teaching format encouraged a team approach to dealing with utilization issues rather than placing house staff at odds with attending physicians or case managers.

We believe that the true impact of the program comes from emphasizing UM principles as a primary objective for this conference, and from emphasizing that an awareness of UM principles is important for the care of all patients. The ultimate impact on the individual resident’s resource use and practice patterns was beyond the scope of this project and remains to be determined. We did, however, note that graduating residents reported greater satisfaction with their experience in UM and managed care on our annual survey at the conclusion of the 1999–2000 academic year (see Figure 1).

**Observations and Lessons Learned**

In our opinion, most residents have a strong interest in rapidly moving their patients through the health care system. We found that residents selected cases for our UM morning report when they felt health care resources were over used or when patients were admitted or remained hospitalized inappropriately. Others have shown residents select cases for morning report when they disagree with the attending physician on the management of a patient [11].

Such cases are ideal for illustrating UM principles and the skills needed to employ them effectively. For example, the importance of appropriate use of resources (eg, hospital days) and the need to effectively interact with multiple ancillary care services can be stressed. In addition, as efficiency has become a priority for many medical centers, residents can analyze the problems they encounter and begin to understand the importance of teamwork in transitioning patients to the outpatient setting. Finally, UM morning report presents an ideal opportunity to focus residents on the evidence supporting any technological intervention for a specific patient’s circumstances, which is the essence of both academic internal medicine training and effective resource utilization. Our session on a case of dyspepsia illustrates this opportunity. We conducted a morning report that identified variations in the current practice approaches of our residents and attending physicians, engaged in lively debate, and used evidence from the medical literature to outline a cost-effective strategy. Thus, we succeeded in demonstrating how
Figure 2. American Gastroenterological Association recommended algorithm for the management of patients who present with dyspepsia and who have not been previously evaluated. The words fails and failure refer to symptomatic failure. Alarm features include unexplained weight loss, recurrent vomiting, dysphagia, evidence of anemia or gastrointestinal bleeding, or an abdominal mass or lymphadenopathy. GERD = gastroesophageal reflux disease; IBS = irritable bowel syndrome; Hp = Helicobacter pylori. (Adapted with permission from American Gastroenterological Association medical position statement: evaluation of dyspepsia. Gastroenterology 1998;114:580. The original figure can be found at http://www.gastrojournal.org/cgi/content/full/114/3/579)
the principles of UM can be applied in a traditional case-based morning report format.

**Recommendations to Others**

Designing a UM morning report requires faculty knowledge of utilization principles, managed care, and hospital payment systems. Small programs might work with insurer medical directors if they lack expertise internally. Residents need 1 to 2 weeks to prepare cases. Almost any case is appropriate; however, residents need faculty guidance, at least initially, to articulate all of the utilization questions. Faculty participation in the discussions also is important. In our experience, faculty members served as important sources of commentary or expert opinion, often placing issues in the appropriate context. Furthermore, some faculty must understand the hospital–insurer relationships in their local area.

Chief residents must be enthusiastic, as they often help identify cases. The complaint, “I can’t believe this patient is still in the hospital,” can be turned into “What a good case for UM morning report.” A review of the UM morning report topics presented over the course of our 1-year experience with these sessions revealed that many of the UM principles in Table 2 were addressed. Thus, using the chief residents to review case selections did result in a balance of topics throughout the year.

The presenting resident searches the appropriate literature and either the presenting resident or the chief resident invites subspecialty faculty. Subspecialty faculty increase the depth of the discussion and lend credibility to the exercise. It is important for residents to see that even the subspecialists take the time to discuss UM. Finally, it is helpful to have easy access to national clinical guidelines (eg, through the National Guideline Clearinghouse Web site, www.guidelines.gov) and to proprietary utilization criteria (eg, those available from Milliman and Robertson or InterQual).

**Conclusion**

UM skills are vital for the success of the practicing primary care physician in the current era of managed care and cost containment. Finding an interesting and relevant way to incorporate such skills into residency training programs is an important challenge, particularly for programs in primary care. Suggestions for a UM curriculum have included a “health care administration program,” CD-ROM teaching programs [24], and weekly ambulatory utilization meetings, where faculty and residents prospectively evaluate the appropriateness of specialty referrals and expensive procedures [25].

We found incorporating UM principles into morning report discussions helped expand and deepen education in this integrative discipline. Using a popular daily conference conveyed the message that UM is important and should be routinely discussed and debated. The popularity of this conference has led us to experiment with incorporating other new curricular elements in a similar fashion. For example, we recently began devoting periodic morning report sessions to medical errors in order to gain greater recognition of this problem among our residents and staff. We plan to continue such novel programs as a way to stimulate learning and to meet the diverse curricular requirements for training in internal medicine.

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12. Fisher RS, Parkman HP. Management of nonulcer