A Weekend Program Model for Faculty Development
With Primary Care Physicians

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**Background:** Medical teachers are expected to be proficient at teaching students and residents about the changing health care system. The University of Wisconsin established a faculty development fellowship program to better prepare clinical teachers in family medicine, general pediatrics, and general internal medicine. This paper describes our fellowship program, presents data on program accomplishments, and discusses what we have learned.

**Methods:** We developed a year-long series of five weekend workshops. A core group of faculty provided 2- to 4-hour sessions on topics including evidence-based medicine, physician leadership, advocacy, doctor-patient communication, quality, technology tools, and teaching skills. Evaluation data were used to shape the program, make improvements, and assess impact. Fellows self-assessed their ability to perform skills at the beginning and ending of the year; paired t-tests were used to compare these changes. **Results:** Attendance and program completion rates were more than 94% for the 84 fellows taught over 6 years. Individual sessions and the overall program were well-rated by fellows. Participants reported improvements in targeted skills; statistical analyses confirmed many significant pre-post improvements. **Lessons Learned:** To obtain high ratings, faculty must apply adult learning and active learning principles; lectures were not well tolerated. Initial technology skills were often low; computer labs needed many helpers. Participants needed extensive faculty support on their projects. It facilitated coordination and learning to have a core group of fellowship faculty who did most of the teaching. Graduates have become enthusiastic recruiters for new fellows. Our 5-weekend program has proven to be an effective faculty development model.

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Developments in health care organization, approaches to clinical practice, and medical technologies pose challenges to medical teachers. Teachers are expected to be proficient at teaching their students and residents about the new and changing health care system, including advances in evidence-based medicine (EBM), population and community health, advocacy, quality improvement, and medical informatics. Except for recent graduates, however, few physicians have received training in these topics. In addition, technology-based topics linked to computers, the Internet, and personal digital assistants (PDAs) are often difficult to learn through self-study.

In September 1997, the Health Resources and Services Administration (HRSA) published a resource paper by the Council on Graduate Medical Education (COGME) titled “Preparing Learners for Practice in a Managed Care Environment.” This paper reinforced the need to provide physician-teachers with the knowledge, skills, and attitudes to effectively teach students and residents within the context and constraints of new care environments. HRSA later sponsored a national program called Undergraduate Medical Education for the 21st Century (UME-21) that was designed to ensure those content areas received greater attention in medical schools’ curricula. These reforms happened at a time when curricular changes in many medical schools had already increased the demand for teaching by community-based faculty, imposed new teaching responsibilities on university-based primary care faculty, and placed more emphasis on content areas that were unfamiliar to many faculty.

In response to these needs for better-trained faculty, in 1996, the Department of Family Medicine at the University of Wisconsin established a faculty development fellowship program for family physicians in Wisconsin. Faculty development programs are commonly used for helping clinician-educators become more skillful teachers. The program was later expanded, through funding from HRSA, to include clinical teachers in pediatrics and general medicine. The University of
Section III: Innovative Projects From UME-21 Schools

Wisconsin program included several content areas that later were included in the UME-21 project.

Over 6 years we have learned much about how to train community- and university-based faculty. This paper describes our fellowship program, presents data on short-term program accomplishments, and discusses what we have learned.

Methods

Program Development

In 1996, with US Public Health Service support, we developed a year-long faculty development seminar series for family physicians. Seminars occurred on five weekends—in November-December, February, April, September, and November—and ran from Friday noon to Sunday noon. A core group of fellowship teaching faculty provided 2- to 4-hour sessions on topics including evidence-based medicine, physician leadership, advocacy, doctor-patient communication, quality, technology tools, and teaching skills. Each participant was required to plan and implement an “integrative” project and give a presentation on the final weekend. Enrollment was capped at 14 per year to keep the faculty/fellow ratio low and allow active participation by fellows. The grant funding provided housing, travel, and meal expenses but no stipends.

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td><strong>Program Content Areas and Sample Objectives</strong></td>
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<tr>
<td><strong>Assessed in the Program</strong></td>
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</tbody>
</table>

**Effective clinical teaching**
- Create a supportive environment
- Use instructional design and adult education principles in planning
- Apply effective clinical teaching skills
- Use active learning
- Provide constructive feedback
- Take a systematic approach to evaluation

**Evidence-based Medicine (EBM)**
- Formulate answerable questions
- Use efficient search strategies
- Appraise the evidence critically
- Solve problems using EBM databases
- Apply EBM findings and patient preferences to decision making

**Leadership/advocacy roles for physicians**
- Explain how physicians can influence the legislative process
- Explain studies of quality and cost of medical care
- Perform effective advocacy in health care organizations

**Enhanced doctor-patient communication**
- Use culturally appropriate communication strategies
- Accommodate needs of patients with diverse backgrounds

**Technology tools for teachers**
- Use tools for communication and teaching: e-mail, Internet, PowerPoint
- Use tools in patient care searches, MEDLINE, EBM databases, personal digital assistants
- Apply tools to projects for data collection, data analysis, budgets

In 1999, we obtained a second faculty development grant from HRSA to train primary care physicians from the Departments of Internal Medicine and Pediatrics. Because this new grant did not include family physicians, the Department of Family Medicine agreed to subsidize costs so that family physicians could also participate. Trainee group size was increased to 20.

Faculty and staff from all three primary care disciplines joined the program as fellowship teachers and project mentors. The curriculum was organized into five main content areas to be more congruent with the UME-21 initiative: effective clinical teaching, evidence-based medicine, technology tools, doctor-patient communication, and quality improvement/leadership/advocacy. A characteristic list of content areas and objectives is shown in Table 1. Program content included some of the faculty development competencies that Bland et al. specified for non-tenure-track faculty and Stone et al. recommended for community-based faculty. Over the years, content gradually changed to acknowledge participants’ changing entry-level skills in technology, new technologies (PDAs), new resources (EBM databases), and changing medical school and residency emphases (UME-21, professionalism, advocacy, and culturally sensitive communication).

Recruitment

Anticipating that recruitment would be a challenge, we adopted several strategies to enhance the attractiveness of the program and reduce potential obstacles. First, we used a variety of recruitment strategies (direct mail, brochures, personal contact by fellowship faculty, and word of mouth) and gave preference to physicians from underserved, rural, and inner-city urban settings. Second, we conducted a needs assessment of our potential audience’s interest areas. Third, we sought to minimize conflicts with patient care responsibilities by scheduling sessions on weekends. Fourth, the project requirement was marketed as an opportunity to use the university’s resources (e.g., libraries, mentors, faculty, computer labs, consultants) to meet a personal need. Fifth, we offered continuing medical education (CME) credit. Finally, we offered the program at no charge. The effectiveness of these strategies was borne out in the results of the intake interviews and needs-assessment surveys conducted at the first session.

Time Schedule

In a typical weekend, the fellows arrived at noon on Friday, had lunch, were greeted by a dean or administrator, and shared social updates about their recent activities. From 1:30–3 pm, there was a session on teaching. This was followed by 2 hours working on scholarly projects. In the evening session, a special topic (such as quality or bibliographic searching) was taught. On Saturday morning, there was typically a session on
EBM held in the computer lab. After a 90-minute break for lunch and relaxation, fellows assembled for a 3.5-hour session on leadership, advocacy, and doctor-patient communication. That evening there was a buffet dinner at a faculty home. Sunday morning was a session on technology; it was held in the computer lab. At noon, evaluation forms were collected.

Each content area normally received one or two time blocks during a weekend. During the first few weekends, electronic communications received extra emphasis. Near the end, project work received more time. The excitement and amount of new learning in the technology curriculum made it an excellent candidate for the Sunday morning session, where participants might otherwise be tempted to skip the session. A special feature of the November session (not a typical weekend) was the project presentations by graduates. These were attended by the new group of fellows who were meeting for the first time that same weekend.

**Teaching Approaches**

While didactic sessions were used, we wanted to make the program learner centered and experiential. Group discussions were a part of almost every session. Much of the teaching was problem based, reflecting our desire to ensure that fellows would see the relevance of what was being taught. Role-plays were used as a means of helping fellows apply new content. We strove to foster a collegial environment by creating opportunities for participants and fellowship faculty to eat, laugh, and recreate. Some time was left unstructured for lunches in the community, access to bookstores, and other shopping. A regular event was a Saturday night dinner in the home of one of our faculty members. Project mentoring time was also scheduled.

**Scholarly Projects**

Each participant was required to plan and implement a project and present it at graduation. Fellows met with their faculty mentor and others studying similar projects. Projects provided fellows with the opportunity to apply concepts and skills taught in the program. Project topics have included appropriateness of nurse triage decisions to refer patients for emergency services, introducing students to evidence-based medicine, immunization refusal, hypertension control in a primary care clinic, indications for ordering chest radiographs in a university health service setting, open access scheduling, training residents in PDA use, an evaluation of the impact of a rural training track, development of

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**Table 2**

Samples of Assessment Items: Evaluation of Change in Mean Self-reported Skill Levels

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre Program</th>
<th>Post Program</th>
<th>P Value *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Evidence-based medicine (EBM) skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use EBM databases (eg, Cochrane)</td>
<td>1.63</td>
<td>3.94</td>
<td>.000</td>
</tr>
<tr>
<td>Critically review a study</td>
<td>1.81</td>
<td>3.50</td>
<td>.000</td>
</tr>
<tr>
<td>Understand concept of number needed to treat (NNT)</td>
<td>1.56</td>
<td>3.63</td>
<td>.000</td>
</tr>
<tr>
<td>Use EBM principles</td>
<td>2.06</td>
<td>3.38</td>
<td>.000</td>
</tr>
<tr>
<td>Interpret likelihood ratios</td>
<td>1.63</td>
<td>3.38</td>
<td>.000</td>
</tr>
<tr>
<td>Analyze a study design</td>
<td>2.63</td>
<td>3.69</td>
<td>.003</td>
</tr>
<tr>
<td>Calculate harm/risk</td>
<td>2.00</td>
<td>3.31</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Technology/informatics skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search MEDLINE</td>
<td>3.13</td>
<td>4.19</td>
<td>.000</td>
</tr>
<tr>
<td>Use filters while searching</td>
<td>2.69</td>
<td>4.13</td>
<td>.001</td>
</tr>
<tr>
<td>Read journals on-line</td>
<td>2.81</td>
<td>4.13</td>
<td>.001</td>
</tr>
<tr>
<td>Use WWW in teaching</td>
<td>2.67</td>
<td>4.20</td>
<td>.001</td>
</tr>
<tr>
<td>Use WWW in personal learning</td>
<td>3.13</td>
<td>4.50</td>
<td>.001</td>
</tr>
<tr>
<td>Use PowerPoint</td>
<td>2.13</td>
<td>4.44</td>
<td>.000</td>
</tr>
<tr>
<td>Analyze data</td>
<td>1.06</td>
<td>2.63</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Teaching skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use instructional design</td>
<td>1.69</td>
<td>3.44</td>
<td>.000</td>
</tr>
<tr>
<td>Apply adult education principles</td>
<td>1.88</td>
<td>3.94</td>
<td>.000</td>
</tr>
<tr>
<td>Conduct a needs assessment</td>
<td>1.75</td>
<td>3.69</td>
<td>.000</td>
</tr>
<tr>
<td>Plan a lecture</td>
<td>2.94</td>
<td>4.25</td>
<td>.000</td>
</tr>
<tr>
<td>Teach a small group</td>
<td>2.81</td>
<td>3.63</td>
<td>.000</td>
</tr>
<tr>
<td>Give an effective presentation</td>
<td>2.13</td>
<td>3.81</td>
<td>.007</td>
</tr>
<tr>
<td>Give feedback to a learner</td>
<td>2.38</td>
<td>4.00</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Leadership/advocacy skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact an agency about funding</td>
<td>.81</td>
<td>2.44</td>
<td>.000</td>
</tr>
<tr>
<td>Contact a lawmaker about legislation</td>
<td>1.25</td>
<td>3.06</td>
<td>.000</td>
</tr>
<tr>
<td>Chair a quality team</td>
<td>1.62</td>
<td>3.25</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Controls skills (not taught)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search the ERIC database</td>
<td>.94</td>
<td>1.69</td>
<td>.061</td>
</tr>
<tr>
<td>Access the Web page of your department</td>
<td>3.38</td>
<td>4.06</td>
<td>.085</td>
</tr>
<tr>
<td>Compress a file for storage</td>
<td>1.31</td>
<td>3.69</td>
<td>.090</td>
</tr>
<tr>
<td>Save a file in different format</td>
<td>1.63</td>
<td>2.19</td>
<td>.095</td>
</tr>
</tbody>
</table>

Data from 16 fellows in 2000–2001 class. Scale is 0=low, 5=high

*P is probability of there being no difference between pretest and posttest scores of individuals, analysis by paired t test

Note that on the rating scale: 0 indicates no skill and 5 indicates a high level of skill.
an objective structured clinical examination for breastfeeding, and development of care management protocols for diabetes. The integrative project idea was adapted from a medical school faculty development program that focused on teaching skills.

**Fellowship Evaluation**

Evaluation data were gathered using several different methods with the purpose of tailoring the program to the needs and interests of the fellows, making continuous improvements in the program, and assessing the program's effect. Many of our "learnings" are derived from the results of program evaluations.

In planning for each new group of fellows, needs assessments were sent to potential enrollees to refine topics to be covered. Intake assessments were used to plan for special needs such as getting university identification cards, setting up electronic mail accounts, planning food menus, and facilitating computer setup. Fellows evaluated each session and indicated their satisfaction with program components; these formative evaluation results were reviewed within a few days and were used to modify the ongoing program. At the end of the last session, fellows performed a summative evaluation of the entire fellowship program in greater depth using both a questionnaire and a group exit interview addressing the strengths and weaknesses of the program.

Fellows completed a pre-post skills self-assessment evaluating their abilities at the beginning and ending of the year using a 0–5 scale where 0 = “no skill” and 5 = “high level of skill.” Skill indicators were developed from the evolving general fellowship objectives and anticipated teaching emphasis for that year, although not all of the objectives were addressed each year, and the wording of the indicators occasionally changed slightly.

Paired t test analyses were used to compare changes in fellows' skill levels. Because of the large number of statistical tests conducted, a P value of .01 was used to indicate a significant change. To exemplify the skills self-assessment approach, results from the 2000–2001 class are presented.

**Results**

**Fellows**

The program has enrolled 84 fellows, 33 in the first 3 years and 51 in the second 3 years. The number of fellows in a class ranged from eight to 15 in the early years (all family medicine) and from 17–18 in the later years (with approximately 43% family medicine, 29% general internal medicine, and 27% pediatrics). Overall gender distribution was 56% male and 44% female. Fifty-six percent of the trainees were in community practices; 44% worked in university-based practice sites. Mean age was 37, with a range from 29 to 60.

**Motivation**

When asked why they decided to participate in the fellowship, common responses were: the program addressed learning needs (clinical teaching, applying EBM, improving computer skills), CME credit (12–16 hours/weekend, noted especially by community-based participants); the price was right—no tuition or fees were charged; and the program had a good reputation.

**Skills Learned**

On the pre-post skills self-assessment, fellows reported significant growth in skill for a high proportion of skill indicators. Table 2 displays self-reported outcomes from four key content areas for the 16 participants in the final class in this funding cycle. The table includes skills that were not taught that year but that remained on the assessment form as “control items.” Fellow responses to these control items show (as they theoretically should) statistically insignificant change from pre to post assessment. Results from earlier years show the same pattern of improvement in skills learned.

**Fellow Evaluations and Performance**

In reviewing our evaluation outcomes, we found that attendance at sessions was more than 96%, and more than 94% of enrollees completed the program. Individual sessions were well-rated; mean ratings were more than 4.5 on a 1 to 5 scale with 5 = “high.” The overall program got very good reviews in ratings and group discussions. All graduates said they would recommend the program to their colleagues. All completers presented their projects. In the self-assessments, participants reported pre-program to post-program improvements in many of the skills; statistical analyses confirmed many significant pre-post improvements (for each of the classes) in skills taught.

**Conclusions**

Our evaluation results are positive. Yet, much of the data is self-report of short-term learning, and such data provide weak, though often valid, evidence. Faculty development programs need to assess longer-term behavioral outcomes and find more valid measures of program outcomes.

Descriptions of outcomes of faculty development programs are rare in the published literature. When available, outcomes of these programs are commonly reported as short-term gains in knowledge, changes in attitudes, satisfaction with the program, and self-reports of behavior change. These published papers, as ours, often have no control group. In the absence of control groups, the validity of the assessments is vulnerable to threats such as history (extraneous and outside variables that may be present during the course of the program year that influence the learning results) and maturation (changes in the fellow that occur during the time...
frame covered by the evaluation). To control in part for these potential sources of bias, we included in our analysis some skills that were not taught in a certain year but were assessed.

**Lessons Learned**

Over nearly 6 years of operating our fellowship, we have learned some lessons. We share them here.

First, programs such as ours are appealing to community-based preceptors at all stages of their careers, university-based junior faculty and fellows, and community-based faculty who are preparing to become teachers in our rural training track programs.

Second, CME credit is important for community-based physicians. University-based physicians don’t need the credits.

Third, teaching methods are important. For high ratings from fellows, faculty needed to apply adult learning and active learning principles. Lectures were not well tolerated or rated highly. Participants preferred to learn by seeing a demonstration and then having class time to work on the problem.

Fourth, fellows need help with technology skills. Participants’ initial technology skills were often low. Technology labs required one helper for every four or five fellows.

Fifth, maintaining a sense of curriculum continuity during the year was a challenge. We found that having a core group of fellowship faculty who did most of the teaching facilitated coordination and integration among the various sessions.

Sixth, participants generally did not want take-home work when they returned to their “day jobs.” They did not expect to read before sessions or to mail in homework assignments. Projects were also felt to intrude into the participants’ non-fellowship life.

Finally, participants needed extensive faculty support on their projects. But, when successfully completed, participants reported that the project helped them to integrate knowledge and skills learned in the program (eg, analyzing information, organizing a talk, making handouts, preparing a PowerPoint presentation, making a presentation.)

We believe that our faculty development program has been effective at training teachers. While our program content matched the UME-21 topics, we did not address all the managed care and health care system issues in the UME-21 curriculum for students. This discrepancy is appropriate; our fellowship program was designed to meet the needs of the practicing physicians who came to our faculty development classroom with some skepticism about the practicality of EBM, with different levels of preparedness for using technology and with a strong desire for skills they could readily apply in teaching and patient care. Our graduates have been highly effective recruiters of new participants for the program; that is their summative evaluation. Our 5-weekend program has proven to be an effective faculty development model.

**Acknowledgments** In 2002, we received a Health Resources and Services Administration (HRSA) grant (#1-D14-HP-00183) for a new program that will allow continued participation by physicians from all three disciplines. The work reported in this paper was partially supported by two earlier HRSA grants for faculty development in primary care. Further information about the program is available from Barbara Anderson, program coordinator, bmhause@facstaff.wisc.edu.

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**REFERENCES**