Family Medicine Didactics Revisited
Dennis J. Butler, PhD; Joseph Brocato, PhD†; Mark Yeazel, MD, MPH

BACKGROUND AND OBJECTIVES: All family medicine programs are required to provide specialty-specific didactic conferences for residents. Since a baseline study of family medicine didactic formats was published in 2000, training requirements have changed, core content has evolved, and new teaching strategies have been recommended. The present study examines the characteristics of current family medicine didactics, compares current and past conference format data, and identifies factors affecting content selection.

METHODS: The survey used in the prior conference formats study was distributed to all US family medicine programs. All questions from the original survey were repeated, and items regarding factors affecting conference content and threats to conferences were added.

RESULTS: The survey response rate was 66%. The majority of family medicine programs endorse block formats for structuring conferences. Compared to the original study, programs are devoting significantly more hours to didactics on fewer days. Family medicine faculty and residents are responsible for 70% of didactic offerings (also a significant shift), and 87% of programs use a core curriculum. In over 70% of programs, some residents are unavailable for conferences due to work restrictions or service demands. The Accreditation Council for Graduate Medical Education subcompetencies and Milestones have only a moderate impact on topic selection.

CONCLUSIONS: Family medicine didactics have evolved in the past 15 years with a notable increase in reliance upon core faculty and residents to lead conferences. Reduced availability of residents prevents all residents from having full exposure to the didactic curriculum. Family medicine faculty who are taking greater responsibility for didactics are also faced with increased clinical and administrative duties.

While innovative teaching strategies have been recommended and emerging content areas have been identified, only one previous study provides a national perspective of family medicine conferences. That study revealed that family medicine programs devoted 4 hours per week to didactic sessions presented primarily in single, hour-long sessions by diverse presenters of whom less than half were family physicians. Because conference characteristics varied considerably across programs, the authors called for a reexamination of the goals and objectives of family medicine didactics and encouraged further research to identify optimal formats.

There is currently an active discourse in graduate medical education about the structure and utility of specialty-specific, regularly scheduled didactic sessions. Conflicting evidence about the value of residency-based didactics has prompted a call in numerous specialties to replace traditional approaches with more effective teaching strategies. The reasons cited for adjusting teaching strategies for formal didactics include characteristics of current learners, clinical demands

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on faculty and residents, rapid expansion of medical knowledge, the implementation of clinical guidelines, immediate online access to clinical information, and new accreditation requirements.

Some educators challenge reliance on traditional lectures for millennial learners who enter residency with different learning styles than their predecessors. Authors question the utility of lectures designed to impart extensive factual information to a passive audience when trainees already have electronic access to evidence-based research, other medical knowledge resources and online training materials. Medical educators increasingly encourage the use of teaching strategies that engage residents in active learning, such as case-based teaching, team-based learning, and multimedia presentations.

The most fundamental shift in philosophy regarding didactics in graduate medical education is an emphasis on designing didactics that are more directly linked to patient care outcomes rather than the ability of trainees to recall discrete medical knowledge. The importance of linking didactics to how trainees provide care is reinforced by evidence that didactics focused on knowledge acquisition promote short-term knowledge gains, and that correlations between resident lecture attendance and in-training examination scores are typically low.

In order to assess how these and other factors impact the format of family medicine didactics, the authors redistributed a survey used in a national study of family medicine programs in 2000 to all current family medicine programs in the United States. The purpose of the study was to identify present-day characteristics of family medicine didactics, to compare current formats with baseline data from 2000, to determine the relative importance of various factors in topic selection, and to describe emerging teaching methods and strategies.

Methods

The study was approved by the University of Minnesota’s (UMN) Institutional Review Board as an exempted study.

Participants for this study were drawn from all accredited family medicine residency programs listed in the 2014 Association of Family Medicine Residency Directors’ (AFMRD) membership directory. The directory was cross-referenced with the ACGME Directory of Family Medicine Programs to identify preferred email and mailing addresses. The survey instructions requested that the residency program director or designated faculty conference organizer complete the survey.

All residencies received an email invitation to complete a web-based survey in September, 2014. The invitation to participate assured respondents that participation was voluntary, results would be anonymous, and the authors’ affiliations were independent of any accreditation organizations. After two email reminders were sent at 3-week intervals, surveys were mailed to non-responding programs. Participants were entered into a drawing to receive one of ten $25 gift cards. The final surveys were returned by May, 2015.

The 25-item survey included all items from the original family medicine didactics study, including questions about conference structure (days per week, session length, hours per week), presenter qualifications, and resident availability. A series of questions identical to those in the original survey examined satisfaction with the organizational and educational value of didactic formats along with questions about conference logistics (scheduling, room comfort, room size). These items were rated on a 5-point Likert scale ranging from strongly agree to strongly disagree. Participants were asked if they had changed conference formats in the past 2 years followed by an open-response request to describe specific changes if they answered affirmatively.

Items added to the survey included descriptive questions about programs and a question about the amount of time spent preparing and coordinating conferences. Due to the sizeable number of programs in the original study that reported conference format changes, three items were added to the survey. Respondents were asked to rate the influence (major, somewhat, or no influence) of 13 factors on the choice of didactic topics. These included nine factors identified from open-ended responses in the original study, and four author-identified items with direct and current influence on didactics such as the ACGME Competencies and Family Medicine Milestones. A second added open-response item asked all respondents to list threats to the quality or scheduling of their didactics. The third added item was an open-response item soliciting specific reasons why residents were unable to attend didactic sessions.

Three family medicine educators from different family medicine departments completed a draft version of the survey. They recommended minor changes in instructions and clarification of terminology. The electronic or written survey took 10 to 15 minutes to complete.

The online survey utilized Qualtrics Software for data collection. Data from hard copies of the survey was entered into Qualtrics by research assistants.

Descriptive statistics were used to summarize the survey data. Survey variables were compared by type and location of residency (university-based, community-based/university-affiliated, community-based/nonaffiliated, and military) and size of residency (≤18, 19-24, ≥25) with Kruskal-Wallis tests for continuous variables and Fisher’s exact tests for categorical variables. SAS software V9.3 was used for the analysis. P values less than 0.05 were considered statistically significant.

Responses to the open-ended questions were analyzed following qualitative methods outlined by...
Two authors (JB, DB) independently read all open responses identifying threats to didactics and reasons why residents were unavailable for conferences. The two authors organized responses into categories and then compared categories in a sorting process until category consensus was achieved. The authors then rated the importance of the categories (major, moderate, or low) based on the number of responses in each. To reduce potential author bias, two other medical educators reviewed the items, categories, and authors’ ratings. Their ratings of the importance of the categories were highly congruent with the ratings assigned by the authors.

**Results**

Sixty-six percent of the 441 programs on the AFMRD membership list returned usable surveys. When examining type of program, 16% of respondents identified as university-based programs, 61% community-based, university-affiliated, 16% community-based/unaffiliated, 3% military, and 4% did not specify a category. Data available from the AAFP for July, 2013, indicates the percentages of family medicine program by type was 12% university-based, 58% community-based, university-affiliated, 19% community-based, university-administered, 7% community hospital-based, and 3% military. The average number of residents per program among survey respondents was 23.8. Comparative national data indicates that the average number of residents per program in 2014 was 22.4. A comparison of responses to items repeated from the original survey is shown in Table 1.

**Table 1: Comparison of Results of Conference Format Variables From Repeated Surveys, 2000 and 2015**

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2000</th>
<th>P Value†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference days per week, mean (SD)</td>
<td>2.8 (1.8)</td>
<td>3.2 (1.6)</td>
<td>0.0094</td>
</tr>
<tr>
<td>Conference hours per week, mean (SD)</td>
<td>5.1 (2.3)</td>
<td>4.4 (1.9)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Length in minutes, mean (SD)</td>
<td>61.5 (38.1)</td>
<td>55.4 (14.1)</td>
<td>0.8572</td>
</tr>
<tr>
<td>Opinion on conference logistics, mean (SD)¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational¹</td>
<td>2.2 (1.3)</td>
<td>3.0 (1.4)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Educational¹</td>
<td>3.0 (1.2)</td>
<td>3.4 (1.2)</td>
<td>0.0003</td>
</tr>
<tr>
<td>Reservations¹</td>
<td>1.7 (1.0)</td>
<td>1.9 (1.0)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Size¹</td>
<td>1.7 (1.0)</td>
<td>2.0 (1.0)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Comfortable²</td>
<td>1.6 (0.8)</td>
<td>2.0 (0.9)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Percentage of sessions led by, mean (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD Core faculty</td>
<td>40.4 (18.9)</td>
<td>29.1 (17.0)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Non-MD core faculty</td>
<td>9.9 (8.3)</td>
<td>9.8 (10.2)</td>
<td>0.4845</td>
</tr>
<tr>
<td>Residents</td>
<td>19.4 (12.8)</td>
<td>14.0 (11.9)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>MD, not faculty</td>
<td>24.7 (16.2)</td>
<td>41.9 (21.6)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Non-MD, not faculty</td>
<td>5.2 (5.6)</td>
<td>5.5 (5.0)</td>
<td>0.0919</td>
</tr>
<tr>
<td>Percentage of programs with residents relieved of responsibilities</td>
<td>42.6%</td>
<td>76.8%</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Majority of session take place, n (%)</td>
<td></td>
<td></td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Morning</td>
<td>103.7%</td>
<td>28.10.0%</td>
<td></td>
</tr>
<tr>
<td>Lunch break</td>
<td>87.32.2%</td>
<td>165.59.1%</td>
<td></td>
</tr>
<tr>
<td>Half day</td>
<td>150.55.6%</td>
<td>80.28.7%</td>
<td></td>
</tr>
<tr>
<td>Full day</td>
<td>62.2%</td>
<td>1.04%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>17.63%</td>
<td>51.8%</td>
<td></td>
</tr>
<tr>
<td>No. of conferences by community FP's, mean (SD)</td>
<td>8.0 (15.0)</td>
<td>15.5 (25.8)</td>
<td>0.0074</td>
</tr>
<tr>
<td>% Conferences with sponsorship, mean (SD)</td>
<td>1.1 (4.3)</td>
<td>6.0 (10.4)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Changes, n(%)</td>
<td>16358.8%</td>
<td>11742.5%</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

† Wilcoxon rank sum tests for continuous variables and chi-square tests for categorical variables.

¹ Question read “What is your opinion about the following statements?” Each was rated on a 5-point Likert scale where 1=strongly agree and 5=strongly disagree.

² “It is easier from an organizational standpoint to have the conference series all in one day.”

³ “It is better from an educational standpoint to have the conference series all in one day.”

⁴ “Conference rooms are easy to reserve.”

⁵ “Our conference rooms are the right size for the number of residents attending.”

⁶ “Our conference rooms are comfortable” (lighting, temperature, seating, etc).
Conference Structure
When compared with the original study, the number of days conferences are offered decreased (3.2 vs 2.8, \( P=.00994 \)) but the overall hours that conferences are scheduled increased from 4.5 to 5.05 (\( P<.0001 \)). The percentage of programs using block formats (half day or more) versus hour-long sessions on multiple days significantly increased (29% vs 58%, \( P<.0001 \)). Current respondents even more strongly endorsed the organizational value (\( P<.0001 \)) and educational value (\( P<.0003 \)) of block formats. In the original study, few programs reported difficulties with conference logistics; current respondents reported even less difficulty reserving space (\( P<.0001 \)), acquiring appropriate-size rooms (\( P<.0001 \)), or finding comfortable rooms (\( P<.0001 \)). The average length of individual didactic sessions increased from 55 to 62 minutes.

Presenters
The percentage of conferences led by family medicine core faculty significantly increased compared to 2000 (29% vs 40%, \( P<.0001 \)) as did the percentage of family medicine resident presenters (14% vs 19%, \( P<.0001 \)). When nonphysician, core family medicine faculty were included in the total of presenters, residency program faculty and residents now present 70% of didactics, compared with 52% in 2000. In the previous study, few community family physicians led didactic sessions; the current study indicates an even greater decline in reliance upon community family physicians (\( P=.0074 \)). The average time spent organizing and overseeing conferences was 2.5 hours per week.

Content and Format
The percentage of programs that have recently changed conference formats is significantly greater than it was 15 years ago (42.5% vs 58.5%, \( P<.0001 \)). Resident feedback on topics, faculty input, faculty areas of expertise, new literature and in-training, or board scores were the top five factors with a major influence on topic selection (Table 2). The influence of ACGME Competencies and the Family Medicine Milestones were reported as somewhat influential in topic selection, ranked seventh and eighth among 13 factors. The majority of residency programs (87%) now use a master list of conference topics.

Pharmaceutical Support
Only 1% of programs receive direct conference support from pharmaceutical companies, a significant change from 2000 (\( P<.0001 \)).

Resident Attendance
Forty-three percent of programs reported all residents are relieved of all duties to attend didactics, a significant decline from 2000, when 77% of programs indicated all residents were available (\( P<.0001 \)). Open-ended responses about why residents are unavailable fell into five categories. The most frequently cited were work duty limits, hospital-based service responsibilities (teaching service, obstetrics), and night float. Outpatient clinical responsibilities were noted by some programs and a small number of respondents noted that geographic factors such as rural rotations or remote clinical sites prevented residents from attending.

Threats to Didactics
Eighty-five percent of respondents listed a total of 347 threats to scheduled didactics (Table 3). The major threat category (197 responses), “availability”, was composed of reduced availability of faculty (89 responses), residents (78 responses), and outside experts (30 responses) to attend or present didactics. Threats that were rated as moderate or low included difficulty covering content (30 responses) and inappropriate resident behavior or absenteeism (17 responses). Logistical and funding problems were infrequently reported.

In the 2000 report, significant differences were found between program type, size, and geographic location and variables such as presenters, frequency of didactics, and location of conferences. In the current survey, comparisons of outcomes between program types only uncovered differences in where didactic session are held (\( P<.0001 \)), and the influence on topic selection of in-training and board scores (\( P=.04 \)), or change in practice/Affordable Care Act (\( P=.01 \)). No significant differences were seen in comparisons of outcomes between programs of different size.

Table 2: Factors Influencing Topic Selection for Family Medicine Didactics

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident feedback on topics</td>
<td>1.38</td>
<td>1</td>
</tr>
<tr>
<td>Faculty input</td>
<td>1.57</td>
<td>2</td>
</tr>
<tr>
<td>Faculty areas of expertise</td>
<td>1.63</td>
<td>3</td>
</tr>
<tr>
<td>New literature areas of expertise</td>
<td>1.68</td>
<td>4</td>
</tr>
<tr>
<td>ITE or board scores</td>
<td>1.72</td>
<td>5</td>
</tr>
<tr>
<td>Availability of speakers</td>
<td>1.76</td>
<td>6</td>
</tr>
<tr>
<td>ACGME competencies</td>
<td>1.87</td>
<td>7</td>
</tr>
<tr>
<td>Family medicine milestones</td>
<td>2.05</td>
<td>8</td>
</tr>
<tr>
<td>Local medical issues</td>
<td>2.05</td>
<td>8</td>
</tr>
<tr>
<td>Chart audits, QI</td>
<td>2.09</td>
<td>10</td>
</tr>
<tr>
<td>Graduate input</td>
<td>2.14</td>
<td>11</td>
</tr>
<tr>
<td>Changes in practice, Affordable Care Act</td>
<td>2.44</td>
<td>12</td>
</tr>
<tr>
<td>Pharmaceutical funding</td>
<td>2.95</td>
<td>13</td>
</tr>
</tbody>
</table>

* Major influence=1; somewhat influential=2; no influence=3.
Regardless, the growth in block formats may be partly attributable to a change achieved through formal programs on conference-related variables suggests a greater degree of homogeneity in conference formats, especially when compared with the significant differences reported in the baseline study.

The predominant strategy for delivering didactics is block formats, an approach now endorsed by multiple specialty training programs. The growth in block formats may be partly attributable to a change in ACGME didactic requirements. When the original survey was distributed, programs were required to provide didactics a minimum of 2 days per week, but are currently only expected to have “regularly scheduled” didactics. Regardless, the dominant opinion among respondents, whether they use blocks or hour-long sessions, is that didactic blocks are easier to organize and superior from an educational standpoint. Notably, while there is strong encouragement to provide shorter, evidence-based presentations, the average length of presentations remains about an hour.

The move to block formats is also likely related to addressing the challenge of resident availability. Fifteen years after the original study, a significantly higher percentage and a sizeable majority of programs report that not all residents are available to attend conferences. Block formats may be the best solution for consistently gathering the most residents in one place at one time. However, even with block formats, some residents are unable to participate in required, core educational activities due to service demands and work hour limits. Some family medicine programs address this challenge by offering remote, real-time access to conferences or by recording didactic sessions for later review.

The ACGME family medicine subcompetencies and resident Milestone assessments are intended to influence curriculum development in all specialties. Although Milestone assessments of residents were implemented prior to this survey, respondents endorsed the subcompetencies and Milestone assessments as only moderately impacting the topics chosen for didactics. However, some items identified as major influences on topic selection overlap specific subcompetencies. For example, in-training exam scores strongly influenced topic selection and are used to determine Milestone ratings on the subcompetency, Medical Knowledge 1 (“demonstrates medical knowledge of sufficient breadth and depth to practice family medicine”). When examined in total, the findings indicate that the selection of didactic topics are a rich mix of local influences (faculty expertise, resident feedback, in-training scores) and a base core curriculum. It is not clear from this investigation if the core curricula are organized as reported in the original study (eg, ambulatory topics, topics by organ system) or based on curricular guides such as the AFMRD/STFM Family Medicine Residency Curriculum Resource or the AAFP Family Medicine Residency Curriculum Guidelines.

The increased responsibility taken by programs to present the majority of didactic sessions suggests that family medicine core content is better defined and that programs are less reliant on outside specialists to teach didactics. While these results provide indications of a pedagogical maturation of the specialty over the past 15 years, such responsibility is demanding of time and effort. Recent reports indicate that increased expectations for faculty clinical productivity negatively affect resident education and contribute to elevated rates of faculty burnout and attrition. As faculty assume greater responsibility for didactics, their efforts need to be compensated and their time protected. Given the importance of didactics in graduate medical education, faculty and residents would benefit from training in designing, presenting, and evaluating didactics.

Direct comparisons between the original and current study may be affected by different sampling methods (randomized stratified analysis vs all programs) and different response rates (85% vs 66%). Further, in the current investigation, university-based programs and unaffiliated,
community-based programs appear to be over-represented when compared to national data. This may be due to the use of four program type designations rather than the five types designated by the AAFP. “Community-based/university-administered program” was not an option on the survey and programs in this category had to designate as community-based, university-affiliated or community hospital programs.

While reduced resident availability is a prevalent concern in this analysis, the survey instrument did not distinguish how many residents are unavailable for didactics or how frequently they are absent. More precise data is needed to determine the impact of this change, especially when considering that in the previous survey, 77% of programs reported all residents were available to attend didactics. While it is clear that work duty restrictions and increased clinical demands reduce resident availability for didactics, it is not clear if service demands are undermining the educational obligation of training programs.

In summary, the results of this study indicate that family medicine didactics have significantly evolved in the past 15 years in reaction to multiple internal and external factors, that content is nationally more structured across programs, and that programs are far more self-reliant for the delivery of content. The greatest current challenge to family medicine didactic training is the difficulty convening the key constituents (faculty, residents, and specialist speakers), all of whom face increased time demands and clinical expectations. Further research is needed to evaluate whether current didactic strategies are affecting measurable change in residents’ competence, clinical performance and, ultimately, in patient outcomes.

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Presentations: Preliminary data from this investigation was presented at a research-in-progress session at the Society of Teachers of Family Medicine Annual Spring Conference, Minneapolis, MN, May, 2016.

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