Abstracts From the 2006 Annual Meeting of the Council on Medical Student Education in Pediatrics (COMSEP)

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The Council on Medical Student Education in Pediatrics (COMSEP) is the national group of pediatric clerkship directors of North American medical schools. Its 2006 annual meeting was held in Salt Lake City, Utah, on March 16–19, 2006. The mission of COMSEP is to foster excellence in pediatric undergraduate education and thus to improve the health care of children in North America.

The theme for this year was “Enhancing the Clerkship with Technology.” The Miller/Sarkin Lectureship speaker was Suzanne Stensaas, Ph.D., who discussed integrating technology into medical education. A preconference workshop for new clerkship directors and 21 other workshops on a wide range of topics in medical student education were presented.

Before the meeting, the Research and Scholarship Task Force reviewed abstracts encompassing a wide range of innovative and research projects completed by the members in the past year. After being rated for quality, 23 abstracts were selected for presentation at the meeting. For this issue of Teaching and Learning in Medicine, 8 of these were selected for their quality and interest to other educators in medicine.

Reliability of the Structured Communication Adolescent Guide (SCAG) With Untrained Adolescents—Impact on Use in Clerkship

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Introduction: The Structured Communication Adolescent Guide (SCAG) is a reliable and valid instrument used by standardized patients. This study addressed the question of whether the SCAG is valid when used by untrained adolescents. Such a finding would enable clerks to be formally rated by their adolescent patients. Participants used the SCAG to rate a 20-min long videotaped interview featuring a student doctor and standardized patients—adolescent clinical interview. Each participant also completed and returned a semistructured feedback questionnaire. Intraclass correlation coefficients were used to assess interrater reliability for overall SCAG scores and the four SCAG sections.

Results: Interrater reliability was high for overall SCAG scores (intraclass correlation coefficient = .996) and for each SCAG section (intraclass correlation coefficient range = .952–.995). No significant main effects of age, sex, and school using total SCAG score and each section score as dependent variables.

Conclusion: The SCAG is a reliable assessment form when used by untrained adolescents. These results support the use of the SCAG by multiple untrained adolescents to provide valid ratings on clerks’ performance. This method is faculty independent and can be used to show that every clerk has interviewed and received feedback from an adolescent patient.

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Enhancing the Proficiency of Residents in Otitis Media (ePROM): Resident Performance and Feedback Following an Innovative, Web-Based Curriculum

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Objective: To evaluate a new, Web-based curriculum to improve otoscopic diagnostic accuracy in otitis media by evaluating changes in resident knowledge and skill before and after completion of component educational modules.

Methods: Residents (pediatrics, medicine–pediatrics, family medicine) from six institutions used ePROM: six interactive, multimodal, self-study, Web-based modules containing photographs and videos of tympanic membranes, clinical tips, and practice sessions. We compared resident performance on 10- or 15-item pre- and postmodule quizzes that were administered immediately before and after each module, and we reviewed feedback data.

Results: Postmodule quiz scores were significantly higher than premodule quiz scores for all modules with effect sizes ranging from 0.57 to 1.75 (See Table 1). On average, 81% agreed that the modules matched their learning level; 79% found them engaging; 70% agreed that they were a good use of their time; and 77% indicated they will apply the information.

Conclusions: ePROM is an effective way to teach about otitis media and has direct applicability to other learners, such as medical students.

Table 1. Change in Resident Performance on ePROM Pre- Versus Postmodule Quizzes

<table>
<thead>
<tr>
<th>Module</th>
<th>No. Residents</th>
<th>M % Improvement</th>
<th>SD</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemiology</td>
<td>49</td>
<td>32.9</td>
<td>19.6</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Otoscopy</td>
<td>65</td>
<td>28.0</td>
<td>16.0</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Otitis Media With Effusion</td>
<td>39</td>
<td>12.3</td>
<td>21.0</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Acute Otitis Media</td>
<td>34</td>
<td>15.1</td>
<td>13.0</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Adjunct Tools</td>
<td>14</td>
<td>23.2</td>
<td>17.3</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Tympanocentesis</td>
<td>11</td>
<td>36.9</td>
<td>21.3</td>
<td>.002</td>
</tr>
</tbody>
</table>

Development of a Validated, Curriculum-Based Exam for the Pediatric Clerkship

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Objective: The Computer Learning in Pediatrics Project (CLIPP) comprehensively covers the core topics in
the Council on Medical Student Education in Pediatrics curriculum for third-year students and also includes a multiple-choice exam based on the content of the material that students encounter in cases simulated on computer. We sought to validate the CLIPP exam as a tool to assess medical student performance, based on item analysis and comparison to the National Board of Medical Examiners (NBME) Pediatrics Subject exam. **Methods:** After pilot testing the CLIPP exam, performance on individual exam items was reviewed and problematic items were revised. Individual questions on a 100-item CLIPP exam for students from four schools were analyzed for R point biserial value and overall test reliability using a commercial software package (Logic eXtension Resources). Students from two schools were administered both the 100-question NBME Pediatric Subject Exam and the CLIPP exam as part of their clerkship requirements. Student performance on the two exams was compared using Spearman rank correlation statistics and chi-square analysis. **Results:** Analysis of 100 individual exam items for 148 students showed the average item R point biserial value was 0.196 (a positive correlation.). Cronbach’s alpha reliability on the CLIPP exam was 73%. One hundred twenty-eight students took both exams. The average score for the NBME was 72.4, compared to 76.7 on CLIPP. The Spearman rank correlation coefficient was 0.40 (p < .001). Chi-square analysis shows that high scores ≥ 80 or low performance ≤ 70 on the CLIPP exam is predictive of similar performance on the NBME. **Conclusions:** The CLIPP exam has good reliability at discriminating individual student performance. Student performance on the CLIPP exam correlates moderately well to NBME. The CLIPP final exam may be a feasible alternative to the NBME shelf exam for pediatric clerkships using the CLIPP learning package.

Educational Value of Overnight Call in the Third-Year Medical Student Pediatric Clerkship

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**Objective:** The on-call experience is part of almost all pediatric clerkships, but it is one of the least structured in terms of teaching. We sought to determine the educational value of various call night components during the third-year pediatric clerkship. **Methods:** After Institutional Review Board approval, students completed data sheets for overnight calls during their pediatric clerkship. Between 5 p.m. and 7 a.m., students recorded their activity in 30-min time increments, including location, presence of residents, and a learning code (1 through 4) denoting educational value. Learning code 1 denoted learning nothing or extremely little, whereas learning code 4 reflected learning a great deal. Thirty-nine anonymously completed sheets were analyzed. **Results:** Students reported high codes throughout the night. Until 1 a.m., students rated the educational experience highly (codes 3 and 4). Although students continued seeing patients from 1 a.m. to 6 a.m., the reported benefits of this experience decreased. Of the time increments coded at the highest learning level, 68% were spent seeing patients, 20% talking to faculty or residents, 10% in chart work, and 2% studying. Students spent 64% of total time “on the floor” (i.e., with patients or in team room) and 30% of total time in direct contact with residents. They averaged 4.4 hr of sleep per call. **Conclusions:** Valuable educational experiences occur during overnight call. From the student perspective, the benefits of overnight call are the amount of patient interaction and one-to-one resident contact.

Teaching and Measuring Professionalism Using the Clinical Skills Exam

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**Background:** Professional behavior comes closest to defining the art of medicine. Both patients and physician licensing boards are concerned that we are not teaching or measuring professional behavior in medical students. **Methods:** Third-year students in the pediatric and medicine clerkships participated in two different types of feedback interventions focused on professional behavior over the past 4 years. No interventions occurred in Year 1. In Years 2 to 4, the pediatric clerkship used a self-analysis model: Students reviewed a completed clinical skills exam (CSE) videotape using a guided form that allowed self-analysis of professionalism and communication skills. In Years 2
to 4, the medicine clerkship used a focus-group feedback model. At mid-clerkship, the entire cohort with faculty input reviewed snippets of a “practice” CSE case and the CSE professionalism instrument. These sessions focused on self-analysis, peer review, feedback scores from standardized patients, and faculty feedback.

The students participated in one CSE per clerkship. The CSE blueprint is comprised of several standardized patient scenarios. The data collected from the CSE includes history-gathering, physical examination technique, and professionalism. The professionalism instrument is a 16-item survey with Likert scale responses. Each standardized patient completes an identical Individual Professionalism Score (IPS) instrument per scenario. For this study, the IPS were extracted from CSE data. The IPS is an aggregated score of all encounters the individual Year-3 clerk experienced. IPS data were grouped into two categories: no intervention versus interventions by either the self-analysis or the focus-group feedback model. Of the 317 IPS extracted, 40 experienced only the pediatric intervention and 138 experienced only the medicine intervention. Analyses of variance were calculated. The first analysis of variance compared internal medicine clerks that either did or did not experience the focus-group model and had or had not experienced the self-analysis model. The second analysis of variance compared pediatric clerks that either did or did not experience the self-analysis model and had or had not experienced the focus-group model.

**Results:** The focus-group model significantly improved (p = .042) the clerk’s IPS. The self-analysis model used in pediatrics, however, slightly lowered the clerk’s IPS (p = .031).

**Conclusion:** Because of the significant IPS improvement using the focus-group feedback model, the pediatric and surgery clerkships implemented this model in 2004 and 2005. All six clerkships will be implementing focus-group feedback to improve professionalism by the end of 2006.

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**National Survey of Pediatric Clerkship Directors Response to LCME ED-2**

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**Objective:** Describe pediatric clerkship directors response to LCMEs ED-2, which requires that clerkships document that each student experience has the same minimal number of patients and problems irrespective of clerkship site and time of year.

**Design/Methods:** Web-based surveys were sent to all 142 US and Canadian pediatric clerkship directors in August, 2005.

**Results:** 77% (109/142) completed the survey. Of the 36% of respondents who had an LCME visit since ED-2 was reinterpreted, 65% reported that LCME had concerns about their clerkships fulfillment of ED-2, including whether the clerkship adequately specified types (41%) and number (47%) of patients required to be seen, and whether an adequate system was in place to monitor (41%) and verify (24%) that students had seen the required patients. Compared with clerkships where LCME had no concerns, clerkships that received an unfavorable review were more likely to have broadly defined categories of patients required to be seen (e.g., defining patients by only clinical setting or acuity, rather than specifying symptoms, organ systems, or diagnoses). Both groups defined patient encounters to include real patients (100%), CLIPP cases (Computer Learning in Pediatrics Project, 83%), standardized patients (38%), case discussions (39%), attending rounds (28%), and paper/CD/web cases (17-23%). Clerkships had an unfavorable review when neither patient logs nor checklists were used to track patient encounters. Although many (49%) clerkships relied on an attending or resident to verify that the patient was seen, relying on just student verification of patient encounters was reported as sufficient for LCME.

**Conclusions:** Pediatric clerkship directors have successfully employed many different techniques to implement ED-2 which may be adapted by other clerkships, with special attention to specifying and monitoring quantified patient criteria.

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**Medical Students With Lowest Performance on a Clinical Skills Exam Poorly Self-Assess Ability**

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Background: Clinical skills exams (CSE) have been shown to be valid and reliable tools for detecting students with poor clinical skills. For such students to improve, they need to be able to accurately assess their own ability, the basis of lifelong learning. Having a better understanding of how these students self-assess their level of competence would thus be important in developing successful remediation programs.

Objective: To explore how students with lowest performance on a CSE self-assess their level of competence.

Design/Methods: All fourth-year medical students completed an eight-station comprehensive CSE during which standardized patients rated communication skills (CS), history-gathering (HG), and physical exam skills (PE). Criteria for remediation included failure in two or more competencies (CS, HG, or PE) or CS alone. Students were requested to complete immediately (i.e., when given) a postexam survey, including a self-assessment of competence in CS, HG, and PE relative to level of training. Responses to self-assessment (lower, accurate, or higher level of competence) relative to standardized patients rated performance (below, within, or above 1 SD of mean for class) were compared for remediated versus passing students using Pearson chi-square tests.

Results: One-hundred-forty-five out of 170 (85%) students who took the exam consented to have their data analyzed anonymously. Eight students required remediation: two failed CS only; one failed CS, HG, and PE; three failed CS and HG; and two failed HG and PE. All eight (100%) needing remediation had overestimated level of competence for CS versus 35/137 (25%) of passing students (p < .001). For HG, 6/8 (75%) of remediating students overestimated and 2/8 (25%) accurately estimated competence versus 18/137 (13%) and 105/137 (77%) of passing students (p < .001). For PE, 4/8 (50%) of remediating students overestimated, 3/8 (37.5%) estimated accurately, and 1/8 (12.5%) underestimated competence versus 21/137 (15%), 78/137 (57%), and 38/137 (28%) of passing students (p = .04).

Conclusions: Medical students with the lowest performance on a CSE were significantly more likely to overestimate their level of competence compared to their peers, particularly in communication skills. Such findings should be taken into consideration when developing remediation strategies to enable students to more accurately self-assess their abilities.
related with HG ($r = .26$, $p < .01$) and PE ($r = .19$, $p > .05$) and more substantially correlated with CS ($r = .35$, $p < .001$). CS and PE were not significantly correlated with USMLE Step 2 and 3 knowledge exams, though HG did correlate weakly ($r = .22$, $p < .05$). Together, these three sets of variables (shelf exam, clerkship grades, USMLE exams) accounted for very little of the variance in CCSE scores ($CS R^2 = .10$, $HG R^2 = .10$, $PE R^2 = .03$, $p = ns$). In terms of CCSE concurrent validity, students who had completed the relevant core clerkship (78% pediatrics, 68% neurology, 71% psychiatry, 74% obstetrics–gynecology) generally performed better in the respective clerkship-focused station. As for predictive validity, three out of nine students meeting failure criteria for the CCSE failed the USMLE Step 2CS. Only one student who passed the CCSE failed the USMLE Step 2CS but, of note, received the second lowest CCSE score in CS.

**Conclusion:** CCSE validity was supported by a number of measures, most impressively predicting failure of the USMLE Step 2CS. Weak correlation between the CCSE and other measures of student competence may indicate that the CCSE is capturing elements of student clinical competency not otherwise well measured.

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**Mini-CEXs as a Supplement to the Objective Structured Clinical Examination (OSCE) Score**

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**Background:** The mini-clinical evaluation exercise (mini-CEX) was developed by the American Board of Internal Medicine as a tool for evaluating residents at the postgraduate training level. Many undergraduate programs, including internal medicine, surgery, and pediatrics, have modified the mini-CEX; allowing faculty to assess the clinical skills of medical students. At our institution students commented they were not being adequately observed performing clinical skills.

**Methods:** We modified the mini-CEX to cover three additional competencies in addition to history-taking and physical examination skills. These were counseling skills (giving of information), case presentation (presentation skills), and clinical reasoning skills. Students were initially required to complete four mini-CEXs during their 8-week pediatric rotation; this number was increased to eight to allow all five competencies to be evaluated. The students’ scores from their eight mini-CEXs are included as a portion of their objective structured clinical examination (OSCE) score. Similar to the OSCE, students are observed during each mini-CEX; however, the mini-CEX allows this to be done with a real patient or educational encounter.

**Results/Discussion:** At our institution, completion of the mini-CEXs has proven feasible with more than 90% of students completing at least eight forms. Faculty and residents have been compliant with students requesting observation and recording of mini-CEXs. With the use of mini-CEX form, the students perceive feedback that is instant and recorded. Additionally, because the students must complete these eight tasks over 8 weeks, students with difficulties can be identified early and specific supplemental support may be implemented. Also, those students doing poorly naturally undergo more observed clinical encounters in which there are opportunities for formal recorded feedback. Comparing performance on mini-CEXs and OSCEs was difficult as examiners of mini-CEXs were not standardized. Overall, those students flagged as weak on mini-CEXs had a lower performance score on OSCEs.

**Conclusion:** In the future, with faculty training as mini-CEX examiners allowing for standardization, we could potentially replace the OSCE exam with the mini-CEX. Given the increasing difficulty with finding standardized patients for OSCEs and the cost of these exams; this may be an attractive solution.

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**Medical Student Specialty Selections: A National Study**

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**Background:** Although there has been a decline in medical student selection of primary care fields for residency training, little data describe what influences career decisions.

**Objective:** What perceptions influence medical student career decisions?

**Methods:** An electronic survey was distributed to all members of American Medical Association e-voice medical student list serve and to Association of American Medical Colleges class representatives at 20 medical schools selected for geographic diversity.

**Results:** Of the 2,237 medical students who completed the survey, 56% were female. Respondents were roughly evenly distributed across the 4 years of training. In each of the first 3 years of medical school, 16% of medical students identified pediatrics as their first career choice. This number dropped to 12% by the fourth year. Students report that patient contact, control over work, and per-
sonal challenge were the most important features for future career decisions, whereas salary, peer respect, malpractice, and length of training were significantly less influential. Although medical students viewed pediatricians as more kind and altruistic compared to internists and surgeons, they also viewed pediatrics as less challenging and pediatricians as less capable. Women scored pediatrics substantially higher in attractive lifestyle, work ethic, capability, dedication, and career challenge than men did (p < .0002 for all values).

Conclusions: Pediatrics as a career choice declined in popularity by the fourth year of medical school. There are dramatic differences in male versus female impressions of pediatricians and pediatrics.

Final revision received on July 18, 2006.