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Jefferson evaluations: Clinical

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JEFFERSON EVALUATIONS

CLINICAL

**STUDENTS' RATINGS OF OTOLARYNGOLOGY CLERKSHIP ACTIVITIES:
THE ROLE OF RESIDENTS**

Hidemichi Ashikawa, Gang Xu, J. Jon Veloski

The present study was conducted with a sample of junior medical students at Jefferson Medical College to investigate the factors that influence students' overall satisfaction with the otolaryngology clerkship. The most important factor related to their overall satisfaction in the clerkship was their experience with residents, followed by experience with attending physicians, quality of rounds, and of lectures. The number of patients the students encountered and the number of rounds and lectures were deemed less important. Based on these findings, the authors of this paper concluded that the residents' role in teaching should be emphasized and students' satisfaction with the otolaryngology clerkship may be enhanced by developing residents' skills in teaching students.

Medical Teacher. 1992; 14: 77-81.

**VALIDITY OF FACULTY RATINGS OF STUDENTS' CLINICAL COMPETENCE
IN CORE CLERKSHIPS IN RELATION TO SCORES ON LICENSING
EXAMINATIONS AND SUPERVISORS' RATINGS IN RESIDENCY**

*Clara A. Callahan, James B. Erdmann, Mohammadreza Hojat, J. Jon Veloski, Susan L. Rattner,
Thomas J. Nasca, Joseph S. Gonnella*

Problem Statement and Background: The validity of the clinical evaluations in medical school, a major component of the Dean's letter, as independent predictors of postgraduate clinical competence, has not been well documented.

Method: In a cohort study, 2,156 medical students at Jefferson Medical College who graduated from 1989 to 1998 were studied. Bivariate and multivariate relationships between competence ratings in third-year core clerkships, performance on licensing examinations and residency program directors' ratings of clinical competence were examined.

Results: Significant correlations were found between clerkship ratings and the criterion measures. Clerkship ratings in Internal Medicine, Family Medicine, Pediatrics and Obstetrics/Gynecology yielded higher correlations than Psychiatry and Surgery.

Conclusions: These results should not only increase the confidence of the faculty about their evaluations, but also assure residency selection committees about the validity of such evaluations in predicting clinical competence beyond medical school.

Academic Medicine. 2000; 75(October Supplement): S71-S73.

Available online at publisher's site:

<http://www.academicmedicine.org/pt/re/acmed/pdfhandler.00001888-200010001-00023.pdf>

SUBTEST SCORES OF A COMPREHENSIVE EXAMINATION OF MEDICAL KNOWLEDGE AS A FUNCTION OF RETENTION INTERVAL

Mohammadreza Hojat, J. Jon Veloski

It was hypothesized that performance on particular subtests of a comprehensive examination would be a function of the length of time between the completion of medical training and administration of the comprehensive examination. Two samples of graduates of the Jefferson Medical College were studied: one group of 1,086 students who graduated between 1975 and 1979, and another group of 877 who graduated between 1980 and 1983. Each medical student in the junior year was assigned to one of four clerkship groups. Each group took the assigned clerkship training in internal medicine, obstetrics/gynecology, pediatrics, psychiatry and surgery in a different rotational sequence. Statistical analyses indicated that there were no significant differences among the four groups of the two samples on total comprehensive medical examination scores either before or after the junior year. There was, however, a linear trend found in the scores on subtests in psychiatry, obstetrics/gynecology, and surgery in both samples. The trend indicated that the shorter the interval between clerkship training and the examination, the higher the score on that particular examination. Data were analyzed in terms of some hypotheses from learning theories, and the implications of the results on medical education were discussed.

Psychological Reports. 1984; 55: 579-585.

Also in Proceedings of the Twenty-second Annual Conference on Research in Medical Education, Washington, DC, November 1983; 19-24.

STUDENTS' GENDER AND EXAMINATION OF PATIENTS IN A THIRD-YEAR FAMILY MEDICINE CLERKSHIP

Daniel Z. Louis, Jonathan Gottlieb, Fred W. Markham, Mohammadreza Hojat, Carol Rabinowitz, Joseph S. Gonnella

The present study investigated gender differences in clinical experiences measured by the number of times a specific set of diagnostic, therapeutic, and preventive tasks was performed as part of a required clerkship in medical school. Participants were 194 third-year medical students at Jefferson Medical College who were taking their required six-week family medicine clerkship during the 1994-95 academic year. There were 117 men (60%) and 77 women (40%) in this group. We used specially designed computer-scannable patient-encounter cards to document students' clinical experiences. The patient-encounter cards were designed as part of a broad study to monitor students' clinical experiences in required clerkships and to ensure that all students are sufficiently exposed to diverse clinical situations and perform the diagnostic, therapeutic, and preventive tasks relevant to each clerkship. A total of 16,570 patient encounters (60% female patients) were reported by 194 students. A total of 9,425 patient-encounter cards were completed by male students. A total of 7,185 patient-encounter cards were completed by female students. There was no difference between male and female students with respect to the proportion of male and female patients encountered, but female students encountered significantly more patients overall than did the male students. The mean number of patient encounters reported per student was 85 (81 for male students, 93 for female students) over a six-week period. A significantly larger percentage of women than men (91% vs. 65%) performed at least one breast examination in their family medicine clerkship ($p < .01$). However, men were more likely than women to perform a testicular examination (71% of the men and 58% of the women, $p < .05$). The women also performed the Denver developmental screening test for children more often than the men did (58% of the women and 43% of the men, $p < .05$). Women were more likely than men to perform pelvic examinations (84% of the women vs. 73% of the men, $p < .10$), but the difference fell short of statistical significance at the conventional level. The results of this study show that while men and women in a family medicine clerkship are exposed to a patient base with comparable gender composition, certain diagnostic tasks are not performed as often by male and female students.

Academic Medicine. 1996; 71(Supplement): S19-S21.

EVALUATIONS OF MEDICAL STUDENTS' CLINICAL EXPERIENCES IN A FAMILY MEDICINE CLERKSHIP: DIFFERENCES IN PATIENT ENCOUNTERS BY DISEASE SEVERITY IN DIFFERENT CLERKSHIP SITES

Fred W. Markham, Susan L. Rattner, Mohammadreza Hojat, Daniel Z. Louis, Carol Rabinowitz, Joseph S. Gonnella

Background and Objectives: Evaluation of medical students' clinical encounters is an essential component of optimizing their educational experience. In this study, we collected data on the diagnoses and disease severity in student-patient encounters at different family medicine clerkship sites.

Methods: Participants were 582 third-year medical students who completed a total of 7,515 specially designed patient encounter cards in a 6-week family medicine clerkship at five training sites over 3 years.

Results: Variation was found in the average number of encounters in different clerkship sites. The findings for three frequently encountered diseases (essential hypertension, diabetes mellitus, and upper respiratory infection) showed significant differences in the proportions of patients at different stages of the disease in different clerkship sites.

Conclusions: Students at different clerkship sites experience different numbers of encounters with patients and significant variation in the illness severity of patients seen in those encounters.

Family Medicine. 2002; 34(6): 451-454.

Available online at publisher's site:

<http://www.stfm.org/fmhub/fm2002/june02/mse.pdf>

USMLE STEP 2 PERFORMANCE AND TEST ADMINISTRATION DATE IN THE FOURTH YEAR OF MEDICAL SCHOOL

Charles A. Pohl, Mary R. Robeson, J. Jon Veloski

Purpose: To determine whether the time interval between completing the third-year curriculum and test administration affects a student's USMLE Step 2 score.

Method: Scores for 846 students in the classes of 2000-2004 were grouped in 10 time periods depending on test date. A linear regression model to predict performance on Step 2 using gender, Step 1, and grades in medicine, pediatrics, and obstetrics-gynecology was developed based on the class of 1999. Analysis of covariance was used to test the effect of time on scores, adjusting for predicted performance.

Results: Step 2 scores decreased significantly ($p < .001$) across time. Students' mean scores were four points higher than predicted in the early months and five to eight points lower near the end of the senior year.

Conclusions: Students who scheduled Step 2 early in the senior year achieved higher scores, on average, than those who waited until later in the year.

Academic Medicine. 2004; 79(10): S49-S51.

Available online at publisher's site:

<http://www.academicmedicine.org/pt/re/acmed/pdfhandler.00001888-200410001-00015.pdf>

**A COMPARISON OF THE MODIFIED ESSAY QUESTION AND
MULTIPLE CHOICE QUESTION FORMATS: THEIR RELATIONSHIPS
TO CLINICAL PERFORMANCE**

Howard K. Rabinowitz, Mohammadreza Hojat

The Department of Family Medicine at Jefferson Medical College has used the modified essay question as the final examination format for its required third-year clerkship since 1976. To compare the family medicine modified essay question format with the multiple choice question format used in the other five required junior clerkships, examination scores from 2,174 Jefferson graduates (1976-1985) were correlated with scores on the examination of the National Board of Medical Examiners (NBME), ratings of clinical performance in the required third-year clerkships, and ratings on four global areas of postgraduate competence. Grades of the multiple choice examination in internal medicine consistently yielded the highest correlations with NBME scores and with postgraduate ratings of medical knowledge. Performance on the modified essay examination in family medicine had the lowest correlations in these areas. The family medicine scores, however, consistently yielded the highest correlations with overall third-year clinical performance and with postgraduate performance in the areas of data-gathering skills, clinical judgment, and professional attitudes. These results indicate that the modified essay question format may provide a different and important parameter in the evaluation of medical trainees.

Family Medicine. 1989; 21: 364-367.

DOCUMENTING AND COMPARING MEDICAL STUDENTS' CLINICAL EXPERIENCES

*Susan L. Rattner, Daniel Z. Louis, Carol Rabinowitz, Jonathan E. Gottlieb, Thomas J. Nasca,
Fred W. Markham, Ruth P. Gottlieb, John W. Caruso, J. Lindsey Lane, J. Jon Veloski,
Mohammadreza Hojat, Joseph S. Gonnella*

Context: The decentralization of clinical teaching networks over the past decade calls for a systematic way to record the case-mix of patients, the severity of diseases, and the diagnostic procedures that medical students encounter in clinical clerkships.

Objective: To demonstrate a system that documents medical students' clinical experiences across clerkships.

Design and Settings: Evaluation of a method for recording student-patient clinical encounters using a pocket-sized computer-read patient encounter card at a US university hospital and its 16 teaching affiliates during academic years 1997-1998 through 1999-2000.

Participants: A total of 647 third-year medical students who completed patient encounter cards in 3 clerkships: family medicine, pediatrics, and internal medicine.

Main Outcome Measures: Number of patient encounters, principal and secondary diagnoses, severity of diseases, and diagnostic procedures as recorded on patient encounter cards; concordance of patient encounter card data with medical records.

Results: Students completed 86,011 patient encounter cards: 48,367 cards by 582 students in family medicine, 22,604 cards by 469 students in pediatrics, and 15,040 cards by 531 students in internal medicine. Significant differences were found in students' case-mix of patients, the level of disease severity, and the number of diagnostic procedures performed across the 3 clerkships. Stability of the findings within each clerkship across 3 academic years and the 77% concordance of students' reports of principal diagnosis with faculty's confirmation of diagnosis support the reliability and validity of the findings.

Conclusions: An instrument that facilitates students' documentation of clinical experiences can provide data on important differences among students' clerkship experiences. Data from this instrument can be used to assess the nature of students' clinical education.

Journal of the American Medical Association. 2001; 286(9): 1035-1040.

Available online at publisher's site:

<http://jama.ama-assn.org/cgi/content/abstract/286/9/1035>

**STUDENT RATINGS OF CLERKSHIP ACTIVITIES AS A BASIS
FOR CURRICULUM MODIFICATION: A FOUR-YEAR COMPARISON
OF SIX DEPARTMENTS**

Joseph S. Rodgers, J. Jon Veloski, Shelley L. Moses

This study was undertaken to determine which activities and learning experiences have the greatest positive influence on students' overall ratings of the educational values of clinical clerkships. Such results could provide guidance to curriculum committees, faculty of individual departments, and to those responsible for clinical education in hospitals who must set priorities and plan changes in clerkships.

The self-reports of students expressed on 3,634 forms collected over a four-year period provide an opportunity to investigate the relative importance of different learning experiences in required clinical clerkships. Most significant across the clerkships is the learning value placed on patient rounds. In five of the six clerkships, students who gave high overall ratings to the clerkship also reported frequently that patient rounds were valuable. Such data do support the learning value of rounds and probably also the concept that student learning is enhanced when the entire time of rounds is devoted to teaching medical students. On the other hand, certain variables did not appear to influence students' overall rating of the clerkship experience. The value of conferences, whether or not a student was given time off to study prior to the final examination, the number of hours on call, and the number of new patients per week showed little or no relationship to the students' overall ratings of clerkships. The results also suggest that more emphasis should be placed on the role of the attending physician. The program should be so constructed as to enable attending physicians to spend more time with students, especially discussing their assigned patients. Feedback to students, which they have perceived as important but lacking in other studies, should be included.

*Proceedings of the Twenty-Sixth Annual Conference on Research in Medical Education,
Washington, DC, November 1987; 179-184.*

EVALUATION OF THE SURGICAL CLERKSHIP EXPERIENCE IN AFFILIATED HOSPITALS: PERFORMANCE ON OBJECTIVE EXAMINATIONS

Gordon F. Schwartz, J. Jon Veloski, Joseph S. Gonnella

This study was designed to measure the knowledge acquired during the surgical clerkship required in the third-year curriculum at Jefferson Medical College and to determine whether or not that knowledge varied according to the institution in which it was acquired. Student grades were derived from scores of 0-100 in each of four subtests: surgery, orthopaedics, urology and anesthesiology. Grades were grouped by hospital, and means and variances were computed for each institution. Significant differences for the entire group of hospitals were observed in three of the subtests. It can be inferred that, based on the apparent differences in knowledge among students assigned to several hospitals, differences may occur in clinical competence and attitudes.

The Journal of Surgical Research. 1976; 20: 179-182.

Available online at publisher's site:

[http://dx.doi.org/10.1016/0022-4804\(76\)90137-2](http://dx.doi.org/10.1016/0022-4804(76)90137-2)

DO GLOBAL RATING FORMS ENABLE PROGRAM DIRECTORS TO ASSESS THE ACGME COMPETENCIES?

Cynthia G. Silber, Thomas J. Nasca, David L. Paskin, Glenn Eiger, Mary R. Robeson, J. Jon Veloski

Purpose: In 1999 the Accreditation Council for Graduate Medical Education (ACGME) mandated that GME programs require their residents to be proficient in six general competencies. The purpose of this study was to ascertain whether an existing global rating form could be modified to assess these competencies.

Method: A rating form covering 23 skills described in the ACGME competencies was developed. The directors of 92 specialty and subspecialty programs at Thomas Jefferson University Hospital and the Albert Einstein Medical Center in Philadelphia were asked to rate residents at the end of the 2001-02 and 2002-03 academic years.

Results: Ratings for 1,295 of 1,367 (95%) residents were available. Residents were awarded the highest mean ratings on items tied to professionalism, compassion, and empathy. The lowest mean ratings were assigned for items related to consideration of costs in care and management of resources. Factor analysis indicated that the program directors viewed overall competence in two dimensions of medical knowledge and interpersonal skills. This factor structure was stable for groups of specialties and residents' gender and training level. Mean ratings in each dimension were progressively higher for residents at advanced levels of training.

Conclusion: Global rating forms, the tool that program directors use most frequently to document residents' competence, may not be adequate to assess the six general competencies. The results are consistent with earlier published research indicating that physicians view competence in just two broad dimensions, which questions the premise of the six ACGME competencies. Further research is needed to validate and measure six distinct dimensions of clinical competence.

Academic Medicine. 2004; 79(6): 549-556.

Available online at publisher's site:

<http://www.academicmedicine.org/pt/re/acmed/pdfhandler.00001888-200406000-00010.pdf>

A PRELIMINARY STUDY OF THE VALIDITY OF SCORES AND PASS/FAIL STANDARDS FOR USMLE STEPS 1 AND 2

David B. Swanson, Susan M. Case, Donna Waechter, J. Jon Veloski, Carol Hasbrouck, Miriam Friedman, Jan Carline, Carol Maclaren

Medical licensure in the United States is in a period of transition. In 1991, the National Board of Medical Examiners (NBME) introduced major modifications in the content, format, pass/fail standards, and score reports for the NBME Part I and Part II examinations. In 1992, the modified Part I and Part II examinations were renamed Step 1 and Step 2 and became the first two components of the three-step United States Medical Licensing Examination (USMLE). When the Part Examinations and the Federation Licensing Examination (FLEX), developed by the Federation of State Medical Boards (FSMB), are completely phased out in 1994, the USMLE will become the sole examination pathway to initial licensure for allopathic physicians.

As a part of the phase-in of the revised examinations in 1991, new pass/fail standards for Part I and Part II were instituted. These standards were predominantly content-based: the score required to pass was determined primarily by reviewing test items and identifying a level of performance reflecting mastery of the materials. In 1992, these new standards were adopted for administrations of USMLE Steps 1 and 2. The purpose of this project was to initiate systematic study of the correspondence between performance on the examinations and academic achievement in basic science coursework and clinical clerkships during medical school. In this preliminary study, examinees' scores and pass/fail results from the first administrations of the newly designed Part I and Part II were compared with ratings of academic achievement provided by five collaborating medical schools.

Academic Medicine. 1993; 68: S19-S21.

**ATTENDINGS' AND RESIDENTS' TEACHING ROLE AND STUDENTS'
OVERALL RATING OF CLINICAL CLERKSHIPS**

Gang Xu, Timothy P. Brigham, J. Jon Veloski, Joseph F. Rodgers

The study was conducted with a sample of third-year students (n = 584) at Jefferson Medical College to explore students' perception of patterns of differences between attending physicians and residents in their teaching behaviors during clinical clerkships. Attending physicians' teaching behaviors were perceived more in a mentorship mode whereas residents' teaching behaviors were equally divided between mentorship and preceptorship modes. Attending physicians and residents' teaching behaviors varied among clerkships. Results were discussed in terms of difference of teaching roles played by attending physicians and residents and relationship of the teaching behaviors to students' overall rating of clerkship.

Medical Teacher. 1993; 15: 217-222.

INFLUENCE OF PREVIOUS CLERKSHIP EXPERIENCES ON STUDENTS' SATISFACTION WITH THEIR CURRENT CLERKSHIP

Gang Xu, J. Jon Veloski

This study examined the influence of previous clerkship experiences on students' satisfaction with their current clerkship. We hypothesized that when students are asked to rate their current clerkship, their ratings are influenced by their comparisons of current experiences with previous ones, whether or not they are asked to make such comparisons.

We surveyed the 225 third-year students at our school at the end of the last block in 1991-92. The students were asked to give (1) their overall ratings of the clerkship; (2) their ratings of experiences in 19 activities, such as experiences with attending physicians, with residents, on rounds, in conferences, etc.; and (3) their ratings of the clerkship in comparison with previous clerkships.

Experiences in previous clerkships influence students' satisfaction with their experiences in subsequent clerkships.

Medical educators, in order to gain a better understanding of their students' experiences in the clerkships of their own departments, should look into the students' experiences in the clerkships of other departments.

Academic Medicine. 1993; 68: 230.

**A CORRELATION STUDY OF STUDENTS' PERCEPTION OF THEIR ACTIVE
ROLE AS RELATED TO THEIR CLERKSHIP EXPERIENCES**

Gang Xu, J. Jon Veloski, Timothy P. Brigham

Previous studies have indicated the importance of students' active involvement in clinical learning. The present study examined medical students' active participation in clinical clerkships as related to their ratings of clerkship experiences. The general hypothesis is that students' perception of being active in the clerkship will be positively related to their experience with attendings and residents and to their overall satisfaction with their clerkship experience. This hypothesis was examined in teaching rounds, work rounds, and in conferences and was confirmed in the study. Future study may be needed to explore specific approaches to bring students into an active process in different clinical learning settings.

Medical Teacher. 1995; (17): 199-203.