

Patient Care
Assessment References

1. Brennan BG, Norman GR. Use of encounter cards for evaluation of residents in obstetrics. *Acad Med*. 1997;72:S43-44.
The use of pocket-sized cards to document resident performance during clinical encounters directly observed by faculty is described in this paper.
2. Burdick WP, Friedman Ben-David M, Swisher L, Becher J, Magee D, McNamara R, et al. Reliability of performance-based clinical skill assessment of emergency medicine residents. *Acad Emerg Med* 1996;3:1119-23.
The clinical skill assessment of emergency medicine residents in this study indicates acceptable intercase reliabilities for history-taking, physical examination, and note writing skills, but lower reliabilities for chest x-ray interpretation and differential diagnosis.
3. Callahan EJ, Bertakis KD. Development and validation of the Davis Observation Code. *Fam Med* 1991;23:19-24.
This study suggests that direct observation of physician interactions pertaining to disease prevention, health education, health promotion, and compliance checking yielded more accurate information than chart audit.
4. Chapman DM, Rhee KJ, Marx JA, Honigman B, Panacek EA, Martinez D, et al. Open thoracotomy procedural competency: validity study of teaching and assessment modalities. *Ann Emerg Med* 1996;28:641-7.
The authors conclude that thoracotomy performance on a pig model yields more valid and reliable data than performance on computer or paper counterparts.
5. Cydulka RK, Emerman CL, Jouriles NJ. Evaluation of resident performance and intensive bedside teaching during direct observation. *Acad Emerg Med* 1996;3:345-51.
The writers describe an approach to direct observation of residents' clinical performance and the value of using this approach.
6. Duke MB, Griffith CH, Haist SA, Wilson JF. A clinical performance exercise for medicine-pediatrics residents emphasizing complex psychosocial skills. *Acad Med* 2001;76:1153-7.
The content, administration, and results of a 13-station clinical performance exercise for med-peds residents are presented.
7. Gaba DM, Howard SK, Flanagan B, Smith BE, Fish KJ, Botney R. Assessment of clinical performance during simulated crises using both technical and behavioral ratings. *Anesthesiology* 1998;89:8-18.
The authors conclude that clinical performance during simulated crises can be assessed from videotapes. The pros and cons of the rating scales used to record information are discussed.

8. Gercama AJ, de Haan M, van der Vleuten CPM. Reliability of the Amsterdam Clinical Challenge Scale (ACCS): a new instrument to assess the level of difficulty of patient cases in medical education. *Med Educ* 2000;34:519-24.

The writers describe the number of cases and judges needed to ascertain case difficulty reliably using the ACCS.

9. Hall W, Violata C, Lewkonja R, Lockyer J, Fidler H, Toews J. et al. Assessment of physician performance in Alberta: the Physician Achievement Review. *CMAJ* 1999;161:52-7.

This paper summarizes an approach to the routine assessment of practicing physicians that requires the completion of questionnaires by physicians, their peers, coworkers, and patients.

10. Heinemann GD, Schmitt MH, Farrell MP, Brallier SA. Development of an Attitudes toward Health Care Teams Scale. *Eval Health Prof* 1999;22:123-42.

Psychometric tests of the Attitudes toward Health Care Teams Scale suggest that it may be used to assess the impact of team training interventions.

11. Holman JR, Marshall RC, Jordan B, Vogelman L. Technical competency in flexible sigmoidoscopy. *J Am Board Fam Pract* 2001;14:424-9.

With regard to assessing technical skill proficiency in performing flexible sigmoidoscopies, residents were rated on procedure time and insertion depth.

12. Holmboe ES, Hawkins RE. Methods for evaluating the clinical competence of residents in internal medicine: a review. *Ann Intern Med* 1998;129:42-8.

The strengths and weaknesses of medical record review, the in-training examination, the longitudinal evaluation form, and performance-based assessment are presented.

13. Jain SS, DeLisa JA, Eyles MY, Nadler S, Kirshblum S, Smith A. Further experience in development of an objective structured clinical examination for physical medicine and rehabilitation residents. *Am Jphys Med Rehabil* 1998;77:306-10.

An OSCE for physical medicine and rehabilitation residents is described in this article.

14. Kroboth FJ, Hanusa BH, Parker S, Coulehan JL, Kapoor WN, Brown FH, et al. The inter-rater reliability and internal consistency of a clinical evaluation exercise. *J Gen Intern Med* 1992;7:174-9.

The writers conclude that a 312-item clinical evaluation exercise was a valuable teaching tool and demonstrated good internal consistency, but yielded poor inter-rater reliability.

15. Kwolek DS, Witzke DB, Blue AV, Schwartz RW, Sloan DA. Using an OSCE to assess the ability of residents to manage problems in women's health. *Acad Med* 1997;72:S48-50.

The content of and surgical resident performance on an OSCE that addressed women's health clinical problems are presented in this paper.

16. Lane JL, Ziv A, Boulet JR. A pediatric clinical skills assessment using children as standardized patients. *Arch Pediatr Adolesc Med* 1999;153:637-44.

The development, implementation, and results of a clinical skills assessment for pediatric residents are described in this article.

17. Lentz GM, Mandel LS, Lee D, Gardella C, Melville J, Goff BA. Testing surgical skills of obstetric and gynecologic residents in a bench laboratory setting: validity and reliability. *Am J Obstet Gynecol* 2001;184:1462-70.

This report suggests that resident performance on 12 simulated surgical tasks was influenced by length of training and there was good agreement among those who rated the tasks.

18. Macmillan A, Cuschieri A. Assessment of innate ability and skills for endoscopic manipulations by the Advanced Dundee Endoscopic Psychomotor Tester: Predictive and concurrent validity. *Am J Surg* 1999;177:274-7.

This article describes the use of a simulator to assess competence in endoscopic manipulations and the concurrent and predictive validity of data obtained.

19. MacRae HM, Cohen R, Regehr G, Reznick R, Burstein M. A new assessment tool: the patient assessment and management examination. *Surg* 1997;122:335-44.

The content, administration, and technical characteristics of the patient assessment and management examination (PAME) for general surgery residents are described in this article.

20. MacRae H, Regehr G, Leadbetter W, Reznick RK. A comprehensive examination for senior surgical residents. *Am J Surg* 2000;179:190-3.

In this paper, the results of a multi-method approach to assessing surgical resident competence are presented.

21. Martin J, Regehr G, Reznick R, MacRae H, Murnaghan J, Hutchison C, Brown M. Objective structured assessment of technical skills (OSATS) for surgical residents. *Brit J Surg* 1997;84:273-8.

In this study, surgical resident performance on live and bench formats of the OSATS are compared and the reliability and validity of data obtained are examined.

22. Noel GL, Herbers JE, Caplow MP, Cooper GS, Pangara LN, Harvey J. How well do internal medicine faculty members evaluate the clinical skills of residents? *Ann Intern Med* 1992;117:757-65.

This study suggests that a structured form improved the accuracy of faculty documentation of resident clinical performance, however, a videotape that demonstrated good evaluation techniques did not enhance accuracy.

23. Norcini JJ, Blank LL, Arnold GK, Kimball HR. The mini-CEX (Clinical Evaluation Exercise): a preliminary investigation. *Ann Intern Med* 1995;123:795-9.

The technical and practical characteristics of the mini-CEX, which was designed to assess internal medicine residents' clinical skills, are presented in this paper.

24. Norcini JJ, Blank LL, Arnold GK, Kimball HR. Examiner differences in the mini-CEX. *Adv Health Sci Educ* 1997;2:27-33.

The results of this study suggest that the mini-CEX may be used in a variety of clinical settings and across a broad range of clinical situations.

25. Paisley AM, Baldwin P, Paterson-Brown S. Validity of surgical simulation for the assessment of operative skill. *Brit J Surg* 2001;88:1525-32.

The results of this study indicate poor relationships between performance on six simulated surgical tasks and basic surgical experience and faculty ratings of technical skill.

26. Paisley AM, Baldwin P, Paterson-Brown S. Feasibility, reliability and validity of a new assessment form for use with basic surgical trainees. *Am J Surg* 2001;182:24-9.

This study examines the technical characteristics and feasibility of the Basic Surgical Training Assessment Form, which was designed to assess resident ability in 70 clinical tasks.

27. Ram P, van der Vleuten C, Rethans J, Grol R, Aretz. Assessment of practicing family physicians: comparison of observation in a multiple-station examination using standardized patients with observation of consultations in daily practice. *Acad Med* 1999;74:62-9.

The results of this study suggest that videotapes of physicians during daily practice were a more advantageous approach to assessment than videotapes of physicians during a multiple-station examination using standardized patients.

28. Ram P, van der Vleuten C, Rethans J, Schouten B, Hobma S, Grol R. Assessment in general practice: the predictive value of written-knowledge tests and a multiple-station examination for actual medical performance in daily practice. *Med Educ* 1999;33:197-203.

In this study, performance on knowledge tests and a simulated clinical skills assessment had similar predictive value, but together accounted for moderate variance in actual practice performance.

29. Ramsey PG, Wenrich MD, Carline JD, Inui TS, Larson EB, LoGerfo JP. Use of peer ratings to evaluate physician performance. *JAMA* 1993;269:1655-60.

The authors conclude that ratings obtained from at least 11 physician peers can provide reliable assessment of physicians' clinical and communication skills, and humanistic qualities.

30. Reznick R, Regehr G, MacRae H, Martin J, McCulloch W. Testing technical skill via an innovative "bench station" examination. *Am J Surg* 1997;173:226-30.

The interstation reliability and construct validity of data obtained from surgical residents who completed an OSATS are addressed in this paper.

31. Rhoton MF, Barnes A, Flashburg M, Ronai A, Springman S. Influence of anesthesiology residents' noncognitive skills on the occurrence of critical incidents and the residents' overall clinical performances. *Acad Med* 1991;66:359-61.

This paper describes a qualitative assessment approach that involved the collection and analysis of daily narratives about residents' clinical performance.

32. Ryan JG, Mandel FS, Sama A, Ward MF. Reliability of faculty clinical evaluations of non-emergency medical residents during emergency department rotations. *Acad Emerg Med* 1996;11:24-30.

The results of this study indicate that assessors' duration and extent of experience in graduate medical education influences their assessment of resident clinical competence.

33. Schwartz RW, Donnelly MB, Sloan DA, Johnson SB, Strodel WE. Assessing senior residents' knowledge and performance: an integrated evaluation program. *Surgery* 1994;116:634-40.

After using four different approaches to assessing general surgery residents, the authors conclude that multi-method assessment is both feasible and necessary.

34. Schwartz RW, Witzke DB, Donnelly MB, Stratton T, Blue AV, Sloan DA. Assessing residents' clinical performance: cumulative results of a four-year study with the Objective Structured Clinical Examination. *Surgery* 1998;124:307-12.

The authors conclude that deficits in residents' clinical skills can be identified by the objective structured clinical examination (OSCE) and this information can be used to guide curricular improvement.

35. Scott DJ, Valentine J, Bergen PC, Rege RV, Laycock R, Tesfay ST, et al. Evaluating surgical competency with the American Board of Surgery In-Training Examination, skill testing, and intraoperative assessment. *Surgery* 2000;128:613-22.

The absence of correlations among results obtained from three assessment instruments lead to the conclusion that multiple assessment approaches should be used to ascertain competency.

36. Sloan DA, Donnelly MB, Schwartz RW, McGrath PC, Kenady DE, Wood DP, Strodel WE. Measuring the ability of residents to manage oncologic problems. *J Surg Oncol* 1997;64:135-42.

This paper describes the technical characteristics of and surgery resident performance on nine oncologic clinical problems that were part of a larger 19-case OSCE.

37. Sloan DA, Donnelly MB, Schwartz RW, and Strodel WE. The objective structured clinical examination: the new gold standard for evaluating postgraduate clinical performance. *Ann Surg* 1995;222:735-42.

The technical characteristics and usefulness of a 38-station OSCE for surgical residents are presented in this paper.

38. Szalay D, McRae H, Regehr, Reznick R. Using operative outcome to assess technical skill. *Am J Surg* 2000;180:234-7.

This report suggests that product analysis and time to complete a simulated technical task yielded moderately reliable data. Product analysis was more feasible for senior versus junior residents.

39. Taffinder N, Sutton C, Fishwick RJ, McManus IC, Darzai A. Validation of virtual reality to teach and assess psychomotor skills in laparoscopic surgery: results from randomized controlled studies using

the MIST VR Laparoscopic Simulator. *Stud Health Technol Inform* 1998;50:124-30.

In this study, performance on a virtual reality laparoscopic simulator was influenced by surgical experience and training.

40. Tamblyn R, Benaroya S, Snell L, et al. The feasibility and value of using patient satisfaction ratings to evaluate internal medicine residents. *J Gen Intern Med.* 1994;9:146-152.

The results of this study suggest that about 30 patients per resident would be required to obtain reliable patient ratings of resident performance.

41. The MRCP(UK) Policy Committee on behalf of the Federation of Royal Colleges of Physicians of the United Kingdom. PACES: Practical Assessment of Clinical Examination Skills. *J R Coll Physicians Lond* 2000;34:57-60.

This article provides a description of PACES, the clinical skills assessment component of the examination required to pursue speciality training in the UK.

42. Thomas PA, Gebo KA, Hellmann DB. A pilot study of peer review in residency training. *J Gen Intern Med* 1999;14:551-4.

This study suggests that the use of peers to provide global ratings of residents' clinical performance appeared more feasible when seniors evaluated interns than when interns evaluated interns.

43. Turnbull J, MacFadyen J, van Barneveld C, Norman G. Clinical work sampling: a new approach to the problem of in-training evaluation. *J Gen Intern Med* 2000;15:556-61.

The authors report an improved approach to learner assessment that increased assessment opportunities and assessors, and recorded observed behavior only.

44. Wass V, Jones R, Van der Vleuten C. Standardized or real case to test clinical competence? The long case revisited. *Med Educ* 2001;35:321-5.

Based on the results of this study, the authors conclude that three and a half hours of testing time using at least 10 real patients could provide a reliable assessment of history-taking skills.

45. Wass V, McGibbon D, Van der Vleuten C. Composite undergraduate clinical examinations: how should the components be combined to maximize reliability? *Med Educ* 2001;35:326-30.

An approach to combining four clinical skills and knowledge assessments to improve overall reliability is described in this paper.

46. Wass V, Jolly B. Does observation add to the validity of the long case? *Med Educ* 2001;35:729-34.

This study suggests that direct observation of learners with real patients enhances the validity of assessments that rely on case presentation alone.