

FROM THE LITERATURE

## Abstracts of Recent Papers

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**Our compact with tomorrow's doctors.** Jordan J. Cohen  
*Academic Medicine*, 77, 475–480, 2002.

In recent years, the image of medicine as a caring profession has been badly tarnished by a rash of critical reports in the media. In the face of this negative publicity, do young people still want to be doctors? The author reviews conventional reasons given for the declining applicant pool (e.g., issues of declining income, loss of autonomy, etc.) and posits that an additional reason may be perceptions that doctors no longer command respect and that they are being oppressed by, rather than being guardians of, the health care system. Such views challenge academic medicine to broadcast to the world a realistic picture of the fabulous opportunities and gratifications that lie ahead for the next generation of physicians.

However, academic medicine must also address some current realities within medical education, such as the admission process (where at present there is a tendency to overemphasize indices of academic achievement and underemphasize the personal characteristics sought in applicants) and the acculturation process in medical school (which can often dehumanize students and convert idealistic ones into cynics).

The author acknowledges that these are tough challenges. He suggests as a first step that leaders of academic medicine prepare and disseminate an explicit statement of their commitments, a kind of compact between teachers and learners of medicine. He outlines these commitments, and states his hope that by fulfilling them, the academic medicine community can make clear that medicine—which at its core is still about the doctor–patient relationship—is a true calling, not just beleaguered occupation.

**Understanding social influence in medical education.** Michael Wilkes & Bertram H. Raven

**Academic Medicine**, 77, 481–488, 2002.

Many aspects of the medical education system lead trainees to a host of maladaptive reactions and behaviors, but far too little attention has been focused on the impact that interactions between teacher and learner can have on the development of professionalism. The authors discuss the concept of “social influence,” a change of attitude, belief, or behavior resulting from the actions of another person in the context of the medical education setting. Using the example of a medical student who has not adequately completed his inpatient medicine requirements, they identify ten strategies of social influence that a medical educator might invoke to change the student’s behavior and evaluate the benefits and drawbacks of these strategies. This overview can be used by faculty to explore new strategies of teaching and to reflect on their current teaching styles.

**Evaluating physicians’ professionalism and humanism: the case for humanism “connoisseurs”.** Donald A. Misch

**Academic Medicine**, 77, 489–495, 2002.

Physicians’ professionalism and humanism have become central foci of the efforts of medical educators as the public, various accrediting and licensing agencies, and the profession itself have expressed concerns about the apparent erosion of physicians’ competency in these aspects of the art, rather than the science, of medicine. Of the many obstacles to enhancing trainees’ skills in these domains, one of the most significant is the difficulty in assessing competency in physicians’ professionalism and humanism. The author suggests that the assessment of these aspects of the art of medicine has more in common with the approaches used in criticism of the arts than with the quantitative assessment tools appropriate to the scientific method and the medical model. Quantitative and semi-quantitative tools, so effective in elucidating the etiology, pathophysiology, and treatment of disease, are often inappropriate and invalid when applied to evaluation of professional and humanistic competencies. The author

proposes that humanism “connoisseurs” be employed to qualitatively evaluate medical trainees’ professionalism and humanism. Such connoisseurs would possess expert knowledge, training, and experience in the interpersonal aspects of the art of medicine, allowing them to deconstruct concepts such as empathy, compassion, integrity, and respect into their respective key elements while evaluating physicians’ behaviors as an integrated, cohesive whole. Through the use of a rich descriptive vocabulary, humanism connoisseurs would provide valid formative and summative feedback regarding competency in medical professionalism and humanism. In the process, they would serve to counteract the relative marginalization of professionalism and humanism in the informal and lived curricula of medical trainees.

**Assessing professional behavior: yesterday, today, and tomorrow.** Louise Arnold

**Academic Medicine**, 77, 502–515, 2002.

**Purpose:** The author interprets the state of the art of assessing professional behavior. She defines the concept of professionalism, reviews the psychometric properties of key approaches to assessing professionalism, conveys major findings that these approaches produced, and discusses recommendations to improve the assessment of professionalism.

**Method:** The author reviewed professionalism literature from the last 30 years that had been identified through database searches; included in conference proceedings, bibliographies, and reference lists; and suggested by experts. The cited literature largely came from peer-reviewed journals, represented themes or novel approaches, reported qualitative or quantitative data about measurement instruments, or described pragmatic or theoretical approaches to assessing professionalism.

**Results:** A circumscribed concept of professionalism is available to serve as a foundation for next steps in assessing professional behavior. The current array of assessment tools is rich. However, their measurement properties should be strengthened. Accordingly, future research should explore rigorous qualitative techniques; refine quantitative assessments of competence, for example, through OSCEs; and evaluate separate elements of professionalism. It should test the hypothesis that assessment tools will be better if they define professionalism as behaviors expressive of value conflicts, investigate the resolution of these conflicts, and recognize the contextual nature of professional behaviors. Whether measurement tools should be tailored to the stage of a medical career and how the environment can support or sabotage the assessment of professional behavior are central issues.

**Final thought:** Without solid assessment tools, questions about the efficacy of approaches to educating learners about professional behavior will not be effectively answered.

**The anatomy of the professional lapse: bridging the gap between traditional frameworks and students' perceptions.** Shiphra Ginsburg, Glenn Regehr, David Stern & Lorelei Lingard  
*Academic Medicine*, 77, 516–522, 2002.

**Purpose:** To support students' developing professionalism, it is necessary to understand the professional challenges and dilemmas they perceive in the clinical setting. This study systematically documented and catalogued students' reports of professional lapses.

**Method:** Six focus groups were conducted with senior medical students ( $n=29$ ) at three universities. Using a grounded-theory approach, three researchers analyzed the students' reports of specific lapses in professionalism for recurrent themes. The resulting coding structure was applied using NVivo qualitative data analysis software.

**Results:** A total of 120 pages of text yielded 48 specific incidents of professional lapses, which were analyzed by three researchers using grounded theory. Most incidents were witnessed ( $n=34$ ) or known about ( $n=4$ ), as opposed to self-reported ( $n=10$ ). Six critical "issues" emerged: communicative violations (to or about patients or other health care professionals); role resistance (individuals chafing against constraints or expectations of their perceived roles); objectification of patients (ignoring patients or treating patients as vehicles for learning); accountability (to colleagues or patients, including avoiding patients, failing to disclose information, or failing to treat appropriately); physical harm (to patients or others); and crossfire (being put in the middle of a struggle between superiors).

**Conclusions:** This study explored how students experienced and operationalized professionalism in clinical settings at a variety of universities. Interestingly, the critical issues they reported as salient did not map easily onto standard, abstract definitions of professionalism. This incongruence suggested that the development of effective curricula in this domain must bridge the gap between traditional taxonomies and students' perceptions of professionalism.

**A model of how students link problem-based learning with clinical experience through "elaboration".** Paul A. O'Neill, Sarah C. Willis & Alison Jones  
*Academic Medicine*, 77, 552–561, 2002.

**Purpose:** In 1994, the medical school at the University of Manchester introduced a new integrated course that uses problem-based learning (PBL) throughout the clinical clerkships as the major approach for delivery of the core curriculum. This study explored how students linked PBL and clinical experiences.

**Method:** All third- and fourth-year students were asked to respond to an open-ended question on the end-of-module course evaluation. Their responses were

analyzed and grouped into themes. The authors also conducted three focus groups of third-year students and a further three focus groups of fourth-year students to explore how students viewed the links between PBL and clinical experiences. The discussions were taped and subsequently analyzed by the researchers independently.

**Results:** The authors found that the students used clinical experience as a means of elaborating their knowledge either at the time of encountering an appropriate patient (outside the group) or by bringing their experiences back to the PBL group for discussion (inside the group). Major facilitators of elaboration were the match between the clinical clerkship and the content of the PBL case, the role of the tutor, and the self-directedness of the student. A theoretical model of how students linked PBL with their clinical experience was derived based on a cognitive psychological approach to learning.

**Conclusions:** The model will be of benefit as the authors try to improve the course for those students who were unable to use their clinical experiences to achieve the goals of their PBL discussions.

### **Reflections on the humanities in medical education.** Martyn Evans

**Medical Education**, 36, 508–513, 2002.

**Background:** In recognition of the views advanced by the philosopher Maurice Merleau-Ponty, this paper considers some of the implications for medical practice and, hence, medical education, of recognizing the human body as an “intertwining” of the natural (or physical) and the existential (or experiential)—something which is taken for granted in ordinary experience, but which becomes the medium through which disease can manifest itself in illness and disability. Our condition is the condition of creatures of frail flesh.

Perhaps because this “intertwining” is taken for granted, we tend to overlook the extent to which it is metaphysically astounding, even though it constitutes the daily arena and phenomena of clinical medicine. Clinical medicine is, among other things, the routine intervention in this intertwining. This fact is largely discounted by biomedical science, which concentrates on “the natural” at the expense of neglecting “the existential”. Such neglect arguably underlies the perceived deficiencies in medical education that the GMC sought to redress in its landmark document *Tomorrow’s Doctors*.

**Proposal:** If the humanities disciplines concern themselves with recording and interpreting human experiences, the “medical humanities” do so for the human experiences of illness, disability and medical intervention. This paper argues for an integrated conception of the medical humanities, and for their incorporation into the core medical curriculum. The paper concludes by outlining a proposed core module in medical humanities, based around a syllabus divided not into the characteristic enquiries of constituent disciplines, but rather into groups of topics relating to key philosophical questions prompted by the “intertwining” in embodied human nature.

**Empathy in medical students as related to academic performance, clinical competence and gender.** M. Hojat, J.S. Gonnell, S. Mangion, T.J. Nasc, J.J. Velosk, J.B. Erdmann, C.A. Callahan & M. Magee  
**Medical Education**, 36, 522–527, 2002.

**Context:** Empathy is a major component of a satisfactory doctor–patient relationship and the cultivation of empathy is a learning objective proposed by the Association of American Medical Colleges (AAMC) for all American medical schools. Therefore, it is important to address the measurement of empathy, its development and its correlates in medical schools.

**Objectives:** We designed this study to test two hypotheses: firstly, that medical students with higher empathy scores would obtain higher ratings of clinical competence in core clinical clerkships; and secondly, that women would obtain higher empathy scores than men.

**Materials and subjects:** A 20-item empathy scale developed by the authors (*Jefferson Scale of Physician Empathy*) was completed by 371 third-year medical students (198 men, 173 women).

**Methods:** Associations between empathy scores and ratings of clinical competence in six core clerkships, gender, and performance on objective examinations were studied by using *t*-test, analysis of variance, chi-square and correlation coefficients.

**Results:** Both research hypotheses were confirmed. Empathy scores were associated with ratings of clinical competence and gender, but not with performance in objective examinations such as the Medical College Admission Test (MCAT), and Steps 1 and 2 of the US Medical Licensing Examinations (USMLE).

**Conclusions:** Empathy scores are associated with ratings of clinical competence and gender. The operational measure of empathy used in this study provides opportunities to further examine educational and clinical correlates of empathy, as well as stability and changes in empathy at different stages of undergraduate and graduate medical education.

**The earlier, the better: the effect of early community contact on the attitudes of medical students to older people.** Tim J. Wilkinson, Suzanne Gower & Richard Sainsbury  
**Medical Education**, 36, 540–541, 2002.

**Background:** Early clinical contact for medical students is an important curricular innovation. We wished to determine if early contact with older people in the second year of a more vertically integrated medical undergraduate programme influenced attitudes to older people and if any effect was synergistic with the effect of an existing fourth year course.

**Subjects:** Second and fourth-year medical students.

**Methods:** We used a modified version of the Rosencranz–McNevin semantic differential on ageing to assess attitudes of medical students before and after a one-week early community contact week. Some second-year students were followed into fourth year and the effect on their attitudes of a health care of the elderly course was measured. We compared these data with attitude scores from an earlier cohort of students who had undertaken the fourth-year but not the second-year component.

**Results:** Contact with older people during second-year had a significantly favourable effect on attitudes to older people, especially for students who saw older people in the community rather than in rest homes. The attitudes towards older people of students who had undertaken a fourth-year clinical health care of the elderly attachment were significantly better on two of three subscales than those of fourth-year students who had not seen older people during their second year.

**Conclusion:** Contact with older people early in a medical student's training, and within a more vertically integrated programme, has a positive effect on attitudes to older people. This effect may be synergistic with contact later in training.

**Stress in doctors and dentists who teach.** Harry Rutter, Joe Herzberg & Elisabeth Paice

**Medical Education**, 36, 543–549, 2002.

**Objective:** To explore the relationship between a teaching role and stress in doctors and dentists who teach.

**Methods:** Medline, PubMed, BIDS database for social sciences literature, and the ERIC database for educational literature were searched using the key words 'stress' or 'burnout' with the terms doctor, physician, dentist, teacher, lecturer, academic staff, and university staff. Other books and journals known to the authors were also used.

**Results:** Many studies have shown high levels of stress in doctors, dentists, teachers, and lecturers. A large number of factors are implicated, including low autonomy, work overload, and lack of congruence between power and responsibility. Doctors and dentists who take on a teaching role in addition to their clinical role may increase their levels of stress, but there is also evidence that this dual role may reduce job-related stress.

**Conclusions:** Working as a doctor or dentist may entail higher levels of stress than are experienced by the general population. In some situations adding in the role of teacher reduces this stress, but more research is needed to explain this finding.

**Serious, frightening and interesting conditions: differences in values and attitudes between first-year and final-year medical students.** Annika Brorsson, Gunilla Hellquist, Cecilia Björkelund & Lennart Rastam  
**Medical Education**, 36, 555–560, 2002.

**Context and objective:** During medical education and training, the values and attitudes of medical students are shaped both by knowledge and by role models. In this study, the aim was to compare the views of first- and final-year students concerning patients with different medical conditions.

**Participants and method:** In the spring of 1998 all first- and final-year medical students at Göteborg and Lund Universities, Sweden, were invited to answer a questionnaire. A total of 20 medical conditions were to be rated on visual analogue scales, according to three aspects: their perceived seriousness, the student's own fear of them and interest in working with these conditions in the future.

**Results:** The overall response rate was 75%. Concerning seriousness, there was a high degree of concordance between the first- and final-year students. Concerning their own fear, the concordance was less pronounced. When the conditions were rated from the aspect of interest, for the final-year students, gastric or duodenal ulcer replaced infection with Ebola virus for the first-year students, among the five highest-ranked conditions. The correlations between seriousness and fear were lower among the final-year students, but this reached statistical significance only in a few cases.

**Discussion:** A reasonable interpretation of the results is that the values and attitudes of the students were influenced by increased knowledge, as well as by role models encountered during the clinical parts of the training. Conditions less likely to be contracted become less feared, and conditions with effective treatment become more interesting; and the converse was true for each of these changes.

**Evolution of student assessment in McMaster University's MD Programme.**  
John Cunningham  
**Medical Teacher**, 24, 254–260, 2002.

In response to the competitive examination culture that pervaded medical education in the 1940s and 1950s the founders of McMaster University's new MD Programme created an assessment system based on group functioning within the tutorial. While the tutorial has served the educational process well, 30 years of experience has highlighted its deficiencies as an assessment tool. This paper describes the accumulation of evidence that led to the awareness of the weakness of tutorial assessment and the attempts to provide reliable assessment by the reintroduction of examinations, but in novel formats which would not alter the goals of the curriculum.

**An international virtual medical school (IVIMEDS): the future for medical education?** R.M. Harden & I.R. Hart

**Medical Teacher**, 24, 261–267, 2002.

The introduction of new learning technologies, the exponential growth of Internet usage and the advent of the World Wide Web have the potential of changing the face of higher education. There are also demands in medical education for greater globalization, for the development of a common core curriculum, for improving access to training, for more flexible and student-centred training programmes including programmes with multi-professional elements and for maintaining quality while increasing student numbers and working within financial constraints. An international virtual medical school (IVIMEDS) with a high-quality education programme embodying a hybrid model of a blended curriculum of innovative e-learning approaches and the best of traditional face-to-face teaching is one response to these challenges. Fifty leading international medical schools and institutions are participating in a feasibility study. This is exploring: innovative thinking and approaches to the new learning technologies including e-learning and virtual reality; new approaches to curriculum planning and mapping and advanced instructional design based on the use of “reusable learning objects”; an international perspective on medical education which takes into account the trend to globalization; a flexible curriculum which meets the needs of different students and has the potential of increasing access to medicine.

**Pros and cons of vertical integration between clinical medicine and basic science within a problem-based undergraduate medical curriculum: examples and experiences from Linköping, Sweden.** L.O. Dahle, J. Brynhildsen, M. Behrbohm Fallsberg, I. Rundquist & M. Hammar

**Medical Teacher**, 24, 280–285, 2002.

Problem-based learning (PBL), combined with early patient contact, multi-professional education and emphasis on development of communications skills, has become the basis for the medical curriculum at the Faculty of Health Sciences in Linköping (FHS), Sweden, which was started in 1986. Important elements in the curriculum are vertical integration, i.e. integration between the clinical and basic science parts of the curriculum and horizontal integration between different subject areas. This article discusses the importance of vertical integration in an undergraduate medical curriculum, according to experiences from the Faculty of Health Sciences in Linköping, and also give examples on how it has been implemented during the latest 15 years. Results and views put forward in published articles concerning vertical integration within undergraduate medical education are discussed in relation

to the experiences in Linköping. Vertical integration between basic sciences and clinical medicine in a PBL setting has been found to stimulate profound rather than superficial learning, and thereby stimulates better understanding of important biomedical principles. Integration probably leads to better retention of knowledge and the ability to apply basic science principles in the appropriate clinical context. Integration throughout the whole curriculum entails a lot of time and work in respect of planning, organization and execution. The teachers have to be deeply involved and enthusiastic and have to cooperate over departmental borders, which may produce positive spin-off effects in teaching and research but also conflicts that have to be resolved. The authors believe vertical integration supports PBL and stimulates deep and lifelong learning.

**Attitudes among students and teachers on vertical integration between clinical medicine and basic science within a problem-based undergraduate medical curriculum.** J. Brynhildsen, L.O. Dahle, M. Behrbohm Fallsberg, I. Rundquist & M. Hammar

*Medical Teacher*, 24, 286–288, 2002.

Important elements in the curriculum at the Faculty of Health Sciences in Linköping are vertical integration, i.e. integration between the clinical and basic science sections of the curriculum, and horizontal integration between different subject areas. Integration throughout the whole curriculum is time-consuming for both teachers and students and hard work is required for planning, organization and execution. The aim was to assess the importance of vertical and horizontal integration in an undergraduate medical curriculum, according to opinions among students and teachers. In a questionnaire 102 faculty teachers and 106 students were asked about the importance of 14 different components of the undergraduate medical curriculum including vertical and horizontal integration. They were asked to assign between one and six points to each component (6 points=extremely important for the quality of the curriculum; 1 point=unimportant). Students as well as teachers appreciated highly both forms of integration. Students scored horizontal integration slightly but significantly higher than the teachers (median 6 vs 5 points;  $p=0.009$ , Mann–Whitney U-test), whereas teachers scored vertical integration higher than students (6 vs 5;  $p=0.019$ , Mann–Whitney U-test). Both students and teachers considered horizontal and vertical integration to be highly important components of the undergraduate medical programme. We believe both kinds of integration support problem-based learning and stimulate deep and lifelong learning and suggest that integration should always be considered deeply when a new curriculum is planned for undergraduate medical education.

**Adolescent standardized patients: method of selection and assessment of benefits & risks.** M. Hanson, R. Tiberius, B. Hodges, S. MacKay, N. McNaughton & G. Regehr  
**Teaching & Learning in Medicine**, 14, 104–113, 2002.

**Background:** Our Psychiatric OSCE group wishes to develop adolescent psychiatry OSCE stations. The literature regarding adolescent SP selection methods and simulation effects, however, offered limited assurance that such adolescents would not experience adverse simulation effects.

**Purpose:** Evaluation of adolescent SP selection methods and simulation effects for low and high stress roles.

**Method:** A two component (employment/psychological) SP selection method was used. Carefully selected SPs were assigned across 3 conditions: low stress medical role, high stress psychosocial role and waitlist control. Qualitative and quantitative measures were employed to assess simulation effects.

**Results:** Our selection method excluded 21% (7% employment/14% psychological) of SP applicants. For SP participants' beneficial effects included: acquisition of job skills, and satisfaction in making an important contribution to society. SP reactions of discomfort to roles were reported. Long-term adverse effects were not identified.

**Conclusions:** A two-component adolescent SP selection method is recommended. Adolescent SP benefits outweigh risks.

**Volunteer faculty: what rewards or incentives do they prefer?** A. Kumar, D.J. Kallen & T. Mathew  
**Teaching & Learning in Medicine**, 14, 119–123, 2002.

**Background:** Clerkship directors and college administrators have concerns about recruitment and retention of practicing physicians for volunteer teaching. There is a paucity of data regarding the rewards and incentives offered to, or desired by, the non-salaried community based practicing physicians who volunteer their time to teach.

**Purpose:** The present study was designed to provide this information about rewards and incentives from volunteer teachers in pediatric, family practice and internal medicine clerkships.

**Methods:** We surveyed non-salaried physician teachers of internal medicine, family medicine, and pediatrics across the United States. The survey focused on teachers' evaluation of the rewards/incentives offered by the programs in the following categories: educational opportunities, services or gifts, recognition bestowed by the school, academic appointments, and monetary payments. Respondents rated each item from (1) not appreciated to (5) very much appreciated. They were also asked to rank order the rewards/incentives (with

the addition of a category of personal satisfaction) from (1) least appreciated to (6) most appreciated.

**Results:** Educational opportunities received high ratings, especially when the school bore the cost of providing a service. Payment for teaching was offered to 37% of the respondents and those who were paid rated it higher. Overall, payment for teaching had a mean appreciation score of 3.94, second only to travel/meeting registration reimbursement (4.27). However, in the rank order listing, personal satisfaction had the highest rank (5.16). In contrast “payment for teaching” (2.92), and “gifts/services from college” (2.53) were at the bottom of the rank order.

**Conclusion:** The survey asked practicing physicians the value they placed on awards/incentives provided to them by the college. This information should be helpful to administrators and clerkship directors in recruiting and retaining community based practicing physicians for teaching.

**A qualitative assessment of 1st-year internal medicine residents’ perceptions of evidence-based clinical decision-making.** V.M. Montori, C.C. Tabini & J.O. Ebbert

*Teaching & Learning in Medicine*, 14, 114–118, 2002.

**Background:** The perceptions of residents about evidence-based clinical decision-making remain largely unexplored.

**Purpose:** To understand how residents perceive and use evidence-based medicine in clinical decision-making.

**Methods:** Qualitative study using a semistructured questionnaire and focus group in a postgraduate training program in internal medicine at an academic U.S. medical center. Seventeen first-year internal medicine residents in their first postgraduate year were interviewed. Six additional first-year residents formed a validation group.

**Results:** The interplay of time and expertise modified how physicians-in-training incorporate evidence into clinical decision-making. When time was available, the residents preferred to answer their questions by searching and critically appraising the literature. This “self-acquired” expertise empowered them to help patients by using participatory decision-making styles. When time was limited, the residents turned to experts. Residents assumed that experts practiced evidence-based medicine. This “borrowed” expertise was thought to be the most efficient way of integrating evidence and clinical expertise, but it led to the use of a parental style when answers were taken back to the bedside.

**Conclusion:** The practice of evidence-based medicine empowers first-year residents and appears to affect their choice of decision-making style. Further research is needed to understand better the link between decision-making style and evidence-based medicine.

**Evaluations of clinical faculty: the impact of level of learner and time of year.**

J.A. Shea & L.M. Bellini

**Teaching & Learning in Medicine**, 14, 87–91, 2002.

**Background:** Given the importance of faculty evaluation data for faculty development, promotion, reappointment and remuneration, the quantity and characteristics of evaluation data need study.

**Purposes:** To examine differences in evaluation ratings according to level of learner (student vs. resident) and time of year.

**Methods:** Retrospective analyses of 1281 faculty evaluations provided for 132 faculty over a 12-month period by students and residents on inpatient medicine rotations.

**Results:** Faculty had an average of 8 evaluations over a year. Students gave more favorable ratings than residents. Over the year, students became less critical and residents became more critical. Teaching award winners had better evaluations than other faculty. Standard errors around mean ratings for an individual faculty member approximate .25 on a 4-point scale.

**Conclusions:** The profile and precision of assessments for an individual will vary based on the number, timing, and source of ratings. Decisions based on similar data should be made with caution.

**Faculty views of reimbursement changes and clinical training: a survey of award winning clinical teachers.**

J.O. Woolliscroft, R. Van Harrison & M. Brownell  
Anderson

**Teaching & Learning in Medicine**, 14, 177–186, 2002.

**Background:** Prominent authorities believe that managed care and governmental policies are compromising the clinical education of future physicians.

**Purpose:** This study sought the views of clinical teachers to quantify the extent to which managed care and governmental policies have changed clinical education.

**Methods:** Questionnaires were mailed to faculty that U.S. medical schools had recognized for clinical teaching excellence. Measures included reports of change in quality of clinical teaching due to payment regulations, to LCME and RRC requirements, and to institutional support for teaching; change in numbers of students/trainees in clinics; need to generate more clinical revenue; and change in enjoyment of teaching. Other measures about clinical teaching included faculty attitudes, institutional rewards, and teaching different levels of students. Characteristics of the respondents were also measured.

**Results:** Faculty report that payment regulations have negatively affected clinical teaching and that faculty need to generate more clinical revenue. Institutions tend to provide a supportive teaching environment, but do not reward teaching financially. Intrinsic incentives for teaching increase as the

level of student increases. Faculty reports do not differ by medical specialty or other faculty characteristics. Differences among medical schools occurred on all measures.

**Conclusions:** Clinical education is being negatively affected, but not yet critically. Continued clinical financial pressures on faculty will affect all levels of clinical education, particularly for medical students. Differences among institutions indicate that individual schools can moderate or exacerbate the impact of external forces on the teaching faculty. Medical schools should monitor increasing pressures on faculty and assure that goals, processes, support, and rewards for clinical teaching are proportionate to those for clinical care.