

Cheating in Medical School: The Unacknowledged Ailment

Anita V. Kusnoor, MD, and Ruth Falik, MD

Abstract: The reported prevalence of cheating among US medical students ranges from 0% to 58%. Cheating behaviors include copying from others, using unauthorized notes, sharing information about observed structured clinical encounters, and dishonesty about performing physical examinations on patients. Correlates of cheating in medical school include prior cheating behavior, burnout, and inadequate understanding about what constitutes cheating. Institutional responses include expulsion, reprimands, counseling, and peer review. Preventing cheating requires establishing standards for acceptable behavior, focusing on learning rather than assessment, involving medical students in peer review, and creating a culture of academic integrity. Cheating in medical school may have serious long-term consequences for future physicians. Institutions should develop environments that promote integrity.

Key Words: cheating, medical school, medical student, professionalism

Cheating likely has plagued medical schools since their inception. Medical students and faculty agree that cheating is unethical¹ and may have ramifications beyond graduation. Cheating in medical school has the potential to produce incompetent physicians who then treat patients.² More broadly, unprofessional behavior in medical school also predicts disciplinary action by state medical boards.³ This review examines the prevalence of cheating, its causes, and its associations. It explores the variety of institutional responses and offers suggestions for prevention.

Epidemiology

Most of the information on the prevalence of cheating in medical students is derived from survey data. In the first of these studies, Sierles et al surveyed 448 first- through fourth-year medical students at two US medical schools.⁴ They defined

cheating as copying from another student or from unauthorized notes during an examination, previewing the examination illicitly, submitting someone else's work as one's own, plagiarizing, falsifying experimental data, and asking another student for answers to an examination that one student had taken but the other had not.⁴ Cheating during the clinical years was defined as falsifying history or physical or laboratory data, and reporting a physical finding as normal when it was not examined. The response rate was 95%. Of the surveyed students, 87.6% cheated at least once in college and 58.2% cheated at least once in medical school.⁴

Using Sierles and colleagues' definition of cheating,⁴ Dans⁵ surveyed medical students at Johns Hopkins University School of Medicine upon entering and leaving medical school. In total, 358 surveys were administered, with a response rate of 87%. The entry survey revealed that 19% to 22% of students admitted to cheating in college. Approximately the same proportion of students, 23%, admitted on the graduation survey to cheating in medical school. The most common cheating mechanisms were copying from another student or using unauthorized notes during an examination. Of the students surveyed, 13% to 24% reported cheating during activities related directly to patient care.⁵

The response rate of Baldwin and colleagues'⁶ 1996 survey of 3975 second-year medical students in 31 US medical schools was 62%. Definitions of cheating in this study included copying answers (from a student or notes), trading examination answers, illicitly previewing an examination, submitting someone else's work, asking another student for answers to an examination that one student had taken but the other had not, taking an examination for another student, altering grades in the record,

From the Department of Medicine, Baylor College of Medicine, Houston, Texas.

Reprint requests to Dr Anita V. Kusnoor, Assistant Professor of Medicine, Baylor College of Medicine, One Baylor Plaza, MS: BCM 285, Houston, TX 77030. E-mail: avk1@bcm.edu

The authors have no financial relationships to disclose and no conflicts of interest to report.

Accepted February 13, 2013.

Copyright © 2013 by The Southern Medical Association

0038-4348/0-2000/106-479

DOI: 10.1097/SMJ.0b013e3182a14388

Key Points

- The reported prevalence of cheating among medical students is widely variable, ranging from 0% to 58%.
- Individual factors such as pressure to succeed and inadequate understanding of what constitutes cheating may drive pre-clinical students to cheat, and the "hidden curriculum" may encourage dishonest behaviors among clinical students.
- The prevention of cheating requires a multifaceted approach that addresses drivers of cheating behaviors and creates a culture of integrity in medical schools.

and moving labels or altering slides in an examination. The cheating definition in this survey did not include unethical behavior during clinical encounters. The most common forms of cheating were copying answers during an examination and obtaining information about a test in advance. The study found that although 39% of students had observed one episode of cheating and 65% of students had heard about a cheating episode, only 4.7% of students admitted to cheating during medical school. When analyzed by school, the prevalence of students admitting to cheating ranged from 0% to 12%.⁶

In 2001, Rennie and Crosby⁷ surveyed first- through fourth-year medical students at Dundee University Medical School (Scotland) using 14 scenarios involving a hypothetical student. Of the 676 surveys administered, 68% were completed. One-third of students reported that they had engaged in or would consider engaging in one of the following: discussing an objective structured clinical examination, documenting “nervous system examination normal” when it had not been examined, allowing others to look at their work, and copying directly from published material without using quotations.⁷

Dyrbye et al⁸ surveyed 4400 first- through fourth-year medical students from seven US medical schools. Their survey had a response rate of 61% and found that 27.4% of students had engaged in cheating or dishonest behavior. These behaviors were defined as signing in for a friend who was absent, copying answers during an examination (from another student or from notes), allowing others to copy their work, and taking credit for another student’s work. Unethical behaviors during the clinical years included reporting a test as pending when it had not been ordered, reporting an examination as normal when it was omitted, and falsely reporting that a test had been ordered. The most common behavior was reporting a physical examination component as normal when it was not examined, followed by signing in for someone who was not present and reporting a test as pending when it was not ordered.⁸ (See the Table for a summary of cheating prevalence.)

Stimmel and Yens surveyed 114 medical school deans in the United States and Canada to assess the prevalence of cheating.⁹ With a response rate of 93%, the survey found that 70% of US medical schools reported cheating and 30% of schools had no records of cheating allegations during the previous 4 years. Conversely, only 35% of Canadian medical schools reported cheating allegations during the previous 4 years.⁹ Most of the episodes involved intramural examinations. Sixteen percent involved cheating on national board examinations. Of these allegations, 81.7% were accompanied by “confirmed statistical evidence.”⁹

Discrepant data regarding the prevalence of cheating most likely reflect the wide range of definitions, monitoring, and reporting. The definition of cheating in these surveys varies from copying test answers to inappropriately documenting physical examination findings and this variability contributes to differences in estimates of prevalence. Response bias, a flaw inherent to survey design, may result in underreporting of

cheating behaviors among medical students. The study population also can affect prevalence estimates. Medical students likely have greater awareness of cheating episodes, whereas medical school deans may be aware of only the most serious offenses.

From a broader perspective, cheating is not unique to medical schools. In a multicampus survey, 78% of first-year medical students admitted to cheating before entering medical school.¹⁰ A 1964 study of 99 colleges and universities found that 75% of college students had cheated and similar findings have been replicated in subsequent studies.¹¹ A 2001 study of 246 students in masters degree, law, medical, and doctorate programs found that 28.7% of the students answered affirmatively to the question, “Have you cheated in graduate school?” When specific dishonest behaviors were itemized, medical students demonstrated the lowest rate of cheating: 66.7% endorsed one dishonest behavior compared with 90.6% of students in terminal masters programs. This study was limited by a response rate of only 8.9% (2752 surveys were distributed).¹²

Risk Factors

Much of the above survey data have been used to establish correlations between cheating behavior and other variables. Individual factors for cheating behaviors include having a low grade point average and personality characteristics such as being “less self-sufficient, more neurotic, more extroverted, and overambitious.”¹ The pressure to succeed can induce both undergraduates and medical students to cheat.^{5,12} Higher rates of cheating among transfer students was not well explained by Sierles et al. They found this increased rate to be independent of age, sex, year in school, or marital status. They also found a trend toward higher rates of cheating in college among transfer students, but it was not statistically significant.⁴ Using multiple regression analysis, Sierles et al found that holding a cynical attitude toward cheating and having a history of cheating in college correlated with increased cheating behaviors.⁴ Baldwin et al similarly found that the best predictor of cheating in medical school was past cheating⁶; however, studies at the college level found that peer behavior had the strongest influence on cheating among students.¹¹

Perhaps the best-studied individual contributor to cheating and dishonest behavior in medical school is burnout. Burnout has been defined as “a complex, continuous and heterogeneous construct that manifests itself differently in different individuals. Emotional exhaustion, depersonalization, and inefficacy are symptoms of the syndrome.”¹³ Students with burnout are significantly more likely to engage in cheating behaviors. Furthermore, compared with depression and decreased quality of life, only burnout was independently associated with cheating or dishonest clinical behaviors in multivariate analysis.⁸

The “hidden curriculum,” defined in the 1970s as the “tacit ways in which knowledge and behavior get constructed, outside the usual course materials and formally scheduled lessons,”¹⁴ may play a role in fostering dishonest behavior during the clinical years. Dishonesty during the third and fourth years may stem from a desire to be a team player.¹⁵ Residents

Table. Cheating definitions and prevalence in medical school

Author, y	Response rate	Subjects	Definition	Prevalence
Sierles et al, 1980	428/448 (95%)	1st- to 4th-y medical students at 2 US schools	Copying answers during an examination (from a student or notes) Unauthorized previewing of an examination Submitting someone else's work Plagiarizing Falsifying experimental data Asking a student for answers to an examination that one student had taken but the other had not Falsifying history, physical, or laboratory data Reporting physical examination as normal when it was omitted	87.6% cheated at least once in college 58.2% cheated at least once in medical school
Dans, 1996	349/358 (97%)	1st- and 4th-y students in 1 school	Same as above	19%–22% admitted to cheating in college 23% admitted to cheating in medical school
Baldwin et al, 1996	2459/3975 (62%)	2nd-y students in 31 US schools	Copying answers (from a student or notes) or trading examination answers Unauthorized previewing of an examination Submitting someone else's work Asking a student for answers to an examination that one student had taken but the other had not Taking an examination for another student Altering grades in the record Altering slides or labels in an examination	39% had observed 1 episode of cheating 65% had heard about 1 episode of cheating 4.7% admitted to cheating in medical school
Rennie and Crosby, 2001	461/676 (68%)	1st- to 4th-y students in 1 UK school	Copying answers or allowing others to see/copy Talking to a student about an observed structured clinical encounter Forging a doctor's signature Plagiarizing Doing assignment for another student Reporting a physical examination as normal when it was omitted Submitting the same work to multiple courses	≥30% of students had done or would consider talking to a student about an observed structured clinical encounter, falsely documenting a normal physical examination, plagiarizing, and/or allowing others to see their work
Dyrbye et al, 2010	2682/4400 (61%)	All students at 7 US medical schools in 2009	Signing in for a friend who was absent Copying answers during an examination (from a student or notes) Allowing another student to copy your work Taking credit for someone else's work Reporting a test as pending when it had not been ordered Reporting a physical examination as normal when it was omitted Falsely reporting that a test was ordered	27.4% at least 1 unprofessional behavior 43.3% reported an examination finding as normal when it was not done 9.4% signed in for someone who was not present

also may encourage dishonest behaviors such as writing notes about patients not seen personally by the student.^{5,16} Clinical students also are motivated by a desire to fit in and fear of a bad evaluation. They believe that they are under constant pressure to appear knowledgeable.¹⁶

Diagnosis

Most information about cheating relies on reports from students, faculty, and other personnel involved in administering examinations.⁶ Stimmel and Yens' survey of medical school deans found that faculty reported 43% of cheating cases, students 41%, and test proctors 12%.⁹ In addition to subjective reporting, computer programs can be used to identify potential cheaters. In their survey, Stimmel and Yens reported that 8.5% of institutions used such programs to detect cheating on multiple choice examinations; however, these schools did not have lower rates of cheating than those that did not use computer programs.⁹ The computer program Acinonyx (developed by University College London professor Chris McManus) was used to identify answer sheets that were suspiciously similar on a nationally administered examination in the United Kingdom. Seating charts were used to verify whether cheating was possible, and in a review of 11 examinations taken by more than 11,000 candidates, 13 anomalous pairs were identified as potentially compatible with cheating. The seating chart was available for six of these pairs, and in all of the cases the two candidates had been seated next to each other. Computerized analysis can be used to raise the suspicion of cheating, but it requires confirmation by other methods.²

Treatment: Institutional Responses

Medical schools have used a variety of responses for addressing students who cheat, including expulsion, reprimands, counseling, and peer review.¹⁷ One survey of faculty and students at a US medical school found that most faculty members (70.5%) favor an official hearing, with action based on the specifics of the situation.¹ In the same study, 12.4% opted for expulsion, 10.9% counseling, 5.2% suspension, and 1% official reprimand.¹ Faculty and administration may be reluctant to pursue expulsion because of fear of litigation, during which students may use the court system to regain entrance to medical school.¹⁷ A survey of second-year medical students found that they were equally divided on whether cheating students should be expelled.⁶

Stimmel and Yens's survey of medical school deans contains a complete analysis of investigation into cheating allegations.⁹ Accused students were permitted an attorney in 41.5% of schools. They were denied an attorney in 24.5%, and in 18.9% of schools, the attorney could be present but not participate. School counsels were involved in the hearing in 29.2% of schools. Statistical evidence "confirmed" 81.7% of allegations. The outcomes were as follows: charges dismissed 29.7%, reprimand 22.9%, suspension 14.9%, expulsion 16.2%, and various other censures 16.2%. Only 2.9% of cases resulted in litigation.⁹

Prevention

Because students are driven to dishonest behaviors for a variety of reasons, the prevention of these unethical behaviors requires multiple strategies. Many schools have moved to a pass/fail grading system to remove some of the pressures that incentivize cheating because this system has been associated with lower levels of stress and burnout among medical students.¹⁸ Whether tests are scored by a normative or criterion-based method also may influence students' perceptions of the need to cheat.⁹

Although the paucity of data limits definitive conclusions about the best approach to prevent cheating in medical school, some actions are worthy of consideration. Schools must provide students with formal definitions of academic misconduct and the surrounding institutional policies and procedures.¹⁷ For example, course directors should specify whether the use of old examinations as study guides is permissible and, if so, whether they should be equally accessible to all students.⁵ Attempts also should be made to standardize the testing process within a school.¹⁷ It has been argued that medical students should be taught moral principles in medical school and students and faculty should discuss the ethical foundations and core values of medicine.¹ Ethics courses should discuss ethical dilemmas faced by students, at levels in accordance with their stage of training,^{17,19} and students need a clear understanding of what constitutes moral behavior.⁶

Burnout among students, residents, and faculty should be addressed by focusing on their well-being and by adding faculty development that addresses inappropriate behaviors, including "disrespect, hostility and rudeness."¹⁶ As individuals, faculty members should work to become models of supportive, compassionate, thoughtful, and moral physicians.¹

Evidence regarding the utility of honor codes is mixed, and Stimmel and Yens found that cheating allegations were not significantly different among schools with and without an honor system.⁹ Another study found less cheating (3.8% of students) in schools with honor codes than in those without (7.7% of students) and concluded that honor codes do not prevent cheating but may have a small effect on cheating behaviors.⁶ Honor codes do not work well if students do not internalize their values and if the codes do not specify what students should do if they witness cheating.¹ Thus, the success of an honor code depends on defining the consequences of unethical behaviors, communicating expectations with students, and most important, establishing a culture of integrity.¹¹

Establishing a culture of integrity starts at the institutional level and can filter down to the individual members of the institution. The institution should model ethical behavior in all of its business and dealings.²⁰ The focus of medical school should be on the process of learning rather than on assessment.⁷ Through the process of culture change within an institution, the hidden curriculum is slowly changed as well. It is not an easy feat and is slow and reiterative. The most commonly described model for establishing culture change in academic medical centers involves Kotter's eight steps: "establishing

a sense of urgency, forming a powerful guiding coalition, creating a vision, communicating the vision, empowering others to act on the vision, planning for and creating short-term wins, consolidating improvements and producing still more change, institutionalizing new approaches.”²¹ This model has been used to promote diversity,²² redefine scholarship,²³ and encourage primary care.²⁴

Once a culture of integrity has been embraced at the institutional level, it can be instilled in individual students, faculty, and administrators. Students are expected to avoid dishonesty and should be taught the principles of peer review, which is critical to the profession, for both practicing physicians and medical students. Students should be educated about how to proceed when they observe cheating.⁶ Often, students who directly witness cheating are willing to report others to school administration but are unwilling to discuss these behaviors with the cheating classmate(s).^{25,26} Medical school faculty and administration must educate students about this responsibility and provide appropriate mechanisms to fulfill it.

Faculty also should be encouraged to report episodes of dishonest behavior so that consequences can be standardized.^{5,20} Standardized reporting would be particularly helpful in the creation of each student’s Medical School Performance Evaluation (MSPE; formerly, the dean’s letter). The MSPE provides a summary of the student’s performance and ideally provides specific mention of professionalism and any adverse action taken against the student.²⁷ The vast majority of MSPEs have been found to fail in this endeavor.²⁸ The failure of the MSPE to provide critical information regarding infractions derives most likely from variability in the reporting of infractions and the consequences of these infractions. Interinstitutional variability will persist until clearly delineated, mandatory reporting of adverse behaviors exists. Although these measures flow logically in response to some of the correlates of cheating behaviors, further study is required to prove their efficacy.

Summary

The reported prevalence of cheating in medical school is highly variable as the result of differences in the definition of cheating and flaws inherent in survey design. Both individual risk factors such as burnout and institutional features such as the values embedded in the hidden curriculum can promote cheating and dishonest behaviors. Reducing rates of cheating among medical students requires promoting a culture of academic integrity at the institutional level, which includes preventing burnout, focusing on learning, integrating ethics throughout the curriculum, teaching peer review, and providing faculty development.

References

- Anderson RE, Obenshain SS. Cheating by students: findings, reflections, and remedies. *Acad Med* 1994;69:323–332.
- McManus IC, Lissauer T, Williams SE. Detecting cheating in written medical examinations by statistical analysis of similarity of answers: pilot study. *BMJ* 2005;330:1064–1066.
- Papadakis MA, Teherani A, Banach MA, et al. Disciplinary action by medical boards and prior behavior in medical school. *N Engl J Med* 2005;353:2673–2682.
- Sierles F, Hendrickx I, Circle S. Cheating in medical school. *J Med Educ* 1980;55:124–125.
- Dans PE. Self-reported cheating by students at one medical school. *Acad Med* 1996;71:S70–S72.
- Baldwin DC Jr, Daugherty SR, Rowley BD, et al. Cheating in medical school: a survey of second-year students at 31 schools. *Acad Med* 1996;71:267–273.
- Rennie SC, Crosby JR. Are “tomorrow’s doctors” honest? Questionnaire study exploring medical students’ attitudes and reported behaviour on academic misconduct. *BMJ* 2001;322:274–275.
- Dyrbye LN, Massie FS Jr, Eacker A, et al. Relationship between burnout and professional conduct and attitudes among US medical students. *JAMA* 2010;304:1173–1180.
- Stimmel B, Yens D. Cheating by medical students on examinations. *Am J Med* 1982;73:160–164.
- Kukulji Taradi S, Taradi M, Knežević T, et al. Students come to medical schools prepared to cheat: a multi-campus investigation. *J Med Ethics* 2010;36:666–670.
- McCabe DL, Treviño LK, Butterfield KD. Cheating in academic institutions: a decade of research. *Ethics Behav* 2001;11:219–232.
- Wajda-Johnston VA, Handal PJ, Brawer PA, et al. Academic dishonesty at the graduate level. *Ethics Behav* 2001;11:287–305.
- Dyrbye LN, West CP, Shanafelt TD. Defining burnout as a dichotomous variable. *J Gen Intern Med* 2009;24:440.
- Wear D. On white coats and professional development: the formal and the hidden curricula. *Ann Intern Med* 1998;129:734–737.
- Christakis DA, Feudtner C. Ethics in a short white coat: the ethical dilemmas that medical students confront. *Acad Med* 1993;68:249–254.
- Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clin Proc* 2005;80:1613–1622.
- Wagner RF Jr. Medical student academic misconduct: implications of recent case law and possible institutional responses. *Acad Med* 1993;68:887–889.
- Reed DA, Shanafelt TD, Satele DW, et al. Relationship of pass/fail grading and curriculum structure with well-being among preclinical medical students: a multi-institutional study. *Acad Med* 2011;86:1367–1373.
- Vargo DJ. How can we deter cheating in medical school? *JAMA* 1991;266:2456.
- Whitley BE Jr, Keith-Spiegel P. Academic integrity as an institutional issue. *Ethics Behav* 2001;11:325–342.
- Kotter JP. Leading change: why transformation efforts fail. *Harv Bus Rev* 1995;73:59–67.
- Price EG, Powe NR, Kern DE, et al. Improving the diversity climate in academic medicine: faculty perceptions as a catalyst for institutional change. *Acad Med* 2009;84:95–105.
- Harris DL, DaRosa DA, Liu PL, et al. Facilitating academic institutional change: redefining scholarship. *Fam Med* 2003;35:187–194.
- Brooks WB, Orgren R, Wallace AG. Institutional change: embracing the initiative to train more generalists. *Acad Med* 1999;74:S3–S8.
- Jennings JC. Responsibility for integrity lies first with students. *JAMA* 1991;266:2452–2458.
- Catanese V, Aronson P. A case of student cheating. <http://virtualmentor.ama-assn.org/2005/04/pdf/ccas1-0504.pdf>. Published April 2005. Accessed February 8, 2011.
- Association of American Medical Colleges. A guide to the preparation of the Medical School Performance Evaluation. <https://www.aamc.org/download/139542/data/mspe.pdf>. Published 2002. Accessed February 8, 2011.
- Shea JA, O’Grady E, Morrison G, et al. Medical Student Performance Evaluations in 2005: an improvement over the former dean’s letter? *Acad Med* 2008;83:284–291.