Cracking the Code on the "Hidden Curriculum" in the Medical Education Pipeline and its Contribution to Attrition.

Daniel Williams, MD.

Journal of Unschooling and Alternative Education 2014.

ABSTRACT

Physicians withstand one of the longest and most complicated educational processes in existence. There are a multitude of personal and professional developmental steps along the way that contribute to physician burnout and career dissatisfaction. This article is the first attempt of its kind to conceptualize these various influences into a series of five phases that each physician-in-training experiences, beginning before medical school even starts. The five phases are: 1. The Pre-Med Syndrome, 2. Adaptation, 3. Assimilation, 4. The Let Down, and 5. Reemerging Priorities. Three of the five phases described here can negatively influence the physician's psychological well-being, while two of the phases are quite positive and encouraging. The phases don't necessarily have to occur in sequential order and may be repeated cyclically within each of the formal academic steps (i.e., undergraduate, basic science years of medical school, and the clinical science years). Hopefully, this perspective paper will contribute further to the active discussion of how to make medical education more effective and palatable.

KEYWORDS

Premed syndrome, medical school attrition, physician satisfaction, workforce, malignant residency programs

INTRODUCTION

Physicians undergo a massive transformation during their training to become healers. Unfortunately, job dissatisfaction and regret are all too common after the long, arduous process of becoming a physician.[1-3] Discussions of physician burnout and job dissatisfaction have historically focused on workplace pressures, the impact of managed care, and increased governmental oversight, but fail to capture the perspective of the physician prior to facing these pressures.[4-6] Most of these stressors occur after residency training and do not take into account the cumulative psychological effects of the medical education pipeline on individual physicians.[7] Furthermore, proposed solutions to increase satisfaction frequently focus on extrinsic factors, such as institutional policies, evaluation activities, resource-allocation decisions, and institutional "slang."[8] The result of this convoluted process is a set of messages that students receive about medical education and healthcare that are not necessarily intended for the classroom – collectively referred to as the hidden curriculum in this paper.

A series of influences that occur at every step in the premedical and medical training process may contribute to a final common pathway observed as mid-career burnout and job dissatisfaction. Identifying and addressing career expectations, personality-changing events in the educational process, and lifestyle stressors earlier in the pipeline may help prevent and reduce mid-career burnout and job dissatisfaction.[9] Five essential phases that all physicians experience during the course of their medical education are presented. These phases do not necessarily occur in chronological order, can recur at different stages of training (medical school, residency, etc.), and are experienced by individual students with varying intensity. Most students adapt to the

educational environment by learning to respect the system outwardly while monitoring their internal struggles. This self-monitoring in the face of such stress results in a self-determination that forms the framework for professionalism as they develop. The intent of this paper is to identify the core tenants of the hidden curriculum and suggest specific times in students' educational careers that medical schools and residency programs may offer help.

Phase 1: The Pre-Med Syndrome

Young medical students frequently share similar goals and ambitions. The most commonly described traits shared by premedical students are altruism, competitiveness, motivation, strong work ethic, prestige-seeking behavior and goal orientation.[10-12] Early in their premedical experiences, however, they begin to learn the extent of imperfections in the medical education system.

A number of frustrations face these bright, enthusiastic students before medical school even begins. The most historically trusted sources of information utterly fail the premedical student as they endeavor to learn more about their upcoming medical education.

First, institutions of higher learning remain overly focused on grade point average, despite the association between higher undergraduate grade point averages and mere surface learning in the first year of medical school.[13]

Second, the overemphasis of rote memorization by a preponderance of undergraduate premedical professors, the so-called "MCAT Myth," has been disproved

by the mathematical application of Bloom's Taxonomy.[14] Rather, the emphasis needs to be on the interrelatedness of scientific concepts, critical thinking, and higher order learning techniques. It is unclear if the students are getting this message.

Third, "the annual '*U.S. News & World Report'* ranking of U.S. medical schools is ill-conceived, unscientific, poorly conducted, ignores the value of school accreditation, judges medical school quality from a narrow, elitist perspective, does not consider social and professional outcomes in program quality calculations, and fails to meet basic standards of journalistic ethics."[15]

The challenges faced by these future physicians can be categorized as follows:

1. **Academic Preparation.** Realizing that their undergraduate premedical and Medical College Assessment Test (MCAT) preparation may not actually predict how competent they will be as physicians can be disheartening.[14,16-17]
2. **Premedical Advising.** Many students encounter bad advice from premedical advisers, though wonderful guidance has been published for decades.[18,19] Many students have no premedical academic adviser at all.[20]
3. **Admissions Criteria.** The transition period of medical schools' changing admissions criteria and interview processes can leave the premedical student confused about what is important in their preparation. The paradigm is shifting in premedical curriculum, which seeks to broaden one's humanities background and foster empathetic relationships, but it is taking a surprisingly long time.[21-23]
4. **Selection Bias.** Learning that affirmative action exists without understanding the need for diversity can be a shock, especially when struggling applicants see minorities gain acceptance with lower test scores.[24-27]

These system-level messages contradict students' altruistic nature and may begin to substantially change their attitude and priorities from the premedical stereotype—before medical school even starts. This helps to explain why the majority of students matriculating into medical school already have a well-established ethical framework that is difficult to mold.[28]

Phase 2: Adaptation – Acquiring An Effective Mindset

The volume of information in medical school is overwhelming, especially in the first year before students learn to manage higher order learning strategies. Not everyone adapts, however, and this may explain why the largest attrition rates (up to 12.6%) occur during the first half of medical school.[39-32] More research is needed to elucidate study techniques that may prepare first-year medical students in advance.

The emotional impact of learning life-saving information that is so extensive to memorize affects everyone differently. There is too much information given in medical school for total recall, yet every detail might one day help someone. Students are forced to move on to other information despite imperfect memorization, even if it means a patient might someday die because of their lack of knowledge. For the first time in their medical education, idealistic altruism is challenged and the student realizes the necessity of compromise. This dilemma results in an increased emphasis on self-interest and, hopefully, a more realistic view of the value of their best effort being good enough albeit imperfect. Further adding to this "shock stage" of maturation is one's own internalization

of ethical dilemmas and personal inadequacies, which surface under such pressure and bring out mood disorders in vulnerable students.[33]

The literature does provide specific insights into dilemmas faced by certain subpopulations of medical students as they traverse the medical education pipeline. For example, gays, lesbians, students with learning disabilities and those with physical handicaps have been shown to have trouble adapting to condescending messages that pervade the "hidden curriculum."[34-36] These insights point to the fact that social isolation can come from training in an imperfect medical education system. Perhaps, unelucidated dilemmas faced by a majority of medical students force some of them to drop out every year. Sadly, the literature is weak in this area and more research needs to be done to increase medical student retention.[9,30-31,37]

Phase 3: Assimilation – Getting Used To It

Despite the various sources of stress, the process of medical education becomes strangely routine.[38] Though students may have lingering feelings that their lifestyle is unhealthy, they make mental bribes to keep going or use an assortment of coping skills to continue on their quest for medical education.[33]

Eustress, distress, fatigue, burnout, and mood disorders can be viewed as a continuum, not always as clearly segregated entities. Stress management training and prevention programs have been described with some success, but licensing authorities and a new era of accountability effectively discourage physicians from seeking help.[39-42] It is a "sink or swim" mentality for most students, unless they are in a health-friendly

training environment.[43,44] Extensive obstacles must be overcome before the average hospital training site is converted into a model for wellness.[42,45]

Phase 4: The Let-Down—Disappointment With The Health Care System, Colleagues, And Themselves

Although disappointment is not unique to the field of medicine, the ultra-idealistic nature of premedical students may predispose physicians-in-training to a heightened sense of disillusionment.[10,12,46] For example, physicians-in-training may reasonably expect their colleagues to perform their duties with integrity; however, this is frequently not the case.[18,36,47-49]

One category of causes for disappointment is regularly witnessed during residency training. According to the Accreditation Council for Graduate Medical Education (ACGME), 95.5 % of residents remained in their training during the 2006-2007 academic years. While less than 1% (296 residents) of residents get "dismissed" annually, an additional 3,096 (8.5%) residents voluntarily choose to withdraw or transfer out of their programs.[50] Further complicating the training landscape is the fact that some residency programs repeatedly fire one or more of their residents every year. Because hostility, unethical conduct, and poor role modeling lack an organized or centralized grievance board, it is difficult to ascertain complete explanations for these statistics.[45,49]

Arguably, the biggest impact on morale among residents is the fact that there is no recourse for the resident. The ACGME policy is to not get involved in disputes between residents and residency programs, except for issues directly involving noncompliance with their duty hour restrictions and training requirements.[51] Fortunately, some hospitals

have house officer committees that may help defend mistreated residents, but their impact on attrition is unclear. The impact of losing one's career after such an arduous and lengthy pipeline is stressful. To add insult to injury, the peer-reviewed literature refers to them as "problem residents." Again, the majority of these individuals were, at one time, altruistic and enthusiastic physicians-in-training.[52]

The 'Let-Down' phase of disappointment extends beyond the walls of one's institution to the global health care system. Bureaucracy and corporate pressures too frequently become the bane of daily existence.[39,53] Physician shortages, medically underserved populations, looming health care reform and pay-for-performance changes have made the practice of medicine very different from when most physicians began their careers.[54]

In the midst of the uncertainty about health care reform, many young doctors are placing demands on their careers to wrest their lifestyle preferences more commonly than in the past.[44,55] It is unclear what impact these changes are having on the priorities and career expectations of physicians-in-training.

Phase 5: Reemerging Priorities—Becoming Intentional About Personal And Professional Development.

Work-life balance has been an increasing priority for physicians in recent decades.[44,55] The current generation is ever more intentional about their life ambitions and less willing to make certain lifestyle sacrifices that physicians took for granted not long ago. This is actually good for our society because of the economic and national health implications of mid-career burnout.[29-31] During times of stress, whether it is at

home or in the workplace, balance is required for longevity of psychosocial well-being.[40] Therefore, having health-conscious physicians who exercise self-care is good for their families, patients, and country.[38] Physicians themselves must initiate this personal development because the health care “marketplace”, which increasingly influences educational institutions, is certainly not doing it for them.[42,44]

In addition to asserting personal goals, the maturing physician strikes a balance with professional development as well. One of the first ways this happens is in the adoption of certain lifelong learning practices. Medical schools produce physicians who understand the dynamic nature of medical information and the need for independent investigative knowledge of evidence-based medicine. However, the literature shows us that medical residents often do not practice in an evidence-based manner.[56] This is likely due to the incessant, stressful demands on them and the distraction of survival instincts such as sleep deprivation.[56-58]

Once the physician-in-training navigates the formal educational system, the last challenge is to develop principles of lifelong learning, professionalism, and ethical soundness. Unfortunately, physicians’ abilities to assess their own competence fall short and certification boards have not yet implemented oversight of physician assessment.[59-61]

SUMMARY

Table 1 summarizes the negative experiences in the mainstream medical education process and their associated conclusions to which many medical students are exposed. Each core tenant is a negative, even hostile assault on the altruism and naivety of young college students seeking to enter the healing professions.

It may be more useful to view stress, distress, fatigue, and burnout on a continuum. Research is needed to determine if these conditions are independent risk factors for frank mood disorders. Too often, the physician-in-training experiences specific shifts in their attitudes and priorities from that of the enthusiastic, altruistic premedical student to the burned out, dissatisfied physician later in life. Surveying and truly listening to the physicians-in-training will give further insight into how the system can best support their needs (not the other way around) and, therefore, support the patients and the health care system at large. Finally, addressing these specific pivot points may help inform physician wellness initiatives and may result in increased job satisfaction and retention.

During the maturation of young physicians, challenges are overcome, disappointments are met and priorities reemerge. The impact of medical education on the physician's personal development involves identifying and labeling one's emotions, understanding human suffering in an intimate way, and the beginning of self-initiated professional development.

Though effective models of teaching and assessing professionalism exist, budding physicians often fend for themselves to navigate frequently hostile training environments. Yet, we are seeing a shift occurring among the next generation of doctors. With the system-wide changes occurring in healthcare, an increasing number of new physicians place a higher priority on maintaining a balance between their personal and professional lives.

REFERENCES

1. Hadley J, Cantor JC, Willke RJ, Feder J, Cohen, AB. Young physicians most and least likely to have 2nd thoughts about a career in medicine. Acad Med. 1992;67(3):180-190.
2. Kaiser Family Foundation. National survey of physicians part III: doctors' opinions about their profession, March 2002. Available at http://www.kff.org/kaiserpolls/20020426c-index.cfm. Accessed January 28,2012.
3. Zuger A. Dissatisfaction with medical practice. N Engl J Med. 2004;350(1):69-75.
4. Coyle YM, Aday LA, Battles JB, Hynan LS. Measuring and predicting academic generalists' work satisfaction: implications for retaining faculty. Acad Med. 1999;74(9):1021-1027.
5. Schindler BA, Novack DH, Cohen DG, et al. The impact of the changing health care environment on the health and well-being of faculty at four medical schools. Acad Med.2006;81(1):27-34
6. Konrad T, Williams ES, Linzer M, et al. Measuring physician job satisfaction in a changing workplace and a challenging environment. SGIM Career Satisfaction Study Group. Society of General Internal Medicine. Med Care. 1999;37(11):1174-82.
7. Brown S, Gunderman RB.Viewpoint: enhancing the professional fulfillment of physicians, Acad Med. 2006;81(6):577-582.
8. Hafferty FW. Beyond curriculum reform: confronting medicine's hidden curriculum. Acad Med. 1998;73(4):403-407.
9. Geyman JP, Hart LG, Norris TE, Coombs JB, Lishner DM. Educating generalist physicians for rural practice: how are we doing? J Rural Health. 2000;16(1):56-80.

10. Lovecchio K, Dundes L. Premed survival: understanding the culling process in premedical undergraduate education. Acad Med. 2002;77(7):719-724.
11. Sade RM, Fleming GA, Ross GR. A survey on the ‘premedical syndrome’. J Med Educ.1984;59(5):386-91.
12. Hackman JD, Low-Beer JR, Wugmeister S, Wilhelm RC, Rosenbaum JE. The Premed Stereotype, J Med Educ. 1979;54(4):308-313.
13. Aaron S, Skakun E. Correlation of student’ characteristics with their learning styles as they begin medical school. Acad Med. 1999;74(3):260-262.
14. Zheng AY, Lawhorn JK, Lumley T, Freeman S. Application of Bloom’s Taxonomy Debunks the “MCAT Myth”. Science. 2008;319(5862):414-415.
15. McGaghie WC, Thompson JA. America’s best medical schools: a critique of the US News & World Report Rankings.Acad Med. 2001;76:985-992.
16. Gunzburger LK, Franzier RG, Yang LM, Rainey ML, Wronski T. Premedical and medical school performance in predicting first-year residency performance. J Med Educ.1987;62(5):379-384.
17. Evans P, Wen FK. Does the medical college admission test predict global academic performance in osteopathic medical school? J Am Osteopath Assoc. 2007;107(4):157-162.
18. Schafer S, Shore W, Hearst N. msJAMA: Is medical school the right place to choose a specialty? JAMA 2001;285(21):2782-2783.
19. Swick HM, Szenas P, Danoff D, Whitcomb ME. Teaching professionalism in undergraduate medical education. JAMA. 1999;282(9):830-832.

20. Stewart BY. The threatened role of the premedical advisor. Acad Med. 1993;63(7):547-548.
21. Koenig JA. Comparison of medical school performances and career plans of students with broad and with science-focused premedical preparation. Acad Med. 1992;67(3):191-196.
22. Shapiro J, Coulehan J, Wear D, Montello M. Medical humanities and their discontents: definitions, critiques, and implications. Acad Med,2009;84(2):192-198.
23. Gross JP, Mommaerts CD, Earl D, De Vries RG. Perspective: After a century of criticizing premedical education, are we missing the point? Acad Med. 2008;83(5):516-520.
24. Cohen JJ, Steinecke A. Building a diverse physician workforce. JAMA. 2006;296(9):1135-1137.
25. Elam CL, Johnson MM, Wiggs JS, Messmer JM, Brown PI, Hinkley R. Diversity in medical school: perceptions of first-year students at four southeastern US medical schools. Acad Med. 2001;76(1):60-65.
26. Bowman RC. Understanding poverty and physician workforce, , Available at: http://01f21cf.netsolhost.com/underserved/understanding_poverty_docs.htm
27. Joint Admission Medical Program. Available at: http://www.texasjamp.org/. Accessed January 28, 2012.
28. Shorr AF, Hayes RP, Finnerty JF. The effect of a class in medical ethics on first-year medical students. Acad Med. 1994;69(12):998-1000.
29. Spickard A Jr, Gabbe SG, Christensen JF. Mid-career burnout in generalist and specialist physicians. JAMA. 2002;288(12):1447-1450.

30. Arulampalam W, Naylor RA, Smith JP. A Hazard Model of the Probability of Medical School Dropout in the United Kingdom, Iza. 2001;DP No. 333. Available at: http://wrap.warwick.ac.uk/149/1/WRAP_Arulampalam_dp333.pdf Accessed February 15, 2012
31. Bowman RC. Attrition Rates. Available at: http://01f21cf.netsolhost.com/attrition_rates.htm Accessed January 8, 2014.
32. Lazin R, Nuemann L. Student Characteristics as predicators of drop-out from medical school: admissions to Beer-Sheva over a decade. Med Educ. 1991;25(5):396-404.
33. Dunn LB, Iglewicz A, Moutier C. A conceptual model of medical student well-being: promoting resilience and preventing burnout, Acad Psychiatry. 2008;32(1):44-53.
34. Merchant RC, Jongco AM 3rd, Woodward L. Disclosure of sexual orientation by medical students and residency applicants. Acad Med. 2005;80(8):786.
35. Brogan DJ, Frank E, Elon L, Sivanesan SP, O'Hanlan KA. Harassment of lesbians as medical students and physicians. JAMA. 1999;282(13):1290-1292
36. Takakuwa KM. Coping with a learning disability in medical school. JAMA. 1998;279(1):81.
37. Dyrbe LN, Thomas MR, Power DV, et. al. Burnout and serious thoughts of dropping out of medical school: a multi-institutional study. Acad. Med. 2010; 85(1):94-102.
38. Frank E, McMurray JE, Linzer M, Elon L. Career satisfaction of US women physicians: results from the Women Physician's Health Study. Society of General Internal Medicine Career Satisfaction Study Group. Arch Intern Med. 1999;159(13):1417-1426.

39. Lorgren R, Karpf M, Perman J, Higdon CM. The U.S. health care system is in crisis: implications for academic medical centers and their missions. Acad Med. 2006;81(8):713-720.
40. Linzer M, Gerrity M, Douglas JA, McMurry JE, Williams ES, Konrad TR. Physician stress: results from the physician worklife study, society of general internal medicine career satisfaction study group. Stress Health. 2002;18(1):37-42
41. Marine A, Ruotsalainen JH, Serra C, Verbeek JH. Preventing occupational stress in healthcare workers. The Cochrane Library 2006;4. Available at: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002892.pub2/otherversions Accessed February 15, 2012.
42. Fox DM. Commentary: impared physicians and the new politics of accountability, Acad Med. 2009;84(6):692-694.
43. Markakis KM, Beckman HB, Suchman AL, Frankel RM. The path to professionalism: cultivating humanistic values and attitudes in residency training. Acad Med. 2000;75(2):141-150.
44. Williams DM, Sannidhi, D, Ellington, K, Sadun, R, McMullen, J, Wood, W. AMSA Mastermind Project: A Confidential, Long-Term Approach To Student Wellness. 3rd Place, 2011 American Medical Student Association National Conference, Washington, D.C. 2011.
45. Sanfilippo F, Bendapudi N, Rucci A, Schlesinger A. Strong leadership and teamwork drive culture and performance change: Ohio State University Medical Center 2000-2006. Acad Med.2008;83(9):845-854.

46. Smith SR. Effect of the ‘preresidency syndrome’ on students’ selection of fourth-year courses. J Med Educ.1988;63(4):276-282.
47. Baldwin DC Jr, Daugherty SR Rowleyl BD, Schwarz MD. Cheating in medical school: a survey of second-year students at 31 schools. Acad Med. 1996;71(3):267-273.
48. Wear D, Aultman JM, Verley JD, Zarconi J. Making fun of patients: medical students’ perceptions and use of derogatory and cynical humor in clinical settings. Acad Med. 2006;81(5):454-462.
49. Satterwhite WM3rd, Satterwhite RC, Enarson CE. Medical students’ perceptions of unethical conduct at one medical school. Acad Med. 1998;73(5):529-331.
50. Accreditation Council for Graduate Medical Education. 2006-2007 Annual Report. Available at: http://www.acgme.org/acWebsite/annRep/an_2006-07AnnRep.pdf Accessed February 15, 2012.
51. The Accreditation Council for Graduate Medical Education. Procedures for Addressing Complaints Against Residency Programs and Sponsoring Institutions. Available at: http://acgme.org/acWebsite/resInfo/ri_complaint.asp Accessed Feb. 15, 2012.
52. Yao DC, Wright SM. The Challenge of Problem Residents. J Gen Intern Med. 2001;16(7):486-492.
53. Coulehan J, Williams PC. Vanquishing virtue: the impact of medical education. Acad Med. 2001;76(6):598-605.

54. Stoddard JJ, Hargraves JL, Reed M , Vratil A. Managed care, professional autonomy, and income: Effects on physician career satisfaction, J Gen Intern Med. 2001;16(10):675-684.
55. Hohl L. Work-life balance is priority for younger physicians: survey. Modern Physician. April 27, 2009; Available at: http://www.modernhealthcare.com/article/20090427/MODERNPHYSICIAN/304199976. Accessed February 24, 2012
56. Green ML, Ruff TR. Why do residents fail to answer their clinical questions? A qualitative study of barriers to practicing evidence-based medicine. Acad Med. 2005;80(2):176-182.
57. Grover PL, Smith DU. Academic Anxiety, Locus of Control, and Achievement in Medical School. J Med Educ. 1981;56(9 Pt 1):727-736.
58. Levey RE. Sources of Stress for Residents and Recommendations for Programs to Assist Them. Acad Med. 2001;76(2):142-150.
59. Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. JAMA. 2006;296(9):1094-1102.
60. Pan RJD. Report of the council on medical education, CME Report 3-A-08, Available at: http://www.ama-assn.org/resources/doc/council-on-med-ed/a-08cmerpt3.pdf Accessed February 27, 2012
61. Duffy FD, Holmboe EX. Self-assessment in lifelong learning and improving performance in practice: physician know thyself. JAMA. 2006;296(9):1137-1139.

Table 1: Medical student experiences and associated core tenants of the hidden curriculum which can negatively affect their altrustic personalities during the course of their medical education.*

Medical Student Experience	Hidden Curriculum Message
Phase 1: The Pre-Med Syndrome	
Irrelevant leadership in the literature	You can't trust what you read.
Resentment and misunderstanding about affirmative action	You're not the right color.
Frustration because premedical curriculum doesn't predict success as a physician	Your grades are important but won't help much as a doctor.
Misdirection by or absence of premedical advisors	You can't trust advisers.
Phase 2: Adapting to the Environment	
Needing to balance self-interest with patient care	You can't learn it all.
Confronting one's own imperfections	You're on your own.
Fear of not learning enough and causing the patient harm	You're not good enough.
Discouragement for seeking help for depression and substance abuse	You can't be honest.
Phase 4: The Let-Down	
Being insulted, unappreciated and offended by unethical conduct	It doesn't matter if you do the right thing.
Lack of role models to emulate	No one can help you.
Fear of losing career	You will get sued.
Abandonment by system when disputes arise with residency programs	There's nothing you can do to improve your circumstances.

*Phases 3 and 5: Excluded here because these represent a more positive, adaptive experience.