The (Past, Present) and Future of Internal Medicine: Is there an exit from the Slough of Despond?

[by Daniel Goodenberger, M.D.]

In Pilgrim's Progress,[1] Christian becomes enmired in the Slough of Despond, abandoned by his companion Pliable, and eventually assisted to escape by Help. Allegorically, it has been suggested that the Slough represents the sinkhole in which he becomes trapped as the result of his sins and under the weight of his guilt. I propose that the current, less-than-desirable state of internal medicine owes much to our past and present actions, and that Help is most likely to be found, not externally, but from among ourselves.

Internal Medicine – The Past

In the world of medicine, internal medicine as a specialty is relatively young. The American Board of Internal Medicine was established in 1936, and followed the American Boards of Pediatrics, Psychiatry and Neurology, Dermatology, Obstetrics and Gynecology, Ophthalmology, Orthopedic Surgery, Radiology, and Urology. For the first two decades, internists represented a small proportion of the total physician population. Indeed, approximately 75% of physicians were generalists, usually general practitioners with a single post-graduate year of training; internal medicine specialists made up a portion of the remaining 25%.[2]

There were multiple reasons for the small number of specialists relative to the present. Given the limited diagnostic and therapeutic modalities available, specialization offered fewer advantages than currently. There were far fewer residency positions available. Perhaps most importantly, the training period was lived in penury. Internship support at the most competitive institutions typically consisted of room, board, uniform and laundry, and monetary support that was very modest by today's standards – perhaps enough for shoes, haircuts, and limited entertainment. Alvan Feinstein noted that his salary at Columbia P&S in the early '50s was $25 per month. Not only was this insufficient to permit marriage, in many programs marriage was forbidden. Only the very dedicated and/or wealthy could afford advanced training, sometimes after a period in practice.

By comparison with the present, practice was more leisurely and thoughtful. The internist was generally a consultant, seeing difficult or puzzling patients in consultation for general practitioners. Having an internist as a personal physician was considered a

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mark of discernment and sophistication. Prior to the development of formal subspecialty fellowships, internists might develop an area of interest as a result of European-style apprenticeship, residencies in specialty hospitals, or through practice experience. I. Jerome Flance, a prominent St. Louis internist, became a pulmonary specialist through a combination of pathology residency, residency on the chest service at Harlem Hospital, and residency at the Koch Sanitarium in St. Louis. His colleague, Michael Karl, a private internist who was ultimately elected to the Institute of Medicine, became a liver specialist as a result of personal interest and his performance of more than 3,000 liver biopsies; he later served as chief of nephrology at the Jewish Hospital of St. Louis. Board certification required both written and oral examination, the latter usually after a period in practice.

From the 1940's into the 1980's, internal medicine was viewed as an elite specialty, attracting a disproportionate share of the best students. Upper tier residencies were very competitive. Departments of internal medicine were the sites of the most exciting basic and clinical research, when the line between the two was much thinner than now. Analytic techniques made possible revolutionary advances in endocrinology and nephrology, and a generation of future leaders in academic medicine gravitated to these specialties, in a way unthinkable to the current generation of proto-cardiologists and –gastroenterologists. The most competitive residencies had all or most of their focus on the care of the medically indigent, and the residents and chief residents, reporting directly to the chief of medicine, had a degree of autonomy and responsibility that is difficult to imagine in the current atmosphere.

Forces for Change

The National Institutes of Health experienced explosive growth of funding, increasing15-fold in inflation-adjusted dollars from 1947-1966, much due to the leadership of James A. Shannon. Departments of medicine were major beneficiaries, and the relatively new schools at University of Texas Southwestern and the University of Washington grew rapidly into research powerhouses due to a combination of outstanding local (internal medicine) leadership and federal largesse. An unanticipated effect was to provide funding for M.D. research fellows in organ-based physiology who would become a new wave of subspecialists.

In 1965, Medicare was enacted. It had several direct and indirect effects on medical education. Initially, additional monies were paid to teaching hospitals for the care of seniors as a more or less explicit recognition of their value as leading research and educational institutions. Later, following the enactment of the prospective payment system, support for graduate medical education was separated and made explicit with both direct (DME) and indirect (IME) medical education payments. First, these revenues made it possible to pay resident physicians a salary that allowed assumption of adult life responsibilities, and thus made residency training available to a greater number. Secondly, between 1985 and 1997, there were no restraints on residency growth; not only did teaching hospitals receive direct funding for each additional

resident, they received a step increase in IME for each 10% increase in the resident to bed ratio. Given this, there were few restraints on residency growth.

Prior to Medicare, full-time faculty in departments of medicine engaged in significant private practice of medicine. Few schools had a faculty practice plan (Duke's Private Diagnostic Clinic being a notable exception). Faculty were, in Petersdorf's phrase, "threadbare but genteel."[1] In 1965, an assistant professor earned $15,000, his chair $30,000. By 1975, the figures had risen to $30,000 and $58,000.[2]

Subsequent years would see the progressive narrowing of incomes between academic and private practice, much greater involvement in patient care by faculty, an overall substantial increase in real faculty incomes, a substantial increase in the pay gap between proceduralists and the "cognitive" (poor) specialists, and ultimately, the move towards non-tenured clinician tracks and their variants.

Not only did this new revenue stream lead to explosive growth in academic medical centers, but also to a great increase in the number of full-time faculty, most in clinical departments. In 1965, the number of fulltime medical school faculty in the U.S. was ~16,500; in 1997, 85,913; and in 2008, 125,215 (AAMC data) or 128,387 (LCME data).

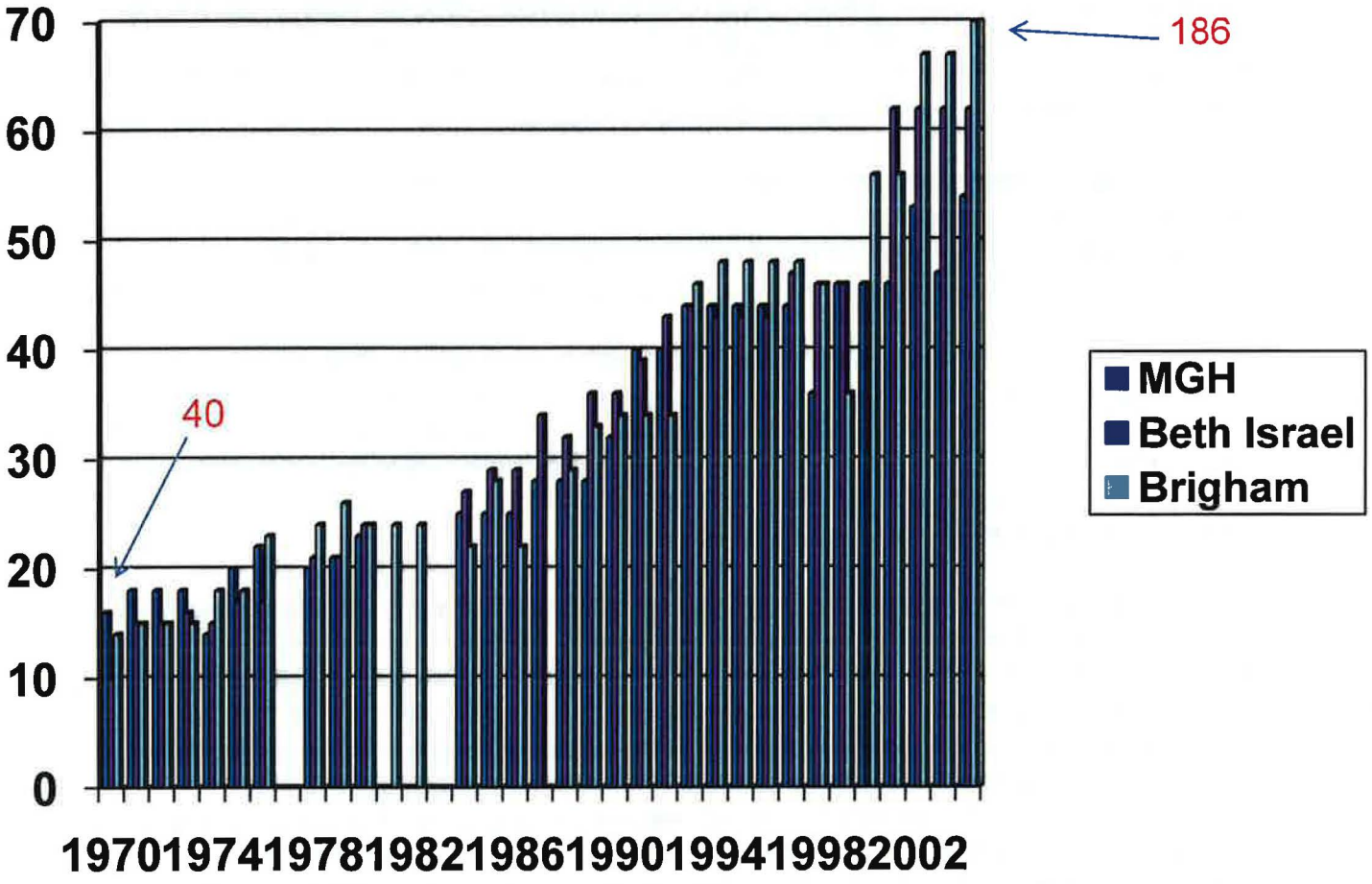
Initially, this additional revenue was obtained with comparatively little effort, and reimbursement was generous ("usual and customary" fees were paid after service was delivered). As a result, the real costs of pre-clinical and clinical education provided by clinical departments, particularly in private medical schools, were borne by the departments and financed by clinical revenue rather than tuition, something that later department chairs have had reason to lament.

Around the same time, the concept of internal medicine as a primary care specialty arose. Some of this was due to a public perception articulated in the Millis report that there was a need for physicians who provided comprehensive, non-fragmented primary care.[4] Some was undoubtedly reactive and defensive to the creation of the new specialty, family practice, and of new practitioners, such as physicians' assistants. Some was undoubtedly due to the conflation of numbers of physicians and organizational size with excellence, which seems to have been the stance of the American College of Physicians. And some was a combination of idealism and lucretropia, as federal funding for the creation of primary care programs created a new generation of champions.

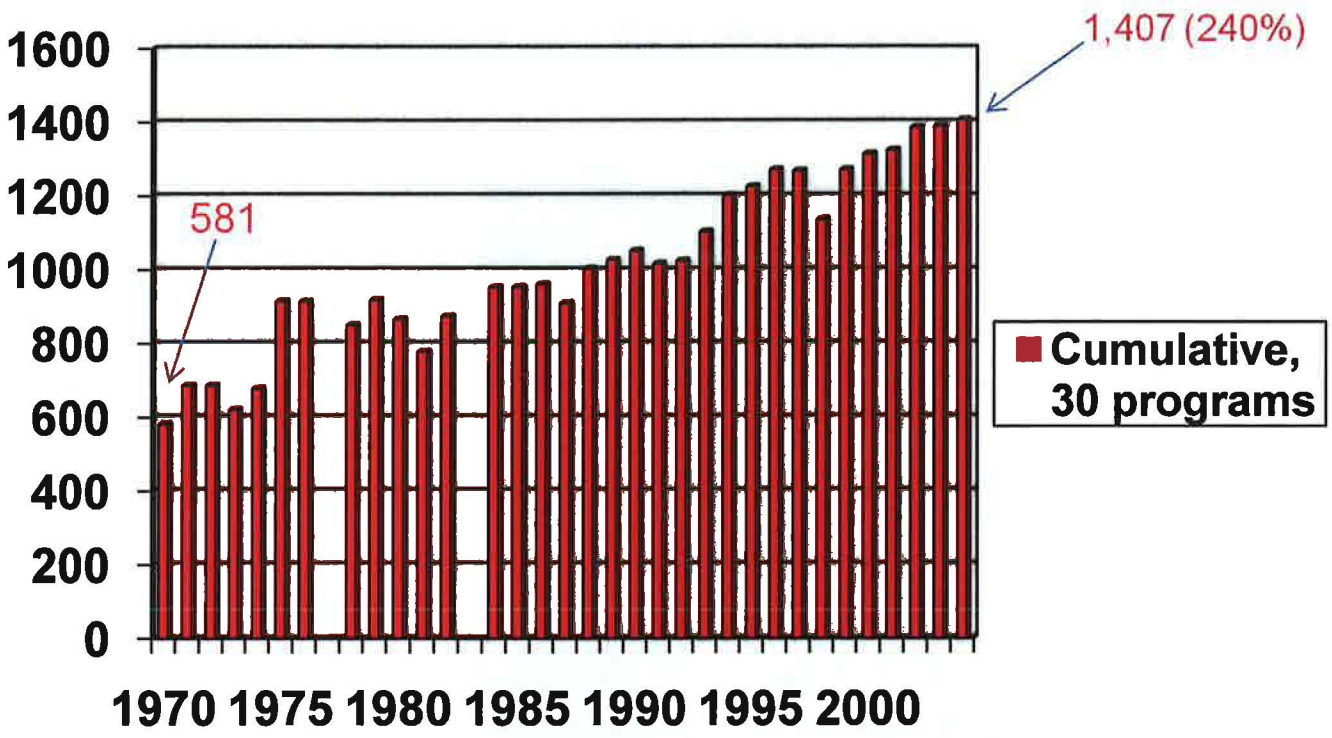
The rapid growth of faculty practices created a perceived need for more residents to take care of these "quasi-private" patients. Residency programs began to grow; in some cases, there were mergers of separate ward service and private service residency programs, as was the case at Johns Hopkins and Barnes Hospitals. Over time, there was a disappearance of ward laboratories and ward-based testing conducted by residents, who routinely did blood counts, spinal fluid examinations, gram stains, AFB stains, urinalyses, electrocardiograms, clotting times, and even LE preps. Part of this was due to an admirable desire on the part of the College of American Pathologists to

standardize quality; it cannot be ignored, however, that quality became important concordant with the availability of payment for these.

Internal medicine residency program growth from the 1960's to the present has been remarkable. The three major Harvard internal medicine programs took 40 interns total in 1970, compared with 186 in 2004 (a figure much greater than the number of Harvard students entering internal medicine).



An arbitrarily selected 30 upper tier programs, including UTSW, increased PGY-1 positions from 581 to 1,407, a 240% increase.[5] The latter number represents 53% of the 2,632 US medical graduates entering internal medicine in 2009.



Overall, the number of PGY-1 (non-preliminary) internal medicine residency positions offered by the 376 internal medicine residency programs is 7,049, according to American Board of Internal Medicine figures.[6] While the number of residency positions have increased, US medical school residency applicants have fallen by 45% from the peak of 4,779 in 1984. Review of the data suggests that "Black Tuesday" in 1987, when many internal medicine residency programs did not fill, occurred mostly because of residency expansion as opposed to the relatively modest decrease in applicants at that time.

Why have applications to medicine residency programs fallen?

Many factors have been identified as making internal medicine less desirable as a training choice. Students have identified resident satisfaction, controllability of lifestyle, paperwork and the necessity for out of office work, patient characteristics (primary care, chronic illness), and indebtedness.[7, 8] Larry Smith has emphasized generational differences in lifestyle preferences.[9] It is worth noting gender changes as well. Women made up 16.2% of the graduating class in 1976, compared with 45.3% in 2004. Three-quarters of women physicians are married to professional men, while half of male physicians are married to professionals. There were 371 couples in the 1985 NRMP match, compared to 788 in 2009.[10, 11]

It seems likely to the author that the reduced competitiveness makes the specialty seem less attractive as well. Whatever the reason, only 2% of senior students consider a career in general internal medicine.[7]

Will Rogers has been widely quoted as saying that "When the Okies left Oklahoma and went to California, the average intelligence of both states went up." Alvan Feinstein used the same concept to describe the favorable effect of stage migration in cancer as a result of more sensitive staging techniques.[12] I would propose that the increase in the size of internal medicine residencies has had a reverse Will Rogers effect; that is, with increased size, every residency, including the most highly regarded, becomes less competitive. This has had a number of negative effects, which will be addressed below.

The conduct of residencies has become increasingly prescriptive and, as a result, restrictive. While the RRC Special Requirements for Internal Medicine have helped improve the educational experience, forced curriculum creation which is likely responsible for the dramatic increase in internal medicine board pass rate, and garner resources for programs, the benefit does not seem concordant with the increase in regulation – 1 page in 1974; 7.5 pages in 1990; and 28 pages in 2009 (down from 39 – a welcome trend).[13] Extended research programs in residency outside of the research pathway have been essentially eliminated. More and more clinical curricular experience of uncertain educational benefit has been added to the same three years.

At the same time, one-size-fits-all duty hours restrictions have been imposed by the ACGME. This was an inevitable response to external forces, including Congress,

Public Citizen, OSHA, and the American Medical Student Association. Establishing the regulations at the level of the ACGME made them enforceable, as failure to comply would lead to loss of institutional accreditation and consequent loss of all GME funding. However, the imposition of one set of rules across very different specialties, in a compressed time frame, resulted in the neglect of innovative programs already being created that were more conducive to the tempo of clinical learning. In internal medicine in particular, return of test results, receipt of consultations, and evolution of clinical course often sets the stage for further clinical decision-making late in the morning or early in the afternoon post-call, precisely when residents are being made to leave. An enforced sleep period with night floats in hospital after the admission cap is reached would restore a more productive learning cycle; Lisa Bellini had precisely this system (the "naptern"), in place at University of Pennsylvania, and it appeared to be working well. A second problem has emerged as a result of the difference in management of duty hours limitations by other services. Internal medicine, by and large, has met service needs through the creation of non-teaching services run by hospitalists. Surgical services, in contrast, have generally met the regulations by removing residents from the hospital, so that residents are responsible for cross-covering more patients with less in-house supervision. As a result, the harried surgical house staff are increasingly resistant to admitting emergency surgical patients to surgical services, which has resulted in default placement on medical services, with reduction of medical resident autonomy in management of their services. Lastly, imposition of duty hours limits as structured has caused concern regarding the conflict of professionalism which may result – the professional obligation felt by the internal medicine resident for the care of his/her patient vs. the professional obligation to follow regulations in a truthful manner.

Other factors have also contributed. Before the San Francisco match for terminal residencies in neurology, neurosurgery, otolaryngology, and ophthalmology in 1977, and the matching into other surgical subspecialties and anesthesia through the NRMP, application for these residencies occurred during the PGY-1 year. With these changes, the need to obtain a competitive PGY-1 position waned, and more preliminary and transitional year interns sought appointment in community hospitals.

The training duration for internal medicine (3 years) or medicine plus a subspecialty (4 years for many) was an attractive alternative to other residencies. "Short-tracking" is now not an option except for those in the research track, and those seeking to become medical subspecialists may need to commit 5-7 years (interventional cardiology, electrophysiology, hepatobiliary GI, and interventional pulmonary for the latter duration). Certainly, return on investment of 5 years for rheumatology, endocrinology, or infectious disease compares unfavorably to emergency medicine (3 or 4 years, with 1,151 PGY-1 positions which did not exist in 1970), anesthesiology (4 years), dermatology (4 years), ophthalmology (4 years), urology (5 years), orthopedic surgery (5 years), otolaryngology (5 years), diagnostic radiology (5 years), or radiation oncology (5 years).

Prospective payment and other financial pressures on teaching hospitals have had a number of unfavorable effects. The dramatic decrease in length of stay not only denies the resident the chance to see the more complete course of the disease, it also causes the loss of the "Rabkin Effect" – the positive mutual regard that came at the end of hospitalization when the patient was feeling better, attributed this to the resident, and the resident, basking in this glow, regarded the patient no longer as a project, but a person.[14] The removal of diagnostic testing from the ward, largely but not exclusively for financial reasons, has eliminated the "Eureka" moment associated with the successful completion and interpretation of a diagnostic test leading to a diagnosis or change in therapy. A nearly universal response of hospital administrations to emergency department length of stay and a desire to increase throughput has been to pressure, most often successfully, internal medicine programs to relinquish the admitting decision. The uneven application of this to other, particularly surgical, services, has led to the perception of medicine as a dumping ground, with the predictable impact on morale. Interestingly, this has led to an increase in emergency department admission rate nationwide with an larger proportion of unnecessary admissions, with the ironic effect of filling beds and impeding emergency department throughput.

Impact of student debt on residency choice is controversial, with data purporting both to refute and support the association.[15-18] However, there is no denying that medical school tuition has far outpaced the consumer price index, and student debt is reaching dizzying levels, with 25% of students owing more than $200,000. It is also hard to ignore the correlation between residency and fellowship competitiveness and expected salaries.

Two major events had a negative impact on faculty satisfaction in the mid-1990's, well before reduction of duty hours. The first was the Physicians At Teaching Hospitals audit (PATH) by the Office of the Inspector General. Major fines were levied against the University of Pennsylvania, Thomas Jefferson University, and the University of Pittsburgh ($30 million, $12 million, and $17 million respectively) for inadequate documentation demonstrating that care delivered by residents was actually supervised by attending physicians. The academic medical community was terrified by this, and as a result the most conservative standards for documentation were applied. Faculty expanded their notes to lengths previously associated with senior residents. The additional time required was generally taken from that previously devoted to teaching. They also led in many instances to greatly increased supervision by faculty, with resultant dissatisfaction on the part of both faculty and residents.

The second event which occurred was the Balanced Budget Act of1997, which froze residency (and fellowship) position funding by Medicare at 1996. As noted above, faculty and faculty practice continued to grow, and as a result, faculty workload continued to grow without additional trainees to bear part of the burden.

Finally, the imposition of duty hours restrictions by the ACGME in 2003 also had a significant impact on faculty. With residents now absent because of time limitation,

clinics, and midweek days off, the attending physician often found him or herself holding teaching rounds with sparse attendance. Moreover, the attending increasingly played a role that incorporated duties, responsibility, and continuity of care which heretofore had been the responsibility of the team resident. The sum of these three events caused one faculty to muse that ward attending was now the only known example of violation of the second law of thermodynamics – "upward fecal flow".

Internal Medicine – the Present

The blogosphere is full of the anger of the primary care internist in practice – focusing in part on pay for effort, but more on the bureaucratic hassles of obtaining needed investigations, documenting dubious quality measures with little room for thoughtful exception, and being forced to be the agents of covert rationing. As a result of inadequate resources for ambulatory student clinical education at most medical schools, deans and clerkship directors rely on these same internists as voluntary faculty members. This is not a situation likely to make general internal medicine more attractive to students.

An increasing number of the best residents refuse chief residency positions, due to duration of training and lack of perceived career benefit.

Academic departments of medicine continue to grow, with chairs becoming CEO's of large business entities with revenues which may exceed a quarter billion dollars, with little time to develop expertise in education or to devote this time to residency training or student education. Few have the time to continue an active clinical role. This is in contrast to many surgical specialties, where medical students and all residents may operate with the chief.

Internal medicine residency status has declined. For some – perhaps most – it is a conduit to a desired, usually procedural specialty. For others, it's a fall-back specialty (there were 9,100 cross-applicants in 2005). Though there are few objective data, there is a general consensus among residency program directors that the average quality of U.S. applicants has declined. Factors discussed above have resulted in a decline in status relative to other residencies. Using percentage of U.S. applicants filling residencies, internal medicine is now near the bottom of the pyramid of specialty residencies.

At the elite residency level, there is less predictive ability regarding post-residency careers, and the size of these same residencies diminishes the ability for career mentorship, placement, and mid-career advice.

The future of internal medicine?

Impact of medical school expansion – After an initial 2005 proposal to increase allopathic output by 15%, the AAMC amended its recommendation to increase

enrollment in LCME-accredited medical schools 30% by 2015, to approximately 21,434. After recognizing that this expansion would not in fact have any impact on overall physician supply, given the ~25,000 PGY-1 positions available, the AAMC recommended expanding GME positions to accommodate the additional U.S. allopathic graduates.

The rationale for this is based on a putative physician shortage. Ignoring the fact that all previous manpower estimates and predictions have been inaccurate, often wildly so, it might be more accurate to frame the problem as one of specialty maldistribution. Indeed, some have speculated that the AAMC position has been driven by the dramatic increase in number of osteopathic schools and increase in osteopathic graduates, who may then represent an increasing threat to allopathic medical education policy hegemony.

Indeed, there is reason to believe that the increase in LCME positions will simply result in a shift of educational venue. The proposed increase is approximately equal to the number US IMG and DO graduating students. Given that 93% of students accepted to osteopathic schools who also are accepted at LCME schools attend the latter, it is safe to assume that the effect of expansion will be to empty osteopathic schools of their current pool (MCAT 25.3 vs. the LCME average of 30.4). Similarly, it appears that most US IMG's in Caribbean schools (average MCAT 25) would attend LCME schools if given the opportunity. This represents another instance of the reverse Will Rogers phenomenon – every medical school which expands will have a less competitive and qualified student body, as will most who do not.

Paradoxically, overall quality in internal medicine residencies may be lowered if residencies favor US over high-quality international graduates. Among the 30 upper tier programs mentioned previously, the following reported on a 2005 survey that they took IMG's – University of Alabama; UCLA; Stanford; Emory; Northwestern; Massachusetts General; Beth Israel/Boston; University of Michigan; Barnes-Jewish Hospital; Duke; University of Cincinnati; Vanderbilt; UT Soutwestern; and Baylor. The following did not respond – University of Pittsburgh; University of Pennsylvania; P&S; New York Hospital; Brigham and Womens'; University of Washington; and UCSF. The author is aware that most of these also matriculated IMG's. The change in demographics has forced even the most selective programs to confront the fact that highly qualified and talented IMG's are preferable to mediocre USMG's, and have become adept at identifying and training them, to everyone's benefit.

If there are no changes, one may anticipate that internal medicine trainees will fall into two groups – those choosing and competitive for desirable subspecialties, and those who are not. An increasing number of general internists will be there, not by choice, but by lack of competitiveness, with a progressively demoralized workforce.

The rise of hospital medicine is already having an impact, and, absent change, fewer residents will enter office-based practice and more will be hospitalists.

There is the potential for very negative effects on medical schools, where departments of medicine shoulder both the greatest teaching load, and also have a disproportionate leadership role. Internal medicine and its subspecialties represent 24%of all faculty, 28% of clinical faculty, 30% of residents and fellows, a heavily disproportionate share of teaching in both the pre-clinical and clinical years, and 28% of extramural research awards. Any decline in the quality of internal medicine faculty, which seems inevitable given the trends described above – increased numbers of faculty, decreased quality – may have serious implications for American medical education. Moreover, one may expect the rich to get richer – that is, there will likely be an increasing concentration of internal medicine talent at a minority of elite, research-intensive, clinically successful medical schools.

Can this future be changed?

Faced with the obvious over the last decade, the response of the internal medicine community is reminiscent of the drunk searching for his car keys under the street lamp because the light is better there. There has been repetitive focus on training experience and curricular reform.[19-22] I submit that internal medicine curriculum is not the problem. At Washington University, the Department of Medicine won the inaugural medical student award for best departmental teaching and retained the crown for two consecutive years, while the percentage of students choosing internal medicine fell from roughly 17 to roughly 12%. This is not an isolated experience, according to my peers. They like us, they appreciate us, they admire us – they just don't want to be us.

The American College of Physicians Revitalization Retreat in 2003 came up with four recommendations:

1) Repair the dysfunctional payment system
2) Redesign the practice of internal medicine
3) Define and articulate the value of internal medicine
4) Educate and train internists for the future practice of internal medicine

I suggest that only #1 has near-term value, and it requires the cooperation of a federal government that is intent on reducing costs while increasing care coverage – not a favorable combination. The remainder are blue-sky, apple pie, and not likely to be effective.

Are there things that might be done that would be effective? I suggest the following:

Concede that primary care is not a winning strategy for internal medicine and act accordingly. Primary care has been said to be on death row. Lobby aggressively for an increase in family medicine residency positions, and make those positions attractive through debt forgiveness, debt repayment and higher salaries during residency, with the monies paid directly to residency programs rather than hospitals, so that training is the unequivocal focus. Review, emulate, and support the Kaiser Permanente-UCLA program of IMG preparation for licensure and subsequent placement in family medicine

residencies in California. Simultaneously, reduce the size of internal medicine residencies to a level that is competitive.

Train those wishing to be general internists to be diagnosticians, managers, and experts in the care of the complicated patient. Develop training programs designed to create master clinicians (see below). Develop team training programs that involve collaborative practice arrangements between physicians, mid-levels, and educational/management experts (nutritionists, social workers, clinical diabetes educators, et al). Recognize the opportunity presented by the current 115,000 nurse practitioners and 58,000 physicians assistants – hire outstanding representatives as associate program directors for these collaborative training programs. Lobby for the federal support necessary for both the required training and the resultant practice style. Review HR2350 "Preserving patient access to primary care act" which would authorize nurse practitioners (soon to be Doctors of Nursing Practice) as independent, federally reimbursable primary care practitioners. Decide whether to be threatened, or whether to see this as an opportunity for consultative collaboration – perhaps they will be the new GP's? One of the interesting new developments in medical education is the hospital- or health system-initiated medical school (North Shore-LIJ; William Beaumont; Cooper University). These systems, where long-term ownership of and responsibility for defined patient populations are expected, may be ideal laboratories for these kinds of educational experiments.

Shorten training. Thousands of internal medicine specialists were trained in a total of four years with apparently satisfactory results (present company included). The progressive extension of training duration may have as much to do with academic health center needs as with adequacy of training.

The fourth year of medical school as currently structured in most schools is an expensive, underutilized smorgasbord of electives and visits to other medical schools to audition for residency. Move much of the common training requirements currently in residency (economics, ethics, health systems, practice management, etc.) from residency into this year. Allow 6 weeks for residency interviews; otherwise the time should be spent in intensive clinical experiences. For those sure of residency choice, create demanding, structured clinical experience in the chosen specialty which would be the equivalent of a high school AP course, with credit towards residency (the collaboration and coopearation of both the LCME and ACGME will be required).

Shorten core internal medicine training to two years. Allow fellowship training to begin thereafter, on a competitive basis. For those choosing/remaining in general internal medicine, focus the third year curriculum on training implicit in the model described above. Partner with business schools and schools of public health for simultaneous completion of MBA or MHA in 3rd and 4th year, as desired. Provide additional training in the conduct of clinical trials.

Embrace concierge medicine. Entirely counterintuitive, a faculty concierge practice could allow time for training residents as master clinicians, and allow resources for master teachers to support themselves and their own educational infrastructure.

Support federal debt reduction programs for medical students. National Health Service Corps (NHSC) loan repayment programs are associated with a seven-fold increased likelihood of a primary care career. NHSC scholarship program recipients are 4.5 times as likely to choose primary care.[24] Think of alternatives to the traditional placement as an outpatient physician to the underserved; for example, service as a hospitalist for three years in an urban teaching hospital in return for debt forgiveness, while functioning much the way a senior resident did in years past, honing teaching skills, clinical skills, and scholarship, before returning for terminal training. The financial aspect could work, given the average salary for a hospitalist of ~$170,000. Over three years, the recipient would receive $100,000 annually while the remaining $70,000 goes to remove all debt.

Consider other possibilities – perhaps mandatory work on a nursing service in medical school? Such service could significantly reduce debt, and the future physician learns to work in a team with nursing colleagues.

Place an electronic medical record in every physician's office. That record exists, and it's called VISTA. Most experts agree it's the best medical record available, and the government will give it away. The major factor preventing adoption is the lack of an efficient billing interface. Who cares? Mandate that every physician accepting Medicare assignment put it in the office. Performance measures become automated. Medical records become retrievable from any location. Physician-physician communication and consultation becomes transparent. The potential for nationwide clinical research is unimaginable. Within two years, I would expect physicians to demand hospitals to adopt the same EMR.

Support the efforts of the American College of Physicians for payment reform, the Advanced Medical Home, and payment for non-face-to-face management – but don't count on it. I think it's more likely that payment will be reduced for specialty care rather than increased for generalists, more in line with historic norms, in which physicians made approximately 2.5 times a teacher's salary.

Will we act in a rational, coordinated fashion to rescue our specialty? Time will tell; leadership will decide.

References

1. Bunyan, John. The Pilgrim's Progress from This World to That Which Is to Come.
2. Ludmerer Kenneth M. Time to Heal: American medical education from the turn of the century to the era of managed care. New York: Oxford University Press, 1999.

3. Petersdorf RG. Academic medicine: no longer threadbare or genteel. N Engl J Med 1981;304:841-843.
4. Millis, J.S.The Graduate Education of Physicians. Report of theCitizens' Commission on Graduate Medical Education. Chicago:American Medical Association, 1966.
5. American Medical Association. Graduate Medical Directory, editions 1963 through 2004.
6. http://www.abim.org/about/examInfo/data-res/chart-01.aspx accessed 11/11/09
7. Hauer KE, Durning SJ, Kernan WN et al. Factors associated with medical student career choices regarding internal medicine. JAMA 2008; 300:1154-1164.
8. Dorsey ER, Jarjaura D, Rutecki GW. Influence of controllable lifestyle on recent trends in specialty choices by U.S. medical students. JAMA 2003; 290:1173-1178.
9. Smith LG. Medical professionalism and the generation gap. *Am J Med.* 2005;118:439-42.
10. Inglehart JK. Grassroots activism and the pursuit of an expanded physician supply. N Engl J Med 2008; 358:1741-1749.
11. National Resident Matching Program. Advanced Data Tables. 2009 Main Residency Match. http://www.nrmp.org.
12. Feinstein AR, Sosin DM, Wells CK. The Will Rogers phenomenon. Stage migration and new diagnostic techniques as a source of misleading statistics for survival in cancer. N Engl J Med 1985 Jun 20;312(25):1604-8.
13. http://www.acgme.org/acWebsite/downloads/RRC_progReq/140_internal_medicine_07012009.pdf.
14. Rabkin MT. Occasional notes. The SAG index. N Engl J Med 1982; 307:1350-1351
15. McDonald FS, West PP, Popkave C et al. Educational debt and reported career plans among internal medicine residents. Ann Int Med 2008; 149:416-420.
16. Association of American Medical Colleges. GQ all schools report. www.aamc.org/data/gq/allschoolsreport/start.htm .
17. Rosenblatt RA, Andrilla CH. The impact of U.S. medical student debt on the choice of primary care careers: An analysis of data from the 2002 Medical School Graduation Questionnaire. Acad Med 2005; 80:815-819.
18. Bordenheimer T, Berenson RA, Rudolf P. The primary care-specialty income gap: Why it matters. Ann Int Med 2007; 146:301-306.
19. Charap MH, Levin RI, Pearlman RE et al. Internal medicine residency training in the 21st century: Aligning requirements with professional needs. Am J Med 2005; 118:1042-1046.
20. Meyers FJ, Weinberger SE,Fitzgibbons JP et al. Redesigning residency training in internal medicine: The consensus report of the Alliance for Academic Internal Medicine Education Redesign Task Force. Acad Med 2007; 82:1211-1219.
21. Fitzgibbons JP, Meyers FJ. Redesigning training for internal medicine. Ann Intern Med. 2006 Dec 5;145(11):865-866.
22. Association of Program Directors in Internal Medicine, Fitzgibbons JP, Bordley DR, Berkowitz LR, Miller BW, Henderson MC. Redesigning residency education

in internal medicine: a position paper from the Association of Program Directors in Internal Medicine. Ann Intern Med 2006;144:920-926.
23. Reuben DB. Saving primary care. Am J Med 2007; 120:99-102.
24. Phillips RL Jr., Dodoo MS, Petterson S et al. Specialty and geographic distribution of the physician workforce: what influences medical student and resident choices? http://www.graham-center.org/online/graham/home/publications/monographs-books/2009/rgcmo-specialty-geographic.html