

INTRODUCTION

In November 1999, financial losses led the University of California at San Francisco Medical Center (UCSF) to close all inpatient services at Mount Zion Hospital, a 280-bed non-profit community teaching hospital that had been affiliated with UCSF since 1990. Mount Zion was home to one of three internal medicine primary care programs at UCSF, including the University of California primary care program (UCPC) and the primary care program at San Francisco General Hospital (SFGH). When Mount Zion closed, its residency program was dissolved and the residents joined the UCPC residents at Moffitt-Long Hospital (Moffitt), a university-based tertiary care center. Moffitt, perched atop the Parnassus Avenue hill on the main medical campus, was also home to UCSF's categorical medicine residency program, a traditional internal medicine program that trained physician/scientists, subspecialists, and hospital-based internists. As a result of these changes, the number of UCSF-affiliated primary care programs was reduced from three to two, and the total number of primary care positions offered per year decreased from 26 to 20. This was a significant reduction: of the two major academic medical centers in the San Francisco Bay Area – the other being Stanford University – UCSF was the only one that trained residents in primary care. Three months later, UCSF dissolved its 1997 merger with Stanford Medical Center, an alliance that had been formed to increase market share for the competing institutions. Another goal for the merger had been expanded opportunities for house staff rotations as a result of a consolidated clinical entity.¹ This merger may have set the stage for Mount Zion's closure and the dissolution of its residency program.

The Mount Zion closure and subsequent reorganization of UCSF's residency programs accomplished both financial and educational goals. Financially, the closure eliminated from UCSF's four-hospital system the one that had been losing money, and allowed beds from two hospitals that had been operating below capacity – Mount Zion and Moffitt – to be consolidated. Educationally, the consolidation of the residency programs streamlined UCSF's educational mission such that all of the primary care programs looked more alike in terms of training site, teaching faculty, and curriculum. While this educational outcome had been a long-term goal of the department of medicine, the forces that led to the Mount Zion closure hastened its realization. At the same time it caused a great deal of unhappiness for the Mount Zion community and many UCSF residents. The community lost an institution that had served it for over 100 years. The Mount Zion residents lost a program they had chosen for its unique focus within the UCSF system on community medicine, and forced them into close quarters at Moffitt with categorical residents who did not consider them their professional equals. It also represented the loss of an avenue for a particular kind of residency training aimed at those who wished to become primary care practitioners.

The Mount Zion closure occurred during an era of drastic change in American health care, and sat at the nexus of three major currents. One of these was the push to curb health care spending. Increasing costs in the 1960s and 1970s prompted cost containment efforts in the 1980s. These included, in the public sector, Medicare's Resource Based Relative Value Scale for physician reimbursement and the Prospective Payment System for hospitals, involving fixed rates based on the reasons for a patient's admission, and in the private sector, managed care. Hospitals experienced an increasing reliance on funding from markets due to the relative decline in public funding, particularly from the federal government.

The second current, most prominent in the 1990s, involved institutional consolidations – mergers and acquisitions – as a response to these financial pressures.^{2(p. 356)} Many academic medical centers across the country were expanding by buying community hospitals and private practices,^{2(p. 356)} only to unload them when it became clear they had overreached their core mission.^{2(p.391), 3} For instance, Yale University has recently attempted to sell back a number of private practices it bought in the 1990s, according to a long-time New Haven resident close to one such transaction. Another, more dramatic example is the collapse of the Allegheny Health, Education, and Research Foundation (AHERF), a multi-hospital conglomerate in Pennsylvania whose empire included Allegheny University of Health Sciences, the 1993 entity resulting from the merger between Hahneman University and the Medical College of Pennsylvania. AHERF declared bankruptcy in 1998 and sold its affiliated hospitals.⁴ In addition to Mount Zion, other community teaching affiliates of medical schools closed in 1999, for example, Baptist Medical Center in Montgomery, Alabama (University of Alabama) and St. Luke's Medical Center in Cleveland, Ohio (Case Western Reserve University).⁵

The final current running through the Mount Zion closure involved the way in which these financial pressures affected residency training in internal medicine. For a brief period prior to the Mount Zion closure, there was a political push for workforce reform with an emphasis on primary care – one discipline of which is general medicine – over subspecialty residency training. For the purposes of this discussion, a subspecialty is defined as an area of medicine dedicated to a particular organ system. General medicine, or general internal medicine, includes adult medicine not dedicated to a particular organ system and encompasses hospitalism, or hospital-based general internal medicine, and primary care

internal medicine, the integrated outpatient management of stable, chronic illness and prevention. In addition to primary care internal medicine, primary care also encompasses family practice and pediatrics. According to the 1996 Institute of Medicine definition, primary care is “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community.”⁶

The movement to increase generalist practice was most prominent in California, but even there it lost momentum by the late 1990s. The Mount Zion closure itself highlights the tension between the dominance of specialty medicine in the United States and the need for primary care.

STATEMENT OF PURPOSE

This thesis describes a particular instance of a failed alliance between a large tertiary-care, university-based hospital and a small community teaching hospital and examines the effects exerted on the internal medicine residents at UCSF. While the events at Mount Zion were unique in some ways, they are consequences of forces being exerted nationwide. These forces have had a sweeping impact on how health care is delivered and, necessarily, how we train physicians to provide that care. We will show that despite an apparent consensus that increasing the number of general practitioners was the solution to the problems of rising costs and access to care, the political will to implement these changes fell short. One may view the Mount Zion closure as both a consequence of and contribution to this failure. We hope that our description of these events will provide a lens through which to examine the state of academic internal medicine in the United States, in particular the shifting sands in educational policy on general and subspecialty internal medicine training.

ORGANIZATION AND METHODS

This thesis is divided into four sections. In the first we will examine the educational issues that form the backdrop for the Mount Zion story and describe the financial pressures and events surrounding the closure, including the UCSF-Stanford merger. For this section, the primary author conducted taped interviews with UCSF faculty in the department of internal medicine. Interviewees' comments have been transcribed and adapted for the text. These interviews took place in January of 2000. Interviewees are listed alphabetically in Appendix B. We also relied on an account of the merger by John A. Kastor,⁷ Kenneth Ludmerer's description of the history of American medical education,² and newspaper accounts compiled in a UCSF electronic publication. In the second section we will describe the closure and its impact on the local community. Here we will describe the institutions at UCSF that were affected by these events and provide the perspectives of key UCSF faculty involved. For this section we also relied on a history of Mount Zion by Barbara S. Rogers and Stephen M. Dobbs.⁸ In the third section we will present a cross-sectional survey of UCSF internal medicine house staff designed to gauge their views of the impact of the hospital closure. In the final section we will discuss our findings as they relate to the larger context of academic internal medicine in an era of managed care. Pertinent reviews of the literature will be presented in each of these sections. Jennifer Teitelbaum conducted all research, including literature searches and interviews. Jennifer Teitelbaum developed and administered the house officer questionnaire under the advisement of John S. Hughes and Andrew D. Auerbach. Zenchao Guo and Jennifer Teitelbaum performed data analyses under the supervision of M. Carrington Reid and John S. Hughes.

CHAPTER ONE: Currents Crossing At Mount Zion

The Primary Care Pendulum

Internal medicine residency training in the late 20th century was subject to a national push toward generalist care. Since 1970, internal medicine – traditionally the most sought-after specialty – experienced a near complete reversal in popularity, reaching a nadir in 1987. On internship match day, now referred to as “Black Tuesday,” many internal medicine programs failed to fill their positions. Reasons cited for this decline in popularity included perceptions that internal medicine was no longer satisfying, and primarily involved the care of very ill and elderly patients. Although subspecialty internal medicine experienced a comeback in the 1990s, primary care internal medicine remained undersubscribed, with only 13.7% of graduating medical students choosing the field in 1989.^{2(p.313)} This lack of interest in primary care coupled with rising health care costs and the advent of managed care caused concern that the physician workforce was not meeting national health care needs, and prompted legislative efforts to train an increased proportion of generalists. In some cases these efforts involved decreases in state-supported funding for graduate medical education programs not dedicated to primary care.⁹ The Council on Graduate Medical Education (COGME), commissioned by Congress in 1994 to examine the issue, recommended a shift in residency training toward a 50-50 mix of generalists and specialists.¹⁰ Organizations including the American Medical Association, the Association of American Medical Colleges, and the Association of Academic Health Centers supported this recommendation¹¹ and engendered a growing body of policy literature in the 1990s, adding to a discussion begun as early as the 1970s.¹²⁻⁴⁸ To address this issue, but as an alternative to proposed state

legislation, the governor of California and the University of California – encompassing five medical campuses – drafted a memorandum of understanding in 1994 to maintain 50% of the University of California’s residency training positions in generalist disciplines.^{49, 50}

These efforts appear to have been effective for a time. The fourteenth report of COGME documented an increase in the percentages of graduating medical students planning a career in a generalist discipline from 1992 to 1997.⁵¹ In California, primary care doctors seemed to call the shots for a time, demonstrated by a popular joke: “How do you call a cardiologist in California?” Answer: “Hey waiter!”

John Kastor suggests that one of Stanford’s goals in pursuing the merger with UCSF had been expansion into primary care.^{7(p.308)} However, by the time the merger was dissolved and Mount Zion closed, a reaction against the generalist movement had already begun. The National Graduate Medical Education Census for 2000-2001 documented a reversal in direction of the primary care pendulum. According to the authors, generalism is now on the decline despite the 1994 COGME recommendation.

The trends in the percentage of USMGs [U.S. medical graduates] matching in the primary care specialties of internal medicine, pediatrics, and family practice may indicate a shift away from primary care. This shift is even more dramatic because the greatest decreases in the number of residents were in family practice, in which an estimated 95% of graduates practice primary care. In internal medicine and pediatrics the estimated percentage of graduates practicing primary care is 50% and 78%, respectively. This movement away from primary care and toward specialty and subspecialty programs is presumably in response to market forces and projected deficits in specific specialties and subspecialties [now on the rise, with a 2.1% increase in the number of subspecialty programs since 1999-2000]. Although there is a marked delay in the ability of residency training to adjust to changes in workforce requirements, it is evident that those needs influence the choices of USMGs.⁵²

This census may actually underestimate the decline in interest in primary care among internal medicine applicants, whose numbers seem to have remained steady since 1996, because the authors do not distinguish between primary care and traditional internal medicine programs. According to figures from the National Resident Matching Program (NRMP), adapted below in Table 1, the number of U.S. medical graduates filling primary care internship positions has declined from 386 in 1997 to 204 in 2002. This trend appears to be independent of the decrease in number of primary care positions offered. The percentage of U.S. seniors choosing internship positions in primary care, although never high, fell from 2.8% in 1997 to 1.5% in 2002. The number of unfilled positions has remained steady.

Table 1. Positions In Internal Medicine And Primary Care Offered And Filled From 1997 Through 2002

	1997	1998	1999	2000	2001	2002
Total Internal Medicine PGY1 slots	4595	4697	4753	4810	4727	4662
Slots Filled By USMGs	2820	2930	2863	2800	2798	2738
Slots Filled By IMGs	1345	1264	1388	1388	1293	1293
Slots Filled By Other Applicants	234	239	255	306	312	364
Not Filled	196	264	247	316	324	267
Primary Care IM PGY1 slots	608	565	575	473	404	339
Slots Filled By USMGs	386	376	347	281	234	204
Slots Filled By IMGs	137	121	124	131	107	91
Slots Filled By Other Applicants	26	31	34	33	28	26
Not Filled	59	37	70	28	35	18

Numbers of applicants filling all internal medicine residency positions and positions in primary care. PGY1=First Post-Graduate Year; USMG=U.S. Medical Graduate; IMG=International Medical Graduate; IM=Internal Medicine. Primary Care is a subset of Internal Medicine.

Despite the fanfare over increasing the numbers of residents trained in primary care, at the pendulum's peak in 1997 no more than 12.5% of internal medicine internship positions were dedicated to primary care. The California legislature failed to alter the course of events when it included all internal medicine subspecialties in the definition of primary care under its memorandum of understanding with the University of California.⁴⁹ As a result, it overestimated the numbers of generalists ultimately turned out by California programs and thereby limited its ability from the outset to truly shift the balance between specialists and general practitioners.

Financial Pressures on Teaching Hospitals

The closure of Mount Zion occurred during an era of increasing nationwide financial constraint and consolidation in health care. Managed care was created in the 1970s and gained popularity in the 1980s and 1990s as a way to connect payment for health care with the mechanisms for its delivery in order to lower costs. Managed care's influence was keenly felt in California where this model predominated.⁵³ By 1985, health maintenance organizations (HMOs) and preferred provider organizations constituted 63% of the San Francisco health care delivery market.^{8(p. 88-124)} By 1998, one year prior to Mount Zion's closure, HMOs alone had acquired a 59% share and traditional indemnity insurance constituted a mere 1.5% of all third-party payment.^{7(p. 265)} Academic medical centers were particularly vulnerable to the resulting financial pressures due to their costly endeavors including research, complex care, and education.⁵⁴ The Association of American Medical Colleges documented steep declines in teaching hospitals' operating margins between 1996 and 1999.⁵⁵ As a result, tertiary care centers felt the need to expand in order to gain and

maintain market share.^{2(p. 364), 7, 9, 56-59} John Iglehart, a prolific health policy analyst, described the situation in his 1995 report on academic medical centers.

With the rapid growth of managed care and the demise of comprehensive health care reform, most academic medical centers now seem to recognize that they can no longer operate as specialty-driven institutions largely divorced from the trends that favor lower costs, less hospitalization, and more primary care. Many centers are responding to these trends by striving to build or join networks of providers in the community. They are greatly expanding their capacity to deliver primary care and teach medical students and residents at ambulatory training sites. Some centers are also integrating their business and clinical operations, streamlining their management structures, and negotiating more effectively with managed care plans.”⁶⁰

Community hospitals had been experiencing difficulties since the 1980s. 642 U.S. community hospitals closed between 1980 and 1992. California ranked second only to Texas in the nation with 64 closures.⁵³ In 1999 alone, the year Mount Zion closed, California lost a total of 6 hospitals.⁵ As a result, community hospitals were more than happy to form alliances with tertiary care centers, which promised prestige and Medicare funding for graduate medical education. Two community hospitals in Connecticut – Waterbury Hospital and St. Mary’s Hospital – are, as one Medicine chairman pointed out, the enviable sponsors of Yale University’s primary care residency program.³ As another example, the Johns Hopkins Medical Institutions formed alliances with a number of Baltimore community hospitals including Mount Sinai Hospital and Bayview Medical Center, each proudly advertising Hopkins-affiliated residency programs.

In the 1990s, mergers between academic medical centers represented another increasingly common response to the pressures of the time. John Kastor, professor of medicine at the University of Maryland, described three such mergers in his recent book,

including mergers between Columbia Presbyterian Hospital and New York Hospital in New York City, and Massachusetts General Hospital and Brigham and Women's Hospital in Boston.⁷ The third merger he analyzed was that in the San Francisco Bay Area between UCSF and Stanford Medical Center. As we will describe, this merger, created in 1997 and dissolved in 1999, set the stage for the events that followed at Mount Zion.

UCSF-Stanford

In step with this “merger mania,”⁵⁹ UCSF formed an alliance with Stanford in 1997. According to Kastor's account, the merger was conceived by Dr. Joseph B. Martin, chancellor of UCSF, and Gerhard Casper, president of Stanford University, in response to the large-scale managed care penetration of the California health market. Martin allegedly said to Casper, “We can't succeed with this arms race with such marginal lines. We're going to kill each other if we don't find a way to work together.”^{7(p.265)} Kastor described the core issue prompting the merger as “the desire to release the two academic centers in northern California from competition over ‘high-end’ [tertiary and quaternary care] work.” Stanford Medical Center had been looking to merge its hospital with Columbia-HCA due to decreased financial allotments from the university. Kastor suggested that UCSF officials feared intensified competition driving down what insurers would pay UCSF if such a merger took place, and that perhaps they pursued the merger between UCSF and Stanford hoping to forestall the Stanford-Columbia-HCA alliance.^{7(p.267)}

After posting an operating gain at the end of its first year as a merged organization, UCSF-Stanford faced an unexpected \$86 million deficit in 1999.⁶¹ Of the losses sustained by the merger, nearly \$60 million were attributed to Mount Zion when, for the first time, its

finances were analyzed separately from those of UCSF.^{7(p.364), 50} This led to the unanticipated discovery that Mount Zion had in fact been losing money for years, with losses growing from \$15 million to \$30 million between 1990 and 1997; UCSF had in fact subsidized Mount Zion with over \$200 million during the course of the decade.^{7(p.364)} Deficits at Mount Zion were attributed to a persistently low census, insufficient revenues from government and private payers, and a significantly lower Medicare reimbursement rate than that for the UCSF Medical Center on Parnassus Avenue (Moffitt). These losses would be added to an expected \$38 million reduction in overall Medicare payments to the entire UCSF-Stanford clinical enterprise as a result of the Balanced Budget Act of 1997.⁶² In addition, Mount Zion would require large capital expenditures before 2008 in order to comply with state seismic requirements for acute hospital buildings.⁶³

In previous years, Moffitt had been able to offset the losses. However, “as the reimbursement rates in the Bay Area fell so low, UCSF became no longer profitable.”^{7(p.364)} Without the protective umbrella of UCSF, the Mount Zion losses appeared untenable. Therefore, in September 1999, the dean of the UCSF School of Medicine and several clinical department chairs recommended consolidating clinical services at Mount Zion and UCSF as part of a financial recovery plan requiring cost reductions of \$170 million to break even in fiscal year 2000.⁶⁴ This consolidation would involve the transfer of all Mount Zion inpatient services, including emergency room services, to Moffitt while continuing to develop the Mount Zion campus as an ambulatory site.⁶³ (There was a debate at UCSF as to whether the UCSF-Stanford merger caused the closure of Mount Zion or merely uncovered its financial situation, hastening an inevitable process. This question is beyond the scope of our discussion.)

Financial Pressures on Residency Training

The financial pressures on UCSF as an academic medical center were inevitably transmitted to its residency programs. UCSF was not alone in feeling the pinch; graduate medical education was taking a hit nationally. In addition to time being diverted from education to more lucrative service endeavors,⁶⁵ one major source of pressure on residency training has been the reliance of teaching hospitals on Medicare, the largest contributor of funds to support graduate medical education (GME).⁶⁶ The Balanced Budget Act (BBA) of 1997 reduced total GME support (direct and indirect) for teaching hospitals by a net \$5.6 billion from 1998 to 2002.^{67, 68} The Indirect Medical Education adjustment – a payment formula accounting for the higher patient care costs teaching hospitals incur – alone resulted in the second largest inpatient payment cut for teaching hospitals as of 2002, at which time the adjustment had been reduced to 5.5% from 7.7% in 1997.⁶⁹ The BBA also froze the number of residency positions for which Medicare would reimburse, forcing programs to limit the number of residents they trained.⁷⁰ Duke University, for example, cut its residency program by 30 percent as a result.^{2(p. 363)} The limitations imposed by the BBA are at least partly responsible for recent GME trends including the balance shift toward specialty training.⁷¹ It is not a likely coincidence that the year the BBA was enacted was also the year that the primary care pendulum peaked and reversed its course.

CHAPTER TWO: The Mount Zion Closure

The Institutions: Mount Zion and the UCSF Residency Programs

Mount Zion Hospital

Mount Zion opened in 1887 in San Francisco as a private Jewish hospital and became a community teaching hospital in the 1930s. The hospital underwent great expansion of its physical plant after World War II as it increased services to local residents of an economically declining neighborhood. During the 1970s it began experiencing financial difficulties, partly as a result of inadequate reimbursement for increasing numbers of public care patients in the 1960s and 1970s. The hospital's financial situation worsened in the 1980s due to the new Prospective Payment System for Medicare and demands for discounted rates from managed care. Over one-third of Mount Zion's patients were covered by the state Medicaid system (MediCal) or were uninsured (35.2% by the time of closure).^{7(p. 365), 72} These difficulties eventually led to cutbacks in teaching and outpatient services. Looking to expand its own operations, UCSF purchased Mount Zion in the early 1990s at which time the community hospital served mostly working class and poor African Americans and Russian immigrants. According to then UCSF medical school dean Julius R. Krevans, "When [Mount Zion] was going under, its board finally said, 'Take us over.'"^{7(p. 289)}

The Mount Zion Primary Care Residency Program

The residency program at Mount Zion began as a categorical internal medicine program under Kenneth A. Woeber, appointed in 1975 as the department of medicine's first full-time chief of staff.^{8(p.117)} Through the early 1990s, the program was not linked to UCSF:

the residents worked exclusively on the Mount Zion wards and in its outpatient clinic, serving a homogenous patient population.⁷³ They were taught and supervised by a mixture of a few core faculty members as well as by a larger number of community attending physicians.

Partly due to this community physician presence, some at UCSF felt the quality of clinical training at Mount Zion was “uneven and didn’t meet the high standards that were maintained at the other UCSF residency programs.”⁷⁴ Cynthia Fenton, then associate director of the categorical residency program, was among those who maintained this view. “I think it is a challenge to make a top-notch training program when you have that many private attendings. There is a lot more variation, their focus is a lot less academic, and residents have less independence.” Ernest J. Ring, associate dean for the UCSF-Mount Zion Medical Center, described tension with the UCSF program: “No one at UCSF took Zion seriously as a hospital...Moffitt looked down its nose at Mount Zion.”^{7(p.385)}

For others, in contrast to the reputedly impersonal atmosphere of Moffitt-Long, the hospital on “the [Parnassus] hill,”^{7(p.289)} Mount Zion and its residency program had a “family” atmosphere where admitting physicians came over from their offices across the street.^{74, 75} Ernest Ring described Mount Zion as “providing better training to house officers than university hospitals that specialized in tertiary care” because it “more closely mimic[ked] what most trainees...encounter when they enter practice” and that Mount Zion residents “work[ed] with first-class clinicians who...treated patients for years in ‘old-fashioned community medicine.”^{7(p.385)}

In 1997, Lee Goldman, the recently appointed chair of the internal medicine department at UCSF, and Robert Baron, the University of California primary care (UCPC)

program director, transformed what had been the Mount Zion categorical medicine residency program into a primary care program (MZPC). Their main goal was to strengthen the program educationally, but also to comply with California's mandate to train 50% generalists. The transformation initiated a process of integration between the Mount Zion program and the UCSF programs. The old Mount Zion outpatient clinic was closed and replaced with a new one across the street, and the outpatient and inpatient components of the program were revamped such that the patient population seen by the residents became more balanced in terms of ethnicity, socioeconomic status, and insurance coverage.^{49, 74}

Along the way, many elements of the UCPC curriculum were replicated at Mount Zion including a full-time teaching presence of UCSF faculty attending physicians, replacing a predominance of part-time community physicians. Despite these changes, by the time of the closure, the Mount Zion program continued to be perceived as less prestigious than the other programs at UCSF. According to Daniel Null, UCSF faculty member and former Mount Zion ward attending physician, "People looked down...at the Mount Zion program...as a second- or third-tier program...so there was a lot of ugliness."⁷⁴ As a result, the administration and residents prepared themselves for a sort of class war during the planning stages of the consolidation of the MZPC and UCPC programs.^{49, 50}

Mount Zion Inpatient Ward Team Structure

Before the closure, medical inpatients at Mount Zion were admitted to one of four medical teams composed of a resident, up to two interns, and as many as three medical students. The house staff wrote all orders and provided 24-hour coverage to inpatients. Each team had an attending physician who was a full-time faculty member serving in this role for

one month per year. Community-based physicians remained the physicians of record for most patients and worked with house officers in the care of their hospitalized patients.⁷² (Auerbach et al. noted that the implementation of a hospitalist service in July 1997 altered this structure. Hospitalist physicians, who were UCSF faculty based at Mount Zion working independently of primary care physicians, served as ward attendings six to eight months per year, thereby reducing but not eliminating community physician involvement in the inpatient setting.⁷²)

The UCSF Internal Medicine Residency Programs

Prior to 1999, the Mount Zion primary care program (MZPC) was one of four UCSF residency programs at separate sites, each with an independent intern match. The other programs included the categorical program based at Moffitt-Long Hospital, a 560-bed tertiary-care center; UCPC, the primary care program also based at Moffitt; and SFGH, a smaller primary care program based at San Francisco General Hospital, the county hospital. The UCPC and MZPC programs each trained 30 residents (10 interns per year) while SFGH trained 18 (6 interns per year). The primary care programs were administered separately and clinical training was conducted at different sites. MZPC residents completed some inpatient rotations alongside the other UCSF residents at SFGH, Moffitt, and the San Francisco Veteran's Administration Medical Center (VA), but none of the other residents rotated at Mount Zion.

The MZPC and UCPC curricula were similar in 1999, with mostly inpatient rotations in the internship year, plus one half-day per week of ambulatory experience. The second and third years consisted of six months of inpatient and six months of ambulatory rotations in

both general and subspecialty medicine. Overall, residents spent approximately 60% of their training time on inpatient wards and 40% in ambulatory care.⁷⁶ This curriculum continues to be in place for the current UCPC program.

The categorical residency program based at Moffitt trained 105 residents (35 interns per year). There were four categorical tracks, including the core program; the molecular medicine track for physician/scientists; the PRIME program, a VA-based academic general internal medicine track stressing epidemiology and evidence-based medicine; and the hospitalist track, offering a specialized curriculum in inpatient medicine. During their three years, categorical medicine residents spent one half-day per week in a longitudinal outpatient clinic. The SFGH primary care program focused on the underserved populations of San Francisco. SFGH residents spent the majority of their time at SFGH and affiliated city clinics. Ambulatory block time made up about 50% of the training experience during the second and third years of training.

When the inpatient services at Mount Zion were closed, the MZPC program was merged with the UCPC program at Moffitt. The UCSF Primary Care Program is the reincarnation of these programs, and currently has 14 internship positions per year. Inpatient rotations are fully integrated with those completed by the categorical residents at Moffitt, SFGH, and the VA. Second and third year residents spend more than half of their time in the ambulatory setting. The Mount Zion clinic remains open as a primary care practice site for UCSF Primary Care residents.⁷³ The categorical and SFGH programs were unchanged by the Mount Zion transition.

The Transition

The closure of the MZPC program and merger with its counterpart at Moffitt created a huge culture shock for the MZPC residents. They had entered a small program of 30 people who all knew each other and were all training in primary care. They worked at a small community hospital where community practitioners did a great deal of the teaching⁷⁰ and primary care was well respected. After the closure, they were transplanted into a large academic, tertiary care center that trained over 130 medicine residents who were planning to specialize and who considered the MZPC residents their professional inferiors. According to one UCSF medical student, some categorical residents felt that even UCPC residents were not their full equals.

The UCSF administration, including the department chair and co-chair as well as the program directors for the categorical and primary care programs, made a concerted effort to insure the transition went smoothly. They held meetings with all of the residents for several months leading to the transition and listened to their concerns. The residents at Moffitt feared dilution by increased numbers of residents, leading to larger seminar groups, an increased resident-to-faculty ratio, and decreased numbers of patients. MZPC residents mainly expressed anger and grief at the loss of their program. According to Robert Baron, who had led the MZPC program, they were worried about losing the “homey, community-based atmosphere at Mount Zion they really liked” and feared “that they would get lost in the impersonal large setting of the big teaching hospital,” and that they would “lose contact with their community-based faculty and mentors.” Many of them also anticipated that they would be looked down upon and “wouldn’t be able to compete.” As a result of these conversations, the administration decided to transfer the four Mount Zion ward teams intact rather than

integrating the residents into the four existing teams at Moffitt, creating for one transition year an eight-team system. In this way, relationships with private attendings were not disrupted and Mount Zion patients would hopefully follow. (According to one commentator, the unofficial motive for this arrangement was to protect categorical residents from having to admit private patients.) The anticipated increase in patient volume could therefore be accommodated by two on-call teams per night.^{49,50,70}

One purpose of this study was to examine the impact of the Mount Zion closure on the residents, particularly those in the MZPC program. Before we look at the experience of these particular residents, however, we first need to revisit the larger context of these events as they pertain to the shifting emphasis on primary care training. As of 1999, there was a perception among UCSF faculty that the pendulum was swinging back towards specialization, for instance, with the emergence of the hospitalist track focusing on hospital-based general internal medicine. As Daniel Null noted, “The rapid emergence and growth of hospitalism has been one kind of standard under which there has been a shift back towards some form of specialization within medicine, and especially tending to be inpatient oriented. ... Certainly in our own division meetings there is talk about how primary care had its heyday. It came and went...we had our 15 minutes of fame. ... Clearly being the base of the pyramid for the health care system in the U.S. as it currently exists is not viable.”⁷⁴

According to Robert Baron, internal medicine chairman Lee Goldman wanted to encourage the trend away from primary care in order to support the hospitalist training model and move back towards specialization. “The residents were all getting jobs as specialists again,” noted Baron. This emphasis is currently reflected in the reduced numbers of primary care residency positions at UCSF overall: prior to 1999, there were a total of 26 internship

positions offered in primary care among the UCPC, MZPC, and SFGH programs compared to 20 today. (Baron also commented that there were educational reasons behind this reduction in numbers, including the faculty-intensive nature of one-on-one ambulatory training.)

Lee Goldman talked about a concurrent phenomenon he described as the retreat of academic medical centers to their core mission after a period of over-expansion into community medicine. “A lot of academic health care centers have experimented recently with new and more ambitious residency training relationships with community hospitals that have their own financial troubles...and I think we may see...a transfer back to the core university hospital, which is a reversal of the trend we’ve been seeing in the last 10 or 15 years. What we are seeing here at Mount Zion is an example of that.”³ According to one 1999 report on the strategies of five institutions, academic medical centers that have thrived seem to have done so by “holding on tight to the shares of the health care system that managed care has not penetrated: high-technology specialty care...and the education of health professionals.”⁷⁷

Robert Wachter, associate internal medicine chairman at UCSF, elaborated. “For most academic medical centers, their business is not the provision of basic primary or secondary care [for people who are generally healthy or who have stable, chronic illnesses], which...they probably do more expensively than other places. Their competitive advantage lies in the care of complicated sick people.” He also noted that the days when a multi-institutional system could afford to keep two hospitals open when one was 70% full and the other maintained only 50% of its capacity were gone. Regarding patient care, he hypothesized that the outcome of the Mount Zion closure would be “neutral at worst,” given

the excess capacity available at Moffitt to absorb the patients and the benefit to them. He also foresaw a replenished nursing supply and next-generation technology being paid for with the savings (and thereby enhancing the tertiary- and quaternary-care mission of the remaining UCSF hospitals). Wachter acknowledged that this financial universe did not necessarily align with its educational counterpart. “The people charged with the educational component of the mission often need to come up with creative solutions. ... What you may begin to see is a stratification of the training mission where places like UCSF – who have recognized that the clinical mission and business strategy most compatible with survival is...focusing on tertiary and quaternary care – train people who mostly want to do subspecialties and train in this kind of environment.”⁵⁰

Cynthia Fenton concurred, describing her views as a program director of the institutional changes as they related to residency training:

I think for the UCSF program, the closing of Mount Zion probably facilitated the educational mission. The mission of the Mount Zion program had been community primary care, a far stretch from the core mission of the categorical program, which was to train clinicians and basic scientists. I also think they were recruiting a very different type of resident, and it made it hard for us to focus on the mission of the UCSF program. Now we’ll have more of an academic focus. Even before Mount Zion closed, we were trying to include it under the big umbrella of the UCSF programs, and I think we actually stretched the envelope of optimal heterogeneity. By having two remaining primary care programs, we can maintain good heterogeneity: we have people who want to provide indigent care, but they are at SFGH where they still have a lot of autonomy and are working only with UCSF faculty. As for the former MZPC and UCPC residents, the core of their outpatient teachers are UCSF faculty, as are all of their inpatient teachers. I think we’re back to having a more limited scope, which is good; it makes it easier. However, the mission of the Mount Zion program was an important mission. It may not be the UCSF department of medicine’s primary

mission, and it may not be what we're best suited to do. So we've lost something as well.⁷⁰

Community Reaction to the Mount Zion Closure

To many within and outside of the institution, the closure of Mount Zion's inpatient services was both an educational loss and a loss to the community the hospital had served. Mount Zion had been the main provider for the Western Addition neighborhood of San Francisco since 1887.⁸ When the public became aware of UCSF's plans, there was a great outcry to save the hospital. In June 1999, 30 health care workers, union representatives, patients, and community members appealed to the UCSF-Stanford board to preserve services at Mount Zion, voicing concerns about access to health care among the low-income and indigent populations. Among these voices were four primary care residents, stating that the "loss of an acute medical care facility would undo UCSF's many years of effort to establish itself as an institution with close ties to the community."⁷⁸

The chair of Mount Zion's board of trustees was among several people who questioned some of the financial losses attributed to the hospital, and pledged a \$5 million contribution from the Mount Zion Health Fund, a non-profit community endowment, as an 18-month stopgap measure. The director of the Mount Zion emergency room pledged that "given the time and a well thought-out plan, we will make Mount Zion economically viable."⁷⁸

In the days prior to closure, San Francisco and California political leaders including Mayor Willie Brown, then rival mayoral candidate Tom Ammiano, California Senators John Burton and Jacqueline Speier, state Assembly members Carole Migden and Kevin Shelley, as well as U.S. Senators Dianne Feinstein and Barbara Boxer, and U.S. Representative Nancy

Pelosi joined forces to draft a proposal to keep the medical center open with \$25 million of city, state, and federal funds.^{7(p.386), 79} UCSF officials rejected the offer, citing lack of guarantees of long-term funding.⁸⁰

According to Daniel Null, who had been close to the educational mission at Mount Zion, an element missing from the public debate was an evaluation of the hospital as an educational site. “A great educational experience for residents and for medical students was lost just at the time when they were pushing primary care, generalism – all of those qualities in the first- and second-year curriculum. Right as they were doing that, the university...chopped off perhaps the best site for realizing and implementing and modeling those things for the students and for the residents...From an educational standpoint [it was] a flat out loss.”⁷⁴

Effect on the Residents

Nearly all of the people at UCSF interviewed believed that few, if any, of the fears expressed by the residents prior to the closure materialized. While it may be true that the transition went as smoothly as possible, it seemed unlikely that there would be no residual effects on those closest to it. In the next chapter, we will examine the effects this transition had on the residents involved.

CHAPTER THREE: UCSF Residents' Reactions To The Mount Zion Closure: A Cross-Sectional Study

Background Study Objective

The negative effects on medical education during this “era of constraint”⁸¹ have been addressed in a number of writings,^{39, 82-86} but have not been quantified.⁵⁸ In addition, while many reports – including cross-sectional survey studies – have addressed the general stress of residency,⁸⁷⁻⁹¹ as well as the effectiveness of primary care training in preparing physicians for practice,^{76, 92} we found no studies to date in which the direct effects on residents of teaching hospital closures had been addressed. However, the issue merits investigation since many academic medical centers still entrust vulnerable community hospitals with the responsibility of training their residents. The purpose of this study was to determine the impact of the closure of a community teaching hospital on UCSF residents in internal medicine in terms of their training experience and future plans for careers in general versus subspecialty medicine.

Methods

Questionnaire development

The primary author met with the principals interviewed for the background section as well as with the chief of the division of general internal medicine, the director of the categorical medicine residency program, and one chief resident^A to identify key questions to include in a survey. We subsequently developed a 20-item questionnaire designed to assess the residents' perceptions of the impact of the hospital closure on education quality, working

^A See Appendix B for names.

conditions, and quality of life. UCSF faculty members reviewed survey drafts and Institutional Review Boards at Yale and UCSF approved the survey prior to administration.

Due to the limited number of eligible subjects and time constraints imposed by the pending graduation of one-third of the cohort, we did not conduct official pilot studies. However, we initially administered a longer version of the survey featuring detailed demographic questions that proved difficult for residents to complete. We replaced the original survey with a shorter version.^B We were unable to use responses from participants who completed only the longer version because there was insufficient agreement between long-version and short-version responses by the weighted kappa test. The program administrators provided demographic information on all of the residents.

Participants

We surveyed all UCSF primary care and categorical internal medicine residents whose internship year began in 1997, 1998, or 1999 and were in training during the Mount Zion closure. We excluded the five preliminary interns in each of the designated years due to their career goals in specialties outside of internal medicine. We also did not include the six chief residents because we consulted them while we developed the survey. Residents who were still in training when we conducted the survey (January to June 2001) filled out questionnaires during three designated morning reports. Graduates were surveyed by mail. The primary author followed up with non-responders by telephone.

^B See Appendix A for the questionnaire.

Questionnaire

In the first section of the survey, we asked residents about group-defining predictors such as internship year, program affiliation, and career choice, both on match day and on the day they completed the survey. We also asked them to indicate when they rotated at Moffitt to see if temporal proximity to the closure had any effect on their responses. In the remaining two sections of the questionnaire, we asked residents to state, using 5-point Likert scales, whether they felt 17 specific aspects of their education, work environment, and quality of life were better, the same, or worse since the closure (1=very harmful to 5=very beneficial). They also answered three global questions assessing whether the overall impact of the closure was beneficial, neutral, or harmful. Harm was defined as a rating of very or somewhat harmful or worse since closure on one or more of the survey questions. Likewise, benefit was defined as a rating of very or somewhat beneficial or better since closure on one or more of the survey questions. No effect was defined as a rating of neutral or the same on one or more questions. We maintained participants' anonymity with a number tracking system for completed surveys.

Statistical Analyses

We first looked for differences between responders and non-responders across variables of age, race, ethnicity, and program affiliation. We then assessed for associations between participants' characteristics (program affiliation, training level, when they rotated at Moffitt, and career plans) and their responses to the survey questions using Chi Square or Fisher's Exact tests as appropriate for categorical variables. We identified questions with significant odds ratios (confidence intervals of 95%) for particular characteristics using a

stepwise logistic regression model. The number of responses varied by question largely because we eliminated responses of “Not Applicable” from analyses. We considered p values less than 0.01 to be statistically significant because we made multiple comparisons. Analyses were performed using SAS version 8.2 and Epi Info 2002.

Results

Demographics (Table 1a)

We surveyed 154 residents, of whom 108 (70%) responded. Responders had a mean age of 31.3 years ($SD = 3.1$); were 46% female; 67% Caucasian; 16% Asian; 9% Hispanic; and 8% other including African American, Indian, Pakistani, Middle Eastern, and Native American. Program affiliation among responders broke down as follows: categorical residents comprised 51% of the sample; UCPC residents 20%; MZPC residents 19%; and SFGH residents 10%. There was a predominance of responders who were in their second or third years at the time of the survey: 42% of responders were second-years (interns in 1999-2000); 31% were third-years (interns in 1998-1999); and 27% had graduated (interns in 1997-1998) by the time we conducted the survey. While we found no significant differences between responders and non-responders in terms of age, race, ethnicity, and program affiliation, class year did appear to make a difference in whether residents responded to the survey. Eighty percent of second-year and 75% of third-year residents responded whereas only 52% of recent graduates responded ($p < 0.01$). Although graduates responded at a lower rate than the other classes, the MZPC graduates responded at a higher rate than any class from MZPC or any other program, as demonstrated in Table 1b.

Table 1a. Response Rates By Demographic Category

	Demographic category	Responding N=108/154 (70.1%)
Program Matched Into	Mount Zion Primary Care	21/30 (70.0%)
	University of California Primary Care	21/28 (72.4%)
	San Francisco General Primary Care	11/18 (61.1%)
	Categorical	55/78 (70.5%)
Training Level At Time Of Survey	Second Year	45/56 (80.4%)
	Third Year	39/52 (75.0%)
	Graduate	24/46 (52.2%)
Gender	Male	58/82 (70.0%)
	Female	50/72 (69.4%)
Ethnicity	Caucasian	72/100 (72.0%)
	Asian	17/28 (60.7%)
	Hispanic	10/13 (76.9%)
	Other	9/13 (69.2%)

Number of residents responding/surveyed, broken down by program, training level, gender, and ethnicity.

Table 1b. Response Rates By Training Levels At Survey And By Program Affiliation

	Mount Zion Primary Care	All Others
Post-Graduate Year 2	6/10=60.0%	39/51=76.5%
Post-Graduate Year 3	6/10=60.0%	33/51=64.7%
Graduated from program	9/10=90.0%	15/51=29.4%

Number of Mount Zion Primary Care and other residents responding/surveyed, stratified by training level.

Responses by Program^C

Intangibles (Table 2a)

The majority of perceived harm seemed to involve mainly intangible issues, including the overall effect of the Mount Zion closure on training, the way the administration handled the transition in general and the ward team change in particular, program focus, program morale, and confidence in peers. Perceptions regarding specific issues varied by program affiliation, with the most notable differences occurring between MZPC and other residents, particularly those in the categorical program. Fifty-nine percent of all responders (61% of those responding to the question) rated the closure as harmful to their program. This view correlated with MZPC affiliation: MZPC residents were much more likely than were categoricals (80% vs. 59%, $p<0.05$) and all other residents combined (80% vs. 57%, $p=0.05$) to respond this way.

A significant percentage of MZPC residents, although a minority, felt that the way the administration handled the transition (38% vs. 6%, $p<0.01$) was harmful to their training. As a group, primary care residents were more likely than were categoricals to hold this view (37% vs. 6%, $p<0.01$). Thirty-two percent of respondents felt the ward team change – which involved transferring the Mount Zion teams intact to Moffitt, and increasing the number of teams from 4 to 8 – was harmful. Non-MZPC residents saw this strategy negatively and were more likely than were MZPC residents (48% vs. 15%, $p<0.05$) to find it harmful. MZPC residents were more than twice as likely as others to see a negative change in program focus (57% vs. 26%, $p<0.05$), and nearly twice as likely as others to report lowered morale (81% vs. 53%, $p=0.07$). Categorical residents were the most likely of the groups to report

^C We have changed the order of the survey questions for presentation. For clarity purposes, Table 2 presents the questions as we asked them but in the new groupings we created.

Table 2. Questions As They Were Asked In The Survey But Grouped By Categories Of Intangibles, Education Issues, And Working Conditions^D

Intangibles	1.	On balance, the effect on my program of the closure of Mt. Zion was (very beneficial...very harmful)
	2.	On balance, the way the administration handled the transition was (very beneficial...very harmful)
	3.	On balance, the changes in ward team structure during 1999-2000 were (very beneficial...very harmful)
	4.	With Mt. Zion closed, I feel (much better...much worse) about program focus (community vs. academic medicine, e.g.)
	5.	With Mt. Zion closed, I feel (much better...much worse) about program morale
	6.	With Mt. Zion closed, I feel (much better...much worse) about my relationships with my peers
	7.	With Mt. Zion closed, I feel (much better...much worse) about my confidence in my peers
	8.	With Mt. Zion closed, I feel (much better...much worse) about the quality of my personal life
Education Issues	9.	With Mt. Zion closed I feel (much better...much worse) about the integration of my inpatient and outpatient experience
	10.	With Mt. Zion closed I feel (much better...much worse) about the quality of ward teaching
	11.	With Mt. Zion closed I feel (much better...much worse) about support from my attendings
	12.	With Mt. Zion closed I feel (much better...much worse) about my level of contact with private doctors and patients
	13.	With Mt. Zion closed I feel (much better...much worse) about the number of inpatients available for my training
	14.	With Mt. Zion closed I feel (much better...much worse) about the educational quality of inpatients/cases
	15.	With Mt. Zion closed I feel (much better...much worse) about the overall quality of my education/training
Working Conditions	16.	With Mt. Zion closed I feel (much better...much worse) about my hours while on the wards
	17.	With Mt. Zion closed I feel (much better...much worse) about the overall quality of patient care
	18.	With Mt. Zion closed I feel (much better...much worse) about the quality of nursing support
	19.	With Mt. Zion closed I feel (much better...much worse) about the quality of ancillary support
	20.	With Mt. Zion closed I feel (much better...much worse) about the quality of my work life

^D See Appendix A for the full survey as it was administered.

Table 2a. Proportion of Residents Who Rated The Effects Of The Closure As Harmful By Program: Intangible Areas^E

	All (N=108)	MZPC (n=21)	Categorical (n=55)	UCPC (n=21)	SFGH (n=11)	p
1. Effect of MZ Closure	64/105 (61.0%)	16/20 (80.0%)	32/54 (59.3%)	14/21 (66.7%)	2/10 (20.0%)	0.016
2. Transition Execution	22/105 (21.0%)	8/21 (38.1%)	3/53 (5.7%)	6/21 (28.6%)	5/10 (50.0%)	0.000
3. Ward Team Change	32/99 (32.3%)	3/20 (15.0%)	20/50 (40.0%)	9/20 (45.0%)	9/9 (100%)	0.015
4. Program Focus	34/105 (32.4%)	12/21 (57.1%)	12/54 (22.2%)	8/21 (38.1%)	2/9 (22.2%)	0.028
5. Program Morale	62/106 (58.5%)	17/21 (81.0%)	28/54 (51.9%)	13/21 (61.9%)	4/10 (40.0%)	0.071
6. Peer Relations	14/105 (13.3%)	4/21 (19.0%)	5/53 (9.4%)	3/21 (14.3%)	2/10 (20.0%)	0.533
7. Confidence in Peers	25/106 (23.6%)	1/21 (4.8%)	21/54 (38.9%)	1/21 (4.8%)	2/10 (20.0%)	0.001
8. Personal Life Quality	4/103 (3.9%)	1/20 (5.0%)	3/53 (5.7%)	0/21 (0.0%)	0/9 (0.0%)	0.758

Number reporting harm/number responding, stratified by program. MZPC=Mount Zion Primary Care; UCPC=University of California Primary Care (based at Moffitt); SFGH=San Francisco General Hospital Primary Care.

decreased confidence in their peers (39% vs. 8%, $p < 0.01$). The difference between categoricals and MZPC residents was particularly notable (39% vs. 5%, $p < 0.01$). Despite these complaints, however, a majority of the total sample (87%) reported no change in the quality of their personal lives.

^E See Appendix C, Table 2d for a breakdown of responses by MZPC vs. other programs.

Education Issues (Table 2b)

Effects on education were perceived differently by different groups, again with the most notable differences between MZPC and the other residents. MZPC residents were more likely than other groups (35% vs. 4%, $p < 0.01$) to view the integration of the outpatient curriculum into the rest of their training as unsatisfactory. They were also more likely than were others (19% vs. 4%, $p = 0.05$) to feel a loss of attending support. Sixty percent of all respondents felt dissatisfied with their level of contact with private doctors and patients. SFGH residents were notably unhappy, with 88% reporting harm, followed by MZPC residents who had an 80% dissatisfaction rate. Categorical and UCPC residents were relatively less dissatisfied with their level of contact with private physicians, with 56% and 42% reporting harm, respectively ($p < 0.05$). SFGH and categorical residents were the most likely among the programs to report decreased educational quality of inpatient cases at 56% and 48% respectively ($p < 0.05$). SFGH and categorical residents were the most likely among the programs to report decreased educational quality of inpatient cases at 56% and 48% respectively ($p < 0.05$). There were no significant complaints regarding teaching on the wards or overall quality of education: the majority (69%) felt there had been no change in education quality since closure.

Working Conditions (Table 2c)

Working conditions, including hours on the wards, inpatient numbers, overall patient care, nursing, and ancillary support seemed to suffer no significant negative effects when we compared responses by program. The majority (over 50%) of the sample reported no change

Table 2b. Proportion of Residents Who Rated The Effects Of The Closure As Harmful By Program: Education Issues^F

	All (N=108)	MZPC (n=21)	Categorical (n=55)	UCPC (n=21)	SFGH (n=11)	p
9. Outpatient Curriculum	10/100 (10.0%)	7/20 (35.0%)	3/51 (5.9%)	0/21 (0.0%)	0/8 (0.0%)	0.002
10. Ward Teaching	13/105 (12.4%)	2/21 (9.5%)	9/54 (16.7%)	2/21 (9.5%)	0/9 (0.0%)	0.677
11. Attending Support	7/103 (6.8%)	4/21 (19.0%)	1/52 (1.9%)	2/21 (9.5%)	0/9 (0.0%)	0.051
12. Private MD Contact	60/99 (60.0%)	16/20 (80.0%)	29/52 (55.8%)	8/19 (42.1%)	7/8 (87.5%)	0.032
13. Inpatient Number	22/103 (21.4%)	4/20 (20.0%)	10/54 (18.5%)	6/20 (30.0%)	2/9 (22.2%)	0.780
14. Inpatient Quality	40/104 (38.5%)	5/20 (25.0%)	26/54 (48.1%)	4/21 (19.0%)	5/9 (55.6%)	0.040
15. Education Quality	23/103 (22.3%)	6/20 (30.0%)	11/53 (20.8%)	3/21 (14.3%)	3/9 (33.3%)	0.526

Number reporting harm/number responding, stratified by program. MZPC=Mount Zion Primary Care; UCPC=University of California Primary Care (based at Moffitt); SFGH=San Francisco General Hospital Primary Care.

across the board (i.e. we found no significant differences with respect to program, class, or career path) in peer relationships (67%), inpatient number (63%), nursing support (61%), ancillary support (56%), or patient care (65%).

Responses by Training Level (Table 3)

Second-year residents (interns at the time of closure) appeared to feel strongly about certain intangible issues and working conditions. Second-years and graduates were more apt

^F See Appendix C, Table 2d for a breakdown of responses by MZPC vs. other programs.

Table 2c. Proportion of Residents Who Rated The Effects Of The Closure As Harmful By Program: Working Conditions^G

	All (N=108)	MZPC (n=21)	Categorical (n=55)	UCPC (n=21)	SFGH (n=11)	p
16. Ward Hours	9/105 (8.6%)	0/21 (0.0%)	5/54 (9.3%)	3/20 (15.0%)	1/10 (10.0%)	0.328
17. Patient Care	30/104 (28.8%)	9/20 (45.0%)	16/54 (29.6%)	4/21 (19.0%)	1/9 (11.1%)	0.218
18. RN Support	34/103 (33.0%)	7/20 (35.0%)	19/53 (35.8%)	5/21 (23.8%)	3/9 (33.3%)	0.794
19. Ancillary Support	40/103 (38.8%)	10/20 (50.0%)	17/53 (32.1%)	9/21 (42.9%)	4/9 (44.4%)	0.483
20. Work Life Quality	20/103 (19.4%)	4/20 (20.0%)	10/53 (18.9%)	3/21 (14.3%)	3/9 (33.3%)	0.684

Number reporting harm/number responding, stratified by program. MZPC=Mount Zion Primary Care; UCPC=University of California Primary Care (based at Moffitt); SFGH=San Francisco General Hospital Primary Care.

Table 3. Differences Among Residents Reporting Harm By Training Level At Survey^H

	PGY2 (n=45)	PGY3 (n=39)	Graduate (n=24)	p
Effect of MZ Closure	33/45 (73.3%)	18/39 (46.2%)	13/21 (61.9%)	0.039
Ward Hours	7/44 (15.9%)	2/38 (5.2%)	0/23 (0.0%)	0.060
RN Support	19/43 (44.2%)	12/38 (31.6%)	3/22 (13.6%)	0.039
Work Life Quality	14/43 (32.6%)	3/38 (7.9%)	3/22 (13.6%)	0.019

Number reporting harm/number responding, stratified by training level. PGY=Post Graduate Year.

^G See Appendix C, Table 2d for a breakdown of responses by MZPC vs. other programs.

^H See Appendix C for full table.

to report overall harm resulting from the closure than were third-year residents (73% and 62% vs. 46%, $p<0.05$). Dissatisfaction with ward hours also broke down along training levels, with second-years being more likely than the other two classes to report harm (16% vs. 3%, $p<0.05$). Second-years were also more likely than other classes to rate overall work life quality as worse (33% vs. 10%, $p<0.01$).

Response by Career Plan¹

Generalists vs. Subspecialists (Tables 4, 5)

Categoricals were by far the most likely to pursue subspecialty careers (40/51=78% at survey), and were more likely than were primary care residents (5/41=12% at survey) to do so ($p<0.01$). None of 14 MZPC residents planned to pursue a subspecialty by the time they were surveyed, although one considered it on match day. In contrast, 5 of 27 (19%) primary care residents from the SFGH and UCPC programs planned to pursue subspecialty careers at the time of survey, and an additional two reported considering the option.

There was a slight overall drop in generalist career goals, from 50/94 (53%) residents choosing (57/94=61% considering) general internal medicine on match day to 43/92 (47%) choosing it solely by the day they were surveyed. Among primary care residents, three in the UCPC program and two in the SFGH program changed their career goals from general internal medicine, while none in the MZPC program did. This was particularly striking since the 12 residents who changed their minds about entering general internal medicine as a career

¹ See Appendix C, Table 6 for a breakdown of career plans on match day and survey day by program.

(representing 21% of 57 considering generalist careers on match day) were nearly twice as likely as those who stayed with it to report harm to program morale (92% vs. 49%, $p<0.05$).^J

A career choice of general internal medicine or subspecialty also seemed to correlate with residents' responses to select questions including the effects of the transition execution and ward team change on training, confidence in peers, and perception of educational quality of inpatient cases. Because the vast majority (89% on the day they were surveyed) of subspecialists were categorical residents, subspecialists were least likely to view the transition execution as harmful ($p=0.01$), reported decreased confidence in their peers at a higher rate than did non-specialists ($p<0.05$), and were most likely to report a detrimental effect to the educational quality of cases ($p<0.01$). Certain generalist responses resembled those of the MZPC residents. A significant minority of generalists (32%) viewed the execution of the transition as harmful ($p<0.01$), as did MZPC residents. Also like the MZPC group, generalists were less likely than were others to regard the ward team change as harmful ($p=0.01$). There were no significant differences in interest in general internal medicine by training level. There was no significant difference between generalists and specialists with respect to perceptions of overall education quality.

Academic Medicine vs. Community Practice^L

Due to the large variability in response rates for this question, we did not feel we had sufficient numbers to assess responses to questions in light of whether residents chose community practice or academic medicine. However, we did note some trends regarding the

^J See Appendix C, Table 7 for responses of 1-2 by steadfast generalists vs. defectors.

^L Unless otherwise noted, numbers refer to residents who indicated interest in community practice or academic medicine either alone or in combination (i.e. were undecided).

Table 4. Numbers And Percentages Of Residents Reporting Plans to Pursue General Internal Medicine Vs. Subspecialty By Program

	GIM Only		Subspecialty Only	
	% Match Day	% Survey Day	% Match Day	% Survey Day
Categorical	9/50 (18.0%)	9/51 (17.6%)	37/50 (74.0%)	40/51 (78.4%)
MZPC	13/14 (92.9%)	14/14 (100.0%)	0/14 (0.0%)	0/14 (0.0%)
UCPC	18/19 (94.7%)	12/16 (75.0%)	0/19 (0.0%)	3/16 (18.8%)
SFGH	10/11 (90.9%)	8/11 (72.7%)	0/11 (0.0%)	2/11 (18.2%)

Number responding/number surveyed on match day and on survey day, stratified by program. GIM=General Internal Medicine; MZPC=Mount Zion Primary Care; UCPC=University of California Primary Care (based at Moffitt); SFGH=San Francisco General Hospital Primary Care. P <0.01.

Table 5. Differences Between Generalists And Subspecialists Reporting Harm^K

	GIM to GIM (n=46)	Subspecialty to Subspecialty (n=40)	Other (n=22)	p
Transition Execution	14/44 (31.8%)	1/39 (2.6%)	7/22 (31.8%)	0.000
Ward Team Change	8/44 (18.2%)	17/37 (45.9%)	7/18 (38.9%)	0.023
Program Morale	22/45 (48.9%)	21/40 (53.8%)	19/21 (86.4%)	0.008
Confidence in Peers	6/45 (13.3%)	15/39 (38.5%)	4/22 (18.2%)	0.022
Inpatient Quality	12/44 (27.3%)	24/39 (61.5%)	4/21 (19.0%)	0.001

Number reporting harm/number responding, stratified by steadfast career choices from match day to survey. GIM=General Internal Medicine.

^K See Appendix C for full table.

choice of one path or the other. Interest in academic medicine fell overall from 40/79 (51%) on match day to 27/72 (38%) by the time of survey among people who only selected academic medicine or community practice (i.e. did not circle both), and fell from 29/37 (78%) to 18/32 (56%) among categorical residents.

Community practice gained popularity overall, increasing from 16/79 (20%) to 27/72 (38%) between match day and survey day. The number of categorical residents alone entering community practice increased from two of 37 (5%) to five of 32 (16%). MZPC maintained the largest pool of community practitioners overall, with 50% of those who answered the question reporting an intention to become community practitioners on match day and on the day they took the survey; two more joined community practice despite the Mount Zion closure. Significantly, a total of 64% of MZPC respondents planned to enter community practice as opposed to 36% of residents from all other programs combined ($p < 0.01$). Nobody abandoned plans for community practice between match day and the day we surveyed them.

Season at Moffitt

Finally, responses to all questions appear to be unrelated to how close to closure residents completed rotations at Moffitt.

Discussion

Significant Findings

Our survey of house officers involved in the Mount Zion closure and subsequent restructuring of the UCSF internal medicine residency programs revealed that there was a

general dissatisfaction with respect to the institutional changes, with only a minority reporting any particular change as beneficial.^M The majority of harm perceived seemed to involve mainly intangible issues, including the effect of the Mount Zion closure, program morale, and confidence in peers. However, there seemed to be no uniform reason for this unhappiness at the level of specific issues in residency training. Despite the 61% overall dissatisfaction with the effect of the Mount Zion closure on resident training, when reviewing the gross percentages of responses per question, the majority (over 50%) of the sample as a whole found no significant change in most of the specific training areas. Instead, different groups were unhappy for different reasons, with the most notable differences occurring between the categorical and former Mount Zion residents. The variations in responses shed light on the experience of the different groups involved in the closure.

It is not surprising that program morale was lowest among former MZPC residents. They lost a program and became akin to stepchildren at a hospital where most of them would not have chosen to work. A majority of categorical and UCPC residents were also demoralized as a result of the invasion of their turf by the orphaned residents. SFGH residents were affected least, which was not surprising since their primary training site was unaffected.

With the exception of the SFGH residents, the majority of residents seemed happy with the transitional ward team structure. The majority of MZPC residents appear to have been more comfortable remaining with teams composed of familiar people, including their attending physicians from Mount Zion. Perhaps the 15% who did find the ward team change harmful felt ghettoized at Moffitt. Because of the increase in private admissions to Moffitt,

^M See Appendix C, Table 8 for all responses of harm, no change, and benefit to all questions.

rotations there may have become very different experiences from rotations at the county hospital, the SFGH residents' main training site, where private patients were rarely admitted. This difference may explain the overwhelming dissatisfaction with the Moffitt team structure among SFGH residents.

The decreased confidence that categoricals felt toward their peers was consistent with their view that MZPC residents were professionally inferior. Peer relations appeared relatively unharmed, however, suggesting that civility had been maintained. This could have been due to a number of factors including the preparatory meetings held with the faculty and administration and the strategy to maintain Mount Zion ward teams at Moffitt. The unhappiness voiced by MZPC residents regarding these administrative strategies may therefore reflect their overall dissatisfaction with the changes forced upon them.

While there was a general perception that overall education quality was preserved, individual aspects of the educational experience seem to have suffered for some people. MZPC residents were notably unhappy about the way the outpatient and inpatient curricula were integrated. While this may reflect their sense of harm to their program's focus, one resident told us that this sentiment was likely a consequence of a pre-existing administrative problem, and not of the Mount Zion closure.

In a number of our interviews with UCSF faculty, those associated with the categorical program expressed concern regarding the teaching abilities of community practitioners. While the majority of all respondents were unhappy with their level of contact with private doctors and patients, the roots of their dissatisfaction varied. MZPC residents were expectedly unhappy about the decreased presence of the private practitioners who had been their mentors, since not all physicians who had admitted their patients to Mount Zion

chose to admit to Moffitt after the closure. The sense of decreased attending support was likely a consequence of this loss in community physician mentorship. (Interestingly, Cynthia Fenton described a sort of cognitive dissonance on the part of some former MZPC residents who also began to complain about the presence of private patients at Moffitt.) SFGH residents were also surprisingly dissatisfied, again possibly reflecting the increase of private admissions to Moffitt, where SFGH residents spend several months a year. Categorical and UCPC residents were least unhappy, possibly because Moffitt's patient population had included some private patients before Mount Zion closed.

SFGH and categorical residents were the most likely to report decreased educational quality of inpatient cases. For categorical residents, this was probably a response to the increased numbers of common illnesses like community-acquired pneumonia at Moffitt, a hospital where they had chosen to train for its strength in complex care. SFGH residents' dissatisfaction here, coupled with their complaints about the Moffitt ward team structure and their contact with private doctors and patients, suggests they may have had a particular sensitivity to the differences between private and public care patients. SFGH residents had chosen a program dedicated to an underserved urban population, and perhaps also had difficulty adjusting to the hassles, such as phone calls, of dealing with community physicians.

Despite these findings, there were no significant complaints regarding teaching on the wards or overall quality of education. This may reflect better teaching at Moffitt than at Mount Zion, and clearly implies that overall teaching quality was preserved, if not improved, at Moffitt.

Most aspects of working conditions did not appear to suffer as a result of the Mount Zion closure. It was interesting, however, that second-year residents (interns at the time of

closure) were unhappy with their work hours and overall work life quality. This finding may represent dissatisfaction on the part of residents who had invested nearly a year in a program that dissolved, and still had two full years of training ahead of them in a new program at a new hospital with a very different work atmosphere. Supporting this hypothesis is the fact that so many of them reported harm as a result of the closure. As interns at closure, however, they did not have as much of a baseline with which to compare their new situation as did the other classes. Interestingly, second-years did not have significantly worse program morale when compared with the other classes. These findings, coupled with the apparent lack of harm to teaching and overall educational quality, imply that reported dissatisfaction with the transition reflected emotional responses to change rather than harm to the educational or patient care systems.

Because the closure of Mount Zion also resulted in the closure of a primary care program, we were interested in whether the closure affected career choices in general internal medicine. As might be expected, there was little interest in general medicine among categorical residents; those who had interest were probably hospitalists. (We did not specifically ask about categorical track on the shortened survey, however.) Despite the fact that they were in primary care programs, UCPC and SFGH residents looked somewhat more like categorical residents than like former Mount Zion primary care residents in terms of their career choices. This finding would be consistent with at least the UCPC residents' decision to train at a tertiary care center, possibly in preparation for outpatient subspecialty careers. Although their numbers were small, the largest rate of attrition among those planning generalist careers occurred among UCPC and SFGH residents, suggesting that something may have changed for these groups in particular after they started their training. Perhaps

they reacted to the influx of Mount Zion residents at Moffitt by identifying more strongly with the categorical residents. This was not clearly reflected in their responses to our questions, however.

Despite the fact that most MZPC residents were planning on generalist careers, generalists in the other programs were not as demoralized as were those from Mount Zion. This suggests that unhappiness was associated with program rather than choice of general internal medicine or subspecialty. Demoralization did not appear to deter MZPC residents from their career plans, however. The fact that residents who reported harm to morale tended to be undecided regarding which career path to take may hint at an effect of the closure – perhaps uncertainty about the future of the new UCPC program – on these individuals' career decisions. Defection from generalist career paths may be attributable to decreased morale, or simply to the six-year trend of decreasing interest in general internal medicine. Finally, despite UCSF's retreat to its core mission as an academic medical center featuring the closure of a community medicine oriented primary care program, former MZPC residents still planned on pursuing community practice.

It is possible, however, that the closure of a community teaching site and elimination of its primary care residency program did have an effect on some residents' decisions about pursuing careers in general internal medicine. Plans not to pursue a generalist career among those reporting such plans when they matched into UCSF correlated with poor morale. The numbers were small, however, and some people were undecided. In addition, the first signs of nationwide decreasing interest in general internal medicine preceded the events at Mount Zion by two years. While decreased interest strongly correlated with demoralization in our findings, it is possible that residents would have made the same career decisions without a

closure given the national trend toward subspecialization. At UCSF alone, interest in primary care among UCPC residents seems to have waned since McPhee et al. surveyed them in 1985.⁷⁶ According to their study, 89% of physicians who had graduated from the UCPC program between 1975 and 1985 reported practicing general internal medicine in 1985. In contrast, only 62% of all (21) UCPC residents and 68% of all (53) primary care residents we surveyed in 2001 told us that they planned to practice or were practicing general internal medicine.^N

It is notable that despite a retreat from training in a community setting, interest in non-university-based practice after residency seems to have increased. Paradoxically, the largest increases seemed to have been among categoricals who overwhelmingly planned on pursuing subspecialty careers, perhaps in community-based private practice. Although we did not ask specifically about this issue in our survey, it is possible that this trend indicates a preferential shift toward private-practice subspecialties that generally provide higher salaries in non-academic settings. A follow-up study of what graduates actually pursued would be needed to define trends in UCSF residents' future career paths.

In summary, UCSF residents, but particularly former Mount Zion residents, felt the Mount Zion closure was harmful. Morale, program focus, and attending support seem to have suffered most for the Mount Zion group, whose grievances focused mostly on intangible, but some educational, elements of their training they perceived were lost as a result of the closure. Categorical residents described a reduction in confidence in their peers and in the educational value to inpatient cases, a response to the perceived intrusion of their hospital by outside doctors and patients. Interestingly, with the exception of complaints by

^N See Appendix C, Table 6.

second-year residents (interns at closure) of worsening hours and reduction in overall work life quality, none of the complaints stemmed from the nuts-and-bolts of daily working conditions. Reported education quality and patient care were at least unharmed but clearly not improved. (Robert Wachter's prediction that patients' experience would be neutral at worst seems not to have applied to the residents, whose reactions were neutral at best.) It appears therefore that the harm perceived by residents was a consequence of emotional reactions to change rather than evidence of long-term harm to the training programs. According to Robert Baron, the primary care program now based at Moffitt has fared well since these events took place, enjoying a strengthened educational program and attracting a strong resident pool. The elimination of the Mount Zion primary program from UCSF may have affected the balance of generalists and specialists the remaining programs are turning out, but further studies would be needed to confirm a trend. Finally, there was an overall increase in interest in community practice among all residents despite the closure of UCSF's only community-based inpatient training site.

Study Utility

The experience at Mount Zion can provide some insights for those engaged in major changes in academic medical institutions. As California has often been at the leading edge of healthcare financing trends, many of the changes we have seen here are likely to be reproduced elsewhere. Our survey, while designed with the UCSF residents in mind, could be validated and adapted to other situations in which administrators wish to gauge house officers' reactions to changes at their institutions.

Given our findings, we offer the following suggestions for administrators involved in a teaching hospital closure. First, communication is crucial. People dislike change, and they like surprises less. Therefore, while it is impossible to make everyone happy in the event of a change as large as a hospital closure, unhappiness may be minimized hearing and addressing residents' concerns in advance. Despite low morale among those hardest hit at UCSF, a majority felt that the way the administration handled the transition was not to blame. It is also to the administration's credit that no residents left UCSF as a result of the closure. Second, be aware of interpersonal dynamics and potential culture clashes. It is notable that despite the Mount Zion residents' fears of becoming second-class citizens at Moffitt, they did not complain to us that their relationships with their peers suffered. Again, by addressing this concern with the altered ward team structure, the administration appears to have maintained civility among the house staff during this stressful transition. Finally, some people may alter their career plans as a result of a hospital closure. While we cannot say with certainty that the residents who changed their minds about pursuing general internal medicine careers did so because of the closure, it is reasonable to expect that when educational goals are limited by financial concerns, institutional priorities will likely be transmitted to the recipients of that education.

Study Limitations

This study had a number of limitations that warrant consideration. Our sample was small given the limited number of eligible subjects (three classes of residents in training and on UCSF premises both before and after the Mount Zion closure), reduced further by the logistical difficulty of administering a cross-country survey. In addition, there was an

underrepresentation of residents who had already graduated from the program and had to be surveyed by mail.

The survey itself had design flaws. First, we tailored this survey to the specific situation we were describing rather than using a previously validated tool. We also had to modify the survey length by eliminating demographic questions. Participants' demographic characteristics therefore could not be correlated with their individual survey responses. Other questions omitted included those identifying tracks categorical residents may have been pursuing. One such track was the PRIME program, in which residents spent the majority of their second and third years at the VA. Comparisons of generalists with subspecialists may have been misleading since we did not identify hospitalists, who specialize in hospital-based general internal medicine. The design of certain survey questions limited our ability to interpret some of our results. We asked participants to circle any of four possible career plans they had on match day and on the day they completed the survey: general internal medicine, subspecialty, academic medicine, and community practice. We got back inconsistent responses ranging from all four possibilities on both days to none on either day. Nearly one-third of respondents did not choose at all between academic medicine and community practice. In retrospect, we should have separated these questions into pairs consisting of subspecialty versus general internal medicine in one set of questions and academic medicine versus community practice in another, and asked participants to choose one career plan per item, thereby avoiding overlap and missing data. Finally, because all parties have since completed residency, a follow-up study would be nearly impossible to conduct.

CHAPTER FOUR: The Educational Mission Shaped By Financial Concerns

The events at Mount Zion occurred amidst a maelstrom of change in the California and U.S. health care systems. As we have mentioned, financial pressures produced a multitude of institutional alignments nationwide, often followed by reassessments when financial advantages were not realized. At the same time, a focus (often mandated) on general internal medicine at academic centers waxed and then waned, further tilting the mission of academic hospitals away from community-based centers. This sequence of events has led institutions such as UCSF to reassume their core role as providers of complex care and in the training of physicians to provide that care.

The situation at Mount Zion was unique in a number of ways. Unusually strong market forces present in California at the time of the closure made Mount Zion even more vulnerable as a non-profit hospital. In addition, it was perceived as the least prestigious site in a very prestigious four-hospital system, perhaps making Mount Zion seem a more affordable loss from an educational standpoint. Finally, local events related to the timing of the UCSF-Stanford merger and subsequent divorce may have catalyzed a process that otherwise might have been more prolonged.

Mount Zion reflected national trends as well. As was the case with many teaching hospitals, it served a disadvantaged community and did not operate at full capacity. UCSF, which had protected Mount Zion for a time, now faced decreased revenues due to marketplace effects including shorter hospital stays and lower reimbursements. Medicare cuts mandated by the Balanced Budget Act exacerbated Mount Zion's already tenuous financial situation. When Mount Zion closed it was the home to a primary care residency

program at a time when subspecialty training was regaining nationwide primacy, and academic medical centers were retreating to their core mission of complex care and abandoning community affiliations. Nationally, tertiary care institutions expanded their operations to encompass local primary care enterprises, only to contract these operations a few years later. Despite its abandonment of a major community affiliation, however, UCSF is training subspecialists who wish to practice in the community. Reimbursement considerations provide good incentive to do this: insurers are reluctant to pay the full price for academic medical center services while established alternatives exist.⁶⁰ Clearly there are differences in the way private and academic physicians practice. It is hard to imagine, therefore, that these residents would not benefit from working with doctors already practicing community medicine. As Daniel Null and Ernest Ring noted, one of the advantages of training at Mount Zion as an inpatient site was how closely it resembled real-world medicine while reaping the benefits of an academic affiliation.

Severing ties with academic centers is disadvantageous for community hospitals as well. Community hospitals clearly want academic affiliations, which make them more attractive to residents. According to Lee Goldman, despite the changes in Medicare payments for graduate medical education, “it is still better to have house staff than not.”³ Prestige is one benefit of such affiliations. Our findings that categorical residents were less confident in their Mount Zion peers in primary care, coupled with the MZPC residents’ fear of second-class citizenship at Moffitt, highlights a lack of equal status between community-based and academic programs. Part of this may have been a categorical versus primary care status disparity, and the consolidation of UCSF’s primary care programs may have been a step toward equality by making all of their programs equally academic. However, this was

achieved at the expense of a high-quality community-based primary care training experience. It also may have perpetuated the community's ivory-tower perception of UCSF, given that a number of former Mount Zion attendings opted to admit their patients to other community hospitals rather than to Moffitt. This cannot be good for patients, for instance when top-notch tertiary care may be avoided out of reluctance to approach the hospital on "the hill." Ironically, before assuming the medicine chairmanship at UCSF, Lee Goldman noted in 1995, "As the case mix at the tertiary medical center becomes progressively more specialized, training programs in all departments must incorporate a range of ambulatory practice sites and community hospitals or become increasingly insular, non-representative, and, presumably, unpopular."⁵⁷

Did the Mount Zion closure affect residency training? While it resulted in some emotional upheaval at the time, at the end of the day, the remaining residency programs seem to have survived and arguably thrived. Some demoralized primary care residents abandoned plans for general internal medicine, but they may have done so anyway, given the national decline in interest in generalist careers on the part of U.S. medical graduates documented by the NRMP. The 1992 revision of the Accreditation Council for Graduate Medical Education guidelines requiring that at least one-third of all internal medicine residency training take place in the ambulatory setting may be a factor contributing to this trend, since ambulatory experience has become more widely available to traditional medicine residents.⁹³ At the same time, hospitals have been cutting the numbers of primary care positions they offer because they cannot fill them. As demonstrated with the subspecialty career choices of a number of UCSF primary care residents, many of the remaining primary care positions are likely being filled with medical school seniors seeking outpatient experience in subspecialty fields.

Primary care programs may provide an additional avenue for increasingly popular subspecialty ambulatory careers. This would make sense given the subspecialty emphasis at the academic medical centers that are training the residents, and obeys the “white follows green law”⁹⁴ that residents are drawn to opportunities for higher compensation. The loss of the Mount Zion and its primary care program is therefore all the more significant, since it had attracted residents who were committed to primary care. If this trend continues, there could be a further reduction in the number of UCSF primary care positions.

What about cost containment? Early analysts of the changing dynamics in medical education projected that the disproportionate emphasis on specialty training in hospitals would leave the need for primary care physicians unmet.^{9, 23} Ironically, UCSF closed a hospital for the purposes of cost containment but in doing so shifted the institutional training mission away from primary care. But is primary care the answer? Or were the advocates for 50% generalists wrong? There are those who would say so. In a 1994 senate debate on workforce reform, one senator argued that the number of specialists was determined by scientific discovery, making it a variable independent of primary care.⁹⁵

The debate continues today. Some authors claim that previous workforce studies were handicapped by their analytic models. These authors predict that the U.S. will experience progressively severe shortages of specialists, and maintain that the growth of non-physician clinician services obviates the need for more primary care physicians.⁹⁶⁻¹⁰⁰ Primary care still has advocates, however. Kevin Grumbach persuasively and humorously compares one paper touting the specialist shortfall argument to a sport-utility vehicle advertisement selling a “gas-guzzling specialist model that creates an irresistible buying frenzy among American consumers eager to spend their discretionary income.”¹⁰¹ In this paper, Grumbach points to

studies showing that a greater supply of primary care physicians is associated with lower mortality and disease-specific death rates, while a greater supply of specialists has either no or negative associations with these indicators. Still others advocate changing the role of primary care physicians from gatekeeping as a strategy to reduce costs to that of care coordination among specialists.^{102, 103}

While the primary care pendulum continues to swing, we can merely speculate on the fate of primary care and its role in U.S. health care. Clearly, if there is not adequate funding for primary care training, and reimbursement disparities between generalists and subspecialists persist, primary care as a practice will die. Subspecialists will provide primary care in a less efficient, more fragmented, and therefore more expensive way, partly as a result of the way they were trained.¹⁰³ This likely factored into Daniel Null's concern about the loss of exposure to real-world medicine with the closure of Mount Zion as an inpatient training site; he also lamented the lack of continuity of care inherent in the training experience at Moffitt versus Mount Zion. If increasing the primary care base of the health care pyramid is still the answer to cost containment, we as a society need to find a way to sustain training in primary care. If primary care is not the answer, we need to identify one. We clearly have not found the solution in reliance on markets. The ranks of uninsured are growing as managed care – in which primary care physicians have a central role in managing health care resources⁵⁶ – is reverting to the fee-for service model.¹⁰⁴ One manifestation of the increasingly consumer-driven market is “boutique medicine,” described by Fred Charatan in the *British Medical Journal* as a new type of private medical practice in the U.S. where a small panel of patients pays a yearly premium for personalized, high-end care including annual physical examinations, same day appointments, 24-hour doctor availability,

coordinated referrals to specialists, and online access to their medical records.¹⁰⁵ Although not all authors agree with Charatan's view that this particular phenomenon is responsible for the rising numbers of uninsured Americans,¹⁰⁶ the reaction against the managed care ethic it represents and the resulting push for specialty care are reflected in graduate medical education trends as we have described. It is likely that medical costs will continue to rise leaving many who cannot afford it behind.^{94, 101, 107} Paradoxically, what the boutique medicine phenomenon does demonstrate is that comprehensive, coordinated primary care service is a desirable good and, as a result of the distortions of the current health care market, is currently the province of the wealthy! While a policy discussion about access to health care – specialty or general – is beyond the scope of this paper, it is clear that until we achieve a balanced system that accommodates the majority of citizens, institutional changes such as those described at UCSF will continue to occur.

APPENDIX A: House Officer Survey

A. When were you a PGY1? (Please circle one):

- 1) 1997-1998
- 2) 1998-1999
- 3) 1999-2000

B. Into which program did you match as a PGY1? (Please circle one):

- 1) Categorical
- 2) UCPC (Parnassus)
- 3) UCPC (MZ)
- 4) SFGH PC

C. To which program(s) did you apply? (Please circle all that apply):

- 1) Categorical
- 2) UCPC (Parnassus)
- 3) UCPC (MZ)
- 4) SFGH PC

D. What were your career plans on match day? (Please circle all that apply):

- 1) Subspecialty
- 2) GIM
- 3) Academic medicine
- 4) Community practice

E. What are your career plans now? (Please circle all that apply. If you are currently on fellowship, please indicate what you are doing):

- 1) Subspecialty
- 2) GIM
- 3) Academic medicine
- 4) Community practice

F. During which season(s) were you on the wards at Moffitt? (Please circle all that apply):

- 1) Summer/Fall 1999
- 2) Winter 1999/2000
- 3) Spring 2000
- 4) Summer 2000

G. Overall impact of institutional changes at UCSF on your experience. We want to know how last year's institutional changes affected your residency program overall. Please circle the number that best completes each item.

On balance,	very beneficial	somewhat beneficial	neutral	somewhat harmful	very harmful	NA
1) the changes in ward team structure during 1999-2000 were	5	4	3	2	1	0
2) the way the administration handled the transition was	5	4	3	2	1	0
3) the effect on my program of the closure of Mt. Zion was	5	4	3	2	1	0

Please continue on next page

H. Changes in perceptions of training. We want to know how your feelings have changed about specific aspects of your training. (As an aid, consider how you feel now compared to how you felt before Thanksgiving 1999.) Please circle the number that best fills the blank at the beginning of each item.

With Mt. Zion closed, I feel	much better	somewhat better	the same	somewhat worse	much worse	NA
1) ___ about program focus (community vs. academic medicine, e.g.)	5	4	3	2	1	0
2) ___ about program morale	5	4	3	2	1	0
3) ___ about my relationships with my peers	5	4	3	2	1	0
4) ___ about my confidence in my peers	5	4	3	2	1	0
5) ___ about support from my attendings	5	4	3	2	1	0
6) ___ about my level of contact with private doctors and patients	5	4	3	2	1	0
7) ___ about my hours while on the wards	5	4	3	2	1	0
8) ___ about the quality of ward teaching	5	4	3	2	1	0
9) ___ about the number of inpatients available for my training	5	4	3	2	1	0
10) ___ about the educational quality of my inpatients/cases	5	4	3	2	1	0
11) ___ about the integration of my inpatient and outpatient experience	5	4	3	2	1	0
12) ___ about the overall quality of patient care	5	4	3	2	1	0
13) ___ about the quality of nursing support	5	4	3	2	1	0
14) ___ about the quality of ancillary support	5	4	3	2	1	0
15) ___ about the overall quality of my education/training	5	4	3	2	1	0
16) ___ about the quality of my work life	5	4	3	2	1	0
17) ___ about the quality of my personal life	5	4	3	2	1	0

APPENDIX B: Interviews

Name	UCSF Department of Medicine Title	Date Interviewed
Robert Baron, MD ^O	Professor of Clinical Medicine Associate Dean of Continuing Medical Education Vice Chief and Director, Educational Programs, Division of General Internal Medicine Director, Primary Care Internal Medicine Residency Program	7/13/2000
Hal Collard, MD	Categorical Medicine Chief Resident, 1999-2000	7/24/2000
Cynthia Fenton, MD	Assistant Clinical Professor of Medicine Associate Program Director, Categorical Medicine Residency Program ^P	7/11/2000
Lee Goldman, MD	Professor and Chairman, Department of Internal Medicine Associate Dean for Clinical Affairs	7/10/2000
Harry Hollander, MD	Professor of Medicine Director, Categorical Medicine Residency Program	7/12/2000
Daniel Null, MD	Associate Clinical Professor of Medicine Attending Physician, UCSF/Mount Zion	7/24/2000
Eliseo Perez-Stable, MD	Professor of Medicine Chief, Division of General Internal Medicine	7/19/2000
Robert Wachter, MD	Professor of Medicine Associate Chairman, Department of Medicine Chief, Medical Service, Moffitt-Long Hospital	7/18/2000
Kenneth Woeber, MD ^Q	Professor of Medicine	7/17/2000

^O Dr. Baron as also formerly the director of the UCSF Mount Zion Primary Care Residency Program.

^P This position is currently held by Tracey Minichiello, MD.

^Q Dr. Woeber was also formerly the director of the original categorical medicine residency program at Mount Zion Hospital.

APPENDIX C: Selected Tables^R

Table 2d. Residents Reporting Harm For All Questions By Program Affiliation: Mount Zion Primary Care Vs. All Other Programs^S

	MZPC (n=21)	Others (n=87)	P (X ²)	P (Fisher Exact)
Effect of MZ Closure	16/20 (80.0%)	48/85 (56.5%)	0.052	Not given
Transition Execution	8/21 (38.1%)	14/84 (16.7%)	0.031	Not given
Ward Team Change	3/20 (15.0%)	38/79 (48.1%)	0.007	Not given
Program Focus	12/21 (57.1%)	22/84 (26.2%)	0.007	Not given
Program Morale	17/21 (81.0%)	45/85 (52.9%)	0.020	Not given
Peer Relations	4/21 (19.0%)	10/84 (11.9%)	0.389	0.472
Confidence in Peers	1/21 (4.8%)	24/85 (28.2%) ^T	0.023	0.023
Attending Support	4/21 (19.0%)	3/82 (3.7%)	0.012	0.030
Private MD Contact	16/20 (80.0%)	44/79 (55.7%) ^U	0.047	Not given
Ward Hours	0/21 (0.0%)	9/84 (10.7%)	0.117	0.199
Ward Teaching	2/21 (9.5 %)	11/84 (13.1%)	0.657	1.000
Inpatient number	4/20 (20.0%)	18/83 (21.7%)	0.869	1.000
Inpatient Quality	5/20 (25.0%)	35/84 (41.7%) ^V	0.169	Not given
Outpatient Curriculum	7/20 (35.0%)	3/80 (3.8%)	0.000	0.000
Patient Care	9/20 (45.0%)	21/84 (25.0%)	0.076	Not given
RN Support	7/20 (35.0%)	27/83 (32.5%)	0.833	Not given
Ancillary Support	10/20 (50.0%)	30/83 (36.1%)	0.254	Not given
Education Quality	6/20 (30.0%)	17/83 (20.4%)	0.386	0.378
Work Life Quality	4/20 (20.0%)	16/83 (19.3%)	0.942	1.000
Personal Life Quality	1/20 (5.0%)	3/83 (3.6%)	0.773	1.000

Number reporting harm/number responding, compared by program. MZPC=Mount Zion Primary Care.

^R For all tables, denominators do not include responses of 0, not applicable.

^S P-values were calculated using Epi Info.

^T 21/24=87.5% categoricals

^U 29/44=65.9% categoricals

^V 26/35=74.2% categoricals

Table 3. Residents Reporting Harm For All Questions By Training Level At Survey

	PGY2 (n=45)	PGY3 (n=39)	Graduate (n=24)	p
Effect of MZ Closure	33/45 (73.3%)	18/39 (46.2%)	13/21 (61.9%)	0.039
Transition Execution	8/45 (17.8%)	9/38 (23.7%)	5/22 (22.7%)	0.781
Ward Team Change	16/44 (36.4%)	11/37 (29.7%)	5/18 (27.8%)	0.749
Program Focus	13/43 (30.2%)	10/39 (25.6%)	11/23 (47.8%)	0.187
Program Morale	25/44 (56.8%)	20/39 (51.3%)	17/23 (73.9%)	0.215
Peer Relations	3/43 (7.0%)	8/39 (20.5%)	3/23 (13.0%)	0.194
Confidence in Peers	9/44 (20.4%)	9/39 (23.1%)	7/23 (30.4%)	0.641
Attending Support	2/42 (4.8%)	1/39 (2.6%)	4/22 (18.2%)	0.097
Private MD Contact	26/40 (65.0%)	21/37 (56.8%)	13/22 (59.1%)	0.778
Ward Hours	7/44 (15.9%)	2/38 (5.3%)	0/23 (0.0%)	0.060
Ward Teaching	7/44 (15.9%)	6/39 (15.4%)	0/22 (0.0%)	0.123
Inpatient number	9/44 (20.5%)	7/38 (18.4%)	6/21 (28.6%)	0.640
Inpatient Quality	19/44 (43.2%)	16/38 (42.1%)	5/22 (22.7%)	0.236
Output Curriculum	4/40 (10.0%)	4/38 (10.5%)	2/22 (9.1%)	1.000
Patient Care	15/44 (33.3%)	10/38 (26.3%)	5/22 (22.7%)	0.593
RN Support	19/43 (44.2%)	12/38 (31.6%)	3/22 (13.6%)	0.039
Ancillary Support	20/43 (46.5%)	14/38 (36.8%)	6/22 (27.3%)	0.333
Education Quality	13/43 (30.2%)	6/38 (15.8%)	4/22 (18.2%)	0.310
Work Life Quality	14/43 (32.6%)	3/38 (7.9%)	3/22 (13.6%)	0.019
Personal Life Quality	4/43 (9.3%)	0/38 (0.0%)	0/22 (0.0%)	0.075

Number reporting harm/number responding, stratified by training level. PGY=Post Graduate Year.

Table 5. Residents Reporting Harm For All Questions By Career Choice: Generalists Vs. Subspecialists

	GIM to GIM (n=46)	Subspecialty to Subspecialty (n=40)	Other (n=22)	p
Effect of MZ Closure	26/44 (59.1%)	25/39 (64.1%)	13/22 (59.1%)	0.871
Transition Execution	14/44 (31.8%)	1/39 (2.6%)	7/22 (31.8%)	0.000
Ward Team Change	8/44 (18.2%)	17/37 (45.9%)	7/18 (38.9%)	0.023
Program Focus	15/44 (33.3%)	9/38 (23.7%)	10/22 (45.5%)	0.219
Program Morale	22/45 (48.9%)	21/40 (53.8%)	19/21 (86.4%)	0.008
Peer Relations	8/45 (17.8%)	5/38 (13.2%)	1/22 (4.5%)	0.373
Confidence in Peers	6/45 (13.3%)	15/39 (38.5%)	4/22 (18.2%)	0.022
Attending Support	4/45 (8.9%)	1/38 (2.6%)	2/20 (10.0%)	0.461
Private MD Contact	26/42 (61.9%)	24/37 (64.9%)	10/20 (50.0%)	0.537
Ward Hours	4/44 (9.1%)	4/39 (10.3%)	1/22 (4.5%)	0.821
Ward Teaching	4/45 (8.9%)	6/39 (15.4%)	3/21 (14.3%)	0.683
Inpatient number	9/44 (20.5%)	10/39 (25.6%)	3/20 (15.0%)	0.633
Inpatient Quality	12/44 (27.3%)	24/39 (61.5%)	4/21 (19.0%)	0.001
Outpatient Curriculum	5/44 (11.4%)	3/35 (8.6%)	2/21 (9.5%)	1.000
Patient Care	10/44 (22.7%)	13/39 (33.3%)	7/21 (33.3%)	0.481
RN Support	11/44 (25.0%)	17/38 (44.7%)	6/21 (28.6%)	0.163
Ancillary Support	18/44 (40.9%)	14/38 (36.8%)	8/21 (38.1%)	0.965
Education Quality	6/44 (13.6%)	9/38 (23.7%)	8/21 (38.1%)	0.096
Work Life Quality	7/44 (15.9%)	9/38 (23.7%)	4/21 (19.0%)	0.616
Personal Life Quality	1/44 (2.3%)	1/38 (2.6%)	2/21 (9.5%)	0.334

Number reporting harm/number responding, stratified by changes in career choice from match day to survey. GIM=General Internal Medicine.

Table 6. Career Choices On Match Day And Survey Broken Down By Program^W

			Total	Categorical n=55(50)	MZPC n=21(14)	UCPC n=21(19)	SFGH n=11	
Subspecialty Vs. GIM	Career Choice On Match Day	GIM	50	9	13	18	10	
		Subspecialty	37	37	0	0	0	
		Neither	14	5	7	2	0	
		Both	7	4	1	1	1	
					(n=51)	(n=14)	(n=16)	(n=11)
	Career Choice On Survey Day	GIM	44	9	14	12	8	
		Subspecialty	45	40	0	3	2	
		Neither	15	4	7	5	0	
Both		4	2	0	1	1		
				(n=37)	(n=14)	(n=17)	(n=11)	
Academic Medicine Vs. Community Practice	Career Choice On Match Day	Academic Medicine	40	29	4	5	2	
		Community Practice	17	2	7	5	3	
		Neither	31	18	7	4	2	
		Both	20	6	3	7	4	
					(n=32)	(n=13)	(n=17)	(n=10)
	Career Choice On Survey Day	Academic Medicine	27	18	1	6	2	
		Community Practice	27	5	9	8	5	
		Neither	36	23	8	4	1	
Both		18	9	3	3	3		

Number indicating plans to pursue careers in general or subspecialty medicine and academic or community medicine on match day and at survey. GIM=General Internal Medicine.

^W Numbers in parentheses refer to n minus the number who circled neither subspecialty or GIM. P<0.05 for comparisons among groups on either match day or survey day.

Table 7. Residents Reporting Harm For All Questions By Decision Whether To Pursue General Internal Medicine: Steadfast Generalists Vs. Defectors

	GIM to GIM (n=46)	GIM to Not GIM (n=12)	Other (n=50)	p
Effect of MZ Closure	26/44 (59.1%)	5/12 (41.7%)	33/49 (67.3%)	0.274
Transition Execution	14/44 (31.8%)	3/12 (25.0%)	5/49 (10.2%)	0.028
Ward Team Change	8/44 (18.2%)	3/10 (30.0%)	21/45 (46.7%)	0.014
Program Focus	15/45 (33.3%)	2/11 (18.2%)	17/49 (34.7%)	0.689
Program Morale	22/45 (48.9%)	11/12 (91.7%)	29/49 (59.2%)	0.022
Peer Relations	8/45 (17.8%)	0/11 (0.0%)	6/49 (12.2%)	0.382
Confidence in Peers	6/45 (13.3%)	4/12 (33.3%)	15/49 (30.6%)	0.087
Attending Support	4/45 (8.9%)	0/10 (0.0%)	3/48 (6.3%)	0.861
Private MD Contact	26/42 (61.9%)	4/10 (40.0%)	30/47 (63.8%)	0.436
Ward Hours	4/44 (9.1%)	2/12 (16.7%)	3/49 (6.1%)	0.418
Ward Teaching	4/45 (8.9%)	2/11 (18.2%)	7/49 (14.3%)	0.578
Inpatient number	9/44 (20.5%)	2/10 (20.0%)	11/49 (22.4%)	1.000
Inpatient Quality	12/44 (27.3%)	4/11 (36.4%)	24/49 (49.0%)	0.096
Output Curriculum	5/44 (11.4%)	0/9 (0.0%)	5/47 (10.6%)	0.791
Patient Care	10/44 (22.7%)	5/11 (45.5%)	15/49 (30.6%)	0.300
RN Support	11/44 (25.0%)	6/11 (54.5%)	17/48 (35.4%)	0.166
Ancillary Support	18/44 (40.9%)	5/11 (45.5%)	17/48 (35.4%)	0.805
Education Quality	6/44 (13.6%)	4/11 (36.4%)	13/48 (27.1%)	0.123
Work Life Quality	7/44 (15.9%)	3/11 (27.3%)	10/48 (20.8%)	0.552
Personal Life Quality	1/44 (2.3%)	0/11 (0.0%)	3/48 (6.3%)	0.759

Number responding 1 or 2 (very or somewhat harmful/worse since closure)/total responding, stratified by whether career choice in GIM changed from match day to survey. GIM=General Internal Medicine.

Table 8. All Survey Responses: Demonstration Of No Change And No Benefit From Closure^X

	1-2 (Worse)	3 (No Change)	4-5 (Better)
Effect of MZ Closure	64/105 (61.0%)	36/105 (34.3%)	5/105 (4.8%)
Transition Execution	22/105 (21.0%)	42/105 (40.0%)	41/105 (39.0%)
Ward Team Change	32/99 (32.3%)	42/99 (42.4%)	25/99 (25.3%)
Program Focus	34/105 (32.4%)	64/105 (61.0%)	7/105 (6.7%)
Program Morale	62/106 (58.5%)	38/106 (35.8%)	6/106 (5.7%)
Peer Relations	14/105 (13.3%)	70/105 (66.7%)	21/105 (20.0%)
Confidence in Peers	25/106 (23.6%)	68/106 (64.2%)	13/106 (12.3%)
Attending Support	7/103 (6.8%)	86/103 (83.5%)	10/103 (9.7%)
Private MD Contact	60/99 (60.6%)	28/99 (28.3%)	11/99 (11.1%)
Ward Hours	9/105 (8.6%)	78/105 (74.3%)	18/105 (17.1%)
Ward Teaching	13/105 (12.4%)	84/105 (80.0%)	8/105 (7.6%)
Inpatient number	22/103 (21.4%)	65/103 (63.1%)	16/103 (15.5%)
Inpatient Quality	40/104 (38.5%)	53/104 (51.0%)	11/104 (10.6%)
Output Curriculum	10/100 (10.0%)	82/100 (82.0%)	8/100 (8.0%)
Patient Care	30/104 (28.8%)	68/104 (65.4%)	6/104 (5.8%)
RN Support	34/103 (33.0%)	63/103 (61.2%)	6/103 (5.8%)
Ancillary Support	40/103 (38.8%)	58/103 (56.3%)	5/103 (4.9%)
Education Quality	23/103 (22.3%)	71/103 (68.9%)	9/103 (8.7%)
Work Life Quality	20/103 (19.4%)	73/103 (70.9%)	10/103 (9.7%)
Personal Life Quality	4/103 (3.9%)	90/103 (87.4%)	9/103 (8.7%)

Number reporting harm/number responding, number reporting no effect/number responding, and number reporting benefit/number responding.

^X N=108.

REFERENCES

1. Bauer EA, Debas HT. The merger of Stanford's and UCSF's clinical enterprises: impact on education. *JAMA*. 1996; 276:1770-1.
2. Ludmerer KM. *Time to Heal*. New York: Oxford University Press, Inc., 1999:399.
3. Goldman L. Interview 7/10/2000.
4. Burns LR, Cacciamani J, Clement J, Aquino W. The fall of the house of AHERF: the Allegheny bankruptcy. *Health Affairs*. 2000; 19:7-41.
5. Department of Health and Human Services Office of the Inspector General. *Hospital Closure: 1999*. Rockville: Department of Health and Human Services, 2001.
6. Donaldson MS, Yordy KD, Lohr KN, Vanselow NA, eds. *Primary Care: America's Health in a New Era*; Committee on the Future of Primary Care, Institute of Medicine. Washington, D.C.: National Academy Press, 1996:416.
7. Kastor JA. *Mergers of Teaching Hospitals in Boston, New York, and Northern California*. Ann Arbor: University of Michigan Press, 2001:440.
8. Rogers BS, Dobbs SM. *The First Century: Mount Zion Hospital and Medical Center 1887-1987*. San Francisco: Mount Zion Hospital and Medical Center, 1987:203.
9. Gerbert B, Showstack JA, Chapman SA, Schroeder SA. The changing dynamics of medical education: Implications for decision-making. *Western Journal of Medicine*. 1987; 146:368-373.
10. Council on Graduate Medical Education. *Recommendations to Improve Access to Health Care Through Physician Workforce Reform: Fourth Report*. Rockville: U.S. Department of Health and Human Services, 1994.

11. Weiner JP. A shortage of physicians or a surplus of assumptions?[comment]. *Health Affairs*. 2002; 21:160-2.
12. Perkoff GT. An effect of organization of medical care upon health: manpower distribution. *Medical Care*. 1978; 16:628-40.
13. Tarlov AR, Schleiter MK, Weil PA. National study of internal medicine manpower: IV. Residency and fellowship training 1977-1978 and 1978-1979. *Annals of Internal Medicine*. 1979; 91:295-300.
14. Dale DC, Wallace JF, Clark H, Rockey PH, Featherstone H, Petersdorf RG. Restructuring an internal medicine residency program to meet regional and national needs for general internists. *American Journal of Medicine*. 1981; 70:1085-90.
15. Schleiter MK, Tarlov AR, Weil PA. National Study of Internal Medicine Manpower: VII. Residency and fellowship training 1976-1977 through 1980-1981. *Annals of Internal Medicine*. 1981; 95:762-8.
16. Weil PA, Schleiter MK. National Study of Internal Medicine Manpower: VI. Factors predicting preferences of residents for careers in primary care or subspecialty care and clinical practice of academic medicine. *Annals of Internal Medicine*. 1981; 94:691-703.
17. Weil PA, Schleiter MK, Tarlov AR. National Study of Internal Medicine Manpower: V. Comparison of residents in internal medicine--future generalists and subspecialists. *Annals of Internal Medicine*. 1981; 94:678-90.
18. Schleiter MK, Tarlov AR. National study of Internal Medicine Manpower: VIII. Internal medicine residency and fellowship training: 1983 update. *Annals of Internal Medicine*. 1983; 99:380-7.

19. Iglehart JK. How many doctors do we need? The tenth annual Duke Private Sector Conference. JAMA. 1985; 254:1785-8.
20. Iglehart JK. Congress takes new look at graduate medical education. Health Progress. 1985; 66:24-5.
21. Iglehart JK. Federal support of graduate medical education. New England Journal of Medicine. 1985; 312:1000-4.
22. LeRoy L, Iglehart JK, Ellwood DA. Trends in health manpower. Health Affairs. 1985; 4:77-90.
23. Schroeder SA. The making of a medical generalist. Health Affairs 1985; 4:22-46.
24. Cox MW, Aday LA, Levey GS, Andersen RM. National Study of Internal Medicine Manpower: X. Internal medicine residency and fellowship training: 1985 update. Annals of Internal Medicine. 1986; 104:241-5.
25. Iglehart JK. The future supply of physicians. New England Journal of Medicine. 1986; 314:860-4.
26. Schroeder SA, Showstack JA, Gerbert B. Residency training in internal medicine: time for a change? Annals of Internal Medicine. 1986; 104:554-61.
27. Cox MW, Andersen RM, Aday LA, Levey GS, Lyttle CS. National Study of Internal Medicine Manpower: XI. Internal medicine residency and fellowship training in the 1980s. Annals of Internal Medicine. 1987; 106:734-40.
28. Lyttle C, Andersen RM, Levey GS, Kohrman CH. National Study of Internal Medicine Manpower: XVI. Subspecialty fellowship programs, 1988 update. Annals of Internal Medicine. 1989; 111:604-11.

29. Andersen RM, Lyttle CS, Kohrman CH, Levey GS, Clements MM. National Study of Internal Medicine Manpower: XIX. Trends in internal medicine residency training programs. *Annals of Internal Medicine*. 1992; 117:243-50.
30. Anonymous. General internal medicine and general internists: recognizing a national need. Federated Council for Internal Medicine. *Annals of Internal Medicine*. 1992; 117:778-9.
31. Burke W, Inui TS. Do we still need primary care tracks? *Annals of Internal Medicine*. 1992; 116:1065-70.
32. Kassebaum DG, Szenas PL, Ruffin AL. The declining interest of medical school graduates in generalist specialties: students' abandonment of earlier inclinations. *Academic Medicine*. 1993; 68:278-80.
33. Kassirer JP. Primary care and the affliction of internal medicine. *New England Journal of Medicine*. 1993; 328:648-51.
34. Luke R, Terwilliger J, Ibrahim T. Beyond the 50% solution. *American Journal of Medicine*. 1993; 95:83-5.
35. Rivo ML. Internal medicine and the journey to medical generalism. *Annals of Internal Medicine*. 1993; 119:146-52.
36. Bazell C, Politzer RM, Rivo ML. Health care reform and primary care: a mandate for graduate medical education reform. *Journal of Family Practice*. 1994; 38:530-3.
37. Burg FD, Kelley MA, Zervanos NJ. Supporting primary care medical education. *Journal of General Internal Medicine* 1994; 9:S104-14.
38. Fogelman AM. Strategies for training generalists and subspecialists. *Annals of Internal Medicine*. 1994; 120:579-83.

39. Iglehart JK. Health care reform and graduate medical education. *New England Journal of Medicine*. 1994; 330:1167-71.
40. Lyttle CS, Levey GS. The National Study of Internal Medicine Manpower: XX. The changing demographics of internal medicine residency training programs. *Annals of Internal Medicine*. 1994; 121:435-41.
41. Mullan F, Politzer RM, Gamliel S, Rivo ML. Balance and limits: modeling graduate medical education reform based on recommendations of the Council on Graduate Medical Education. *Milbank Quarterly*. 1994; 72:385-98.
42. Nasca TJ, Mohn K, Wright R. Physician manpower reform: an analysis of the effects of the COGME Fourth Report on internal medicine residency positions. *Council on Graduate Medical Education. American Journal of Medicine*. 1994; 97:317-22.
43. Wartman SA, Wilson M, Kahn N. The generalist health care workforce: issues and goals. *Journal of General Internal Medicine*. 1994; 9:S7-13.
44. Rivo ML, Henderson TM, Jackson DM. State legislative strategies to improve the supply and distribution of generalist physicians, 1985 to 1992. *American Journal of Public Health*. 1995; 85:405-7.
45. Schuster BL. The other fifty percent. *American Journal of Medicine*. 1995; 98:5-6.
46. Rivo ML, Kindig DA. A report card on the physician work force in the United States.[comment]. *New England Journal of Medicine*. 1996; 334:892-6.
47. Schroeder SA. How can we tell whether there are too many or too few physicians? The case for benchmarking.[comment]. *JAMA*. 1996; 276:1841-3.

48. Colwill JM, Perkoff GT, Blake RL, Jr., Paden C, Beachler M. Modifying the culture of medical education: the first three years of the RWJ Generalist Physician Initiative. *Academic Medicine*. 1997; 72:745-53.
49. Baron R. Interview 7/13/2000.
50. Wachter R. Interview 7/18/2000.
51. Council on Graduate Medical Education. COGME Physician Workforce Policies: Recent Developments and Remaining Challenges in Meeting National Goals: Fourteenth Report. Rockville: U.S. Department of Health and Human Services, 1999.
52. Brotherton SE, Simon FA, Etzel SI. US graduate medical education, 2000-2001. *JAMA*. 2001; 286:1056-60.
53. Iglehart JK. The American health care system. Community hospitals. *New England Journal of Medicine*. 1993; 329:372-6.
54. Kassirer JP. Academic medical centers under siege. *New England Journal of Medicine*. 1994; 331:1370-1.
55. AAMC Fact Sheet: The Financial Health of Teaching Hospitals Continues to Decline: Association of American Medical Colleges, 2000.
56. Iglehart JK. The American health care system. Teaching hospitals. *New England Journal of Medicine*. 1993; 329:1052-6.
57. Goldman L. The academic health care system: preserving the mission as the paradigm shifts. *JAMA* 1995; 273:1549-52.
58. Kuttner R. Managed care and medical education. *New England Journal of Medicine*. 1999; 341:1092-6.
59. Fuchs VR. Managed care and merger mania. *JAMA*. 1997; 277:920-1.

60. Iglehart JK. Rapid changes for academic medical centers. 2. New England Journal of Medicine. 1995; 332:407-11.
61. Cisneros L. UCSF to Focus on Smooth Transition for Mount Zion Patients, Physicians. UCSF Daybreak News, 9/27/1999.
62. Cisneros L. UCSF Stanford Health Care Weighs Options for UCSF/Mount Zion. UCSF Daybreak News, 7/2/1999.
63. Cisneros L. Report to UCSF Stanford Health Care Board on the Future of Mount Zion. UCSF Daybreak News, 9/23/1999.
64. Cisneros L. Kerr Responds to Speculation on Mount Zion's Future. UCSF Daybreak News, 5/24/1999.
65. Ludmerer KM. Time and medical education. Annals of Internal Medicine. 2000; 132:25-8.
66. Iglehart JK. Support for academic medical centers--revisiting the 1997 Balanced Budget Act. New England Journal of Medicine. 1999; 341:299-304.
67. Iglehart JK. The Centers for Medicare and Medicaid Services. New England Journal of Medicine. 2001; 345:1920-4.
68. Council on Graduate Medical Education. Fifteenth Report: Financing Graduate Medical Education in a Changing Health Care Environment. Rockville: U.S. Department of Health and Human Services, 2000.
69. AAMC Issue Brief: America's Teaching Hospitals Still Hurt from the BBA: Association of American Medical Colleges, 2000.
70. Fenton C. Interview 7/11/2000.

71. Miller RS, Dunn MR, Richter T. Graduate medical education, 1998-1999: a closer look. *JAMA*. 1999; 282:855-60.
72. Auerbach AD, Wachter RM, Katz PM, Showstack J, Baron RB, Goldman L. Implementation of a voluntary hospitalist service at a community teaching hospital: Improved clinical efficiency and patient outcomes. Unpublished manuscript 2002.
73. Auerbach A. Personal communication 6/3/2002.
74. Null D. Interview 7/24/2000.
75. Woeber K. Interview 7/17/2000.
76. McPhee SJ, Mitchell TF, Schroeder SA, Perez-Stable EJ, Bindman AB. Training in a primary care internal medicine residency program. The first ten years. *JAMA*. 1987; 258:1491-5.
77. Blumenthal D, Weissman JS, Griner PF. Academic health centers on the front lines: survival strategies in highly competitive markets. *Academic Medicine*. 1999; 74:1038-49.
78. Cisneros L. Mount Zion Supporters Breathe Sigh of Relief. *UCSF Daybreak News*, 7/30/1999.
79. Sabin R. Politicians Work on Subsidy Plan for Mount Zion; \$25 million funds package proposed. *The San Francisco Chronicle*, 11/17/1999. San Francisco:A21.
80. Sabin R. Mount Zion ER to Close On Tuesday; Political leaders fail to get funds to keep hospital going. *The San Francisco Chronicle*, 11/20/1999. San Francisco:A15.
81. Meagher TW. Residency training in internal medicine: program design in an era of constraint. *CMAJ (Canadian Medical Association Journal)*. 1988; 138:705-8.

82. Wartman SA. Managed care and its effect on residency training in internal medicine. *Archives of Internal Medicine*. 1994; 154:2539-44.
83. Tinsley JA. Training in the era of managed care. *Academic Medicine*. 1996; 71:212-3.
84. Brenner S, Sachs FL. Internal medicine residencies in managed-care era. *American Journal of Medicine*. 1997; 102:127-9.
85. Iglehart JK. Medicare and graduate medical education. *New England Journal of Medicine*. 1998; 338:402-7.
86. Ludmerer KM. The creation of time to heal. *Annals of Internal Medicine*. 2000; 133:396-9.
87. Seelig CB. Changes in residents' attitudes in response to residency program modifications: a prospective study. *Southern Medical Journal*. 1992; 85:972-5.
88. Seelig CB. Quantitating qualitative issues in residency training: development and testing of a scaled program evaluation questionnaire. *Journal of General Internal Medicine*. 1993; 8:610-3.
89. Seelig CB, DuPre CT, Adelman HM. Development and validation of a scaled questionnaire for evaluation of residency programs. *Southern Medical Journal*. 1995; 88:745-50.
90. Collier VU, McCue JD, Markus A, Smith L. Stress in medical residency: status quo after a decade of reform? [see comments.]. *Annals of Internal Medicine*. 2002; 136:384-90.

91. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. *Annals of Internal Medicine*. 2002; 136:358-67.
92. Kiel DP, O'Sullivan PS, Ellis PJ, Wartman SA. Alumni perspectives comparing a general internal medicine program and a traditional medicine program. *Journal of General Internal Medicine*. 1991; 6:544-52.
93. Huot S. Personal communication 2/24/2003.
94. Mullan F. Some thoughts on the white-follows-green law.[comment]. *Health Affairs*. 2002; 21:158-9.
95. Iglehart JK. Rapid changes for academic medical centers. 1. *New England Journal of Medicine*. 1994; 331:1391-5.
96. Cooper RA. There's a shortage of specialists: is anyone listening?[comment]. *Academic Medicine*. 2002; 77:761-6.
97. Cooper RA, Getzen TE. The coming physician shortage. *Health Affairs*. 2002; 21:296-9.
98. Cooper RA, Getzen TE, McKee HJ, Laud P. Economic and demographic trends signal an impending physician shortage.[comment]. *Health Affairs*. 2002; 21:140-54.
99. Munding MO. Through a different looking glass.[comment]. *Health Affairs*. 2002; 21:163-4.
100. Snyderman R, Sheldon GF, Bischoff TA. Gauging supply and demand: the challenging quest to predict the future physician workforce.[comment]. *Health Affairs*. 2002; 21:167-8.

101. Grumbach K. The ramifications of specialty-dominated medicine.[comment]. Health Affairs. 2002; 21:155-7.
102. Bodenheimer T, Lo B, Casalino L. Primary care physicians should be coordinators, not gatekeepers. JAMA. 1999; 281:2045-9.
103. Schroeder SA. Primary care at a crossroads.[comment]. Academic Medicine. 2002; 77:767-73.
104. Robinson JC. The end of managed care.[comment]. JAMA. 2001; 285:2622-8.
105. Charatan F. US "boutique medicine" could threaten care for the majority. British Medical Journal. 2002; 324:187.
106. Reinhardt UE. "Boutique medicine" in the US. Doctors are more interested in having high incomes than providing better health care.[comment]. British Medical Journal. 2002; 324:1335.
107. Barer M. New opportunities for old mistakes.[comment]. Health Affairs. 2002; 21:169-71.