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Prologue: In a nation that holds academic institutions in high esteem, academic health centers (AHCs) have enjoyed a Place of Particularly high Prominence. Their academic mission, including caring for vulnerable populations, conducting biomedical research, and training the health care workforce of the future, has set them apart from other private institutions. They have long enjoyed a level of federal subsidy and other cross-subsidies that has allowed them to continue to carry out these functions in the face of declining revenues from other sources. However, the marketplace has caught up with AHCs. “Academic medicine fears for its future,” wrote John Iglehart in summarizing a recent conference on the future of AHCs, “in part because recent developments in the health insurance marketplace are threatening the traditional manner in which its missions have been financed . . . [particularly] the rapid growth of managed care Plans.” In this Paper David Blumenthal and Gregg Meyer outline some of the challenges AHCs face as they retool themselves for the next century. Their paper is based on case studies of seven top academic institutions, all members of the Association of Academic Health Centers. The authors found that these institutions tended to respond to market pressures in a variety of ways, but that all were placing less emphasis on their teaching and research functions. This has critical implications for the future workforce as well as for the state of biomedical research, for which this country is internationally renowned. Blumenthal is chief of the Health Policy Research and Development Unit at Massachusetts General Hospital in Boston and is associate professor of medicine and health care policy at Harvard Medical School. Meyer is assistant Professor of medicine at the Uniformed Services University of the Health Sciences School of Medicine in Bethesda, Maryland. Both are Physicians.
Abstract: To evaluate the potential problems facing academic health centers (AHCs) as a result of market-driven health care reforms, we conducted case studies of seven nationally prominent AHCs during 1994. Findings suggest that although AHCs were not yet feeling the predicted impact of competition on their financial health and ability to sustain their academic missions of teaching, research, and care of vulnerable populations, they were adopting a variety of strategies for responding to those perceived threats, especially networking and cost reduction. They were placing considerably less emphasis on restructuring their research and teaching missions to prepare for anticipated fiscal pressure. Our analysis suggests that even the most successful AHCs are likely to be fundamentally altered by the revolutionary changes occurring in health care markets.

Many health care analysts have drawn attention recently to the potential problems that academic health centers (AHCs) may encounter as a result of radical, ongoing changes in our health care markets. At the core of this concern is that these changes will deprive AHCs of hidden and explicit subsidies sustaining the activities that traditionally have set them apart from other private health care providers. These activities—or “academic missions”—consist of caring for vulnerable populations, conducting biomedical research, and teaching health care professionals.

To characterize more fully both the challenges facing AHCs and their options for responding to those challenges, we conducted case studies of seven centers in 1994. Our case studies consisted of two-day visits to each institution, detailed interviews with senior managers and clinicians, and reviews of internal papers and reports. In interpreting our findings, readers should be aware that our sites may not be representative of all aspects of the universe of AHCs. We drew most of our sites from the membership of the Association of Academic Health Centers (AHC), which consists of 126 institutions that combine professional schools with teaching hospitals and have simultaneous commitments to teaching, research, and clinical care. We chose institutions that met one or more of the following criteria: national reputations for the size and excellence of their research and teaching activities; location in markets with significant or growing rates of managed care penetration; and/or reputations for pursuing innovative solutions to the threats posed by local environments. We also sought to include institutions that varied in ownership (public and private) and geographic setting (urban and rural). Although our resulting sample shows considerable diversity, it may somewhat overrepresent large, eminent AHCs in markets that are undergoing competitive transformation.

Sample institutions included the University of California, San Diego, Medical Center (UCSDMC); the University of California, San Francisco, Medical Center (UCSFMC); the Washington University Medical Center (WUMC) and its clinical affiliate, BJC, Inc., St. Louis; the University of Chicago Medical Center (UCMC); the West Virginia University Health Sciences Center, Morgantown (WVUHSC); Columbia Presbyterian Medi-
Challenges Facing Academic Health Centers

The central problem facing AHCs relates to the effect of market restructuring on their revenue sources. AHCs produce two kinds of goods: private and public. Private goods consist of products and services in the areas of clinical care, teaching, and research that AHCs sell to paying customers. Examples include clinical services to paying patients, continuing medical education courses and textbooks, and proprietary intellectual property derived from academic research. Public goods consist of a series of other products and services (also in the areas of clinical care, teaching, and research) to which society in general attaches value, but for which no adequate private market exists. Examples include the care of the uninsured and underinsured, the training of health professionals, and the conduct of basic and clinical biomedical research. AHCs support the production of these public goods with revenues from two sources: excess revenues from the sale of private goods, and governmental subsidies (Medicaid, Medicare, the National Institutes of Health [NIH], grants to support fellowships and training programs of various kinds, tax-exempt status, and state appropriations for capital expenditures and educational expenses). When AHCs talk about their academic missions, they are referring largely to the public goods that they have been producing for the past fifty years.

Sale of private goods. As a result of the restructuring of private markets, price competition in health care markets is driving down the profit margins on clinical products sold to a variety of payers. Advertently or inadvertently, society is thereby withdrawing an important source of indirect subsidies for the production of public health care goods and services. For example, the AHCs in our sample reported that their charges for each inpatient admission (adjusted for case-mix) were approximately 15 to 35 percent above the comparable charges in community hospitals with which they are increasingly competing for patients. The leaders and managers of the AHCs we visited believed that they will not be able to command such higher fees in the future. Lacking convincing evidence that AHCs provide superior quality of care or have sicker patients than their competitors have, academic centers are dependent on the added value of their reputations in negotiating higher prices with managed care organizations. A consensus seems to be emerging among academic centers in more advanced markets...
### Key Characteristics of Academic Health Center (AHC) Study Sites

<table>
<thead>
<tr>
<th></th>
<th>UCSD</th>
<th>UCSF</th>
<th>UCMC</th>
<th>PHCS</th>
<th>CPMC</th>
<th>WVU</th>
<th>WUMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed size (^b)</td>
<td>412</td>
<td>797</td>
<td>610</td>
<td>1,778</td>
<td>1,232</td>
<td>328</td>
<td>4,401</td>
</tr>
<tr>
<td>Admissions (^b)</td>
<td>21,418</td>
<td>28,472</td>
<td>25,563</td>
<td>76,447</td>
<td>41,150</td>
<td>14,626</td>
<td>125,571</td>
</tr>
<tr>
<td>Employees (^b)</td>
<td>3,204</td>
<td>4,424</td>
<td>3,552</td>
<td>12,104</td>
<td>7,815</td>
<td>1,963</td>
<td>15,962</td>
</tr>
<tr>
<td>Location</td>
<td>Urban</td>
<td>Urban</td>
<td>Urban</td>
<td>Urban</td>
<td>Urban</td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Market type (^c)</td>
<td>Stage 3</td>
<td>Stage 3</td>
<td>Stage 2</td>
<td>Stage 3</td>
<td>Stage 2</td>
<td>Stage 1</td>
<td>Stage 2</td>
</tr>
<tr>
<td>Occupancy rate (^b)</td>
<td>79.6%</td>
<td>70.5%</td>
<td>81.8%</td>
<td>81.5%</td>
<td>87.6%</td>
<td>80.5%</td>
<td>63.0%</td>
</tr>
<tr>
<td>Medicaid patients</td>
<td>41.1%</td>
<td>21.9%</td>
<td>21.3%</td>
<td>9.3%</td>
<td>19.7%</td>
<td>27.2%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Number of residents (^d)</td>
<td>311.2</td>
<td>408.5</td>
<td>357.2</td>
<td>780</td>
<td>632</td>
<td>155.1</td>
<td>1,100</td>
</tr>
<tr>
<td>GME/IME payments (^d) (millions of dollars)</td>
<td>$14.4</td>
<td>$11.5</td>
<td>$21.0</td>
<td>$60.0</td>
<td>$82.1</td>
<td>$5.1</td>
<td>$75.0</td>
</tr>
<tr>
<td>Percent HMO patients</td>
<td>36.0%</td>
<td>49.0%</td>
<td>19.0%</td>
<td>32.0%</td>
<td>13.0%</td>
<td>5.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>Percent private insurance in payer mix</td>
<td>5.2%</td>
<td>11.3%</td>
<td>15.2%</td>
<td>39/43%</td>
<td>23.0%</td>
<td>22.0%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Percent uninsured in payer mix</td>
<td>13.0%</td>
<td>1.8%</td>
<td>4.0%</td>
<td>2/4%</td>
<td>6.5%</td>
<td>12.0%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Percent HMO in payer mix</td>
<td>22.0%</td>
<td>26.0%</td>
<td>19.0%</td>
<td>21/10%</td>
<td>5.0%</td>
<td>0.0%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Federal research (^e) (millions of dollars)</td>
<td>$75</td>
<td>$130</td>
<td>$85</td>
<td>$200</td>
<td>$105</td>
<td>$3.5</td>
<td>$130</td>
</tr>
<tr>
<td>MSA population (^f) (millions)</td>
<td>2.5</td>
<td>1.6</td>
<td>7.4</td>
<td>3.2</td>
<td>8.5</td>
<td>0.075</td>
<td>2.5</td>
</tr>
<tr>
<td>Per capita income (^f) (thousands of dollars)</td>
<td>$16.2</td>
<td>$22.0</td>
<td>$16.6</td>
<td>$19.2</td>
<td>$17.4</td>
<td>$11.7</td>
<td>$14.8</td>
</tr>
<tr>
<td>Percent poor patients (^f)</td>
<td>11.3%</td>
<td>9.0%</td>
<td>11.3%</td>
<td>8.1%</td>
<td>17.5%</td>
<td>20.6%</td>
<td>20.6%</td>
</tr>
</tbody>
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Uninsured (above or below national average of 14.7%) \(^g\)

<table>
<thead>
<tr>
<th>Uninsured</th>
<th>Above</th>
<th>Above</th>
<th>Below</th>
<th>Below</th>
<th>Below</th>
<th>Below</th>
<th>Near</th>
<th>Below</th>
</tr>
</thead>
</table>

Sources: Data are from Association of Academic Health Centers (AHC) annual reports and audited financial statements unless otherwise noted.

Notes: UCSD is University of California, San Diego; UCSF is University of California, San Francisco; UCMC is University of Chicago Medical Center; PHCS is Partners HealthCare System in Boston; CPMC is Columbia Presbyterian Medical Center; WW is West Virginia University; and WUMC is Washington University Medical Center in St. Louis. GME/IME is graduate medical education/indirect medical education. HMO is health maintenance organization. MSA is metropolitan statistical area.

\(^a\) Figures reported here are for constituent institutions.


\(^d\) From AHA and U.S. Department of Health and Human Services sources. Residents are reported as weighted counts.

\(^e\) Direct costs.

\(^f\) Data from 1992 Area Resource File (ARF), Bureau of Health Professions.

\(^g\) Data provided by Bureau of the Census from 1993 surveys.

(San Diego, San Francisco, and Boston) that AHCs’ reputation alone is worth a premium of at most 5 to 10 percent compared with community providers. In San Diego and San Francisco, where competition for patients...
was most intense at the time of our study, AHCs expected to command a premium of at most 3 to 5 percent.

**Governmental subsidies.** A second potential problem for AHCs results from proposed reductions in governmental subsidies for the public goods and services they produce. Congressional legislation to reduce spending on Medicare and Medicaid over the next seven years would affect the clinical revenues of almost all of the nation’s health care providers, but AHCs are particularly vulnerable. Medicare payments to AHCs for graduate medical education (GME) in the past have totaled approximately $6 billion annually. As part of its Medicare overhaul, the Republican Congress has proposed the creation of a novel fund—the Teaching Hospital and Graduate Medical Education Trust Fund—to support GME in AHCs. The Republican plan would reduce contributions to GME from the Medicare Part A trust fund but would funnel for the first time general revenues to support GME. Considerable uncertainty remains about whether the Republican proposal would maintain nationwide GME payments at historic levels. A particular concern for AHCs is that, as of this writing, Republican Medicare reforms would continue to include GME monies within the capitated payments that managed care organizations receive when Medicare beneficiaries enroll in these organizations. Managed care organizations have not passed these payments on to AHCs in the past, with the result that academic centers do not receive GME payments for caring for Medicare enrollees in managed care plans.

On the positive side, federal subsidies for biomedical research in AHCs (usually in the form of grants and contracts from NIH) have been protected in recent budget deliberations. However, given pressures to reduce domestic discretionary spending, it seems unlikely that NIH payments will increase to make up for the loss of any indirect subsidies from clinical revenues.

It is certainly arguable that the challenges that loom over AHCs are partly of their own making. AHCs have increased the size of their residency programs and faculties in recent years, as clinical revenues and governmental subsidies grew during an era of growing entitlement spending and increasing governmental expenditures on research. Nevertheless, the historical causes of the challenges confronting AHCs do not make those potential problems any less imposing.

**Variability Among Academic Health Centers**

AHCs are not all created equal. They inhabit diverse markets, and they bring diverse histories and resources to the challenges posed by their current environments. In four of the health care markets we visited (New York, Chicago, St. Louis, and West Virginia), health care market restructur-
ing was still in comparatively early stages, so that pressure to lower the fees charged by AHCs in these locations remained weak. The AHCs in our sample also differed greatly in the assets they could draw on when confronting challenges posed by local markets. Although it is often assumed that all academic centers enjoy reputations for excellence in their communities, close observation revealed important variations in this dimension. Despite the respect they command nationally for their prowess in biomedical research and teaching, neither UCSFMC nor UCSDMC seemed to be viewed locally as indispensable clinical resources. In contrast, the constituent institutions of PHCS-Massachusetts General Hospital and Brigham and Women’s Hospital-and WUMC seemed to be regarded as vital to the quality of local health care systems and to local economies as well.

The AHCs we visited also differed significantly in their cash reserves. Capital is vital to a number of the strategies that AHCs are pursuing-especially the development of local networks of owned or affiliated service providers. Publicly owned AHCs (such as UCSFMC, UCSDMC, and WVUHSC in our sample) have been comparatively disadvantaged in accumulating cash reserves because operating surpluses revert to state coffers. For the same reason, publicly owned AHCs generally have seen less value in raising philanthropic contributions. In contrast, some of the private institutions we studied (such as PHCS) can draw on large “war chests” with hundreds of millions, even billions, of dollars and have well-honed fund-raising operations to help deal with their new competitive environments.

None of the varied advantages and disadvantages of the individual institutions in our sample seems likely to guarantee success or failure over the long term in AHCs’ efforts to cope with market restructuring and changing public policy. However, all else equal, AHCs that have substantial reputations, major capital reserves, and comparatively less competitive health care markets are more likely than less fortunate institutions to survive and prosper. In this regard, AHCs that are closely linked to urban public hospitals face particular disadvantages that may be extremely difficult to overcome. This class of institutions was not heavily represented in our sample and deserves special study as our health care system evolves.

**Financial status.** Despite the challenges posed by their changing environments, most of the AHCs in our sample were financially healthy when we visited them. Only two of the seven-UCSDMC and CUHSC-were losing money from clinical operations, and their financial problems could be traced to recent capital expenditures that had created levels of debt that were difficult to sustain in the short term, rather than to the pressures of managed care or to governmental cutbacks per se. Neither UCSFMC nor PHCS, both located in markets considered to be highly competitive, showed marked adverse impacts on their bottom lines. In less mature
managed care markets, such as St. Louis, Morgantown, and Chicago, our sample AHCs were enjoying healthy profit margins. This is consistent with recent evidence from the entire hospital industry.\(^5\)

Three qualifications to this observation are important. First, as noted previously, our sample tended to include institutions that were larger and stronger than the average AHC nationwide. Second, the financial performance we observed is subject to change as competitive pressures escalate. Since we visited them in 1994, officials at UCSFMC report that their profit margins have evaporated. Third, to the extent that operating performance is preserved by reducing subsidies of public goods, the financial health of AHCs may not accurately reflect the health of their traditional missions.

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**Options Available To Academic Health Centers**

If competitive pressures and governmental parsimony reduce AHCs’ capacity to subsidize public goods, and if they wish to continue producing such goods at the same level as before, then AHCs must develop new sources of funds. Assuming for the moment that government is unlikely to increase its direct subsidies, AHCs are left with only one viable alternative: to find new ways to increase net revenues from the goods they sell to paying customers. The options for accomplishing this goal consist, broadly speaking, of selling clinical care, teaching, or research to governmental or private customers at greater volumes and/or lesser per unit costs than previously.

In our case studies, we found evidence that AHCs were pursuing a number of these strategies. We review these activities in descending order of the frequency with which we observed them in our sample institutions.

**Increasing sales of clinical services to private purchasers.** This type of strategy has received the most attention from our sample institutions and in past discussions of AHCs’ responses to changing health care markets.\(^6\) The specific approach that AHCs are pursuing most commonly is networking.\(^7\) Networking involves the development of integrated health care systems that are capable of providing a full range of health care services, hopefully at competitive prices. Six of the seven institutions we visited had made networks the cornerstone of their strategic response to market reform. Some had started by affiliating with or acquiring hospitals (WUMC); others had started by building networks of employed or affiliated primary care physicians (UCSDMC, UCMC, PHCS, and WVUHSC).

Since networking by academic centers has been described in detail elsewhere, we note here only that networks formed to date or contemplated by some of our sample institutions were extraordinarily ambitious in their size, scope, and structure.\(^8\) PHCS planned to recruit 700-900 primary care physicians and to be responsible for providing health care to 1.5 million...
“covered lives” in eastern Massachusetts. The UCSDMC network had about 350 primary care physicians of an estimated 465 needed to cover the 700,000 lives it hoped to incorporate into its San Diego network.

Academic centers in our sample were investing hundreds of millions of dollars in these networking efforts. The development of necessary information systems alone can require tens of millions of dollars. For some of the institutions we visited, the capital requirements of building networks may actually prove to be beyond their means and may force them either to scale back their plans or to seek partnerships with capital-rich investors or for-profit health plans.9

A major challenge in building health care networks—both academic and nonacademic—is to create loyalty among members of the new organization. Academic centers such as PHCS, which was willing and able to commit considerable financial resources, have relied to some extent on practice acquisition as a means of ensuring future fidelity from primary care physicians and hospitals. In the case of state institutions such as UCSDMC, whose financial constraints preclude outright purchase of significant numbers of medical practices, networks have sought to retain providers by offering them superior services in such areas as billing, personnel management, information systems, marketing, and third-party contract negotiation. To provide these services, networks were relying on so-called management services organizations (MSOs). The UCSDMC network had about sixty full-time-equivalent (FTE) physicians in its MSO, which was funded by a set-aside from capitated payments to the network.

AHCs’ efforts to build primary care networks were complicated in our sample institutions by the fact that many had no history or tradition of employing primary care physicians, having consciously avoided involvement in primary care in the past. As a result, there were both structural and cultural barriers to the development of primary care within these centers. UCSDMC, for example, started its network-building process with only 5.5 FTE primary care physicians on its entire faculty. In some AHCs with little or no past involvement in primary care, the development of networks had provoked skepticism or outright dissension on the part of faculty members who harbored doubts about the need for or advisability of incorporating large numbers of primary care physicians into AHC communities.

Interestingly, one of our sample institutions, UCSFMC, had rejected the networking strategy and was instead aggressively marketing its tertiary and quaternary care services, such as transplant surgery and neurosurgery. This decision reflected to some degree the circumstances of the UCSFMC market, especially its high, long-standing level of managed care penetration (65 percent), which made it difficult for UCSF to compete effectively in the provision of primary and secondary care outside the immediate envi-
rons of its medical center. UCSFMC had formed a Division of Tertiary Care that was directed by a senior academic neurosurgeon who became interested in marketing specialized services when the volume of cases presenting to his practice fell sharply. The division had identified “product lines” or groupings of specialized services that it wished to sell to large managed care purchasers. It had assigned product managers to those lines of care, monitored the prices that its competitors (for example, Stanford University Medical Center; California-Pacific Medical Center; and the University of California, Los Angeles) were charging for those services, priced its services competitively, and aggressively pursued business in those areas from purchasers, managed care organizations, local physician/hospital organizations, and physician groups. Product managers sought long-term contracts with large managed care organizations and physician groups to provide a given volume of care for a specified price, and also “spot” business—single cases that arise from practices of smaller purchasers or groups of physicians.

Reducing costs of clinical services. Even if AHCs are unable to increase the volume of clinical goods and services they sell to public and private purchasers, they still will benefit from reducing the costs of those that they do sell, since this will increase the net revenues they realize per unit of service. All of the academic centers we visited were engaged in vigorous cost-cutting efforts to reduce operating expenses by an average of 20 percent over the next three to five years.

The methods they were using in this regard consisted of both traditional and nontraditional approaches. Traditional approaches included efforts to reduce administrative overhead, to close beds and reduce associated operating expenses, and to secure better prices from vendors of services. Plans to close beds were in some cases quite dramatic. Leaders of PHCS were speaking openly of their expectation that Massachusetts General Hospital and Brigham and Women’s Hospital together would close 700 of their more than 1,700 beds (the equivalent of a large teaching hospital) over the next five years. Massachusetts General Hospital had already reduced its size from more than 1,000 beds in the late 1980s to 862 in 1995.

AHCs also were using an eclectic combination of (then) more novel techniques for reducing costs while maintaining quality of care and service. These included total quality management, reengineering of processes of clinical care, and introduction of “critical pathways.” To support these efforts, all of the academic centers we visited were attempting to build or augment a capability for applied research and development: units that conduct outcomes research, clinical epidemiology, and quality improvement or management. UCSFMC had reengineered processes of care for quaternary product lines in the area of liver and kidney transplantation, which had enabled it to reduce prices dramatically for these services.
Increasing sales of clinical services to government purchasers. The location of a number of our sample institutions in distressed inner-city or rural areas had forced them to make a virtue of necessity by finding ways to increase their net revenues from selling clinical services to public purchasers. Several of our sample sites (UCSDMC, UCMC, CUHSC, and WVUHSC) were aggressively developing inner-city or rural networks of primary care group practices and affiliated health centers for the purposes of increasing the numbers of Medicaid patients they cared for. In areas where Medicaid had begun paying for care on a capitated basis, AHCs perceived opportunities to earn substantial net revenues on publicly insured patients. Also, demographic research had reminded AHC leaders that significant numbers of privately insured patients live in distressed inner-city neighborhoods. By increasing access to primary care in these areas, they hoped to capture this business as well, which had sometimes bypassed them for other providers.

As part of these efforts to increase net revenues from government purchasers of clinical services, some private AHCs in our sample had become much more sophisticated than they were previously at relating to local and state governments. Through investing resources and the time of senior managers, they had brought their role in caring for inner-city and rural populations to the attention of these public officials and had reaped rewards in terms of improved Medicaid payment rates and direct grants of capital for the construction of inner-city and rural infrastructure. For example, UCMC had benefited dramatically from increases in its Medicaid payments that were granted specifically by the Illinois State Legislature and resulted in tens of millions of additional dollars in income.

Increasing sales of nonclinical services in private markets: research. Although increased net revenues from clinical care are the most important potential source of new subsidies for public goods, AHCs produce other private goods that can generate such net revenues. Among these are the conduct of research for interested biomedical industries and the sale of intellectual property resulting from biomedical investigation. Several of the academic centers in our sample had engaged in these activities for a number of years, and some had enjoyed outstanding success. For example, Massachusetts General Hospital receives almost 20 percent of its annual research budget—approximately $40 million of $200 million in 1994—from industrial sources. UCSF had a successful record of technology transfer; royalties from intellectual property at its medical center totaled $10 million in 1994.

Despite these precedents, only two of the seven institutions we visited (CUHSC and WVUHSC) identified the promotion of academic/industrial relationships as a major strategic priority. CUHSC had invested in a new office to solicit and manage funding for clinical research from industrial
sources and had increased such funds from $3 million to $27 million annually from 1992 to 1994. Overhead payments from these industry grants had funded a new program to support young investigators.

Changes in private markets have created new opportunities for the conduct and sale of research and intellectual property directed toward reducing the costs or increasing the quality of clinical processes—the potential results of applied research and development by AHCs in the areas of outcomes research and critical pathways. The largest area of applied research investment at all of the institutions we visited was research and development on information systems. PHCS had announced a large joint venture with Blue Cross/Blue Shield of Massachusetts to develop a clinical information system that would service PHCS’s integrated health care system, and both UCSDMC and UCSFMC had made the development of clinical information systems a major priority. Such systems could have protean benefits for AHCs by improving the quality and reducing the costs of care in their integrated health care networks. An additional benefit, however, might be the opportunity to license and sell such information systems to other providers of care.

Although the likely income from the marketing of products of research and development in AHCs—rarely exceeding a few million dollars annually in the past—may not prove decisive to their futures, such monies would provide a valuable source of subsidies for academic missions. At current interest rates, it would require an endowment of nearly $160 million to generate the equivalent of the $10 million annually that UCSFMC receives in royalties from licensed products.

Increasing sales of nonclinical services in private markets: teaching. Only one of the AHCs we visited, WVUHSC, seemed to have placed a high priority on developing educational products that might have the potential to generate additional net revenues in the future. WVUHSC offered rural primary care physicians opportunities to take mini-residencies with specialty services at the academic center. It also offered the services of traveling specialists to conduct continuing medical education programs in isolated areas. These educational benefits were available free to physicians in its network and thus generated returns to the academic center indirectly by increasing physicians’ loyalty to its primary care network.

Reducing costs of nonclinical services: teaching and research. At the time of our visits, only one center (PHCS) was attempting to improve the efficiency of its research activities, and even there, efforts were nascent. PHCS had formed a committee to examine ways to consolidate the space used by the research groups at Massachusetts General Hospital and Brigham and Women’s Hospital and to consider ways to improve joint planning and cut administrative expenditures. None of our study institutions had begun
to reduce the cost of its teaching programs in 1994, although in the interim, several have announced plans to cut the size of their residencies by 20 to 30 percent over the next three to five years.\textsuperscript{12}

**Implications For The Future**

AHC leaders are fond of commenting that “when you’ve seen one academic health center, you’ve seen one academic health center.” Clearly, there are hazards in generalizing from our admittedly small, perhaps atypical, sample of AHCs to the universe of these institutions. Nevertheless, our intensive, qualitative review of these seven institutions suggests a number of conclusions and raises issues that deserve close monitoring as AHCs grapple with radically changing health care environments.

The very diversity of AHCs suggests clues to the future evolution of the AHC sector under pressures of health care market transformation. Some AHCs in our sample, such as WUMC and PHCS, confront the future with natural advantages: lofty local reputations, major cash reserves, and/or markets that have been slow to restructure. Others, such as UCSDMC and UCSFMC, face highly competitive markets without the benefits of either substantial capital or comparable veneration in their local environments. The variability in the endowments and situations of our sample of AHCs suggests the broader and perhaps unsurprising conclusion that some will be more successful than others in adapting to changing markets and public policies, and that the fate of particular institutions may be influenced greatly by factors that are outside the control of current management.

**Survival and adaptation.** Based on our observations, it is reasonable to hypothesize that a small number of favored AHCs may not only survive current challenges intact but may emerge as dominant regional providers of health care services with large integrated health care systems under their control. Such academic health systems may attract larger proportions of available public subsidies for academic missions and also may have a much easier time than their less fortunate sister institutions in generating internal subsidies from the production and sale of clinical care, teaching, and research in private markets. Because of their dominant local situations, some of these academic centers may be able to negotiate access to a portion of the profits now wholly retained by third-party payers and managed care organizations. Failing this, these powerful academic health systems may start their own insurance vehicles to gain access to such subsidies. Because of the large amounts of capital needed to start such insurance vehicles, only well-endowed AHCs can even consider doing so.

Other less advantaged AHCs may be forced by market pressures and reduced public subsidies to decrease their size and the scope of their aca-
ademic activities. For example, lacking the capital to build and sustain clinical networks that can compete in private markets, some AHCs may be tempted to close or sell their clinical facilities to jettison, in effect, the huge clinical superstructures that they have accumulated around their medical and other professional schools over the past fifty years. The amount of public goods and services they produce thus may be smaller and may change in nature, with greater concentration on undergraduate medical education and basic research and reduced investment in GME, clinical research, and care of vulnerable populations. These AHCs would cease, in effect, to be AHCs as we have known them and come to resemble the other professional schools—business and law—that inhabit universities.

The diversity of AHCs complicates the task of predicting the fate of this set of institutions but also emphasizes the need for each community to assess the situations of AHCs in their markets, at least to the extent that communities value the local production of public goods. In some markets, the possible downsizing, closure, or reorientation of local academic centers may be welcomed as part of the contraction of local health care systems and costs. Other communities may be concerned, however, about potential reductions in the supply of locally trained physicians likely to practice in nearby underserved areas (especially in the case of rural or inner-city AHCs), or the loss of research infrastructures that have been demonstrated in a variety of studies to enhance local economic development.\textsuperscript{13}

**Neglected opportunities.** The current focus of the AHCs in our sample on increasing sales of clinical services (through network development and/or marketing tertiary care) is understandable, since clinical revenues and associated profit margins have provided important subsidies for AHCs’ academic missions in the past. As AHC leaders commonly point out, “no margin, no mission.” However, our case studies suggest that academic centers may benefit from taking a broader view of the strategies they can and should pursue to sustain their academic missions. In the process, they may discover that they are missing opportunities that may be difficult to recapture in the future.

In the area of teaching, academic centers may find, in the face of level or dwindling public subsidies, that they can and must find private customers for their training functions. This may require forging alliances with managed care organizations for the purposes of supplying trained health care professionals whose skills meet the needs of those organizations better than they have in the past. Failing to take this initiative now may encourage these managed care organizations, as some have already, to initiate their own in-house training programs.\textsuperscript{14} In San Diego the Scripps Health system has initiated its own family practice residency, as has Group Health Cooperative of Puget Sound and Kaiser Permanente in San Francisco.
In the area of research, few academic centers in our sample were devoting major resources to expanding their research operations, to increasing the efficiency of those operations, or to promoting technology transfer. A strong case can be made that applying new knowledge directly to practice is the most distinctive societal function that AHCs perform. Faculty in basic science departments of universities conduct fundamental biomedical research; industries develop and manufacture new drugs and devices. AHCs, however, are uniquely situated to perform the clinical or translational research necessary to bridge these two realms.

AHCs cannot afford to take their advantage in clinical research and technology transfer for granted. As recently noted in The Wall Street Journal, nonacademic contractors are increasingly involved in directing and conducting clinical trials. Contract research organizations already manage 76 percent of Phase III studies and 52 percent of Phase IV studies. If the conduct of clinical trials proves economically attractive, managed care organizations may enter this market too, since they have convenient access to millions of patients. In certain research sectors that AHCs have dominated effortlessly in the past, we may be entering the era of “managed research,” just as we already have entered the era of managed care.

**Future characteristics and relationship to the community.** The current tendency of our sample AHCs to deemphasize teaching and research raises basic questions about the future character of these institutions and about society’s interest in the public goods they have produced. Under the pressures of market restructuring and changing public policy, are AHCs becoming fundamentally less “academic” than they have been in the past, or does their current deemphasis of academic missions represent a transient adaptation to the stress of health care market restructuring? More broadly, has a distracted health care system momentarily lost track of an enduring commitment to certain public goods, or has society made a (more or less) conscious decision to disinvest in these academic missions?

If the societal sponsors of academic missions reaffirm their commitment to and interest in the production of public goods, then the current problems of AHCs may ultimately prove self-correcting and may even have salutary results. The threat of health care market transformation seems to be forcing many academic centers to reexamine their relationships with local communities and with society as a whole, and to renew connections that had grown tenuous. The development of integrated health care systems by academic centers may cause them to play more meaningful roles in promoting the health of local communities, increase their ability to provide high-quality ambulatory services, and augment their ability to perform new types of research concerning health care delivery in ambulatory settings. Under this scenario, academic centers will continue to enjoy support for the
production of public goods, but the type and mix of public goods they produce will be changed in accordance with societal wishes.

An alternative view holds that as society struggles to control the proportion of its gross national product devoted to health care services generally, it will reduce its investment in public goods associated with health care services: teaching, research, and the care of vulnerable populations. Under this scenario, the number of academic centers may decrease as weaker organizations—lacking sufficient capital, reputation, and local civic support—fail to compete effectively for reduced resources available to support the production of public goods.

Surviving AHCs may be changed as well. Some may be smaller, concentrating on undergraduate medical education and basic research. Others may be bigger—the dominant regional providers referred to above—but even these major academic health systems may have fundamentally different characteristics than AHCs have now. The larger AHCs likely will be more geographically dispersed, more complex in structure, more difficult to manage, and less academic overall than they are now. The service side of these organizations, embodied in huge networks of primary care physicians and nonacademic hospitals, may carry enormous weight in their internal councils, and the commitments of these community-based constituencies to academic missions may prove less than enthusiastic. Faculty involvement in teaching, research, and care of vulnerable populations will raise the costs of their practices compared with those of community groups and place them in the unenviable position of requiring subsidies from the central organization—subsidies that are generated in part by community practices.

These changes may make these dominant academic centers of the future much less stable as institutions than they have been in the past—potentially fragile partnerships among constituent units and organizations that may have incomplete understanding of each other’s missions. The challenge of future academic leadership will be to sustain the internal alliances and synergies among clinical, teaching, and research operations that have allowed AHCs to produce public goods in the past. The societal advantages and disadvantages of such potential changes in the AHC sector—its size, the nature of surviving institutions, the types and mix of private goods it produces, and the internal organization and stability—will not be known until the not-so-invisible hand of current market forces completes its work.

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NOTES


8. Iglehart, “Rapid Changes for Academic Medical Centers” (Parts I and II); and Rogers et al., “Cultural and Organizational Implications of Academic Medical Center Networks.”


16. Patricia Hibberd, Infectious Diseases Unit, Massachusetts General Hospital, personal communication, 30 March 1995.