

Health Care in Wisconsin: The Nexus of Science, Technology, Medicine, and Economics¹

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Prologue

When Wisconsin turned into the Twentieth Century in 1900 our life expectancy was about half of what it is now. Our infant mortality rate was ten times higher. The search for quality in medical care was often futile because of medical quackery. There were no miracle drugs. The improvements in health status almost all came from public health; milk pasteurization, purified and piped water, sanitation. Mass immunizations of children (and adults) were in its infancy. Medical knowledge of how to prevent and cure chronic, communicable, and non-communicable disease was still largely unknown. There was virtually no health insurance protection; states and federal governments spent little on health care. The 20th century has seen the most dramatic changes in health status, health care, and health spending that anyone sitting in physicians' office in 1900 could ever have imagined. If the next century were as dramatic we would all live to be 120. But my guess is that the next century will not be that way even though the pace of medical, surgical, and drug discoveries is dazzling. The next century will be a frantic race between medical science, drugs, technology, and economics. The tensions that will organize health care are the emergence of new diseases, the infirmities of living longer, and the extraordinary cost of modern medicine. Our health care system is a mishmash of plans, options, and shared and unshared costs. The growth of bacterial infections resistant to antibiotics is on the rise, aging and the diseases of old age, many now just being discovered will increase costs, decrease quality of life, and challenge our technological capacity to win the race between science and nature. Still who would not want to be alive today, with the prospect of long life, possibly even a pain-free life and the wondrous splendors of our beautiful state? Let us delve further into the architecture of Wisconsin's medical future in the Wisconsin economy.

Overview.

Health Care is a major industry in Wisconsin. Since 1980 the share of the State's economy accounted for by the health care sector in Wisconsin has increased about 75%. Wisconsin has become a major source of innovation in health care technology, health care policies, and health education and economics. It has not always been so going back a bit in our history; we were late to modernize our system relative to our immediate

¹ Paper prepared for the Wisconsin Economic Summit, Milwaukee, Wisconsin, November 29, 30, December 1, 2000

neighbors. We were tardy in taking the challenge and need to upgrade public health to the higher level of newer technology required by traditional chronic and now new (such as HIV-Aids) and emergent diseases (such as diabetes and tuberculosis). Historically there were inequities in health care system access and delivery not just in Wisconsin but also in the nation. With the advent of Medicare and Medicaid in 1965 and 1967 respectively, Wisconsin shot to the head of the pack and has now become the Mecca of health care innovation that it is today.

Total personal health care expenditure in Wisconsin since 1980 has grown enormously. In 1980 the size of the health sector in Wisconsin was estimated at \$4.43 billion; by 1998 this had grown to around \$20 billion. There are few sectors in the Wisconsin economy as large as health care. As a percentage of State Gross Domestic Product (SGDP) expenditures on personal health care in Wisconsin was 8.4% in 1980 and 12.7% in 1998. Health expenditures grew almost as fast as the Wisconsin economy and in the 1980's actually exceeded the growth rate for state personal income. The average annual rate of growth of personal health expenditures in the State since 1980 has been 8.7%. almost the same rate as nationally (9%) but higher than Michigan, Minnesota, Illinois, and Iowa (8.1%).² [Just for the record, the distribution of sources of payment for personal health care is almost 50/50 between public sources and private resources.]

The future of health care spending in Wisconsin is likely to be on the same curve of average increases of 7-8% per annum. Why? The high level of medicine practiced in the State, and the high expectations patients have, all portend no slowdown in the growth of the health sector. The percentage share of SGDP in the years ahead is also likely to grow and more so if the State experiences any major slowdown in its economic growth path. Our experience will mirror that of the nation as a whole and unless there are major structural changes in the system of finance and delivery of services, the health care sector is likely to be a dominant one in the future of the State's economy.

The health status of the Wisconsin population approximates the high level of personal and public spending in the State. Our death rate has been more or less stable (8.7 deaths per 1000 population) for the last 20 years and more or less identical to the national death rate.³ In some senses Wisconsin is much better off than the nation as a whole; in health insurance coverage, depending on the definitions used our uninsured population is either 6 or 9% but well less than the 12 or 15% nationally. Our infant mortality rate is lower than the national average even though in terms of black /white differentials, black infant mortality rates are considerably higher than those of whites. Yet on matters of diet, drinking, smoking, and other health related behaviors Wisconsin does no better than the nation. Our leading causes of death are still heart disease, cancers and strokes but suicides, accidents and AIDS are all in the top ten. Wisconsin mirrors the nation in terms of the black/white health status differentials. For example, the leading cause of death among whites is heart disease; in the black population it is cancer. Diabetes accounts for

² All data here are from the US Department of Health and Human Services, Health Care Financing Administration data on State Health Expenditures and follow the same definitions as used to compile national expenditures on personal health. (From < www.hcfa.gov>)

³ All the data in this section come from **Wisconsin Deaths**, 1998. Dated January 2000 compiled by the Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services

nearly twice the proportion of deaths among black women than all other women. So while we have much to be proud of, we also have much to do to reduce inequities in access, in health status, and in changing health related social behaviors (diet, alcohol consumption, smoking, unsafe sex, etc.).⁴

What is Ahead?

If one could see the future perfectly, then there would be no need for people like me; analysts and economists who try to interpret the future and bring things into the realm of probabilities and not certainties. But we try anyway because the conjuncture of the economics of health care in Wisconsin is such an integral part of our lives and future. First some general trends and then these will be put into a State context.

Medicine in the Future

The past ten years, indeed just the past five years, have produced some gigantic scientific and technological changes that will change the face of medicine, perhaps in ways we will not recognize. First, the mapping of the human genome opens up ways of dealing with disease largely unknown until now. Ethical issues are present, but waiving this aside for the moment, mapping the human genome creates disease intervention strategies that make the imagination soar. Second the cutting edge of biomedical and pharmaceutical sciences, gene therapy, organ harvesting and transplantation, new drugs, new surgical techniques, and new research methods and frontiers all promise a future medicine that is largely technically based. Life expectancy is on the rise, age adjusted death rates for leading causes of death such as heart disease are falling, and there is still more ahead because of the enormity of the advances in medical science.

What these developments mean is that the cost of medical care will continue to grow and probably at least as fast as rates of the past decade, but more likely at higher rates. All these new technologies, drugs, interventions are not cost saving; all require large physical capital (more sophisticated diagnostic tools, more sophisticated medical offices and hospitals, etc.) and human capital (more training of physicians, researchers, technicians, labor of higher educational and technical levels, etc.)

Wisconsin's medical infrastructure is well positioned to participate and in many instances lead the nation in these developments in the medicine of the future. The University of Wisconsin and the Medical College of Wisconsin, among the state's institutions of higher education, are at the forefront of key areas of medical research. Wisconsin has perhaps the best structure of organ transplants and collection system in the country. Cancer research and pharmaceutical research are done at very high international scientific levels in Wisconsin. The number of cancer research protocols in which the University of Wisconsin Medical School and Clinics participate is quite large and the contributions to treatment and care have become extensive. (This has been a particular strength for many

⁴ Conclusions in this paragraph drawn from data in **Wisconsin Family Health Survey, 1998** (November 1999) compiled by the Bureau of Health Information, Division of Health Care Financing, Department of Health and Family Services.

years but its stature in the biomedical research community has grown even greater in the past decade.)⁵

It should also be noted and not just in passing that the Wisconsin economy has a vibrant private sector presence in medical markets in drug research, software development, biomedical engineering, and other high tech applications of medicine. Many of these private sector enterprises have been spun off from research and development done in the State's institutions of higher learning.

Health Systems of the Future: Access, Financing, and Coverage

The nation's health care system, how it is financed, how people have access to it, and how the benefits of the new medicine are distributed to different segments of the population, are all issues at the crossroads of public policy. The US has a very high cost, high quality, but unequal access health care system. It is a system that favors high cost interventions and heroic measures. It is curative, not preventative oriented. It's major interventions come after the onset of disease not in its prevention. There are two major exceptions to that: (1) the major and largely successful effort to reduce smoking and, (2) the extensive educational and behavioral changes associated with HIV-AIDS. But on other matters such as alcohol, nutrition, environmentally induced health effects, and important life-style changes, while we are ahead of most of the world, the gap between what could be done and what is actually done is vast.

In access to care, we still have perhaps as many as 15-19 % of our population without health insurance and perhaps another 30% which have just a thin layer of insurance coverage. (This is often called underinsurance.) As costs of care rise, those without insurance, or limited coverage, face the real prospect of deterioration in their health status because of limited access to drugs, health care delivery options, and other aspects of good medical care and health that those with full insurance coverage do have. [There is some research, which shows that the uninsured and the underinsured do suffer health status levels below those who have insurance. There is also research that shows that the uninsured tend to use emergency rooms of hospitals as their basic health care provider. This is the most costly option available. It should be noted that few people are turned away from care when it is needed in America; but how much care one gets and where makes a big difference in the treatment outcomes.]⁶

Efforts to change our system have to date been limited to small changes with most of the innovations occurring at the state level, especially Wisconsin. Indeed Wisconsin has been an innovator in health system design change especially in measures to increase insurance coverage of children, reduce the number of uninsured, and to extend insurance coverage to the group least covered, the near poor (people who are not poor enough to qualify for Medicaid—the state/federal program of medical insurance for the poor--- but still too poor to afford full or partial insurance coverage.) Badger Care, an innovation of present

⁵ In two of the most frontier areas of cancer research, stem cell and tissue/gene research, and the endostatin drug treatment trials, the UW is in a leadership role.

⁶ There are many sources for these statements but the national data in the various national tables collected by HCFA available on their web page are the most accessible. The National Medical Expenditure Survey, also conducted by the US Department of Health and Human Services, and with data available from their web page, also can support these statements.

Governor Tommy Thompson, is a program much admired nationally and much to be proud of at the state level. Perhaps as many as 75,000 individuals now get health care services because of it that would most probably have not had it without this program. It is also responsible for reducing the number of uninsured in the state to the very low levels that now exist. Still the problems of the elderly, the disease resistant drugs, the iatrogenic diseases are all on the rise in Wisconsin and these will consume precious resources. Nursing home care rates as a fraction of the above age 65 population in Wisconsin are high. As life span increases the resources needed to care for the elderly will grow; and significant amounts of such resources come from public funds (most notably Medicaid).

Finally, while Wisconsin has done much better in equalizing access to the health care system for the disadvantaged and the poor, there is still a large gap in health status between rich and poor in this state.⁷

The Health Sector and Issues of the Wisconsin Economic Summit

Against this broader background of the forces shaping the health care sector nationally and in Wisconsin, several very specific issues relevant to the Wisconsin Economic Summit should be mentioned as well. All of these issues are of direct policy relevance to the State. To move on these issues requires that State policy of investing in its medical research institutions and its research universities must be maintained and perhaps even escalated. The list of things below cannot just happen autonomously: tax policies, regulatory policies, educational policies, and social and welfare policies of the State will all have a major impact on whether or not Wisconsin can achieve the levels needed in the factors noted below.

1. Containing the rises in health care costs in Wisconsin is extremely important in order for the State to maintain any existing competitive edge it may have. Health care expenditures by households and businesses are fundamental components of the cost of doing business. These costs affect the cost of living to all of us as individuals and corporations. If we keep these costs contained, Wisconsin looks more attractive, is more attractive, for investment, migration of human capital, and other dimensions of competition. Since health care expenditures are such a large fraction of business costs, any success here puts Wisconsin in a more advantageous position.
2. I have noted how Wisconsin is likely to fare in the high tech medicine of the future. But this has a very direct impact on the State's economic competitiveness. Various studies, anecdotal evidence, and real life examples suggest that the migration of human capital---scientists, engineers, medical scientists, etc.--- are highly correlated with the status of high tech and high quality medical care in a region, state, and even a local city. If Wisconsin is not an attractive place to live for scientists of all kinds, the entrepreneurial spin-offs from our universities and our medical and biological scientists will surely diminish. Patent growth in the biomedical sciences areas, hard (devices) and soft (software) is at a high level in Wisconsin. These can be jeopardized if we fail to maintain and improve the climate for migration of human as well as physical capital to the state. And just as

⁷ In particular, examination of Table 12 and Figure 2 in, **Wisconsin Family Health Survey, 1998**, will support these statements.

- important is that the new business growth of the State, which will depend on these, is limited by our failures in these fundamental areas of public policy.
3. Wisconsin has a splendid high tech medical industry and we must maintain this if our economy will remain competitive and will produce enough enterprise growth to keep incomes in the state at a high level. Our research universities and our splendid collection of major, world-class, medical facilities are fundamental and instrumental to the long-term future of the State's economy.

These three areas are in some sense mutually conflicting; if we succeed in containing rises in medical costs, we may damage our research and high tech medical growth. If we continue to grow significantly in high tech areas it makes containing health care costs all the harder. Not all of these forces are amenable to State economic and/or health policies alone. A lot depends on national trends and how Wisconsin policy-makers respond to them. But be assured that the future of the economic performance of this State is inextricably bound to how well we do on these fundamental issues in the health sector.

Charting the Future

What the years ahead may bring is unknown. But it is certain that the health care sector in Wisconsin is likely to remain one of the chief sources of expenditure growth in the State. How the State manages its policies to keep ahead of the curve in the mammoth changes in medicine and health care delivery is very crucial to Wisconsin remaining an innovative State and not a laggard one. We have produced to date a health sector of very high quality; we have leveraged the human capital of our universities and colleges to leadership roles in research and enterprise development. To some extent we are dependent on what happens globally and nationally. But some things for State policy seem clear and necessary to keep the health sector of Wisconsin vibrant and responsive to the changes in science and technology. First, the State must be wise in use of its regulatory powers and in its taxing powers. Enterprise growth in medical high tech areas is already high in the state but can still be greater in the most favorable economic policy climate. Second, the State must continue to invest in its research universities where the major innovations in biomedical research and treatment interventions are most likely to originate. Linkages between the research universities, wise but benign government regulation, and the access to capital markets for new and market-tested innovations, do not just happen. They require an atmosphere and climate, which says these things, are okay to do. Ethical considerations cannot be compromised nor can the State's responsibility to redress issues of inequity. But the best chances for the future of the State's health care system rest on the continued growth of our economy, wise government policies and investment, and leadership.

Dated: November 10, 2000 at Madison, Wisconsin, USA.