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Healthcare: Looking Forward

Presentation to the TTI/Vanguard Conference

Biotech and Beyond

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Our vision is that all people, no matter where they live, have a right to access high quality and affordable healthcare.

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Introduction

Eric Haseltine (EH):

I am here to introduce Bill Haseltine. Bill received his undergraduate degree in Chemistry from the University of California at Berkeley. He received a PhD in Biophysics working with James D. Watson and Walter Gilbert at Harvard University. After postdoctoral work at the Massachusetts Institute of Technology, in the laboratory of David Baltimore, Bill joined the faculty of Harvard Medical School and the Harvard School of Public Health, with laboratories at the Dana Farber Cancer Institute. There, he created two academic departments, the Laboratory of Biochemical Pharmacology and the Division of Human Retrovirology. Bill became well known for his pioneering work on DNA damage and later as one of the first researchers to turn his attention to HIV and the AIDS epidemic.

Bill also has a distinguished career in the pharmaceutical industry and in biotechnology. He has been a founder of eight biotechnology companies. He was the Founder, Chairman, and CEO of Human Genome Sciences, a company that pioneered the application of genomics to drug discovery. Eight products originating from companies he founded are currently in use.

For the past eight years, Bill has been the Founder and President of ACCESS Health International, a not for profit foundation dedicated to the proposition that all people, no matter where they live, have a right to access high quality and affordable healthcare. The foundation is a think tank and advisory group that works with governments and the private sector to devise and implement polices and programs to improve healthcare finance, delivery systems, quality outcomes, and the education of healthcare workers. ACCESS Health has active programs in China, Hong Kong, India, Indonesia, Morocco, the Philippines, Singapore, Sweden, and the United States.

I am pleased to call him my brother.

Presentation

William Haseltine (WH):

Thank you very much, Eric, for that generous introduction. I am also proud to call the brilliant and multitalented Eric Haseltine my brother.

My purpose today is to describe in broad terms what I see as the most important trends in healthcare today, trends that will inform the technology needs of tomorrow. I come to these views as an active participant in biomedical research, a participant in the biotechnology and pharmaceutical industries, and most recently, from my perspective as the President of ACCESS Health International, conducting health policy research and advising governments and the private sector in rich and poor countries around the world.

Growth in the Healthcare Market

The first and most obvious trend is the growing market for health services. The world population is still growing and is projected to increase by at least another two to three billion by the end of the century. All will seek access to high quality, affordable healthcare.

Incomes throughout most of the world are rising, particularly in China, India, Indonesia, Latin American, and in many African countries. After food and housing, people choose to spend their disposable income on health.

In many parts of the world, the population is aging. The birth rate is below the replacement rate in high income countries. Older patients consume more health services than do younger patients. The care required for the elderly is often for multiple chronic conditions requiring long term rather than acute care. Fewer young people must support an increasing number of the elderly, placing a financial strain on individuals and societies. Life expectancies have also increased significantly in many low and middle income countries. The population of those over sixty five in China will soon exceed the total population of the United States. The elder population in India, the Philippines, Indonesia, and Latin America is also rising.

Conclusion:

The demand for health services for the young and old will grow worldwide over the coming years. Businesses that meet this demand intelligently will prosper.

Integrated Health Systems

Many of the approaches of the past are ill suited to addressing the healthcare needs of the future. Wealthy countries have focused attention on creating high quality, multispecialty metropolitan hospitals. These hospitals achieve results that could only be dreamed of just a few years ago. The multispecialty hospitals perform complex medical procedures that often save and significantly improve lives. Patients remain in the hospital for only a few days post treatment. The procedures themselves are costly, as are the hospital stays.

"Tertiary care centric healthcare systems do not meet most of the needs of the young or the elderly."

Tertiary care centric healthcare systems do not meet most of the needs of the young or the elderly. The young, with the exception of catastrophic illness or trauma, are best treated in community clinics. Their needs are mostly for preventive and maintenance care. Tertiary care is not well suited to the needs of the elderly, who also prefer home and community based treatments. Tertiary care for the elderly with multiple chronic conditions is also very expensive.

The healthcare systems built with such care and expense in Western Europe, Japan, the Pacific Rim, Canada, and the United States, and in other developed countries, must adapt to the changing needs of patients.

The needs of the population, both old and young, in China, Indonesia, and India, as well as in many other low and middle income countries, are also not well served by tertiary centric health systems. At least half of the population of these countries remains rural and dispersed. In most countries, the health systems for the rural and urban poor are inadequate. Many communities lack local doctors and effective health services. If secondary and tertiary care is available and free, as it is in some parts of India, hospitals are overwhelmed by those seeking care that would be best delivered by local clinics, should they exist. Building urban, multispecialty tertiary hospitals may serve the needs of the wealthy, but will leave much of the urban and rural populations and elderly without adequate health services.

Health financing in high and low income countries is an additional consideration. In high income Western countries, the portion of the GDP devoted to health is between ten and twenty percent. The costs of a tertiary based systems will rise with an aging population, without a corresponding increase in taxable income from a declining base of wage earners. Low to middle income countries have numerous additional calls on revenues, including those associated with infrastructure improvement, education, national security, economic growth, and urbanization. The prospects of building a European or US healthcare system appear unsupportable for many of these countries.

I believe that a health system designed to deliver most care at home and in the community can provide high quality, affordable healthcare that meets the needs of the elderly as well as the urban and rural poor in high and in low income countries. Care in the community is a linchpin of such health systems.

Community healthcare must be thoroughly integrated in a network of care that extends from the community, to regional secondary hospitals, and to tertiary health centers that include multispecialty hospitals. Integrated care systems, in turn, should be embedded within a setting that provides continual quality measurement and strategies for continuous improvement. Provision of care without quality measurement and continuous improvement often leads to inadequate treatment.

Community care in rural and low income urban areas is best served by local clinics. In very remote regions, traveling medical vans can also serve many community health needs. The regional clinics and vans should be networked via a comprehensive information service to the entire healthcare system. Healthcare workers in primary, secondary, and tertiary centers should make collective decisions regarding treatments. Difficult cases must be referred to the secondary and tertiary hospitals for treatment. A set of positive and negative incentives (mostly payments) can ensure that the right patient is being treated in the right place, at the right time, by the right healthcare team, at the right cost.

An integrated healthcare system anchored in home and community care will also serve the needs of the elderly in high and low income countries. The emphasis should be on aging in place, preferably at home, in a known community. Caring for chronic disease in the community and at home can both improve the quality of life of the elderly and reduce the cost of care substantially. Home and community care for the chronically ill and the elderly must also be integrated with the entire healthcare system through electronic communication. Decision making must be shared to assure that the elderly receive the treatment they need. There must be a strong emphasis on quality measurement and continuous quality improvement in home and community care, as well secondary and tertiary care.

"Caring for chronic disease in the community and at home can both improve the quality of life of the elderly and reduce the cost of care substantially."

I call this community centered care system an "integrated healthcare system." Central to integrated health is robust and transparent information technology. The information system must first capture all relevant data, including patient identification, diagnosis, treatments, procedures, and materials and devices used, as well as outcomes and follow ups. The information system must also include powerful analytic capabilities. Data regarding the performance of each clinic, each department, and each physician should be available. The outcomes of each patient should be available, both individually and collectively. The costs associated with each clinic, hospital, procedure, and process should be captured and made easily accessible to the healthcare workers, physicians, and managers.

The information system should allow each participant in the system, including patients, to make suggestions for improvements in quality and cost. Transparent measurement of costs, processes, and outcomes will form the basis for quality improvement. It is not enough to measure. Robust processes that assure adherence to good practice should be established and enforced.

Conclusion:

Integrated healthcare systems may address the twin problems of cost and quality that bedevil health delivery in low and high income countries. Integrated healthcare systems depend upon high quality and robust and transparent information and analytic tools coupled with continuous quality measurement and improvement processes.

Training and Education

No health system can perform well without well trained and educated healthcare workers. Sadly, there are serious gaps in both high and low income countries. High income countries typically have sufficiently well trained physicians, at least in metropolitan centers. What they lack are well trained caregivers to support the needs of home and community care for the chronically ill and elderly. Most of these caregivers

need not be trained physicians or nurses. Homecare workers require a basic set of skills to look after the elderly and the chronically ill. In most countries, caregivers have little or no training. The result is near chaos in the caregiver market, as anyone knows who seeks homecare in the United States for a chronically ill parent or child. Many high income countries also suffer from a shortage of primary care physicians, family physicians, and gerontologists.

In low income countries, there is a shortage of community care workers, nurses, nurse practitioners, and family and community doctors, as well as specialists. In these countries, the few healthcare workers that do exist are concentrated in the metropolitan centers and generally serve the wealthy and upper middle class.

I propose a restructuring of health education in both high and low income countries. Current medical and nursing training is designed to meet the needs of a tertiary care based system. In the future, health education should focus on training integrated teams of caregivers that train together and work together to provide integrated health services. Such health schools will train cohorts of physicians, nurses, and caregivers, as well as healthcare managers. The curriculum will be derived from what are today medical, management, public health, and policy schools. Teaching will stress collective learning and problem solving. The course material will be provided in advance. Class time will focus on collective problem solving, not lectures.

I also suggest that the financial incentives for healthcare professionals be balanced so that the income of caregivers that provide the bulk of care will be much closer to that of specialist physicians. People will be encouraged to enter the health professions for the satisfaction of helping others, for the experience of working collectively for the common good, not for financial rewards.

The requirements for training in emerging economies are similar, but in some ways even more demanding. In many countries, the number of healthcare workers at all levels must be increased by five or ten fold to address the underserved. Health education reform in Ethiopia, a country that increased the number of healthcare workers ten fold in ten years, demonstrates that such needs can be addressed – that large numbers of caregivers and physicians educated to meet the needs of a rural population can be trained quickly.

Conclusion:

Integrated healthcare systems require new forms of health education in both high and low income countries. Restructuring healthcare delivery without an adequately trained workforce will not solve our healthcare needs.

A Healthy City for All Ages

I am currently writing a book, *A City for All Ages: Health as an Organizing Principle for Metropolitan Transformation: The Singapore Example*. My thesis is that as the population ages in high income cities, health and wellness should be one of the key principles in restructuring metropolitan areas. As low income countries urbanize, about 1.5 billion people are expected to move into cities in Asia and Africa over the next thirty years. Health should also be central to the urban planning of these new cities.

The needs of the elderly should drive many aspects of urban planning, including housing, transportation, information infrastructure, recreation, entertainment, shopping, and healthcare infrastructure. Increasingly, housing will include provisions for at home and proximal care. Cities will be designed so that the younger old can care for the older old for healthcare, shopping, and other needs. Recreational areas, suitable for both young and old, will be developed. Hub and spoke transportation networks will be replaced with grids to shorten travel times. Public information technology infrastructure will support high quality in home and community communications needed for dense health network communication.

These principles should also drive the construction of new and expanded healthy cities in developing countries. Health and wellness is not now central to the planning of most urbanization projects in these countries. I suggest that planning for healthy cities for the young and old will be essential to providing access to high quality, affordable care as countries become wealthier.

Conclusion:

The population in wealthy, urbanized countries is aging. The population in low income countries is urbanizing. The health of the young and old should be central to urban design and redesign in both rich and poor countries.

The Cost of High Quality Healthcare

Is high quality healthcare affordable in rich and poor countries? I believe that it is. The best population based health outcomes are found in the countries of the Pacific Rim and Northern Europe. In my book *Affordable Excellence: The Singapore Healthcare Story,* I show how Singapore achieves some of the best health outcomes in the world at the lowest cost per capita and lowest percentage of GDP. The total health expenditure for Singapore is about 4.5 percent of the GDP. Government expenditures are less than 1.5 percent of the GDP. Other Asian countries with excellent health outcomes include Japan, South Korea, and Taiwan. Health spending by these countries is well below ten percent

of GDP. Health expenditures in Northern European countries with excellent population based health outcomes is about ten percent. By contrast, health expenditures in the United States consume about eighteen percent of the GDP and fail to achieve high quality results. A 2013 report for the Institute of Medicine in the United States, *The US Health in International Perspective: Shorter Lives, Poorer Health,* documents the poor performance of the health system of the United States in comparison to the results in other OECD countries. By almost all measures, health outcomes in the United States are far below the lowest of the other OECD countries. Such was not always the case. In the 1950s, health outcomes in the United States were roughly equal to those of countries with comparable incomes.

"Spending more does not buy better outcomes. Spending wisely does."

Spending more does not buy better outcomes. Spending wisely does. Nations that are developing rapidly, such as China and India, should look to the best examples. As their economies grow, they should seek to emulate the efficient models of their near neighbors.

Transparency of price and outcomes is key to controlling healthcare costs while maintaining and improving quality. The price of each and every service, procedure, test, drug, device, salary, material, and facility must be known and clear to all in the system – patient, physician, and payer alike. So too must the outcomes, in terms of clinical benefit and complications over an extended period, infections, length of hospital stay, and recurrence. Information technology allows such information to be collected, analyzed, and displayed in easy to use dashboards. Transparency of price and outcomes allows determination of value to the patient and to the healthcare system. Transparency allows patients and payers to choose the hospitals, departments, and physicians that provide the best value.

Conclusion:

Excellent health for populations is affordable in low and high income countries. We need integrated healthcare systems that emphasize high quality home and community care for people of all ages, especially the elderly and chronically ill. We need education reform to develop the necessary skills in the workforce. We need planning for healthy cities for the global urbanized population of the future. Financial models that emphasize price and outcome transparency are needed to achieve high quality healthcare for all.