Opportunities for Investment in Health and Wellness

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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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Opportunities

There is a growing need for healthcare products and services worldwide. The world population 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.

The world population is aging. The birth rate is below the replacement rate in most high income countries, raising questions of how to support the economic consequences of demographic change. Life expectancies have also increased significantly in most countries. The number of elderly in middle income countries, including China, India, Indonesia, Mexico, and Latin America, is increasing rapidly. 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. The housing, hospital, and caregiver needs of the elderly are substantial. 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 the United States and China, as well as in most other countries. The population of those over sixty five in China will soon exceed the total population of the United States.

Conclusion

The demand for health services for the young and old will grow in coming years. Businesses that meet this demand intelligently will prosper and find large markets, both at home and abroad.

The Scope of Opportunities in Healthcare

The opportunity to create new healthcare businesses is both wide and deep. Healthcare systems around the world need to reform how the fundamental
services are delivered. Tertiary or multispecialty urban hospitals that are today the center of most healthcare systems cannot meet the future health needs of an aging population.

Countries need to improve access to high quality, affordable services and products.

There is a need to deliver medical services closer to the people of all ages, at home and in the community.

Health systems must emphasize wellness and minimize the impact of long lasting chronic diseases.

Health systems can benefit from new management systems, medicines, and devices.

There is a need for new methods of medical education for doctors, nurses, medical technicians, and community healthcare workers.

Well educated patients and family members are central to a healthy population.

Countries need to do their utmost to prevent diseases.

Countries should recognize the importance of health in urban design and redesign.

Countries must invest in long term care and appropriate housing for the elderly.

**Conclusion**

Those seeking to create the health and wellness business for the future should build their business to address their own local markets. If they are innovative, they may gain access to the global markets. The world markets of Europe, Asia, Southeast Asia, Africa, and Latin America will be open to those that succeed.
Vision, Leadership, and Policy

The health of a nation is a source of wealth and social stability. The health of a nation depends upon the vision and leadership abilities of the political and business communities. Business cannot thrive in any sector without inspired political vision and leadership. Government policy is the bedrock of business opportunity, as it sets the parameters of what business can and cannot do. This is especially true of businesses that provide healthcare services and products. Healthcare is among the most highly regulated business sectors.

“The vision that all people in a country, no matter where they live, have the right to high quality, affordable healthcare is essential to a nation.”

The vision that all people in a country, no matter where they live, have the right to high quality, affordable healthcare is essential to a nation. This principle should be enshrined in law and promoted through policy. Countries in which this vision prevails are more prosperous and stable than their neighbors. People are healthier and live longer.

High quality health for all is affordable. I cite examples of Japan, Taiwan, Korea, and Singapore in the East, and Sweden, France, and the United Kingdom in the West. My book Affordable Excellence documents how Singapore achieves some of the best health outcomes in the world in a system that consumes just slightly more than four percent of GDP, with only about 1.5 percent of that from government spending.
“Achieving access to high quality, affordable healthcare for all requires inspired leadership, leadership that sees beyond the present to the future benefits of a healthy, productive population.”

Achieving access to high quality, affordable healthcare for all requires inspired leadership, leadership that sees beyond the present to the future benefits of a healthy, productive population. Leadership is required to mobilize a people to recognize the benefits that accrue to each and every citizen in a healthy nation. Leadership is required to direct the energies of the political class within the central government, as well as in the state or provincial governments, and in county, district, and municipal governments.

The business community is, of necessity, dependent on government policy. Policy determines the freedom businesses have to operate. Governments are the primary payers of many of the healthcare and social services that support a healthy population. Policy determines how that money will flow and how profits will be taxed.

Conclusion

The freedom of business to operate in the field of health and wellness is dependent on government policy, which in turn is dependent on the vision and leadership of political leaders. Business leaders should work with government to help design and implement policies that improve the health and well being of all citizens.
Specific Opportunities

Pharmaceuticals

Pharmaceuticals are the most profitable of the healthcare businesses. Profit margins on the sale of specific products can exceed eighty percent. Sales of individual drugs may reach ten to twelve billion dollars a year, each. The size of these markets will increase with the growing demand for access to better health in all markets. Drugs that prolong the active, healthy life of the elderly will do especially well.

The profitability of the pharmaceutical sector is due to several unique features. Individual products enjoy patent protection. These are time limited monopolies. Pricing is set, not by market demand and competition, but by how much the market can tolerate.

Pharmaceutical companies claim, with justification, that the medicines they produce are the most cost effective means of preventing and treating disease. Certainly, vaccines save hundreds of billions of dollars and save tens of millions of lives each year. Similarly, antibiotics and antiviral medicines save many billions of dollars each year and save the lives of many millions. Medicines for heart disease, diabetes, and hypertension prolong lives and save hospital expense. Despite the expense of the medicines, pharmaceuticals account for no more than fifteen percent of medical costs worldwide.

The labor required to produce and distribute the products by the pharmaceutical companies is minimal. The manufacture of the active ingredient and the finished product are very small fractions of the price. The price of a drug, once the patent is expired, may be only one or two percent that of the patented product. The ingredients and finished products are produced in bulk and shipped to distributors. Thereafter, the labor required by the pharmaceutical company is minimal. Doctors prescribe the drugs, pharmacists repackage the drugs to the consumer, and the consumer does the daily work of opening the pillbox and taking the drug. The only additional cost to the company is advertising and occasional litigation, either to protect the patent or to defend itself against liability claims.
There are barriers to entry. The process of drug discovery, development, and approval is long and complex. As practiced by the large companies of today, it is very expensive. Estimates of the cost of developing drugs by the larger pharmaceutical companies are in excess of a billion dollars per drug.

A new model of drug discovery and development is emerging.

For about twenty years, pharmaceutical companies have sought to outsource much of the drug development process. Companies that specialize in almost every aspect of drug development, except discovery, exist. These include companies that produce new chemicals to test, create new antibodies that themselves may be new drugs, test the effect of drug candidates on human cells and in animals, manufacture the drugs in both small amounts for treating and large quantities for use, and oversee and manage human trials.

Today, these companies mostly serve the needs of large pharmaceutical companies that seek to develop new drugs, each with multibillion dollar sales potential, a requirement necessary to replace the sale of existing blockbuster drugs in their current portfolios that will lose patent protection over the next few years.

“A new model of international cooperation is possible.”

A new model of international cooperation is possible. In this model, ideas for new patent protected drugs discovered by university scientists and biotechnology companies will be developed by lean, semi virtual companies that outsource all of the development to exiting specialist resources. These companies will purchase the intellectual property rights to the drug candidates and develop them at a fraction of the current cost.

The opportunity for collaboration is obvious. Intellectual property will be sourced globally from researchers in academia and in biotechnology. The market for such patented products will be global. The source of capital for these companies will be international.
Conclusion

The opportunity to create new international development and marketing companies for patented pharmaceutical companies exists. The successful company has a near term opportunity to become a global leader in one of the most profitable businesses.

Medical Devices

Medical Imaging

Cross border investment in companies that develop and produce medical equipment and devices can also be very profitable. Medical imaging is a business that is growing and diversifying. Such companies include those that develop and manufacture imaging devices, CAT scanners, and magnetic resonance imaging machines are at the high end of this business. Technology in this area is evolving rapidly. The human body is becoming transparent to radiation of all sorts, from sound waves to visible light. High performance instruments suitable for multispecialty hospitals, regional clinics, and even community healthcare centers will be developed. The data will be interpreted by automated algorithms assisted by centralized diagnostic image interpreters. This field will progress rapidly, as it is a matter of physics, not biology. Technologies will be developed, applied, and deployed internationally.

Minimally Invasive Surgery

Hand in hand with advances in medical imaging are advances in minimally invasive surgery. Many complex surgical procedures can now be done laparoscopically, some with robotic assistance. The transformation is significant. Today, over half of all surgical procedures in some leading hospitals are done in an ambulatory care setting with minimally invasive procedures. The patients benefit from rapid recovery. The payers will benefit, as little to no hospitalization is required for what, in the past, may have required hospitalization for many days. The techniques of minimally invasive surgery are evolving rapidly. These are big and growing business opportunities internationally.
Implantable Devices

Parts of the body that are damaged by disease, injured by trauma, or worn by time may soon be replaced by implantable devices. Implantable replacement hips, knees, elbows, vertebrae, and wrists exist and are being improved. Artificial limbs that respond to touch and heat and are controlled by the body or brain are being perfected. Exoskeletons that allow the paralyzed to walk exist and are being improved. Hearing aids are disappearing into the scalp and inner ear. Electronic retinas have been implanted. Material science, micro engineering, and surgical techniques combine, expand, and refine implantable devices at an ever increasing speed. As we age, many of our functions deteriorate. Implantable devices will meet a growing demand.

Home and Community Care

The health systems of the future will be focused on home and community care. The quality of such services will be largely dependent on an extensive array of medical devices that measure and monitor health status and relay the information to caregivers, nurses, and physicians. Many of these devices will be in the home, connected to a smartphone or a computer. Some may be built into the smartphones themselves. In addition to measurement capabilities, these devices will be equipped with powerful analytic capabilities to interpret the data, either directly for the patient or for the caregivers. Similar but more sophisticated and powerful versions of such monitors will be available in clinics and hospitals. This, too, is a rapidly evolving field that holds great business promise.

Conclusion

Medical devices for hospital and home offer rich opportunities for investment. Regulations are less strict for medical devices than they are for pharmaceuticals. Development times are shorter. For the most part, medical devices depend on advances in physics, chemistry, and materials science – predictable sciences – not the vagaries and complexities of human biology. There will be many winners. These industries are also catalytic, as they will increase the demand for new scientific breakthroughs that may have broad applications within and outside of medicine. Those businesses that succeed in their local markets will find wide acceptance elsewhere.
Information Technology

Information technology has transformed many businesses, increasing productivity, speeding business processes, and opening new markets. The opportunities to create significant new health related information technologies are immense.

Electronic Health Records

Most countries recognize the need to create and maintain electronic health records for all their citizens. Such records should record all patient data, from cradle to grave. The records should include up to date information on the health of each person, including a detailed medical history, a list of current medications, and results of diagnostic tests.

Electronic health records should be personal to each individual, be portable from health system to system within a country (and ideally between countries), and be capable of seamlessly interfacing with local hospital electronic medical systems. Caregivers should be an integral part of health information networks. Electronic health records should interface with user health monitoring.

Technology is evolving rapidly to allow individuals to record and monitor their own health. Patients should have access to their own records and be able to control what information is available to the caregivers. Eventually, patients will store their medical data in cloud based systems. Electronic health records must ensure patient privacy.

“Interoperability and seamless exchange of health data from independent sources are essential.”

No country has yet created a comprehensive electronic health record or data storage system. Some have made piecemeal progress. One of the biggest
stumbling blocks is the unwillingness of healthcare providers to share information. Interoperability and seamless exchange of health data from independent sources are essential.

Creating such records is well within the technical capability of many countries. Several successful initiatives already offer partial solutions to the maintenance of electronic health records. I cite the example of the universal electronic identification system of India, Aadhaar. Unique electronic identification has now been assigned to more than eight hundred million individuals in India. Aadhaar is secure enough to allow the identification to be used for banking. Aadhaar is already spawning many new businesses that rely on this unique personal electronic identification system. If it is secure enough for financial transactions, many will consider it secure enough for health records.

Companies that succeed in providing a high quality, interoperable health information and storage system in one country can be successful in many others. Investment in electronic health record businesses offers an attractive cross border opportunity.

**Information Technology and Medical Diagnosis**

*Diagnosis*

Medical science is advancing at such a rapid pace that even physicians in the world’s top medical research institutions can no longer keep pace. Witness the rapid transformation of metastatic melanoma from a nearly fatal diagnosis to a treatable disease within the last year. Diagnostic and prognostic methods are also advancing rapidly. Advances in medical imaging render the human body transparent to the latest instruments. Advances in molecular medicine, the ability to decipher quickly the inner workings of cells, are equally impressive. Technologies exist to analyze all the proteins and expressed genes in individual cells of normal and diseased tissues. These same techniques allow determination of whether or not the proteins and expressed genes are normal in form and structure. In turn, medicines specific for each abnormality are being developed. Some are already approved.

The amount of data produced by each test is enormous, equivalent in some cases to that gathered by Earth observing satellites. Making sense of such information
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requires powerful analytics. Providing actionable information based on such tests is the basis for the creation of many new businesses.

Apple, Microsoft, IBM, and their counterparts are entering this business. Watson, the IBM diagnostic program, is one such example.

Today, the instruments and analytic capabilities for such diagnostic tests are mostly centralized, as they are expensive. Rapid advances in materials science, miniaturization, microelectronics, and cloud computing will bring these advances to local clinics, and eventually to individuals. Making sense of this data for individuals and healthcare workers will provide another rich business opportunity.

Prognosis
Progress in prognosis, the ability to predict health status, is also rapid. The advent of the genomic age made it possible to read a human genome and, in some rare cases, predict with a high degree of certainty that a person would develop rare forms of cancer, cardiovascular disease, and neuralgic diseases, including Huntington’s, Parkinson’s disease, and Alzheimer’s. At best, given current technologies, only about five percent of disease can be reliably predicted by reading the genetic code.

“The power of diagnostics to read the future is about to change.”

The power of diagnostics to read the future is about to change. An entire human genome can now be read rapidly and inexpensively. Actual gene usage can be measured, tissue by tissue. Technologies are in development to paint a nearly complete picture of protein expression in individual cells. Methods to determine chemical composition of our breath, as well as our blood and saliva, down to the most minute amounts, are in advanced development. These combinations of techniques, combined with sophisticated data mining, will allow detection of abnormal genetic and physiologic states at the very onset of disease, in time to change the likely outcome. Today, such tests are mostly the province of well
financed diagnostic and research laboratories. Tomorrow, they may be in an over the counter kit.

Health Information Technology and the Consumer

Today, there are many apps and devices that track our health and wellness. Already, more than fifty thousand health related apps exist. Most of these are passive. They measure defined parameters, such as your heart rate, glucose levels, and sleep patterns. A new generation of health and wellness related apps are active. They wake you when you fall asleep at the wheel, shock you to sit upright, remind you to take your medicine, and block email and phone calls as you work. Most of the apps do not integrate our personal data with an electronic health record. Their use is limited. That will change. It is hard to predict which will be the next killer apps, only that some will be.

Patients and doctors are already overwhelmed by data. A new generation of systems will analyze your personal data and interpret the meaning for both you and your caregivers. We will know when we are in danger and what to do about it.

Health Management Systems

Health systems are complex organizations. Large health systems may employ tens of thousands of workers; treat millions of patients a year; and manage broad educational programs for physicians, nurses, and caregivers. They operate hundreds of millions of dollars worth of equipment, manage a network of hospitals, large and small, outpatient clinics, and community and home caregivers. The finances of most health systems are equally complex. Income may be derived from direct government payments, fee for service payments, or payments based on the medical problem. Payment may also be from corporate, government, or private insurance. Patients may pay part or all of the cost.

Robust health management information tools are essential for efficient hospital operations. Ideally, the management tools must be integrated into a unified system that allows senior managers to view, on a centralized dashboard, in real time, all process and expenditures.

The NYU Langone Medical Center here in New York has such a management system. The hospital has customized and integrated several commercially
available patient and people management software programs. A single dashboard allows real time display of all data relevant to the hospital and academic operations and finance. The system allows the senior managers to understand the real cost of each process and monitor the outcomes by hospital, clinic, department, physician, medical procedure, research program, or scientist. Transparency of price and outcome allows managers to make decisions needed to control cost and quality.

Implementation of the NYU Langone Medical Center program has assisted the hospital in improving quality and reducing costs. NYU Langone Medical Center has dramatically improved the quality of services, and many departments are now rated as the best in the country by an independent survey conducted by the Commonwealth Fund. Over the past seven years, the total revenue of the system has doubled, and operating margins have gone from negative to eleven percent positive.

Comprehensive data management systems are not a luxury but a necessity for hospitals and payers, be they government or private insurers. Hospital information systems are a large and growing business area. Systems developed in one country should be readily transposed to another.

Conclusion

Health information technology is a large, diverse, and rapidly expanding business area. The opportunities to create new businesses are significant. Areas of opportunity include new and more integrated patient records, diagnostic and prognostic data analysis, apps directed to health and wellness, and provider payer management systems. Solutions that work in one country can be readily transposed to another. Health information technology is ideal for cross border investments.

Integrated Care: Restructuring Healthcare Delivery

Community and Home Based Care

Healthcare delivery is not suited to current or future health needs in most countries. Large, urban, multispecialist tertiary hospitals provide the backbone of
medical treatment in both countries. The hospitals can provide excellent care for those that need complex medical intervention and for training of the next generation of medical specialists. That is their proper function.

Today, most multispecialist hospitals also serve as the major locus of treatment of urban and exurban populations. This is inappropriate, as the cost of care in multispecialty urban hospitals is high and capacity is limited. Multispeciality hospitals are not designed for care of the elderly, for treatment of most chronic disease, or for preventive and wellness services.

The demand for high quality, affordable care for entire populations, including the elderly and chronically ill, requires that most care be delivered at home and in communities. The tertiary care system of today may be seen as an inverted pyramid, a funnel in which most medical care is concentrated in a few large facilities. The healthcare pyramid will be inverted. Most care will be delivered at the bottom of the pyramid at home and in community clinics and secondary hospitals. Only those with specific needs will be referred to hospitals with more specialized capabilities.

Technology and information systems enable this transformation. The health and wellness status of individuals can be continually monitored and assessed. Information on how to maintain health and wellness can be delivered by local caregivers. Decisions regarding treatment and health maintenance programs can be remotely directed by specialists.

“Inverting the treatment care pyramid by treating most people where they live can improve outcomes, increase patient satisfaction, and control costs.”

Inverting the treatment care pyramid by treating most people where they live can improve outcomes, increase patient satisfaction, and control costs. Healthcare system transformation is not only desirable, it is required to meet the moral and practical demands of providing high quality care for all.
Healthy Cities, Healthy Housing

Inverting the healthcare pyramid presents significant new business opportunities. These include creating entirely new health centric communities. Today, most urban development plans and housing developments do not consider health and wellness as central to success. That will change, if for no other reason than the demographics of an aging population will demand that cities and individual residences accommodate their needs. These demands dovetail with the need to improve quality and reduce the cost of healthcare.

The business opportunities that attend building (or restructuring) health centric cities and housing are immense. The entire architecture and infrastructure of the next generation of cities is at issue in the United States and in China. Real estate, architecture, construction, information technology, and transportation companies that can provide workable and affordable solutions will prosper. Many solutions applicable locally will have global resonance.

Conclusion

Healthcare systems are in the process of transformation. Delivery of high quality, affordable care for an entire population, including the elderly, requires that most medical care and wellness programs be delivered where people live, at home and in the community.

Health centric cities and housing will be a priority. Real estate, architecture, construction, information technology, and transportation companies that provide workable and affordable solutions will prosper.

Education

Healthcare education offers new and exciting business opportunities. In many countries, there is a need for more physicians, nurses, nurse practitioners, and very large numbers of well educated home and community caregivers. Every citizen will also benefit from increased knowledge about how to stay healthy and manage whatever disease they may have.
Education Technology

It is fortunate that the need to train large numbers of healthcare workers coincides with the means to do so. Education technology has advanced rapidly in the past few years, opening the possibility of training large numbers of people at low cost. The new models of education are the flipped classroom, blended curricula, and online education.

The Flipped Classroom

I have witnessed the flipped classroom for the education of physicians at the Duke-NUS Graduate Medical School in Singapore. The medical students are given the reading and lecture material on a hard drive at the beginning of the year. The content is delivered as taped lectures, PowerPoint slides, and written text. The lectures are broken into discrete eight minute segments. The student can annotate and add detail to the material, as needed. Class time is devoted to problem solving, based on the day’s material. To encourage collaboration, problems are worked on by collectives of seven students.

Technology also assists clinical training. Students interact with intelligent and responsive medical mannequins. Each medical procedure is detailed in an app available on a tablet or smartphone, providing both schematic and actual videos of the procedures. Companies can provide education materials, both for initial training and continuing education, both for content and procedure.

Blended Curricula

The blended curriculum is the name used to describe education that occurs as a mixture of online courses, in person workshops, and one on one mentoring, in person or online. I first became familiar with blended education while serving on the advisory board of the IE University of Madrid, a pioneer in blended curricula for business management. IE University developed the blended curriculum for an executive management training program. The advantage is that the blended curriculum allowed people to continue working. The students were mid career professionals living and working all over the world. Surprisingly, the initial classes reported higher satisfaction with the blended programs than those who
attended full time. I have had a similar positive experience with the Brown University executive master’s degree program in Healthcare Management.

**Online Learning**

Fully online learning courses are gaining wide acceptance. The Khan Academy and edX are two outstanding examples. Some fully online learning programs have been very successful. Online learning is well suited to providing health and wellness information to students and to adults. The content can be tailored to age and interest. Online education can help patients understand their diseases and opportunities for treatment and control. Online courses can also help patients navigate the complexities of healthcare systems, including how to find the best care and how to pay for it.

**Educating Physicians**

There is a growing demand for community and family medicine physicians. There is also an acute need for physicians that specialize in treatment of the elderly. Medical schools emphasize the training of medical specialists, not family practitioners and gerontologists. An opportunity exists to fulfill this need.

Medical practice is changing. The day of the isolated specialist treating patients independently is drawing to a close. Increasingly, the needs of patients with multiple chronic diseases, combined with new forms of treatment, require teams of physicians working in harmony. Cooperative problem solving and group training will become integral to medical education.

**Educating Nurses, Medical Technicians, and Community Caregivers**

Integrated healthcare systems require very large numbers of new types of healthcare workers. In China, at least twenty million more people are needed to care for the elderly and chronically ill. About five million caregivers are needed in the United States and one million in Japan. Training of family member caregivers for both acute and chronic diseases is also needed. The numbers will increase as the population ages.
At present, no country has significant training programs for community and professional and family caregivers. There exists a major business opportunity to train these workers. Training programs created for one country can be adapted for cross border training as well.

Similarly, there is a need for a substantial increase in the numbers of nurses and medical technicians to staff the new integrated healthcare systems. There exists a major business opportunity to train these workers. Training programs created for one country can be adapted for cross border training as well.

Conclusion

The training of large numbers of family, community, and elder care physicians, as well as nurses, medical technicians, and community and home caregivers is a substantial business opportunity. The need is currently large, and is growing. Companies that succeed locally will have global opportunities for expansion.

It is clear that providing high quality, affordable care in high, middle, and low income countries offers significant business opportunities. Some needs may be met by private companies alone. Many others may be structured as public private partnerships wherein central and local governments provide funding and the private sector delivers. All will require careful performance measures that reflect cost, outcomes, and quality. Providing for the health of a nation is a great opportunity. The needs will only grow over time. Now is an excellent time to invest in ethical businesses that provide the highest quality services at the lowest cost.