

ROBERT STEVEN GALVIN, MD: a conversation with the editor on health care systems in a post-managed care world

Since 1996, Dr. Robert Galvin (Figure 1) has been the top health care executive at General Electric (GE), and in that position he is responsible for the design, administration, and financial performance of GE's \$2.5 billion health benefit expenditures internationally. He also oversees GE's medical services—involving 230 clinics, 600 physicians and nurses, and 1.5 million patient visits—and its wellness, disease management, and occupational medicine programs. In his present position, he has developed GE's health strategies using its enormous purchasing power in the health care marketplace.

Dr. Galvin is one of the cofounders of the Leapfrog Group, which now represents 35 million insured people in the USA. It is the premier private-sector group focusing on medical safety and quality. He is also founder of Bridges to Excellence, a coalition of employers developing pay-for-performance approaches. He pioneered the use of Six Sigma as an operating principle for quality and cost initiatives in medical care. He is a member of the Institute of Medicine's Committee on Redesigning Health Insurance Benefits, Payment, and Performance Improvement Programs and is on the advisory board of the Council on Health Care Economics and Policy. He is currently associate professor adjunct of medicine at Yale. Before joining GE in 1990, Dr. Galvin practiced general internal medicine in Massachusetts. He recently visited Baylor University Medical Center (BUMC) as an adviser to our clinical transformation endeavors.

William Clifford Roberts, MD (hereafter, WCR): *Dr. Galvin, I appreciate your willingness to talk to me and, therefore, to the readers of BUMC Proceedings. To begin, could you talk a bit about your early life and your parents?*

Robert Steven Galvin, MD (hereafter, RSG): Thank you for having me here. I was born in 1950 in Cleveland, Ohio. My father was a businessman; he ran a small vending machine business. Initially, he sold cigarette machines and later jukeboxes. My mother was a homemaker. I have one sibling, a sister, who lives in Anchorage, Alaska. She was a high school teacher for many years and then got a doctorate in education, and now she works for British Petroleum in executive development.

WCR: *Could you talk about your early upbringing, some of your early memories, and eventually how you got into the field you are in?*

RSG: Growing up in Cleveland, I was a pretty typical mid-western kid who played a lot of sports. I was more or less groomed to take over my dad's business, which had grown relatively large. The plan was for me to learn the business, go to business school,



Figure 1. Dr. Robert Galvin.

maybe get a law degree, and then take over his company. I started working for my dad on weekends and during the summers when I was about 6 or 7 years old. As a kid, I remember climbing up cases of cigarettes. When I was older, I fixed and serviced the vending machines. I went from bar to bar to fill up the cigarette machine and usually split the money 50/50 with the bar's owner. That is still one of the most fun jobs I've ever had.

Although they had few medical problems, my parents had a physician whom they and their friends revered. He was clearly the most respected man in their circle. He was affiliated with Mt. Sinai Hospital, part of the University Hospital System, in Cleveland. The few times they got sick, this physician would come to the house and take care of them. (This was in the 1950s and early 1960s.) My dad had a pretty big circle of friends, mainly powerful business people in the town, and all of them set a place apart for the doctor. I had a third cousin who was a urologist, also at the University Hospital, and he was also highly respected. Thus, my interest in medicine came about just because of how well respected physicians were in my family, despite the fact that we were in the successful business circles in Cleveland.

I was a fairly indifferent student until college. I was one of those students who could do well on exams and, in that era, if you had okay grades but really good standardized test scores, you could get into a really good college. It is so much more competitive now. I got into the University of Pennsylvania, initially as an undergraduate in its Wharton School of Business. Although business was reasonably interesting, a lot of other things at the University of Pennsylvania caught my fancy, especially creative writing. I got to know a wonderful novelist, Philip Roth. As a consequence, I transferred out of the Wharton school, after a difficult set of conversations with its dean, a well-known business academic. (Apparently, no student had ever transferred from the

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Wharton business school to another undergraduate department.) I ended up going to the College of Arts and Sciences and majored in writing and philosophy. I graduated from Penn with academic honors and then went out to make a career in writing.

To supplement my income, I became a psychiatric nurse's aide 2 days a week at the University of Pennsylvania Hospital, which is on the Penn campus. As a consequence, I became friendly with the chief of the psychiatric unit. He was a young ambitious academic, but he wasn't a very good writer. So, for a couple of years in my early 20s, I ghost wrote his papers in psychiatry. By the time I reached age 24 or 25, I realized that, although I was a good writer, I wasn't a great writer, and to make a career in the arts, you had to be willing to be a psychiatric nurse's aide, a taxi driver, or a waiter—maybe for the rest of your life. The psychiatrist I wrote for became a mentor and encouraged me to go into medicine. Over the course of about a year I decided to be a physician. Because I hadn't taken any science courses, I went back to the University of Pennsylvania for 1 year, did very well in all the courses, and consequently got into the University of Pennsylvania Medical School.

WCR: *You had 5 years between graduating from college and starting medical school (1972–1977). What were you writing during those 5 years?*

RSG: I wrote poetry, short stories, and fiction, did a series of interviews with contemporary writers, and wrote film criticisms.

WCR: *To which medical schools did you apply?*

RSG: I applied to six medical schools and got into three: the University of Pennsylvania, Stanford, and Duke. I got rejected from two state schools in Pennsylvania because I was outside the mainstream as a premed student. I had been out of school for several years, and that was not common among applicants in the mid 1970s.

WCR: *What surprised you when you first entered medical school?*

RSG: I went in with the intention of going into psychiatry, but I fell in love with pathophysiology and I was struck with how well that kind of thinking suited me. I was struck by the massive body of facts and principles one was required to learn but how the end result was a profound understanding of how the human body worked. I remember how great a fit internal medicine felt to me and how much I enjoyed it and also how incredibly smart all the students were at Penn. It was a great medical class.

WCR: *How many were in your class?*

RSG: I think 110 or 115.

WCR: *When you were going through the various rotations—medicine, surgery, pediatrics, obstetrics/gynecology—did anything strike you as “that’s for me”?*

RSG: I moved away from psychiatry very early and fell in love with internal medicine. I thought I was going to go the internal medicine route, but I loved my first surgery rotation and I loved being part of the operating room process. I loved how there was a beginning and an end and how you could do a lot of good. One of my first cases was a burst appendix. I pursued surgery for a while, doing a subinternship (an intensive 1- or 2-month rotation) with a terrific surgeon to see whether or not I wanted to go into surgery. In my fourth year I did a rotation at a community hospital outside of Philadelphia. A great internist got me excited again about internal

medicine. I liked the great variety. The whole tradition of having a complicated problem and having to use physical examination skills and knowledge to solve it got me to go into medicine.

WCR: *Where did you intern?*

RSG: I went to Boston University School of Medicine under Norm Levinsky, the chief of medicine.

WCR: *Why did you decide to go to Boston?*

RSG: At that time if you wanted to be a great internist you had to go to Boston.

WCR: *You did your entire medical residency at Boston University Hospital?*

RSG: Yes.

WCR: *Did that entail spending time at Boston City Hospital as well?*

RSG: I spent about one third of my time at the Boston City Hospital during my residency. The two hospitals were about 500 yards apart.

WCR: *When you were in residency, what was your intention when you finished?*

RSG: My intention all along was to be an academic cardiologist. Cardiology appealed to me; it involved a mixture of medicine and surgery. It had a defined body of knowledge, an anatomy that was easily understandable and acceptable, and a slew of invasive techniques to master. Thomas J. Ryan was the chief of cardiology at the time at Boston University Hospital.

WCR: *Did you complete your cardiology fellowship?*

RSG: I didn't. I applied for a cardiology fellowship and in the midst of the interviews, I did a community rotation south of Boston. It was the most fun month I had ever had. Unlike at the tertiary center where we saw rare and complicated cases, at the community hospital we saw three or four patients with acute myocardial infarcts, others with acute pneumonias, and others with acute abdomens. I enjoyed the variety and decided I wasn't ready to specialize in just one organ.

WCR: *Then what happened?*

RSG: I decided to put off the fellowship, and I went into general medicine practice at what is now called North Shore Medical Center. Then it was called Salem Hospital and was affiliated with the Massachusetts General Hospital.

WCR: *How long did you stay in private practice?*

RSG: Six years. I developed a very large practice in general internal medicine. That's when managed care moved into the Northeast. The Boston-area economy at that time was thriving because of computer technology. That was when Wang, Digital Equipment, and Data General were huge. None of them are in Boston anymore. There was an enormous number of employed people, particularly north of Boston, which was the main technology zone at the time. Health care costs in the 1980s had become a problem for business, and that was when the first managed care plans started to penetrate Boston. As I was starting my practice, the group started getting contracts for managed care, and the other five doctors in the group were completely busy. They looked at my calendar and said, “You have some openings; you do the contracts.” I said, “I don't know anything about this,” and they said, “We don't either, but we know you went to Wharton and you have some time in your day, so learn about it.” That's how I got involved in the business side of health care—a pretty typical business approach for physicians in that era. It was in the mid

1980s. I tried to understand what it meant for practicing physicians to do contracts with a number of insurance companies.

WCR: *How did it work out?*

RSG: I spent more and more time on the business side of health care because the contracts were important. If they were not studied and taken seriously, they could have a very large negative impact on the practice. At the same time, the hospital where I was affiliated also started signing managed care contracts, and competition between hospitals heated up. I got on a hospital committee trying to understand what was happening in the environment. I soon was spending nearly 20% of my time on the business side of health care.

During my second year of practice—when my practice was starting to grow very fast—I got a rude awakening to how medicine was changing. A new patient came in, and I said, “What brings you here?” He said, “The doctor I was seeing didn’t join a certain managed care plan that my company joined, and it only costs \$10 to see you. That’s why I’m here.” I had received an unfortunate but significant signal about the future. Managed care and the new economics of health care were going to change the practice of medicine and how people looked at and sought health care. This episode made me think back to my days in Cleveland and about our admired physician. My parents wouldn’t have left their physician for anything. Like it or not, times had changed and they weren’t going back.

By 1989, although I was getting more interested in the business side of medicine, I probably wouldn’t have changed jobs except my family life suddenly changed. My wife got pregnant with triplets! (My wife is now an emergency room physician, currently chief of emergency medicine at Yale [Figure 2]. At that time she was a resident.) The babies were born the January of the year I went to General Electric. One of the triplets was very ill. She had bronchopulmonary dysplasia and spent 3 or 4 months in the neonatal intensive care unit. I had an enormously busy practice (a 6-week waiting list), and she had a really rough time her first few months. At least a couple of times a week, I was forced to leave my office during the middle of the day because she would have a respiratory crisis. Then, every night I went to see her. I started seeing my patients on Saturday and Sunday because I was dedicated to them, but that left little time to spend with the other two triplets, who were home. It just looked like I was going to have to do something else, at least for a while.

I was in the process of looking at a job in academic general medicine at the Massachusetts General Hospital when I got a call from a recruiter. GE, a major employer in that area, was looking for someone to help them manage their health care costs, which had become a huge problem, and they realized they did not have the skill set for it. I said to the recruiter: “I’m not anyone who could ever work for a big company.” At that time, Jack Welch, the chief executive officer (CEO) at GE, was in his prime. The recruiter said, “GE doesn’t like people who like big companies. They like people that hate big companies.” I said, “That’s a great line. I have about 15 minutes next week.” The recruiter said, “If you want to meet with me, and I think it’s worth your while, I’ll need 2 hours, and I’m in town this Friday.” It was an experience I had never had before. I ended up meeting with her because I was intrigued. She turned out to be a very high-level recruiter. One thing led to another. I interviewed at GE where they made jet



Figure 2. With wife Gail D’Onofrio.

engines. I was given a tour of the factory, which I found fascinating. They had a top gun from the navy that day so it was quite a scene. GE had just done the engine for the F-18. I called my wife and told her that I actually thought I might take the job. She said, “What would a doctor be doing working at GE?” I said, “I can’t explain it to you, but what I like about them—something that had frustrated me in medicine—was an antibureaucratic philosophy.” It was a culture of very straightforward people. They really were interested in not being bureaucratic. They wanted to make decisions and take action, and it dawned on me that the purchasers of health care could be a powerful force in driving the health care system to make necessary changes.

WCR: *What did you do initially?*

RSG: I started as the medical director for one of GE’s 11 businesses. From the beginning, about 80% of my job involved trying to understand health care costs. Why was health care costing so much? Was GE spending its money wisely? Did the benefit design that they offered their employees make sense? Were the hospitals and doctors delivering good care? GE was really interested in looking at that. Medical care was GE’s fastest-growing expense, and while they could control their other costs fairly well, health care costs continued to grow and erode profit. Health care costs were growing at three or four times the inflation rate, and GE knew that there was much waste in the system. I was asked, from a physician’s perspective, to figure out what GE could do to control its health care costs.

WCR: *What did you figure out the major problem to be?*

RSG: The problem reminded me of an episode when I was a medical student at Penn. We had a patient with pneumonia, and so I asked my resident, “When should we remove the intravenous line and go to oral medications, allowing the patient to be discharged?” The doctor said, “At Penn, we take the intravenous line out after 48 hours, make sure the patients don’t have fever for 24 hours, and then we send them home.” I remember saying, “Since the patient looks so good, can we send him home sooner?”

The resident looked displeased and barked back, “At Penn, we do it this way. So, just do it.” My belief that so much of medicine was done by tradition and that we really had no idea about much of what we did began then and has never waned. And on top of that, the willingness to question the status quo, so important in sectors outside of health care, is discouraged.

I started getting interested in the literature on variation that Jack Wennberg from Dartmouth was producing. From the 1970s on, he had written extensively on variations in medical practices. There are areas of the country where cesarean section or heart surgery, for example, has a fourfold indication difference. No one knew whether more or less was better. When I got into the business side, what struck me from the very beginning was how meager the evidence base was and how much waste there was in the health care system. In practice, I could spend 45 minutes trying to find a patient’s x-ray. Sometimes I would order another one simply to obtain one. A couple of doctors in my office referred most patients to specialists. Another young general internist and I rarely referred. There was a tenfold difference in referrals in my general internist group! The amount of waste and the lack of understanding of best practices was frustrating. I told the senior business people at GE that there was a lot of opportunity for them to spend their money better. I suggested that we shift the question from “How do we spend less?” to “How do we increase the value for what we’re spending?”

WCR: *Before you got to GE, you saw that medicine was inefficient, wasteful, and not based on evidence. How did you implement change?*

RSG: Once on the business side, I began to see the impact of rapidly rising health costs. There were rounds of layoffs involving thousands of people. At that time the GE business I was part of was spending about \$80 million annually on health care. Every 5% of waste cost GE \$4 million! Employees were making about \$40,000 or \$50,000 a year, so every million we wasted amounted to 20 people losing their jobs. I started understanding the funding side of health care, something not usually understood by practitioners. In order to keep offering health benefits and stave more layoffs, GE embraced managed care, which was promising to get people the services they needed and reduce unnecessary services and waste. This managed care approach was widely adopted in the 1990s by industry, as you know. It was very successful for a number of years, and, in fact, health care costs actually went down for a couple of years. At that point, companies in general thought that they had successfully addressed the health care problem. Their employees were getting better care, and costs were moderated.

In retrospect, however, a critical flaw was lurking: the two key players in health care, patients and physicians, were alienated. The physicians felt that they were getting roughed up, getting paid less for their services, and having nurses question what they were doing, and they were understandably unhappy. The employees were suddenly unable to go to the hospital or the doctor of their choice because these providers weren’t in the managed care network. Consequently, the American public and American physicians revolted against managed care.

WCR: *When you saw that managed care was not going to work in the long haul, what did you do?*

RSG: By this time, I had moved up to the top health care job in the company. GE had put me through an MBA program,

but even with a degree, Jack Welch (CEO at the time) shook my hand on my first day and said, “I can’t believe I’m letting a doctor manage a billion dollars for the company!” That was 1996.

WCR: *And that’s the position you are in now?*

RSG: Yes. Director of global health.

WCR: *What does that mean?*

RSG: There are three parts to the job. First, I manage health care costs. GE now spends \$2.5 billion a year in the USA on health care. I am responsible for that spending. GE is self-funded, meaning we develop our own benefit plan and we pay every health care cost dollar for dollar. Although we use insurance companies to administer our benefits, we don’t actually buy insurance. So this part of the job is like running a health insurance company inside the company. Second, GE has its own medical clinics, providing care for both work-related and non-work-related injuries and illnesses. We have about 230 clinics worldwide and employ about 600 physicians and nurses. About 100 clinics are in the USA and the rest are outside this country. I’m responsible for that, although GE’s global medical director has line responsibility. Third, GE has health care businesses related to computed tomography and magnetic resonance imaging equipment, catheterization laboratories, and information technology, including electronic medical records, and also is active on the financing side of health care. We recently acquired a life sciences company, Amersham, so we are moving into molecular medicine. I work with these businesses in a broad, strategic role. My time is divided among those three responsibilities.

WCR: *What did you do for GE when managed care clearly was collapsing?*

RSG: We went back to the drawing board and asked fundamental questions. “Is this the time to figure out a way to get GE out of paying for health care in some way or another? To the extent that we have to manage our health care costs, what are we going to do?” What I did was travel the country and talk to CEOs of the leading institutions involved in health care—hospitals, hospital associations, managed care companies, the American Medical Association—to try to find out what they were thinking about this backlash. We also talked to politicians. Being with GE opens many doors. A staff person and I spent about 6 months almost constantly traveling trying to understand what was going on. Based on what we learned, we came up with the approach that we have now, which is the post-managed care approach—more focused on consumerism, which we call the *transparent marketplace*. We found that managed care failed because it alienated both physicians and patients. We figured that any new approach had to find ways to engage both of them constructively.

We then did a lot of focus groups with our employees and with practicing physicians. We learned that our employees cared a lot about their health care, and they wanted to make sure they and their families got the absolute best care available. They didn’t want any restrictions on their care, and they were actually willing to pay for better quality, but they wanted information in helping them make decisions. Physicians told us that they wanted a fair deal. They said, “We understand that there’s a lot of waste and that the quality in practice could be improved, but we would like a way for you to stop hassling us so we don’t have to call the 1-800 nurse, and we’d also like to get rewarded if we do a better job.” We put those ideas together, and I encapsulated them in a

piece in the *New England Journal of Medicine*. It was titled, "Large employers' new strategies in health care." It essentially said that large employers in the future were going to focus on three things: 1) *transparency*, 2) *patient incentives*, and 3) *payments based on performance*. We wanted to measure the performance of doctors and hospitals and focus on quality. Employees want to know the details about the doctors and hospitals they use.

Making performance information publicly available is not a new idea in medicine. There was a flurry of interest in this as far back as the 1920s. In 1986, the Health Care Financing Administration (HCFA), running Medicare at the time, put out mortality rates. Unfortunately, big problems occurred because of imperfect risk adjustment. The institutions with the most deaths turned out to be hospices—and not due to quality problems, obviously. Although HCFA stopped publicly releasing measures, an industry of measuring folks was born. The State of New York, led by physician Mark Chassin, developed performance measures on heart surgery and coronary angioplasty in the 1990s. Pennsylvania did the same thing. Approximately 15 years of intense work has been done to make these performance measures more accurate, which they are today.

We believe that our employees ought to have incentives in their benefit plans that reflect the choices they make. For example, assume they had a choice of two hospitals if they were going for elective coronary bypass surgery. One hospital had higher quality scores than the other and happened to do it more efficiently; if they chose the hospital with better quality at a lower cost, they should pay a lower deductible or co-insurance. A real-world example of this kind of benefit incentive relates to medications. Until a few years ago, most companies basically paid the same amount if their patients bought brand-named drugs or generics. In 1997, GE and its unions agreed that if a generic drug was available, that's the price GE would pay. If the employee wanted the brand-named drug, he or she was free to have it but would have to pay the difference between the generic and the brand. Within about 2 months of this benefit change, the percentage of our employees not choosing a generic decreased from 50% to <5%. Our employees did not react negatively to this change.

The third part of this so-called "transparent marketplace" is payment. We believe that providers (physicians and hospitals) ought to get paid based on their performance. The Leapfrog Group was started to organize as many employees as possible to apply these principles to how they paid for health care.

WCR: *You are a co-founder of Leapfrog?*

RSG: Correct.

WCR: *How were you able to apply Leapfrog with GE employees?*

RSG: It started as an extension of my job. My job is to spend GE dollars wisely and to keep our employees healthy. The 1999 Institute of Medicine report highlighted preventable deaths in hospitals, which were between 49,000 and 98,000 annually. We learned that offering our employees choice of any hospital was not the best way to guide their health care decisions. The idea for the Leapfrog Group was that both patients and providers cared about information but didn't have access to it. Our focus groups showed that people's first concern was going to the "best" provider and that they understood that not all hospitals were created equal. Working with physicians and health services

researchers, we developed the three "leaps" (information at www.leapfroggroup.org). We published the results on our GE intracompany website and constantly directed our employees to check the results.

WCR: *Did GE invest in Leapfrog?*

RSG: Other than my time and some of my staff's time, no. It is a voluntary organization. As the organization got going, we received funding from the Business Roundtable, a group of big-business CEOs based in Washington, DC. We got \$500,000 seed money from them, and that started Leapfrog. Subsequently, Leapfrog got a several-million-dollar grant from the Robert Wood Johnson Foundation.

WCR: *Is Leapfrog on the New York Stock Exchange?*

RSG: No. Leapfrog is a nonprofit organization.

WCR: *How is GE going to make money from this transparency, quality, and alteration of payment?*

RSG: GE doesn't look at the management of our health care costs as a revenue producer. What I do at GE is try to spend money more wisely. No one thinks that we are going to save money on health care anymore! What we believe is that to a minor extent, employees will choose higher-quality providers and money will be saved due to quality. However, the major driver of lower costs will be from the competition driven by the transparent marketplace: all providers want to be the best, and once they know where they stand, more providers getting better will provide better care at a lower cost.

WCR: *How is information technology going to improve quality and make the system more efficient, transparent, and safer?*

RSG: Information technology is key. Without it there will be no major, sustaining improvements. It will work at various levels in the health care systems. At the base level, information technology will allow doctors and hospitals to monitor what they buy and to manage their supply chain effectively. It's also going to help with billing. We now spend millions of dollars on people chasing paper because the hospital has to chase down a bill from the pharmacy to give to the insurance company, which then sends a letter back to the hospital, causing people to recheck medical records, and so forth. Improving the efficiency of billing will save money. The third component is clinical. Computerized physician order entry is one example. It simply means that medication orders are typed into a keyboard. When that happens, first the prescription is legible. Second, it goes through decision support. If 10 mg rather than 1 mg of dioxin is typed, the system will make the critical edits. The system will also indicate, for example, if the potassium level is low or if other medications are prescribed. The most sophisticated systems also feed back the latest kidney test results. From all of those edits, the clinical result is better, as fewer errors are made.

WCR: *What is GE as a company doing with BUMC?*

RSG: GE does not have a significant employee population in the Dallas area. Our health care business, however, has strong relations with Baylor Health Care System (BHCS) on several levels. BHCS has been a customer of GE in terms of buying and servicing imaging equipment. Both sides now are talking about more opportunities for partnership. GE has put together a suite of products beyond imaging equipment and servicing. These products include information technology products: electronic medical records, for example. We have a consulting business that uses Six

Sigma, a quality improvement approach that we have applied at many hospitals such as Columbia-Presbyterian in New York and Yale in New Haven. It improves operation flow and quality. We recently acquired a company to develop new imaging agents. I am very interested in BHCS's clinical transformation initiative. I know that BHCS is looking for great ideas and partners that can help them get there. I think BHCS recognizes that GE knows a lot about management and innovation, and we're both interested in looking at a broader, more strategic relationship.

WCR: *What are your biggest challenges right now? Where are you spending most of your time now?*

RSB: The biggest challenges I'm facing concern the transparent marketplace and making sure we avoid the mistakes we made the last decade when we were initially so enthusiastic about managed care. There's a lot of excitement now around public release of measures and pay for performance. The biggest thing on my plate is to ensure that physicians, hospitals, and patients are engaged in the right way, that we're not misinterpreting the enthusiasm, and that the practicing physicians consider the metrics we are creating to be fair and useful to both them and the public. I see tremendous momentum particularly because the Medicare Payment Advisory Commission is going to come out next month with a very forceful recommendation that Medicare move immediately to start making payments based on performance, starting small but growing over time. We need to make sure that we have physicians and hospitals on board. We need to be awfully careful about unintended consequences, which might include the refusal of physicians to care for very sick patients because their performance measurements might not look as good. Another scenario might be that two patients have equally complicated cases, but patient A has a higher degree of education than patient B; therefore, patient A is more likely to be compliant, have better outcomes, and result in higher performance measures. A physician can't do much to control diabetes in a patient who doesn't follow a diet, but that physician's performance metrics will suffer. Those are just two examples of unintended consequences that we must avoid. Any huge transformation carries lots of unknown consequences and lots of permutations in its wake. I worry about not listening to the right people or not detecting flaws in our approach soon enough. We think the alternative is an 11% or 12% cost increase year after year, which is not sustainable. However, if we can't solve this in the private sector, the consequence is more and more regulation and restriction on the system, as has happened in other countries.

WCR: *What is GE doing to help its employees take more control of their health?*

RSB: We are working very hard on that. The first thing we're doing is appealing to employees through massive communications about how important it is to stay healthy. We have a program we call "Health by Numbers." The subscript is 0, 5, 10, and 25: zero cigarettes, 5 servings of fruits and vegetables daily, 10,000 steps daily (2 miles), and body mass index <25 kg/m². We're doing this globally and putting a lot of resources into it. GE has an intranet site where employees can sign up for this program and monitor progress. Second, we send out a lot of information on quality and efficiency performance. All employees have access to the best information available on the quality of doctors and hospitals in their areas. It's Leapfrog and beyond. Employees in

the USA can get ratings and performance information, by ZIP code and condition, on doctors treating them. We also have 250 nurses in this country working at our medical clinics who are trained to support our employees and explain to them what the ratings mean.

Not only are we trying to inform our GE employees about the best physicians and hospitals in their area, but we are trying to make it to their financial advantage to go to them. We would never charge our own employees more to go to a specified hospital, but we would have them pay less if they choose high quality. What we are saying to GE employees is "If you get sick, be smart; be as engaged a consumer as you are about other purchases you make. Look into the data. If we know the best places and they cost us less as a company, then using them should cost you less too."

WCR: *How did you get the information on all the hospitals and physicians you are talking about?*

RSB: The information comes from different sources. The best source we have is Medicare. Medicare hospital data are publicly available. Four or five national companies organize this data and provide access over the Internet. We add to that the Leapfrog data and any other "best care" data we can find. For example, New York's and Pennsylvania's great data on heart surgery and coronary angioplasty are added to Leapfrog and Medicare data.

WCR: *I hear that GE is getting into genomics and DNA mapping.*

RSB: The GE health care business has a very bold vision to use genomics and DNA mapping to predict, inform, and help in the effective treatment of disease. Information on risk can mitigate the risk, since patients can exercise, get more screening tests, and so forth. By detecting cancers earlier through molecular imaging and by determining earlier whether treatment will work through molecular technology, better outcomes can be achieved. Some molecular imaging, still in development, will be able to find breast cancers far earlier than even digital mammography can today.

WCR: *GE could buy a pharmaceutical company if it wanted to. Is there any interest in that?*

RSB: I'm not the right person to comment on that because I'm not in that side of the business. Our CEO, Jeff Immelt, is a strong believer in buying companies that build on the organic strengths of GE, which in health care is world-class imaging. By buying Amersham, a London-based company, we got into molecular imaging. GE believes in making acquisitions that build up what we already have rather than move into completely different fields.

WCR: *Your 0, 5, 10, 25 plan for GE employees sounds great. Are employees trying to help other employees get there when they can't do it by themselves? For example, a 300-pound GE employee is or will be costly to the company because of the consequences of severe obesity: diabetes mellitus, hypertension, osteoarthritis, etc.*

RSB: Right now, fellow employees are pretty respectful of each other, but I think that what we're doing with Health by Number is trying to offer a positive way to achieve health. However, as employees pay more of their own money for health care, we might begin to see attitudes similar to what we now see among nonsmokers toward smokers.

WCR: *You talked about incentives for doctors and patients. If someone shapes up their own health, do they get a reward from GE?*



Figure 3. Bob Galvin with (left to right) wife Gail D'Onofrio and triplets Cole, Alison, and Jennifer.

RSG: In our programs, we are working on rewards. If an employee reaches his or her goal in the Health by Numbers, we reward that employee.

WCR: *Finally, did your third child survive?*

RSG: She did. Alison is fine. She ended up being cognitively challenged, so she's moderately mentally retarded with an IQ of about 50, but she survived and she's terrific. The other two, a boy and a girl, are teenagers to the full. They are all 15 now (Figure 3).

WCR: *On behalf of BUMC Proceedings, Dr. Galvin, I really appreciate your sharing your wisdom with us.*

RSG: Thank you.

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