# The Pulse

*The Magazine for the Wharton Health Care Business Conference*

**February 2012**

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Since the Pulse was last published a year ago, we have all watched and waited for the healthcare reform dust to settle. Some questions have certainly been answered, but in many ways the waters have grown murkier. With the preliminary stages of election season already upon us, we are sure to see even more changes and developments in the coming months. Combined with a difficult economic environment and enormous pressure to cut costs, improve care and prepare for changes, whatever they may be, major players in the healthcare industry are doing their best to weather the storm. Yet through the uncertainties and challenges, new and abundant opportunities are materializing for healthcare providers, insurers, businesses, and consumers to innovate as they have never before; and that is the focus of this year's Pulse.

In collaboration with the 2012 Wharton Health Care Business Conference, a student-run conference at the Wharton School of the University of Pennsylvania, we interviewed leading experts in various sectors of the healthcare industry in hopes of providing our readers with the latest insights and perspectives. From interviews with leading physicians and politicians to a conversation about the gamification of health, we believe that the Pulse provides exciting perspectives from the front lines and serves as an informative survey of the opportunities, risks and trends facing the industry.

With thanks for the diligent work of our writers and editors, as well as the generous support of our corporate sponsors, we believe that we have put together a magazine that takes the "pulse" of several industry segments and offers some measured insight as to what the future may hold.

The Pulse staff would like to express our sincerest gratitude to June Kinney and the Health Care Management faculty for their continued support. We hope that you enjoy the 2012 edition of the Pulse!

Sincerely,
The Editorial Team

***Ben Herman*** | ***Vivian Hsu*** | ***Lindsay Rand***

# A Free Market — for — Health Information

*An Interview with Jonathan Bush, CEO of athenahealth*

**By Thomas Osborne**

athenahealth specializes in providing easy-to-use medical billing, practice management, Electronic Medical Record (EMR), patient communication, and other cloud-based services to more than 30,000 medical providers nationwide. The Pulse caught up with CEO Jonathan Bush to get his read on the implications of healthcare reform for his industry and Company.

**PULSE:** ***The Health Information Technology for Economic and Clinical Health Act ("HITECH") sets standards for Electronic Medical Records and incentivizes providers to demonstrate "meaningful use" of health information technology. How have these developments impacted athenahealth's business?***

**Jonathan Bush:** The HITECH Act was a real disappointment. Washington missed the mark in deciding what capabilities an EMR should have. For example, they ask doctors to enter too much data at the point of care. Not only does this take up a lot of time, but we do not yet have much use for a lot of the data they are collecting.

Washington tends to ignore the role of market forces in healthcare. HITECH seems to be forcing doctors to use technology that doesn't necessarily add value clinically or financially and it's incentivizing doctors to buy systems that they might not otherwise be willing to pay for. In reality, people only do what works for them. "Meaningful use" should stem from what's meaningful for doctors, not what sounds good in Washington.

**PULSE:** ***What are the risks of adopting Electronic Medical Records with capabilities that don't match what doctors are looking for?***

**Jonathan Bush:** Current EMRs reinforce the traditional expensive ways of delivering care. Our competitors' systems are designed to keep people locked into expensive care modalities by helping doctors get to the highest level of reimbursement. They are like a loyalty stamp that keeps doctors coming back and providing more expensive treatments. When they are designed with that in mind, EMRs don't really make health information more useful – they make it less useful. And with HITECH, the government is spending $30 billion keeping our competition in business.

*"In every information supply-chain outside of healthcare the receiver pays the sender. For some reason, in healthcare there is no legal market for referrals – you go to jail if you pay for referrals."*

**PULSE:** ***How effective do you think HITECH will be at getting more providers to use EMRs?***

**Jonathan Bush:** We're tracking our clients' compliance with meaningful use criteria and reporting their progress publicly on our website. 98% of athenahealth clients are compliant or will be soon. I think that's pretty good considering that only 2% of doctors in America will even come close to making it.

**PULSE:** ***Do you see any benefits of the legislation?***

**Jonathan Bush:** HITECH had the short-term benefit of getting a lot of people to think about Electronic Medical Records. It also forced athenahealth into the EMR business quicker than we might have gone otherwise. But really, "meaningful use" is just a game that Washington makes us play. It would have been neat to see how we could have used the cycles without all that distraction.

**PULSE:** ***What would you have preferred to work on if you had your way?***

**Jonathan Bush:** Care coordination. With current technology, 90,000 people per year die from complications related to bad data, and we wastefully repeat many tests. There's a clear need to exchange health information among providers. athenahealth is getting in there with our athenaCoordinator product, but we had to spend $36 million this year acquiring a company called Proxsys to make it happen.

**PULSE:** ***How do you envision athenahealth's technology changing care coordination?***

**Jonathan Bush:** Our vision is to create a national health information backbone – a "healthcare internet" – called athenaNet. We want to combine business services with an online ecosystem and take on much of the work that doctors hate doing themselves. The goal is to make it profitable to enter data. For this all to work, providers need to be more profitable if they are online and connected than if they are not online and connected. Receivers and senders of patients should make more money when they coordinate online.

**PULSE:** ***How will athenaNet make that happen?***

**Jonathan Bush:** Our idea is that the patient's information should be transferred along with the patient in referrals, and we think that adds enough value for doctors that they won't mind paying for it. You see, in every information supply-chain outside of healthcare, the receiver pays the sender. For some reason, in healthcare there is no legal market for

referrals – you go to jail if you pay for referrals. The system pretends that healthcare is not a business, and people who pretend that healthcare is not a business are annoying.

Our product, athenaCoordinator, will be moving to a referral-based pricing model in which receivers of patients pay the sender for access to the related medical records. Until now, coordinator cost a flat fee of around $800 per month. Under the new model, it will cost $300 plus $1 per order. If that order is a referral to another practice on athenaNet, then the receiver pays the $1 instead of the sender.

**PULSE:** ***How will that change the total cost to providers?***

**Jonathan Bush:** For hospitals, this will be a new expense, but they will save effort on registration because all of the patient's data will be transferred. Specialists should roughly break even. Primary care physicians will get an extra source of income from sharing their data. Our goal is to make data reusable and sharing data profitable. This is totally separate from the government's Health Information Exchanges: we want to allow free competition in the market.

**PULSE:** ***It seems that athenahealth is really leading the charge on bringing technology to small physician practices. Would you tell us more about how you got into this space?***

**Jonathan Bush:** We're the only ones on the charge. That's because there are no entrepreneurs in healthcare or the entrepreneurs are all playing the same old game. I started out by running a birthing clinic and I was frustrated by the claims process – I wanted to make it better. The moment of epiphany came when I was trying to get an investment to expand the practice. The VC put a higher valuation on our IT system than on the rest of the company, and I suddenly realized that I was in the software business. When we started athenahealth, our original goal was to serve 10,000 OBGYNs. Today, we're serving 30,000 doctors of all specialties.

**PULSE:** ***What advice do you have for aspiring entrepreneurs in healthcare?***

**Jonathan Bush:** Do work for people – just find work to do and go do it. Don't wait for the government to do anything. Use the internet to make things better. Do good, and make money. Too many would-be entrepreneurs in business school go work for banks or consulting firms. Don't go work for a bank or consulting firm.

# *Profile*

Jonathan Bush serves as Chief Executive Officer, President and Chairman of the Board of Directors of athenahealth, Inc. Mr. Bush co-founded athenahealth in 1997 and has been a director since inception. Prior to joining the Company, Mr. Bush served as an EMT for the City of New Orleans, was trained as a medic in the U.S. Army, and worked as a management consultant with Booz Allen & Hamilton. Mr. Bush obtained a Bachelor of Arts in the College of Social Studies from Wesleyan University and an MBA from Harvard Business School.

# *Countdown to October 1, 2013:*
# *ICD-10 Conversion*

**By Jamie Mumford**

With the unprecedented convergence of health reform initiatives and regulatory requirements in the coming years, including the Health Information Technology for Economic and Clinical Health (HITECH) Act and the meaningful use program, the HIPAA 5010 standard, accountable care regulations, and pay-for-performance initiatives, the healthcare industry is rapidly approaching yet another deadline: converting to the International Classification of Diseases 10th revision (ICD-10). With less than 24 months until the ICD-10 compliance date of October 1, 2013, hospitals, payers, and vendors (largely healthcare IT and software companies) are gearing up for a dramatic shift that will require significant planning, technology, resources, training, and collaboration across key industry stakeholders.

While industry experts anticipate that the long term benefits of the ICD-10 conversion will outweigh the associated costs, many are equating the financial impact of the conversion to that of the mortgage crisis or the health industry's equivalent to Y2K. John Dugan, a Partner in PricewaterhouseCoopers' Healthcare Advisory Practice, helps explain the magnitude of this undertaking.

## Breaking Down the Codes:

Two code sets dominate today's official documentation of healthcare interventions: one is ICD-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification). The ICD-9 code set can be further broken down into Volumes One and Two for reporting diagnosis and symptoms (abbreviated CM for Clinical Modification) and Volume Three for reporting inpatient hospital procedures (abbreviated PCS for Procedure Classification System). On August 15, 2008 the U.S. Department of Health and Human Services (HHS) announced the transition from the current code set contained in the ICD-9-CM, to the new ICD-10-CM along with ICD-10-PCS by October 1, 2013.

This ruling represents a significant overhaul of the medical coding system for all HIPAA (Health Insurance Portability and Accountability Act) covered entities, including healthcare providers, health plans, healthcare clearinghouses, and vendors. Sheer numbers alone help to illustrate the magnitude of the ICD-10 conversion: the current ICD-9 coding set encompasses a total of 18,000 different codes (roughly 14,000 diagnosis and 4,000 procedure codes), while ICD-10 supports over eight times that number (roughly 68,000 diagnosis and 87,000 procedure codes). The conversion to ICD-10 not only requires an increase in resources, training, and system upgrades, but also significant coordination and transparency among the key stakeholders in the healthcare industry.

## Proposed Benefits:

Although there are a variety of reasons behind the change to ICD-10, several key areas are grounded in the growing sentiment that the ICD-9 code set terminology and framework is outdated and obsolete. ICD-9 codes represent the state of knowledge of the late 1970's, which means that the coding set is over 30 years old. Despite annual updates, the restrictive framework of the ICD-9 code set presents increasing challenges: new diagnoses are incorrectly organized and new procedures are not uniquely identified, requiring new procedures to be grouped within the same code developed for older procedures. Since ICD-10 was published in 1992 and accounts for many advances in technology and processes in the healthcare industry, many proponents of the change believe that ICD-10-CM and ICD-10-PCS are technically superior to their ICD-9 counterpart. Further, according to the World Health Organization (WHO) around 25 countries, including Canada, Australia, New Zealand, along with many European and Asian countries, currently use ICD-10 for reimbursement and resource allocation. Roughly 110 countries utilize the international version of ICD-10 for cause of death reporting and statistics. In this way, the U.S. will be "catching up" with the rest of the modernized healthcare world in transitioning to ICD-10 to improve the capture of healthcare information.

**Increased Accuracy:** "The long-term benefit…when you move from 14,000-15,000 current codes in use to over 150,000 codes [is that] you are certainly getting much more granular and specific about medical conditions and procedures performed on patients," notes John Dugan, PwC's national ICD-10 Provider Leader. The ICD-9 coding set available "is already being maxed out of codes in the U.S., and does not provide sufficient information to describe ever expanding diagnosis and treatment practices today. [Under ICD-10] the information that will be available for research purposes, for clinical outcomes reporting, and for further evidence-based medicine purposes is going to be very significant." Additionally, many stakeholders anticipate that the increased level of detail for diagnosis and procedure codes will lead to fewer miscoded, rejected, and improperly reimbursed claims-common issues that plague the current healthcare system under the ICD-9 set.

**More-Accurate Payments:** The expansion of available diagnosis and procedure codes under ICD-10 allows for more precision in diagnosis and inpatient procedures, as well as the ability to account for new technologies. "The payer community is concerned around a term that they use frequently: 'payment neutrality,'" comments John Dugan. Although other industry stakeholders may not agree, "ultimately, [payers] believe that providers - because of the expansion of the codes - are going to be more diligent around documentation, which is automatically going to result in a creep [up] in their case rates, DRG payments, etc." Since there are so many variables and unknowns, quantifying the impact of ICD-10 on provider reimbursement is extremely challenging. Yet both providers and payers anticipate that the higher specificity will translate into more-accurate payments, which align more closely to the services provided than they have in the past.

**Improved Care and Disease Management:** Many proponents of ICD-10 anticipate that the updated coding set will enhance the U.S. healthcare system's understanding of health conditions in the long term, allow for a more in-depth analysis of patient treatment and care, and support better patient outcomes. The belief is that the more specific coding set will improve the ways in which hospitals deliver care and assist researchers in such activities as identifying diagnosis trends, monitoring public health needs, and addressing epidemic outbreaks. The increased detail of ICD-10 is expected to further help payers, providers, and researchers more easily identify patients in need of disease management and more effectively tailor programs to address health issues across the nation.

## Challenges:

The implications of migrating to ICD-10 include a significant re-education for many healthcare stakeholders and participants, including physicians and other healthcare professionals, coders, and their supporting resources. Their main concerns include the direct costs associated with training, productivity losses, and system changes.

**Costs:** Industry estimates of expected costs vary significantly. According to research conducted by the RAND Science and Technology Policy Institute, when factoring in training, productivity losses, and system changes, projected implementation costs alone are expected to range from $425 million to $1.15 billion. Additional costs resulting from lost productivity post-implementation are expected to range between $5 million and $40 million per year[3].

**Training/Productivity:** The conversion to ICD-10 presents a tremendous educational challenge for those individuals directly impacted by the conversion, such as coders and physicians. However, there are many other downstream groups that will need to learn the new system as well. "Most people think about training coders and physicians, but through the entire revenue cycle, many individuals are impacted and people need to be trained," John Dugan explains. Training will range "from a basic, to intermediate, to an advanced type of level, and that will really dictate the types of vehicles that are used to provide training. Coders are probably going to need a week to two weeks of very intensive training around the codes. Whereas the physician community may need to have some web-based training available, because that is effective for them with their schedules relative to what is important to them for their specialties." Further, many finance officers are budgeting for a drop in staff productivity post October 1, 2013, as staff adjust to the more extensive coding set and physicians to the increased detail of documentation requirements.

*"ICD-10 is not an easy task. There is work involved, and many providers are feeling stretched. Possibly adding to the challenge are the number of overlapping timelines in addition to ICD-10. However, ICD-10 is not a separate, competing initiative, but the foundation for the initiatives. ICD-10 will help us gather information that can help providers do a better job of understanding and serving patients."*

**Information Technology Systems:** From a technology perspective, providers, payers, and vendors are preparing their respective systems for this coding conversion. The focus on IT readiness has several layers. According to the Centers for Medicare and Medicaid Services (CMS), the change to ICD-10 entails converting from the three to five digit codes currently in place under ICD-9, to three to seven digits under ICD-10, but the format is very much the same as ICD-9. Further, the ICD-10 procedure codes will expand to seven alpha or numeric digits, instead of the three or four numeric codes used under ICD-9 procedure coding today. Thus, the different coding structure and logic under ICD-10 compared to its older counterpart will require further system updates. Any system that an ICD-9 code currently touches will need to be updated or upgraded to prepare for the conversion to ICD-10. "ICD-10 represents another strain in regards to resources within it," comments John Dugan. "If you just step back- [for] a typical hospital you would be surprised as maybe 100-150 applications currently utilize ICD-9. That may be 50-60 software vendors! Imagine all the vendor management communications, software updates and testing that will need to occur over the next 12-18 months and this component alone can be overwhelming for a hospital that may be running very lean within their IT department." Logic will not only need to be built to account for the increase in available ICD-10 diagnosis and procedure codes, but also support an appropriate cross-walk to accurately report the new codes going forward.

## Final Thoughts

The implementation of ICD-10 will continue to have a wide-reaching impact not only in the next two years leading up to the implementation date, but many years after. During the CMS sponsored national provider teleconference on November 17th, 2011, Nelly Leon-Chisen, Director of Coding and Classification for the American Hospital Association (AHA) acknowledged that "ICD-10 is not an easy task. There is work involved, and many providers are feeling stretched. Possibly adding to the challenge are the number of overlapping timelines in addition to ICD-10. However, ICD-10 is not a separate, competing initiative, but the foundation for the initiatives. ICD-10 will help us gather information that can help providers do a better job of understanding and serving patients. It will enable us to better analyze this information to meet requirements related to bundled payments, hospital-acquired conditions, value-based purchasing, and preventing readmissions."

Understandably, the challenges to meet this deadline are immense, and the costs continue to increase beyond original estimates. Thinking about the conversion from the standpoint of how ICD-10 actually impacts other strategic initiatives, "It's not just about medical records. It's not just about coding. If you go across the entire patient lifecycle where ICD-9 comes into play, there are many business processes around an organization that are impacted in a meaningful manner," notes John Dugan. Thus, as the key stakeholders ramp up to prepare for the ICD-10 conversion, health systems should continue to embrace this mandate as an opportunity to hone in on their business processes and address such issues as outdated IT systems, quality and compliance, and focus on training and re-education. This conversion process also sets the stage for increased collaboration among key players including hospitals, payers, and vendors, which will be crucial to support health reform and to respond to pressures to reign in the spiraling costs of healthcare in this country in the years ahead.

[1] Michael F. Arrigo, "Could ICD-10 have as big a financial impact as the mortgage crisis? Yes. Here's why," Government Health IT, 17 Oct. 2011 <http://govhealthit.com/news/could-icd-10-have-big-financial-impact-mortgage-crisis>

[2] Brian Gormley, "IT Companies Stand To Gain From Health Care's 'Y2K' Problem," The Wall Street Journal, 22 Feb. 2011 <http://blogs.wsj.com/venturecapital/2011/02/22/it-companies-stand-to-gain-from-health-cares-y2k-problem>

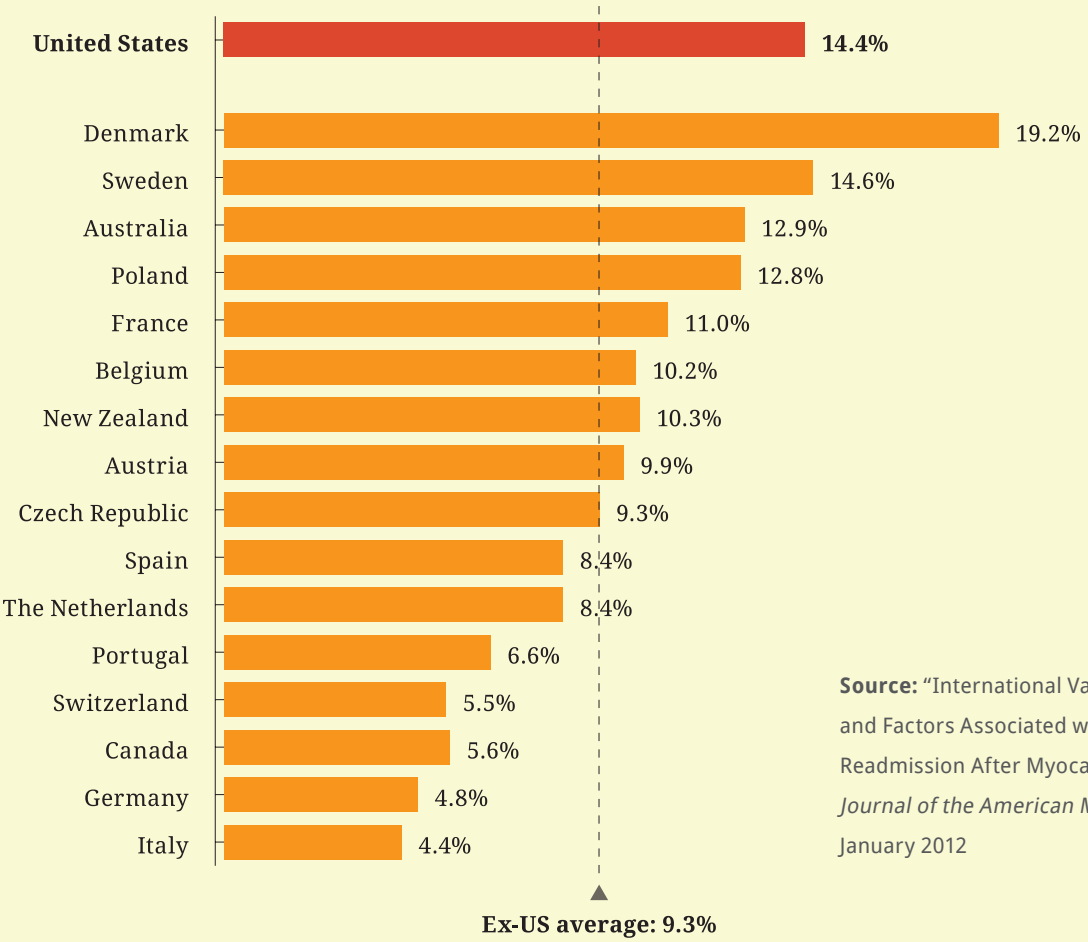
[3] Maritn Libicki and Irene Brahmakulam. "The Costs and Benefits of Moving to the ICD-10 Code Sets." RAND Science and Technology. March 2004. < http://www.rand.org/pubs/technical_reports/2004/RAND_TR132.pdf>

# *Profile*

Mr. Dugan is a Partner in PricewaterhouseCoopers' Healthcare Advisory Practice. He serves as the firm's Health Industries Provider Revenue Performance Management ("RPM") Practice Leader. In this capacity Mr. Dugan is a member of the U.S. Provider Leadership Team and is responsible for the development of RPM solutions and resources. He is also the Philadelphia Market Leader for the Health Industries Practice where he is responsible for the coordination of Assurance, Advisory, and Tax services to over 30 healthcare clients. Mr. Dugan's healthcare career spans over 25 years, and includes eight years working in various financial management positions at a large academic medical center.

## *Motivating Fact*

*International Comparison of Adjusted Hospital Readmission Rates After Myocardial Infarction*




**Source:** "International Variation in and Factors Associated with Hospital Readmission After Myocardial Infarction", *Journal of the American Medical Association*, January 2012

*"Through analysis of a provider's five year claims history we now have the ability to assess the likelihood of readmission, such that when John Doe walks through the emergency room door we can predict with some certainty whether or not he will need to be readmitted within 30 days based upon his presenting symptoms. If you know that upfront, think about how you can mobilize your resources to take the necessary precautions."*

***John Dugan***

*Partner, PriceWaterhouseCoopers*

# *Training our Future Doctors: What's Happening to the Medical Residents?*

*An Interview with R. Michael Buckley, MD*
*Executive Director of Pennsylvania Hospital*

**By Cara Kiernan Fallon**

On July 1, 2011, the Accreditation Council for Graduate Medical Education (ACGME) Board of Directors implemented new regulations reducing medical residents' shifts from 24-30 hours to 16 hours, and updated supervision and education standards. Under the weight of a lengthy medical training system, pending mandatory health insurance regulations, and shaky financial markets, running a safe and effective hospital has become even more challenging. Executive Director of Pennsylvania Hospital, Dr. R. Michael Buckley, discusses the difficulties of leading a health system through these complicated times.

**PULSE:** ***The new resident work limits, which restrict first-year resident shifts from 24-30 hours down to 16 hours, have been an important topic of discussion. What are some of the benefits and drawbacks going forward?***

**Dr. Buckley:** The good thing is that we have a lot of very alert, unexhausted residents. The data has shown this. On the other hand, there are an enormous number of handoffs between residents with the new shorter shifts. I think we're doing a great job, but there is a discontinuity of care that can result. Nurses are practiced at handoffs between shifts, but for physicians, handoffs can be an extra challenge because of the large amount of crucial information regarding care plans that must be transferred between providers. It can also be difficult for residents to get a sense of the natural course of a disease if they don't follow a patient uninterrupted.

**PULSE:** ***Have you noticed a difference in the residents you teach today compared to when you started?***

**Dr. Buckley:** The resident work hour change has created a bit of a shift mentality amongst the new generation of physicians; we may be losing a little something. There is a difference between the mentality of "this is my shift" and "this is my patient."

When I was a resident, because of the way we worked, we followed the patient through their disease. The worry is making sure the resident still feels ownership of the patient versus the shift. There certainly are residents that do feel responsibility for the patient, but the nature of the work now creates a different sense. How we teach residents and how we do things is different. It is particularly difficult in the surgical residencies. If a shift ends at 6pm and the surgery lasts until 7pm, the resident has to leave the operating room at 6pm or else they are violating the law.

**PULSE:** ***How do you believe the resident work hour limits affect patient safety?***

**Dr. Buckley:** I am not convinced that the data has shown this change in work hours has resulted in a safer environment for patients. Rather, I believe we have replaced some concerns with others. There is strong data on sleep deprivation and safety in many industries, but since these work hour rules have been instituted, there is not yet data showing we have created a safer environment for patients.

**PULSE:** ***On the topic of patient safety, you have been a strong advocate for research and reforms. What is the current state of affairs?***

**Dr. Buckley:** The whole patient safety movement has been an unbelievably positive thing. When you look at blood infections or hospital-acquired conditions, there has been a dramatic improvement across the country. A lot of this has resulted from the external environment demanding it. We continue to find that with every new improvement, we can do things better than we were before.

**PULSE:** ***What differentiates Pennsylvania Hospital in patient safety and what strides has the hospital made in this area?***

**Dr. Buckley:** The physician and nurse relationships at this hospital are particularly good. There is a lot of teamwork here. The model of a physician and a nurse leading together on a team now permeates the hospital system. This is a very important way to take care of people. Medicine is a complex world and we need a multidisciplinary approach. One way to do this is to have the physician, nurse, and resident all in the same room at the same time. The ideal is to have the patient present as well, which is what we strive for.

**PULSE:** ***Pennsylvania, like most states, requires the reporting of adverse hospital events. What are your thoughts on state reporting?***

**Dr. Buckley:** Safety authority in the state of Pennsylvania, and public reporting in general, is a good thing. Your reputation is very important and it creates incentives to make sure that you are taking great care of your patients and that your safety data is as good as it can be. It was somewhat embarrassing that hospitals weren't getting our acts together before these regulations.

**PULSE:** ***The mandatory insurance legislation has been on everyone's mind, particularly now that it is in front of the Supreme Court. How is Pennsylvania Hospital positioning itself to adapt to these mandatory insurance rulings?***

**Dr. Buckley:** As a hospital I don't worry too much about it because I don't think it's going to necessarily increase the number of people who come in. We care for people regardless of whether they have insurance or not. From a financial standpoint, we will figure it out. I don't think it will cause a flood of new patients into our system.

However, I worry about outpatient facilities. There may be people who aren't getting healthcare because of insurance, and then they might find issues that require care later, but the problem is that we don't have enough primary care physicians in an outpatient setting already. With the lengthy education and training process for physicians, there will be a long period before we can correct this systematic problem.

**PULSE:** ***You mentioned the lengthy education process. Do you see any opportunities to improve the current system of medical education and training?***

**Dr. Buckley:** I think there are some opportunities – not to shorten medical school, maybe we could do something in the 4th year – but I do think our doctors are going to end up specializing earlier. There may be a way to shorten training after medical school, perhaps sending people into primary care earlier. But it's hard for medical students to know early in the game what they'd like to pursue before they are exposed to different fields of practice. I went into medical school intending to be a pediatrician and came out as an adult infectious disease specialist. You can't predict what you will be exposed to and what you will want to practice.

*"We cannot do things that put our own needs in front of the patient. Saying this is easy, doing it is not easy, particularly in the current financial environment."*

**PULSE:** ***A growing number of medical students intend to pursue a career outside of the practice of medicine. What are your sentiments on the rise of the dual degree programs (i.e. MD/MBAs and MD/JDs)?***

**Dr. Buckley:** I don't have any negative feelings toward the dual degree, rather I think the dual degree can be particularly useful for people in the medical world. Although I'm running a hospital without an MBA, I think in the future administrators will need a business degree. If you're going to do something in healthcare, I believe it's helpful for people to spend time in a clinical setting before spinning off, but it depends on where your dual degree will take you. There is room for the dual degree, for instance the MD/MPH is useful and with all of the healthcare changes that are going to come down, the MD/MBA will be important for navigating those changes.

**PULSE:** ***Is there any momentum to incorporate the managerial aspects of business school into the core curriculum of the medical school?***

**Dr. Buckley:** There has been a lot of talk about beginning to include more education in leadership, management, finance, statistics, strategic thinking, how to run a project, etc. in medical school or during residency training. Presently, we do a lot of training with Wharton - things like leadership development among physicians, nurses, and ancillary

personnel. These programs have been very important to us and we are fortunate to have them so close by.

**PULSE:** ***In healthcare, where do you see the greatest need for innovation?***

**Dr. Buckley:** I think we're going to need to figure out how to do more with less. All of the other changes to technology - the introductions of new machines, etc. - will not make a difference if we can't figure out how to do more with less. We have an aging population, the wherewithal to fix things and treat them, and we just need to figure out how to care for them the right way.

**PULSE:** ***Changing topics a little, you have had many roles during your tenure at Penn – a resident, physician, professor, and an Executive Director. As a physician, what is the most useful thing you have learned?***

**Dr. Buckley:** I think the most useful thing I have learned is that we always have to put the patient first. Everyone talks about this, but it really has to be real. This is the profession we chose and we need to figure out how to do it. We cannot do things the same way as before. We cannot do things that put our own needs in front of the patient. Saying this is easy; doing it is not easy - particularly in the current financial environment. We have to figure out how to prevent that from getting in the way. We need to not let the focus on taking care of people go away.

**PULSE:** ***And as a CEO?***

**Dr. Buckley:** I like to say, "There's only one truth." You need a consistent message. You need to keep your eye on the ball, and the ball is to make this the best hospital for a patient to be a patient. It requires an enormous breadth of things to accomplish that – it needs to be safe, efficient, have the right nurses, have the right doctors – if that's the goal, you need to always use it as a benchmark for every decision you make.

# *Profile*

R. Michael Buckley, MD, is the Executive Director of Pennsylvania Hospital, a 515-bed acute care facility that provides a full range of diagnostic and therapeutic medical services. Completing his first year leading one of the major teaching and clinical research institutions, Dr. Buckley has helped Pennsylvania Hospital navigate the ever-evolving financial and regulatory environments. Dr. Buckley is also a Professor of Clinical Medicine, teaching medical school students and residents. He has been a trusted leader at the Hospital for many years, serving as the Section Chief of Infectious Disease before his appointment as Chairman of the Department of Medicine in 1999. He became the Chief Medical Officer in 2000 and has continued in both roles since that time. He has been practicing Internal Medicine and Infectious Disease at Pennsylvania Hospital for over 30 years.

*"From the Institute for Healthcare Improvement, nearly 100,000 people lose their lives every year from medical errors. And we all thought thank goodness we aren't at one of those places, but we all were."*

***R. Michael Buckley, MD***
*Executive Director, Pennsylvania Hospital*

## *Leading Causes of Death in the United States*

1. **Heart disease:** *599,413*
2. **Cancer:** *567,628*
3. **Chronic lower respiratory diseases:** *137,353*
4. **Stroke (cerebrovascular diseases):** *128,842*
5. **Accidents (unintentional injuries):** *118,021*
6. **Alzheimer's disease:** *79,003*
7. **Diabetes:** *68,705*
8. **Influenza and Pneumonia:** *53,692*
9. **Nephritis, nephrotic syndrome, and nephrosis:** *48,935*
10. **Intentional self-harm (suicide):** *36,909*

Medical Errors: ***nearly 100,000***

**Source:** Centers for Disease Control and Prevention, 2010

# *An Update on Politics, Policy and Reform:*
# *— The Uncertain Future —*
# *of the Patient Protection and Affordable Care Act*

*An Interview with William (Bill) H. Frist, MD*
*Former U.S. Senate Majority Leader*

**By Ben Herman**

As a nationally recognized heart and lung transplant surgeon and former U.S. Senate Majority Leader, Bill Frist is uniquely qualified to discuss the medical, political and practical challenges facing healthcare today. In the following interview, the Pulse asks the Senator for an update on the likely outcome of political and legal challenges to the Affordable Care Act, some predictions on the final form and scale of implemented reform and his thoughts on which sectors and companies to watch in the years ahead.

**PULSE:** ***In 2009 you came out in support of healthcare reform; do you still think America needs broad-based health reform? What do you think about The Affordable Care Act, or "ObamaCare," specifically?***

**Senator Frist:** That's a good one to open with. The number one challenge in America today is our national debt, which has been driven by escalating entitlement spending. Looking forward, Medicaid and Medicare – which account for 35% of total healthcare spending – will be the main drivers of increased entitlement spending. Therefore, for us to get our deficit under control, everyone (not just political leaders) needs to work together to find a healthcare reform solution that works.

I do believe that we need to reform how healthcare is delivered in order to slow the growth in total spending. When President Obama campaigned for healthcare reform he emphasized that the first priority must be to rein in costs and spending, and only after that would access be expanded. But the Affordable Care Act does just the opposite. It is predominantly about access. Healthcare premiums, American's out-of-pocket spending, and healthcare entitlement spending will continue to increase under the Affordable Care Act. I am for true comprehensive reform that improves quality and value, but also seriously addresses cost and the national deficit.

**PULSE:** ***How do you see the outcome of the 2012 presidential and congressional elections effecting the shape and scope of ObamaCare?***

**Senator Frist:** Let me give you what I see with the two most likely scenarios. If President Obama wins and Republicans win

the Senate and keep the House, I expect a major compromise to be reached reducing the size, coverage and regulation of the Affordable Care Act. Additionally, the individual mandate likely would become an option each state could endorse or reject. Medicaid payments would move to more of a block grant-type system with minimum coverage requirements.

If Republicans win the presidency and Senate, I believe you will see a partial repeal of the Affordable Care Act, although I expect 95% of the initiatives around insurance reform and state exchanges to remain intact. With this partial repeal I expect the passage of a more market-driven proposal that encourages private sector involvement and competition alongside major comprehensive tax reform, which would likely increase overall revenues, and overall spending cuts. These actions would likely result in average Medicare provider rate declines of 1–2% per year as the government moves to balance the budget.

Under either scenario, I expect Medicare to move towards a means-tested, "premium support" model, particularly for high income Americans. I also expect funding for the NIH, Center for Disease Control and Food and Drug Administration to remain relatively flat.

**PULSE:** ***Are there any plans out there that do a better job of addressing the issues of quality and cost than the Affordable Care Act?***

**Senator Frist:** Yes, and it is one that has been around for a while, initially designed by democrats, years later supported by republicans, and even later endorsed by bipartisan presidentially appointed commissions. It's called the Premium Support Plan.

As a senator I helped put the plan into legislative language as Senator Frist-Breaux 1 in 2001. The term "premium support" was coined in 1995 by two economists, Henry Aaron and Robert Reischauer. President Clinton's 1998 Medicare Commission, which Senator Breaux (D-LA) and Bill Thomas (R-CA) co-chaired, specifically recommended premium support as the solution to the cost and demographic challenges that were threatening Medicare at the time. The proposal received majority support within the commission but was not acted upon by the President. President Obama's bipartisan Bowles-Simpson Commission on entitlement reform also recommended a premium support model for Medicare in 2010; President Obama did not endorse the recommendations though again the committee had majority (but not supermajority) support. And Representative Paul Ryan (R-WI) and Alice Rivlin (former Director of the Office of Management and Budget under President Clinton) have presented a strong premium support plan, again demonstrating strong bipartisan support. The benefit of premium support is that it uses market-based principles to address the issues of rising healthcare costs and the growing deficits that face our country.

**PULSE:** ***So taking a step back, what are your current thoughts on the constitutionality of the existing bill?***

**Senator Frist:** The Supreme Court is going to consider four main issues. First, whether the Court has jurisdiction to hear the challenge; second, whether the individual mandate provision oversteps Congress' constitutional authority; third, whether the individual mandate provision can be severed – or separated – from the rest of the bill; and fourth, whether the Act's Medicaid amendments are constitutional.

I think the range of considerations is much broader than most people initially anticipated. To date, three district courts have upheld the individual mandate and two have struck it down. Only one Court of Appeals has struck down the mandate, with the other three either upholding the individual mandate or dismissing the suit. The important decision, obviously, will come from the Supreme Court in June.

Of the four considerations, who knows what will happen? But my look into the crystal ball leads me to predict that the Court will rule that they do have jurisdiction; that – in a 5-4 decision – the individual mandate will be judged unconstitutional; but that the individual mandate provision can be severed from the rest of the Affordable Care Act without bringing down the whole bill; and that the Medicaid provisions are constitutional. But I frequently have to eat crushed glass.

**PULSE:** ***How do you think the lack of an individual mandate will affect the implementation and effectiveness of the bill?***

**Senator Frist:** The lack of an individual mandate will not substantially change the direction or reduce the momentum of the Affordable Care Act. I say that because even if the Court rules that the mandate is constitutional, and everything is perfectly implemented as written, according to the Medicare actuaries and the Congressional Budget Office we will still have 23 million uninsured people in the U.S. in 2020! Without the mandate that number will be closer to 33 million, but this difference will not significantly impact overall cost or quality outcomes. It still leaves enough people insured to allow the insurance reforms to work.

**PULSE:** ***And who makes up those two groups of uninsured people?***

**Senator Frist:** Around 5 million people are illegal immigrants that aren't covered under the bill. Another 18 million people won't get insurance and will pay a fee in order to get out of the individual mandate.

If the mandate is struck down, then about ten million more people will likely choose not to buy insurance or be dropped from employer coverage. The reason that the overall uninsured number is not larger is that government subsidies will still flow through state exchanges with or without the mandate. People will look to take advantage of those subsidies.

**PULSE:** ***How do you see providers adapting to prepare for ObamaCare?***

**Senator Frist:** There's a huge movement underway towards more consolidation, more integration – both vertically and horizontally – and more information sharing. Physicians are going to continue turning to the hospital or hospital system for employment. There's also a movement towards taking a team approach to medicine and a population-based approach to payments. These trends were already underway before the Affordable Care Act, although reform has accelerated the move.

ObamaCare is basically an access bill. I do think provisions in the bill like value-based reimbursement will lead to increased quality. But the cost to physicians and hospitals is also high. Investments in things like information technology systems are important but still very expensive. Other provisions like insurance and coverage mandates may be good in practice or concept, but they're expensive. Increased preventative and screening measures improve quality, but also drive up costs.


**PULSE:** ***Do you have any insight into when Congress is going to tackle the issue of physician payments? Congress keeps passing temporary fixes for the Sustainable Growth Rate ("SGR"), which drives government fee for service ("FFS") payments to physicians. As part of a long-term SGR fix, do you expect the government to try and shift Medicare payments away from the traditional FFS model?***

**Senator Frist:** The SGR is used to control Medicare spending on physician services. Currently the SGR formula calls for a 27.4% across-the-board cut in Medicare payments to every physician in America on January 1, 2012. This simply cannot be sustained. Implemented in 1998 to slow the growth in spending on physician services, the SGR formula determines annual adjustments to payments for these services.

A Medicare SGR fix to maintain physician payments would cost about $275 billion over a 10-year period. So the challenge for policymakers is to find $275 billion dollars. Most people don't realize that this is how the budgeting process works; in order to fix the SGR, the government needs to find $275 billion today to offset ten years of additional costs.

Every year temporary Band-Aid "fixes" are passed that cost $25-$30 billion. In all likelihood these temporary fixes will continue until Congress takes on the issue of comprehensive tax reform during the first term of the next president. The SGR approach is outdated and creates distortions. The blunt instrument of across the board cuts in fees is doomed to failure.

*"I expect the passage of a more market-driven proposal that encourages private sector involvement and competition alongside major comprehensive tax reform."*

The payment model is slowly changing to more of a value-based model. I predict that this trend will continue over the next five years as we continue to move away from fee for service, volume-based reimbursement to more quality, value and population-based payments. These payment models will be far superior to the arbitrary and across-the-board cuts we have today with the SGR.

**PULSE:** ***Shifting gears a little, there's a lot of excitement in healthcare around innovation and technology, especially as it relates to ways to lower costs while improving quality and access. Are there any sectors or companies that you think have been successful at accomplishing this "triple goal"?***

**Senator Frist:** Over the last 30 years the U.S. has led the world in terms of innovation in devices, pharmaceuticals and basic scientific research, largely because of the favorable policy climate, patents laws, intellectual property protection, support of our academic institutions and National Institute of Health (NIH) funding. Today we are seeing an explosion in health service innovation in response to what people perceive to be uneven quality, access and information, as well as costs that have increased on average 2.0% faster than the rest of the economy for each of the past 50 years. In other words, healthcare innovation is increasingly market-driven; it is not being driven by Washington, DC.

In terms of specifics I'm excited about areas that promote self-care; that move care from the hospital to the home or local community. ZocDoc is a company that allows patients to read doctor evaluations before choosing a physician and booking an appointment online in two or three minutes. About 600,000 people a month are using the free service. iPhone apps like Asthmapolis can also help people manage symptoms and triggers by monitoring when and where they are using inhalers. This leads to better compliance, fewer ER visits and lower costs. There's also a site called "PatientsLikeMe" that harnesses the power of social media to connect patients with similar conditions. It also allows organizations that are focused on specific diseases to identify the people they are trying to help. Finally, Castlight Health is another company that's gotten a lot of publicity lately for providing consumers with the information they need to shop for healthcare, compare outcomes, assess medical needs and save money. Areas like this that empower millions of people – as opposed to the government – to direct their own healthcare decisions will drive improved value over time.

**PULSE:** ***Are there any other healthcare trends that you feel like people aren't talking about?***

**Senator Frist:** One of the biggest trends, accelerated in part by the Affordable Care Act, is the huge shift of risk that is underway from insurance companies, employers and the government to consumers and providers. I don't think either group is comfortable managing this risk yet. Consumers don't have access to the right information. Hospitals historically have been able to grow indiscriminately and pass on costs to the government and commercial insurers

and doctors have never had to worry about value-based payment risk because of the fee for service system – it's not what they were trained or taught; it's not the culture.

**PULSE:** ***Have you seen any medical practices or organizational systems abroad that you think we could learn from here in the U.S.?***

**Senator Frist:** I've spent a huge amount of time abroad, and I think one thing we can learn from developing countries is the value of basic, team-oriented care. Many countries bring the right level of care to patients when and where they need it. A good example is a community health worker with limited formal health training that is very good at identifying and addressing common conditions, and then referring out more complicated or serious conditions to specialists. In Bangladesh, this type of worker has helped cut infant mortality in half. We don't have any true equivalent in America today. We have physician assistants and nurse practitioners – not as many as we should – but we limit what they can do and where they can do it.

To say we should adopt a German, Canadian or single payer system makes for a good intellectual debate, but it isn't reality. It isn't gonna happen.

# *Profile*

Bill Frist is a nationally acclaimed heart transplant surgeon, former Majority leader of the U.S. Senate, and partner in the private equity firm Cressey & Co. Senator Frist was the son of a family physician, and quickly followed his father and older brother's footsteps. He majored in health policy at Princeton University's Woodrow Wilson School of Public and International Affairs before graduating with honors from Harvard Medical School. Dr. Frist completed surgical training at Massachusetts General Hospital and Stanford under transplant pioneer Dr. Norm Shumway. As the founder and Director of the first of its kind Vanderbilt Multi-Organ Transplant Center, he has performed over 150 heart and lung transplants and authored over 100 peer-reviewed medical articles and chapters, over 400 newspaper articles, and seven books on topics such as bioterrorism, transplantation, service and leadership. He is board certified in both general and heart surgery.

Dr. Frist represented Tennessee in the U.S. Senate for 12 years where he served on both the Health and Finance committees responsible for writing health legislation. He was elected Majority Leader of the Senate, having served fewer total years in Congress than any person chosen to lead that body in history, and his leadership was instrumental in passage of prescription drug legislation and revolutionary funding to fight HIV/AIDS at home and around the world.

Dr. Frist annually leads medical mission trips to Africa and quick response teams to disasters around the globe, including Sri Lanka, Bangladesh, Sudan, New Orleans, Haiti, and the Horn of Africa. Frist is Chair of Save the Children's "Newborn and Child Survival" campaign, the Nashville-based Hope Through Healing Hands and the collaborative education reform organization Tennessee SCORE. His current board service includes the Clinton Bush Haiti Fund, First Lady Michelle Obama's "Partnership for a Healthier America" campaign to eliminate childhood obesity within a generation, the Bipartisan Policy Center, the Kaiser Family Foundation, the Smithsonian Museum of Natural History, the Center for Strategic and International Studies, Harvard Medical School Board of Fellows, and the Advisory Committees for Global Health at Duke and Harvard. He is also on the Advisory Board for technologically innovative healthcare companies ZocDoc and aTherapy.

Currently Frist serves as an adjunct professor of Cardiac Surgery at Vanderbilt University and clinical professor of Surgery at Meharry Medical College. As a leading authority on healthcare, Senator Frist also speaks nationally on health reform, government policy and politics, and volunteerism. Dr. Frist is married with three sons, and lives in Nashville, Tennessee.

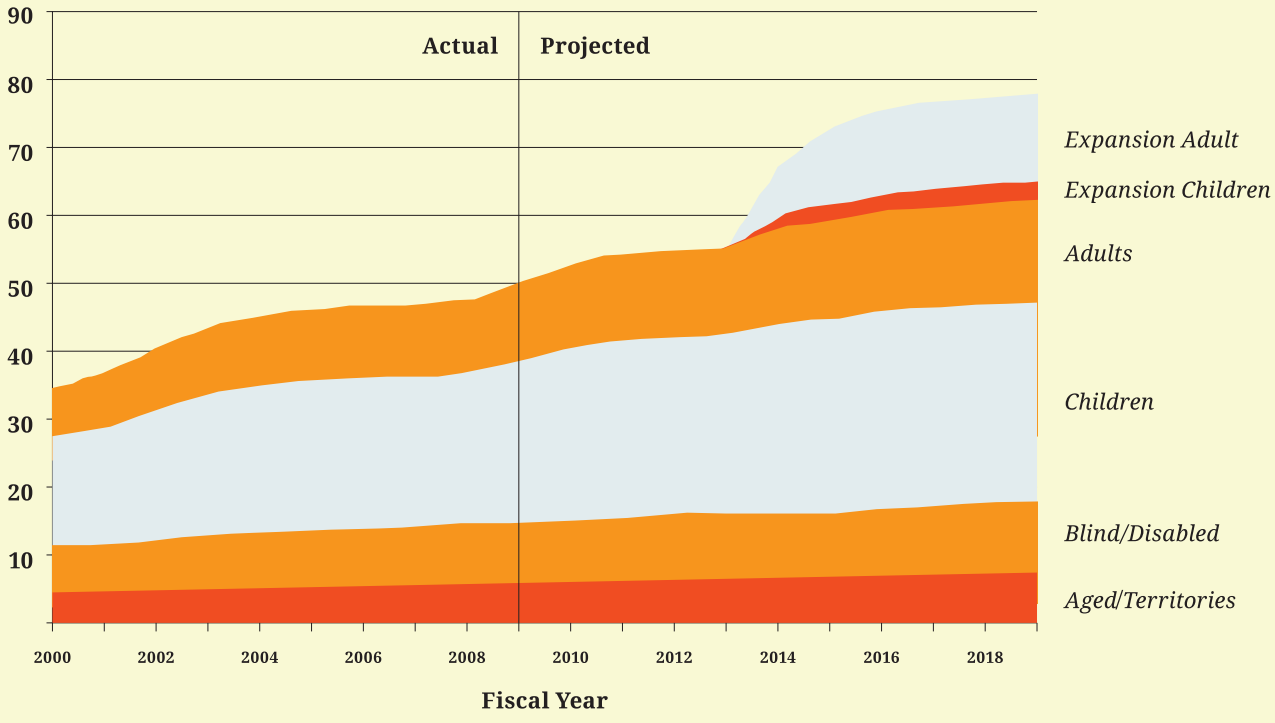
# "One out of every four Americans will be on Medicaid in four years."

***William H. Frist, MD***

*Former U.S. Senate Majority Leader*

***Past and Projected Numbers of Medicaid Enrollees, by Category, FY 2000–FY 2019***

*(In millions of person-year equivalents)*




Source: Department of Health and Human Sources; 2010 Actuarial Report on the Financial Outlook for Medicaid

Note: Expansion of adult and children enrollees due to provisions of the Affordable Care Act that expand access

# *The Future of Health Systems Technology*

## *An Interview with J. Knox Singleton, CEO of the INOVA Health System*

**By Cara Kiernan Fallon**

The INOVA Healthcare System is one of the most wired healthcare systems in the nation, and also one of the largest. The northern-Virginia based system of hospitals, nursing homes, urgent-care centers, and rehabilitation facilities has been a leader in technology adoption and integration. J. Knox Singleton, CEO of the INOVA Healthcare System, reflects on the future of technology and healthcare delivery.

**PULSE:** ***The INOVA system posts Emergency Department waiting times online, reducing variability and helping both the hospital and the patient. What was the impetus behind this initiative?***

**J. Knox Singleton:** I think one of the biggest things in healthcare customer satisfaction is access: broadly defined as access to service and access to information. We focus on trying to maximize the access our customers have to information. Doctors have the ability to look at their schedules and post them in the system, and we can give patients visibility into the predicted wait times system-wide. The more we can use technology to give transparency and implement useful changes, the more we can create value. Emergency room waiting time was the greatest issue, so we implemented a system to improve the transparency of these waiting times.

**PULSE:** ***In June of this year, AirWatch gave $100,000 to the Telemedicine Institute's Mobility Programs, which INOVA used to fund three initiatives for telemedicine: the Telestroke program, the Home-Health Pilot Program, and an evaluation of the impact of mobility technology on physician inpatient productivity. What are the aims of these three initiatives?***

**J. Knox Singleton:** We have an innovation fund that is intended to use technology to enable radical redesign of clinical process. In programs like the Telestroke program, you use technology to take the neurologist to the distant emergency department, offering quicker, faster, higher-quality consultations. This is a perfect example of leveraging technology to improve the speed and accuracy of care. This is our sweet spot, when we're trying to redesign and innovate in healthcare while simultaneously aggressively managing our cost structure. Healthcare has always been

innovative, but with all of the financial changes resulting from healthcare reform, there has been very little funding for piloting innovative programs. This is something we are committed to doing.

**PULSE:** ***The INOVA system is considered one of the most integrated and most wired health systems in the nation. How did you decide that technology integration was the way of the future for hospitals?***

**J. Knox Singleton:** I think that you can look at just about any segment or sector in the economy and the same dynamic has really overwhelmed or driven the innovation. Banking or insurance went first in the service industries; technology was the driver in permitting these industries to dramatically shift their cost structure. As an organizing principle, the use of technology to redesign customer requirements is not an off-the-wall or a new idea – you'd have to be asleep to miss it.

**PULSE:** ***What changes in technology have you seen that have been the most instrumental to INOVA's growth?***

**J. Knox Singleton:** There's a macro factor and a micro factor. The macro factor that has led to a lot of our growth has been organizations that want to affiliate with the innovative culture. Many health systems talk about innovating but only promote micro innovation such as process improvement. This is valuable, but not as exciting as whole new way to look at stroke care. So instead, we have found a whole group of organizations that value the macro innovation, and we have made an effort to continuously redesign the programs. For instance with our spine program or geriatrics program, we've tried to position program models in very real time. Like a product release, once the 2011 model is out, it's hard to sell the 2010 or 2009. That's what we do with technology programs. We try to keep our care up to speed with the technology, so as soon as it's developed, we're finding ways to implement it in programs.

**PULSE:** ***INOVA has been very successful in implementing a complex system of technology, a hallmark of successful companies. Have other hospital systems approached you for advice on developing their systems to be more efficient? In short, is the INOVA system replicable elsewhere?***


**J. Knox Singleton:** The mechanism and the infrastructure on something like innovation promotion and application of technology is not necessarily unique to INOVA. If anything, I would say we tend to borrow the best approaches we see other systems using in addition to inventing technology too. What we believe is the sweet spot for technology solutions is being the second, third or fourth innovator. Once a concept has been created and implemented, we like to implement early in the curve to have a differentiating feature, but not a brand new design that needs to be debugged. The challenge then becomes how to transport innovation without missing the fine points.

That is the key and the reason we think innovations often fail in transferring from one place to another. It's not only the complexity of the design, but the attention to how that design connects to everything else. The secret to success is usually not in the program but how it's connected to all of the other elements of the hospital. The key is paying attention to the integration details because they're all different and unique – it's a very real and tough challenge but different than being overwhelmed with custom made design.

**PULSE:** ***You have been honored for business and education partnerships. Can you tell me a bit more about these partnerships?***

**J. Knox Singleton:** We try to connect to our community as a non-profit organization. Every business looks to build connections to its community, whether it's through employee volunteer activities or other pre-existing community organizations around that environment. Hospitals are very impactful organizations and we've focused on sustainability. It's one of the greatest shared values of just about every community. Air quality, safety, water management – all of these things impact the health of a community and we tie our efforts into them. We try to make an innovative connection: health on one hand, sustainability on the other.

**PULSE:** ***INOVA Fairfax has consistently been ranked one of America's best hospitals and was ranked #1 in adult specialty by US News & World Report. What steps have you taken to ensure that you remain at the top?***

**J. Knox Singleton:** There may be three pieces: the first is a culture that expects both innovation and excellence. If you don't build a way of thinking where the shared value is being a top-decile place, it doesn't matter what the performance is. There must be a focus on excellence and a value of innovation. The second is that leadership really is the active ingredient in driving every element of organizational performance. The commitment to developing leaders through empowerment, engagement, accountability and teamwork are crucial. And last, you have to have a few critical goals and align everybody around those goals. You can work on three or four goals at a time, but beyond that you dissipate your energy. It's not fancy, but often at that last stage you just need a few key areas with everyone pulling on the same rope in the same direction.

**PULSE:** ***You've guided the INOVA health system for 27 years. What keeps you motivated?***

**J. Knox Singleton:** The quality of the leaders – the people that are coming into healthcare today keep me motivated. Healthcare has not always been the sector that has attracted the brightest and best. I've always enjoyed working with physicians and nurses who are the best and brightest, but leadership and management roles hadn't attracted this caliber before. Today, healthcare is attracting the best and the brightest leaders out of non-traditional backgrounds – MBAs, physicians, the supply of new, talented, and motivated folks renew the enthusiasm and the passion of those of us deeper into the career path. They wake us up and help us take the next hill as energetically as we took the first one.

# *Profile*

J. Knox Singleton is CEO of Inova Health System, one of the largest and most integrated healthcare delivery systems in the nation. Mr. Singleton has led the system of hospitals, nursing homes, emergency- and urgent-care centers, assisted-living communities, community health and wellness programs, and various community clinics for 25-years. The not-for-profit healthcare system has undergone tremendous growth and provided world-class healthcare to all members of the greater Washington D.C. area regardless of ability to pay.

In 2000, Mr. Singleton received the distinguished Regent's Award from the American College of Healthcare Executives (ACHE), the distinguished Governor's Award from Virginia Gov. Mark Warner, recognizing Mr. Singleton's outstanding leadership in business and education partnerships. In November 2009, he was inducted into the Washington Business Hall of Fame, established in 1988 by Washingtonian magazine, the Greater Washington Board of Trade, and Junior Achievement of the National Capital Area.

# *The Heart of the Matter:*
## *Kaiser Permanente's Success with Integrated Care*

**By Lindsay Rand**

In the June 2010 issue of the New England Journal of Medicine, a study was published revealing a significant decline in heart attack rates among 46,000 Northern California Kaiser Permanente members over the years 1999 to 2008. During that same period, many Kaiser members also lowered their blood pressure and cholesterol levels, quit smoking, and increased the amount of regular exercise they were getting each week. These results captured national attention at a time when healthcare reform legislation had spurred medical experts and administrators, health economists and politicians, and patients and insurers alike to begin searching for new ways to provide care and promote health more efficiently and inexpensively than ever before.

With cardiovascular disease and obesity prevalence growing at current rates, Kaiser's clinical results in Northern California are an impressive success story. But a more in-depth look at Kaiser Permanente's integrated care model reveals many equally, if not more impressive lessons for successful disease management. To better understand the way Kaiser achieves superior patient outcomes while keeping costs below average, one must first consider the alignment of incentives.

Simply explained, Kaiser's business model integrates fixed-price health insurance with treatment at its own hospitals and clinics. Patients with insurance from Kaiser Foundation Health Plans are seen by Kaiser employed physicians and receive treatment in Permanente Medical Group facilities, both inpatient and out. This relatively closed payment/treatment loop has led to big efficiency gains, making Kaiser Permanente one of the most inexpensive healthcare providers in the regional markets where it competes.

But Kaiser's low costs are not the only advantage that arises from having an integrated model. As evidenced by the success with cardiovascular disease management in Northern California, Kaiser also enjoys medical outcomes as noteworthy as its financial ones. There are a host of factors that contribute to these successes, most significantly the legions of providers and staff working to serve Kaiser's substantial patient base. But lately, the infrastructure and technology Kaiser has implemented to support their staff in the provision of care has garnered a great deal of well-deserved attention.

Kaiser Permanente has a long history of using information technology (IT) to

improve patient care. Most of the early IT work performed within the Kaiser system used mainframe computers and unwieldy user-interfaces, but allowed for the collection and storage of massive amounts of patient data – data, which, from a longitudinal perspective is helpful in treating many Kaiser members today. About 15 years ago, Kaiser began the shift towards the IT environment they currently enjoy with the implementation of an extensive electronic medical record (EMR) system called HealthConnect. To date, HealthConnect is the world's largest civilian electronic health record.

Many health systems have tried but also been somewhat tentative in their implementation of comprehensive computer systems, whereas Kaiser was willing to take visionary risks at a time when health IT was often a secondary consideration in most medical organizations. Studies published in the journal *Health Affairs* and elsewhere show that Kaiser Permanente's complete embrace of technology has resulted in fewer frivolous patient visits, easier access to primary care, soaring patient satisfaction, and the successful promotion, support and tracking of many health and wellness initiatives like the ones aimed at managing cardiovascular disease.

For the cardiovascular initiative, Kaiser used its technology to facilitate clinical interventions as well as proactively identify at-risk members who were not being adequately monitored. Kaiser researchers started a registry to track patients with diagnosed hypertension and pre-hypertension. To gather names, one medical group at Kaiser culled patient lists to find members who hadn't had a recent checkup and asked them to come in for a blood-pressure test. Another group looked at prescription records to help identify patients who might benefit from more effective treatment. These sorts of searches would be incredibly difficult in a siloed EMR system. However, the comprehensive nature of HealthConnect put actionable patient data at researchers' fingertips.

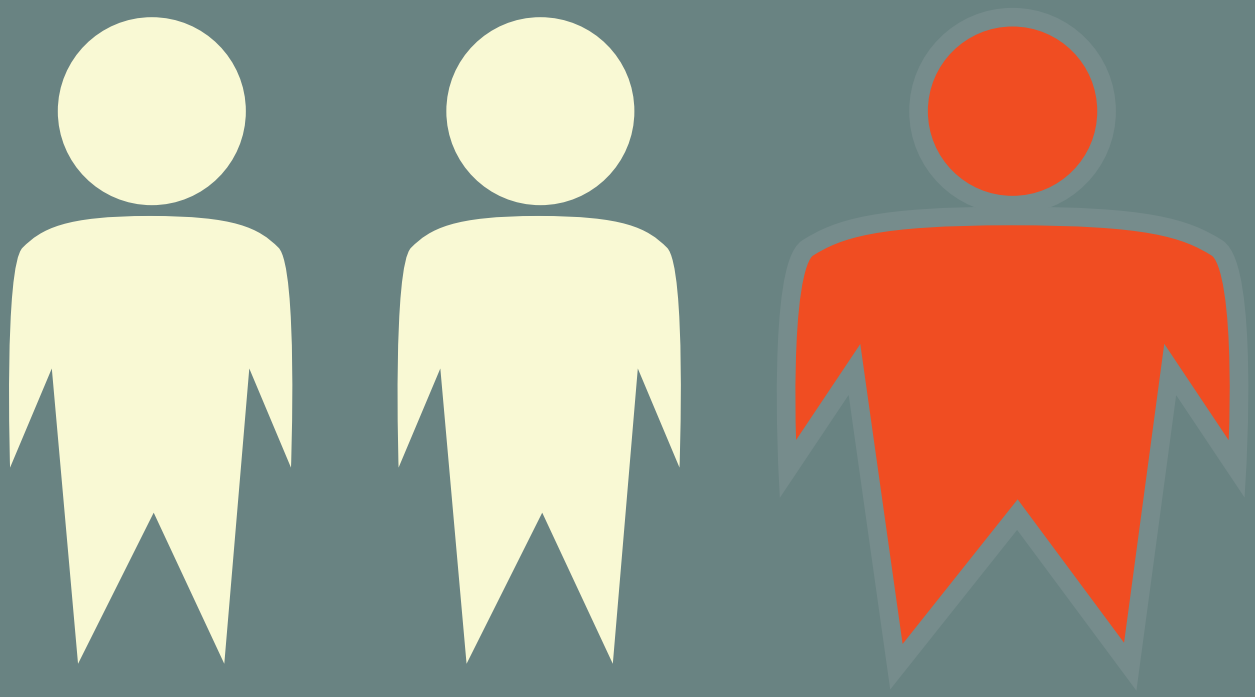
*"Kaiser Permanente's complete embrace of technology has resulted in fewer frivolous patient visits, easier access to primary care, soaring patient satisfaction, and the successful promotion, support and tracking of many health and wellness initiatives."*

In combination, Kaiser's integrated approach and technological infrastructure encourage investment in long-term/preventative care and the sharing of best practices across medical centers regionally and nationally. Many other insurers and health systems avoid making such investments due to patient "churn": the frequent switching of insurers, so any spending on preventive medicine ends up benefiting a rival company. Kaiser sees things differently; placing emphasis on the long term benefits of up front health management since so many of its members stay with the insurer for years beyond national averages.

Because of this approach, Kaiser's effort around cardiovascular disease, as well as a host of other quality areas, has led it to rank #14 in the country for NCQA Commercial quality and service and #1 for Medicare quality and service, earning the organization a coveted five star rating.

The success Kaiser is enjoying today is the result of a multi-faceted approach to patient population management and a legacy of investing for the future. Certainly, the size and level at which Kaiser operates makes imitating their model a daunting task. However, organizations around the world are taking note. Consumer Reports recently released a ranking of health plans and summed up what many people have come to realize in the past few years as Kaiser's integrated model has gained attention in the popular media: "Choosing and affording health insurance will continue to remain a vexing chore for many. It is tempting to opt for a familiar brand name, but that might be a mistake... unless the brand is Kaiser Permanente."

KAISER PERMANENTE®



*"CDC statistics say that one in three American adults is obese and 17 percent of children are obese."*

***June Kinney***

*Associate Director, Healthcare Management Program, The Wharton School*

# *The Rising Role of Retail Clinics in the Delivery of Primary and Chronic Care*

## *An Interview with Dr. Andrew Sussman, Senior Vice President & Associate Chief Medical Officer of CVS Caremark and President of MinuteClinic*

**By Jamie Mumford**

Retail Health Clinics are becoming increasingly common as healthcare costs continue to rise and access to primary care remains constrained. These clinics, which are typically located within larger stores and staffed by nurse practitioners or physician assistants, oftentimes offer less costly and more convenient care compared to traditional physician offices. CVS (MinuteClinic), Walgreens (Take Care), Target (Target Clinic), and Wal-mart – along with numerous small players – are aiming to take advantage of favorable industry tailwinds and rising customer demand by opening new locations across the country. Yet skeptics argue that retail clinics compromise quality, add another layer of complexity in coordinating and documenting care, and are unnecessary in a world that is moving towards Accountable Care Organizations (ACOs). In the following interview, Dr. Andrew Sussman discusses these issues; general industry trends; and MinuteClinic's unique strategy for the years ahead.

**PULSE:** ***From 2007 to 2010, the number of consumers who sought treatment at retail clinics increased by 74%.[1] Based on your experience at MinuteClinic, what do you believe are the main factors driving this growth?***

**Dr. Sussman:** MinuteClinic, the leading retail healthcare provider in the U.S., is reinventing pharmacy by providing patients with convenient access to high quality affordable healthcare. Since our inception in 2000, we have seen more than 11 million patients – with more than 10 million of those visits occurring in the past five years. We offer tremendous convenience for patients by providing walk-in care seven days a week without an appointment, including evenings and holidays. We believe convenience is a key factor that drives consumers to seek out high quality care at MinuteClinic.

A second factor is the profound shortage of primary care physicians in this country. It is already a challenge for many patients to be seen for common conditions like sore throats and sinus infections. With a shortfall of at least 45,000 primary care physicians expected by 2020, this problem is only getting worse. MinuteClinic allows these patients – who might otherwise wait weeks or even months to see a primary care physician – to be seen and treated more quickly.

Finally, we continue to expand the scope of services we provide into non-acute areas like chronic disease monitoring for diabetes, hypertension, high cholesterol, asthma, and routine physical examinations. In total, these non-acute areas represent the fastest growing segment of our business and are projected to account for 25% of our services within the next five years.

**PULSE:** ***Can you detail some of the challenges or limitations of providing care at retail clinics?***

**Dr. Sussman:** Continuity of care was a major concern among members of the medical community when retail clinics were beginning to emerge: how would retail clinics get patient medical information and records back to physicians? Because MinuteClinic endorses the medical home model, we share visit summary information directly with primary care providers (PCPs); typically within 24 hours. In addition, we offer patients who do not have a PCP with a list of physicians that are accepting new patients; as many as 50% of MinuteClinic patients do not have a PCP. Lastly, we are collaborating with health systems to integrate our medical record systems so that files can be shared electronically. All of this has turned the issue of continuity of care into a major strength for MinuteClinic.

*"The RAND study almost exclusively used MinuteClinic data to show that the cost of care at a retail clinic is 40% to 80% lower than similar care provided in a physician office, urgent care center, or emergency room."*

**PULSE:** ***Can you talk a little bit about the Pharmacy Advisor™ program, as well as any other initiatives that MinuteClinic is developing to provide preventative services or help patients manage chronic conditions?***

**Dr. Sussman:** Through Pharmacy Advisor, CVS Caremark engages with our pharmacy benefit management (PBM) members who are diagnosed with diabetes to improve patient medication adherence and health outcomes. Our pharmacists counsel interested members when they are most receptive to discussing their prescribed therapy: face-to-face for members that fill prescriptions at a CVS/pharmacy or by phone for members that use home delivery. The use of this integrated strategy drives behavior changes in the short-term and better clinical outcomes over the long-term. In addition to saving money and improving the quality of treatment through improved medication adherence, the program also closes gaps in care and directs members with chronic conditions to existing disease management programs where they can obtain additional support. In 2012 we will be expanding the program to include patients with cardiovascular disease.

MinuteClinic also helps patients with diabetes, hypertension, high cholesterol, and asthma monitor and manage their conditions and provides preventive and wellness services, such as flu vaccines and physical exams for camp, sports, and other administrative purposes. Finally, we have formal affiliations with 14 of the nation's leading health systems that allow us to collaborate on clinical, information system, and programmatic initiatives to facilitate better preventative and disease management care coordination.

**PULSE:** ***Can you provide more detail on MinuteClinic's efforts to reduce "gaps" or "disconnects" in patient care?***

**Dr. Sussman:** We recognize that easy access to primary care services and coordination with a patient's primary care medical home ultimately lead to better outcomes and lower costs. To ensure coordination of care, MinuteClinic nurse practitioners utilize software that, at the conclusion of each visit, can generate and send via electronic health record, fax, or mail a diagnostic record to a patient's PCP (with patient permission). However, we also see a large number of patients that do not have a PCP and are effectively "medically homeless." For them, MinuteClinic serves as an important point-of-entry to the healthcare system. As a further service, we help them find a medical home by providing a list of local physicians that are accepting new patients.

**PULSE:** ***A November 2011 RAND Corporation study showed that care initiated at retail clinics is significantly less expensive than similar care provided at a physician's office or emergency room.[2] Can you shed some light on how MinuteClinic is able to keep costs down?***

**Dr. Sussman:** The RAND study almost exclusively used MinuteClinic data to show that the cost of care at a retail clinic is 40% to 80% lower than similar care provided in a physician office, urgent care center, or emergency room. MinuteClinic lowers costs by offering convenient care for appropriate services in a lower cost setting of care. Pharmaceutical costs at MinuteClinic were the same or lower than at other sites of care, showing that tight adherence to evidence-based practice also helps hold down healthcare costs. On comparisons of objective quality, MinuteClinic was as good if not better than the other sites of care. This finding is consistent with two decades of research showing that nurse practitioners and physician assistants provide excellent quality care.

**PULSE:** ***Can you share some information on MinuteClinic's training program for nurse practitioners and physician assistants?***

**Dr. Sussman:** We have about 1,800 nurse practitioners and physician assistants. All undergo an extensive orientation that includes training in the use of clinical guidelines for treating patients that are embedded in our electronic medical record system. They also take part in ongoing continuing education and certification. Each practitioner has a collaborating physician who is on call during business hours to answer questions, conduct chart reviews, provide educational sessions and ensure that practitioners follow clinical guidelines.

**PULSE:** ***As retail clinics expand across the country, how do you plan to maintain and improve the quality of care provided at MinuteClinics? Are there other ways in which you are looking to differentiate MinuteClinic?***

**Dr. Sussman:** We are passionate about clinical quality. MinuteClinic is the first retail healthcare provider to receive


accreditation (2006) and reaccreditation (2009) from The Joint Commission, the national certifying agency for nearly 15,000 major healthcare organizations. We closely follow evidence-based clinical guidelines to ensure that the care provided for a specific condition in California is the same as that provided in Connecticut.

In addition, MinuteClinic is forging collaborative clinical, information system, and pharmacy care relationships with many of the nation's major health systems, including Cleveland Clinic, Henry Ford Health System, Emory Healthcare, and others. Health system physicians collaborate with our clinicians to provide quality oversight, education services, and back up support. For example, we are working with one health system to check blood pressure and adjust medication in coordination with the patient's primary care medical home. All of this allows MinuteClinic to take really great care of our patients.

Lastly, we continue to expand the scope of services we provide; particularly in the areas of wellness, prevention, and on-site testing for chronic medical conditions. By treating some of these chronic diseases our clinicians can help patients reduce the risk of morbidity and death. These non-acute services are very reasonably priced, representing tremendous value to our patients.

**PULSE:** ***We've seen a trend toward patient-centered care; having the patient "own" their care. How do retail clinics fit in with this trend?***

**Dr. Sussman:** Consumers are taking greater accountability for their care, which is both a huge challenge and opportunity.

One of the drivers of this trend is the increase in high deductible insurance plans, which shifts more costs from employers to employees. MinuteClinic is an innovative solution that allows consumers to make the best choice for their health and their pocketbooks. MinuteClinic services are covered by most insurance plans, with patients typically paying their primary care co-pay for services. For patients without insurance, our costs are low and our pricing is transparent – something that patients welcome.

Finally, we are very proud of our patient satisfaction scores, which are critically important as patients become more active in choosing where to receive care. MinuteClinic achieved a 94% rating for overall satisfaction and an 80% net promoter score, which measures whether patients would recommend our services to a friend or family member. This puts us on par with top brands such as Apple and Amazon.com.

**PULSE:** ***Do you think of MinuteClinic as more akin to a primary care or urgent care facility?***

**Dr. Sussman:** We see ourselves as complementary to both primary care and urgent care. The PCP shortage is a critical challenge facing American healthcare, so we focus on providing care for common ailments and non-acute conditions in order to fill this need. If patients present with complicated conditions that do not meet our rigorous guidelines, we refer them to higher levels of care, such as a PCP, urgent care clinic or even a hospital emergency room.

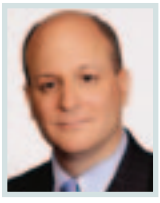
**PULSE:** ***What aspects of healthcare reform legislation do you feel will be the most impactful for retail clinics?***

**Dr. Sussman:** The expansion of coverage to 32 million uninsured Americans will generate even more demand for primary care. Massachusetts is a great indication of what might happen if national reform takes effect in 2014. Even though Massachusetts has the highest per capita number of primary care physicians in the country, waits for primary care appointments in Boston can exceed two months. Not surprisingly, Massachusetts is one of our fastest growing markets.

[1] The New Gold Rush. PwC Health Research Institute: http://artificialmed.com/PDF%20Files/The_New_Gold_Rush.pdf. May 2011.

[2] Trends in Retail Clinic Use Among the Commercially Insured. RAND Corporation. The American Journal of Managed Care, v. 17, no. 11, Nov. 2011, p. e443-e448.

## *Profile*



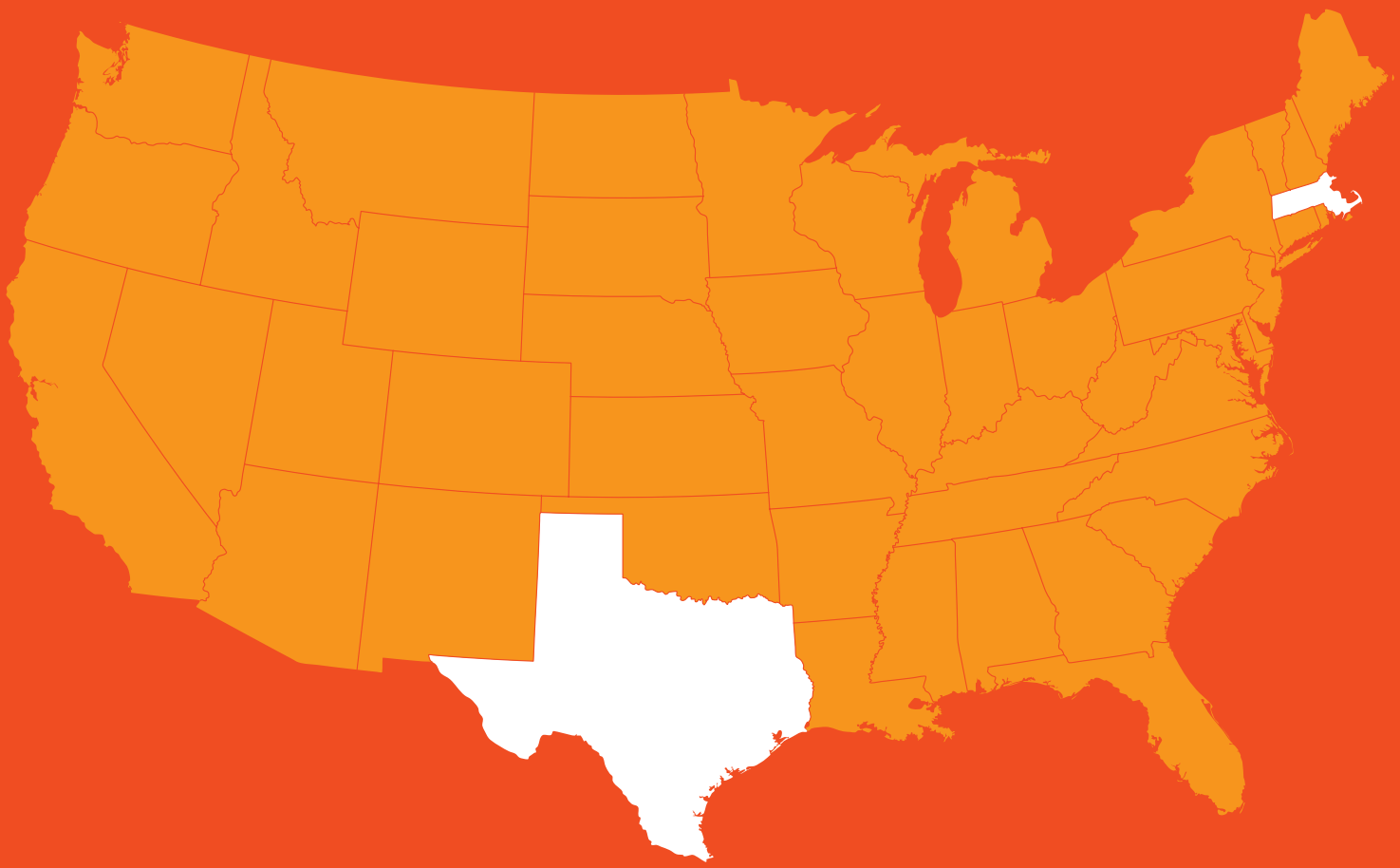
Andrew J. Sussman, MD, is President of MinuteClinic and Senior Vice President and Associate Chief Medical Officer of CVS Caremark. MinuteClinic is the largest retail clinic provider in the country with over 650 retail healthcare centers located in CVS/pharmacy stores across 25 states. Under Dr. Sussman's leadership MinuteClinic has consistently delivered innovation to the marketplace and formed strategic affiliations with leading healthcare providers to improve patients' access to high-quality medical treatment. In 2011, MinuteClinic announced plans to open an additional 500 clinics by 2016. Prior to joining MinuteClinic in 2009, Dr. Sussman was Executive Vice President and Chief Operating Officer of UMass Memorial Medical Center where he was responsible for clinical services and daily operations at the 800 bed academic medical center, the major teaching affiliate of UMass Medical School. Dr. Sussman is a graduate of Harvard College and Harvard Medical School, as well as Boston University School of Management. Before joining UMass Memorial in May 2004, Dr. Sussman served as Chief Medical Officer of the Brigham and Women's Physicians Organization, a multi-specialty academic physician practice composed of 800 Harvard Medical School faculty members practicing at Brigham and Women's Hospital. He has published work on health systems, quality improvement, medical management, healthcare finance, and integrated clinical network operations. He has been listed among America's Best Doctors.

***Surprising Fact***

*"There are as many currently uninsured people in Texas as there are people in Massachusetts!*

*As we look at the problem of the shortage of primary care physicians we see that it is worse in some states than in others. While Massachusetts has a high demand for primary care because it already has in place the type of universal access to insurance coverage expected to occur nationally under health reform, the situation in states like Texas may become even worse."*

***Dr. Andrew Sussman***
*Senior Vice President and Associate Medical Officer,*
*CVS Caremark and President, Minute Clinic*



# *Integrated Care: How CVS Caremark Gives Consumers More for Less*

*An Interview with Helena Foulkes, Executive Vice President and Chief Health Care Strategy and Marketing Officer, CVS Caremark Corporation*

**By Ben Herman**

**PULSE:** ***How do you think about leveraging CVS Caremark's various business units to deliver cost-effective, convenient and high quality care?***

**Helena Foulkes:** We're working hard every day to help people on their path to better health. We understand that getting the right care at an affordable price is harder than ever. At a time when demand for care is increasing, the U.S. population is aging, and there is a growing shortage of primary care doctors, we continue to focus on ways to give people low-cost and high-impact solutions, like simply helping them take their medications on time.

CVS Caremark is in a unique position to help due to our integrated business approach and reach. Over the past five years we have brought more than 7,000 CVS retail pharmacies, 650 MinuteClinic locations and a leading pharmacy benefit manager ("PBM") together into one integrated organization. We also have more than 24,000 registered pharmacists and 1,800 nurse practitioners and physician assistants that offer customers more touch points, more ways to receive comprehensive pharmacy advice, more cost-effective solutions and more convenient access tailored to individual's specific needs. Nobody else is able to offer this combination of services.

**PULSE:** ***How specifically do you think about finding ways to reduce healthcare and pharmacy costs?***

**Helena Foulkes:** The integration of our retail pharmacy, PBM and retail clinic businesses was an important innovation that allowed us to more effectively utilize health information technology systems to share information between pharmacists, nurse practitioners and patients. For example, when someone brings a new prescription into a retail store, the pharmacist can see the medications he or she already has received through the PBM and flag possible complications. Our integrated model also provides members with increased choice. CVS Caremark lowers costs through its mail order PBM pharmacy services, provides personalized advice

through its retail pharmacies, and even offers integrated products like Maintenance Choice, which allows people to pick up medications in our stores at lower mail-order prices.

Another area of innovation for us is in chronic disease management. Nearly half of U.S. adults have at least one chronic illness, and this percentage is only increasing as the population ages. As much as 80% of healthcare expenditures go to treating chronic diseases, with diabetes alone affecting more than 25 million people at an estimated cost of $174 billion per year. One of the easiest, most cost-effective solutions to the issue of chronic disease management is to promote medication adherence; to help people stay on their prescribed medications. The results of non-adherence like avoidable complications and care result in approximately $300 billion per year.

Our Pharmacy Advisor program is a good example of a unique solution to this problem that no one else can offer. Pharmacy Advisor is an integrated pharmacy-based program that allows PBM members to decide how and when they want to receive information: face-to-face or over the phone. This approach helps people get and stay on their prescribed medications, resulting in better health outcomes and lower overall costs.

In January 2012 Health Affairs published a study on the positive impact of Pharmacy Advisor on healthcare outcomes for diabetes patients. The study illustrated how pharmacist counseling increases patient care and adherence, while decreasing the medical costs of a Midwest health plan. It's a win all around. Pharmacy Advisor already has been expanded to heart health, and over the next 12 to 18 months will be expanded to other chronic diseases as well.

**PULSE:** ***What are the top internal initiatives within CVS Caremark aimed at improving access and / or reducing costs?***

**Helena Foulkes:** We have been participating in a major research initiative with Harvard University and Brigham and Women's Hospital to learn more about why patients do not follow doctors' directions when it comes to medication adherence. To date we have published 19 peer reviewed studies in nationally recognized medical, healthcare and economic journals that outline our findings and help educate patients, the public and healthcare leaders about the importance of adherence. We are also using the research to develop new products that help people stay on their medications and encourage greater awareness of this important issue.

**PULSE:** ***How do you think about raising awareness of the benefits of your specific programs and capabilities?***

**Helena Foulkes:** If we are truly going to help people on their path to better health, we must be a positive force in finding solutions to improve access to quality care. We have shared our research findings and launched an advertising campaign to raise awareness among policy leaders of the importance of improved adherence. We are encouraging legislation that makes it easier to offer generic medication, reduce costs and remove barriers to staying on medications. We also are working with non-profit organizations like Enroll America that help the uninsured enroll in insurance programs as part of healthcare reform. We stay engaged because we know that healthcare must become more effective, affordable and accessible.

## *Profile*

Helena B. Foulkes serves as Executive Vice President and Chief Health Care Strategy and Marketing Officer of CVS Caremark Corporation. She leads CVS Caremark Corporation's capabilities in enterprise branding, communications, community relations, charitable giving, healthcare reform strategy, government relations and marketing. Her team is focused on how CVS Caremark can have greater external influence and deliver even better business results. Over the course of her nearly 20-year career at CVS Caremark, Ms. Foulkes has amassed an extensive background in healthcare marketing and strategy, and has held leadership positions in Marketing and Operations Services, Strategic Planning, Visual Merchandising, Category Management, and several key enterprise-wide roles. She is a graduate of Harvard College and received an MBA from Harvard Business School.

***Total Taxes as a Share of GDP***
*(for 2008)*

| *Country* | *Share of GDP* |
|---|---|
| Denmark | 48.2 |
| Sweden | 46.3 |
| Belgium | 44.2 |
| Italy | 43.3 |
| France | 43.2 |
| Finland | 43.1 |
| Austria | 42.7 |
| Norway | 42.6 |
| Hungary | 40.2 |
| Netherlands | 39.1 |
| Slovenia | 37.2 |
| Germany | 37.0 |
| Iceland | 36.8 |
| Czech Republic | 36.0 |
| Britain | 35.7 |
| Luxembourg | 35.5 |
| Portugal | 35.2 |
| ***OECD Average*** | ***38.8*** |
| Poland | 34.3 |
| Israel | 33.8 |
| New Zealand | 33.7 |
| Spain | 33.3 |
| Greece | 32.6 |
| Canada | 32.3 |
| Slovak Republic | 29.3 |
| Switzerland | 29.1 |
| Ireland | 28.8 |
| Japan | 28.1 |
| Australia | 27.1 |
| South Korea | 26.6 |
| ***United States*** | ***26.1*** |
| Turkey | 24.2 |
| Chile | 22.5 |
| Mexico | 21.0 |

***Total Taxes Plus Private Health-Care Expenditures as a Share of GDP***
*(for 2008 or latest year available)*

| *Country* | *Share of GDP* |
|---|---|
| Denmark | 49.7 |
| Sweden | 48.0 |
| Belgium | 46.9 |
| France | 45.7 |
| Italy | 45.4 |
| Finland | 45.3 |
| Austria | 45.1 |
| Norway | 43.9 |
| Netherlands | 42.8 |
| Hungary | 42.3 |
| Slovenia | 39.5 |
| Germany | 39.4 |
| Iceland | 38.3 |
| Portugal | 38.0 |
| Czech Republic | 37.2 |
| Britain | 37.2 |
| Israel | 37.1 |
| Luxembourg | 36.6 |
| Greece | 36.4 |
| ***OECD Average*** | ***36.4*** |
| Poland | 36.2 |
| Spain | 35.8 |
| New Zealand | 35.6 |
| Canada | 35.4 |
| ***United States*** | ***34.7*** |
| Switzerland | 33.5 |
| Slovak Republic | 31.9 |
| Ireland | 30.8 |
| Australia | 29.9 |
| Japan | 29.6 |
| South Korea | 29.4 |
| Turkey | 26.0 |
| Chile | 25.3 |
| Mexico | 24.2 |

Source: Organization for Economic Cooperation and Development and Bruce Bartlett's June 2011 New York Times Article "What Your Taxes Do (and Don't) Buy for You"

*"The cost of private health spending – which in many countries is mainly paid for by the government – accounts for a large portion of the apparent difference in tax burden between the U.S. and rest of the world."*

***Ben Herman***
*Editor in Chief, The Pulse*

# *Internal and External Markets — for — Biotechnology Innovation*

*An Interview with Steve Krognes, CFO of Genentech*

**By Iman Abuzeid, MD**

Genentech is a premier research-driven biotechnology company focused on developing drugs that address significant unmet needs. Yet over the past several years, Genentech has faced numerous challenges, including a 2010 National Institute of Health study finding that two of the Company's leading products (Avastin and Lucentis) are equally effective treatments of age-related macular degeneration (even if important safety questions remain regarding the use of Avastin in the eye); the 2010 suspension of Phase III testing for Tasboglutide, a potential treatment of Type 2 diabetes; and a 2011 FDA ruling revoking approval of Avastin as a treatment of advanced breast cancer.

Despite these challenges, Genentech remains on the cutting-edge of innovation and financial performance. Chief Financial Officer (and former M&A leader at Roche) Steve Krognes sits down with the Pulse to discuss some of the trends affecting biotechnology in-licensing and M&A, as well as how Genentech has been able to overcome the challenging regulatory and economic environment in which it operates.

**PULSE:** ***Can you briefly describe your role at Genentech?***

**Steve Krognes:** I'm in charge of the finance groups that support our North American business, as well as our Site Service organization, in total around 1,400 people. Until recently I was also responsible for the IT group, although those responsibilities have been transferred to our global offices. I've been at Genentech for two and a half years; since the Roche acquisition. Prior to Genentech, I was in charge of M&A at Roche. Prior to Roche I worked in consulting, banking and venture capital across several countries. I earned my undergraduate degree from the Wharton Business School, and my MBA from Harvard Business School.

*"It would be arrogant to think that we can cover all our R&D needs internally. Most great innovation happens outside of our firm."*

**PULSE:** ***It's been over two years since Roche's acquisition of Genentech. What are some of the ongoing challenges you face?***

**Steve Krognes:** The key initial challenge was managing the effects of integration on our people and pipeline. Overall, we're very happy with where we are today. In the first few weeks following the deal we lost a couple of senior leaders, but we've been able to maintain the overall continuity of our team. We've retained and attracted top scientists, as well as key leaders in commercial and manufacturing.

Regarding the pipeline, I believe that we are standing on the tip of the iceberg of the personalized medicine revolution. We recently launched an exciting new drug for metastatic melanoma which is targeted to people with a mutated B-RAF gene in their cancer cells. At the same time we have developed a companion diagnostic. It's the first real example of a therapeutic biomarker and diagnostic simultaneously being developed from pre-clinical stages by one company – it is a real milestone on the personalized healthcare front. It's in the patients' best interest for the medicine to be targeted. It's quicker to market because of higher efficacy and the overall cost to the healthcare system is lower because the drug isn't administered to people who are likely to respond to the treatment.

What's really exciting is that we have biomarkers attached to the majority of the candidates in our pipeline. This bodes well for our Company, pipeline, and patients.

This is one of the things I'm most excited about: how Roche's global leadership in diagnostics has helped us to bring the benefits of personalized medicine to our drug pipeline. The merger has made collaboration between Roche Diganostics and Genentech scientists much easier. We don't have lawyers telling us what we can and can't do. We don't need commercial agreements with different companies that detail commercialization and cost sharing. We have been able to focus on clinical collaboration in overcoming some of the big hurdles in companion diagnostics. Roche's in-house capabilities have provided a huge benefit to Genentech's R&D efforts.

**PULSE:** ***Can you explain the internal pressures that drive Roche/Genentech to complement its internal R&D through acquisitions and in-licensing?***

**Steve Krognes:** I think of it as complementing our internal R&D efforts with access to external innovation. At Roche, we have a keen eye for accessing innovation that occurs outside the firm through licensing – or partnering more broadly – and acquisitions. It would be arrogant to think that we can cover all our R&D needs internally. Most great innovation happens outside of our firm. This makes sense when you consider that our R&D spending represents a very small fraction of all money that goes into scientific and medical research. Our primary objective is to bring breakthrough science and interesting programs that address unmet patient needs into the pipeline.

For example, we are in the process of acquiring Anadys Pharmaceuticals, which has an interesting program in

hepatitis C. The program will complement Roche/Genentech's leading market position in virology and hepatitis C virus ("HCV") treatment through Pegasys. Consistent with our strategy, we have the most products on the market, a robust internal Hepatitis C pipeline and extensive ongoing in-licensing efforts.

**PULSE:** ***What factors do you consider when you decide whether to license versus acquire?***

**Steve Krognes:** The decision ultimately depends on what the selling company's Board of Directors and management prefer. We have to take into account what the people sitting on the other side of the negotiating table want; whether they are driving towards a buyout or an in-licensing deal. Generally we have a preference for in-licensing, as it allows us to share development risk with a partner, but acquisitions are always on the table. We lean towards acquisitions when there is a collection of assets that we want to control, or when we want to get full access to a specific technology.

**PULSE:** ***Do you think buyers are overpaying for biotechnology acquisitions?***

**Steve Krognes:** There is not one answer to that. It depends on the stage of development of a company's assets. With attractive late-stage assets it's generally a seller's market. As a result of low levels of innovation in the industry over the last decade, big pharmaceutical companies have a huge need for new products to fill revenue holes from expiring patents. This pent up demand for Phase III assets, and even recently launched products, is leading to some of the high transaction prices we've seen lately.

However, it's still more of a buyer's market for pre-clinical assets. There are a lot of biotechnology companies out there that got funding in the boom years of the mid-2000s. In today's investment climate it's more difficult for them to find capital, as venture capitalists ("VCs") are more hesitant to invest early-stage capital in high-risk enterprises. When VCs find a high-risk company, they want to share the risk, and so they look to enter into partnerships with companies that can help validate the science and eliminate some of the uncertainty around exit. For people with the human and financial capital, it's a buyer's market in early stage biotech.

Exceptions exist, though, for biotechnology companies that invested in target pathways that are considered very promising today. For those companies people are willing to pay top dollar for late and early stage assets. And, I think that when you buy a high quality asset, you have to be prepared to pay a full and attractive price.

## *Profile*

Steve Krognes is senior vice president, regional head of finance and IT, and chief financial officer, Pharma North America. He serves on the Genentech Executive Committee. Krognes joined Roche in January 2004 as global head of Mergers & Acquisitions. In this role, he led Roche's internal Mergers & Acquisitions group and was responsible for all Roche transactions worldwide.

Prior to joining Roche, Krognes worked as a venture capitalist in Scandinavia, as a Mergers & Acquisitions investment banker with Goldman Sachs and Danske Bank, and as a management consultant with McKinsey & Co. Krognes holds an MBA from the Harvard Business School and a Bachelor of Science in Economics from the Wharton School at the University of Pennsylvania. He is a second lieutenant in the Royal Norwegian Air Force.

*"About 300 Americans die each day from hospital acquired infections."*

# *"Pretty sad"*

***Steve Krognes***

*Chief Financial Officer, Genetech*

# *The Pharmaceutical Market and New Healthcare Trends in Emerging China*

*An interview with George Z. Chen, Chief Medical Officer of BeiGene*

**By Di Cai**

**PULSE:** ***As someone with tremendous healthcare industry experience in China, how would you characterize current development trends in the pharma/life sciences sector? And how will these trends be influenced by the newly released Twelfth Five-Year Plan?***

**George Chen:** China is still a developing country with a very large population that is aging quickly. The country needs a healthcare system that offers high quality care with broad access at a reasonable cost. In recent years, China has had phenomenal economic growth – but its healthcare system is lagging behind. Government initiatives, like the Twelfth-Five Year Plan, lend political support and financial resources to innovative projects that are aimed at improving the healthcare system in China.


Because of this growing need for better service and greater access, the life sciences sector in China is expected to enjoy unprecedented growth in the coming years. There is increasing demand for better healthcare products and services from the general public. Because of strong economic growth, premium-priced innovative pharmaceutical products are becoming more affordable to many people in China. Thus, the "high-end" pharmaceutical market is expanding. In addition to branded drugs, high quality generics and biosimilars for the domestic market are expected to be another area of strong growth.

**PULSE:** ***What areas or subsectors do you think are the most promising in terms of growth and ability to scale in China over the next few years?***

**George Chen:** As a physician and scientist, I believe in products with high scientific and clinical validities. But innovative medicines are often priced at a premium and out of the reach of the majority of the 1.4 billion people in China, who need quality medicines at a reasonable price. Most of the medicines on the Chinese market are from local manufactures and their quality varies. Therefore, considerable growth will likely come from sectors that focus on high quality generics and biosimilars and on discovery/development of new molecular entities (NMEs) that work

on scientifically and clinically validated targets relevant to diseases prevalent in China.

The most important consideration in China today is focusing on the needs of China's broader population, not just the "high-end" market that has been traditionally targeted by global organizations. By looking beyond the top cities and hospitals, new biotech companies can bring better and more affordable healthcare to the people in China while also making substantial profit.

**PULSE:** ***You've made a very unique career transition from working at large multi-national pharmaceutical firms to a biotech startup. What motivated this change?***

**George Chen:** The size and internal processes of large multi-national companies often compromise the speed and efficiency of decision-making. After experiencing success at these larger institutions, I wanted to do more with the skills and professional network I had developed to help patients in need of more efficacious medicines. China's huge unmet medical needs (particularly relating to cancer), large pool of young talent within the life sciences sector, and strong government support for life sciences innovation, make China an attractive location for biotechnology development. Because of all these factors, the decision to join BeiGene, a China based biotech focusing on cancer drug discovery and development, was not a difficult one.

**PULSE:** ***What advice or recommendations would you have for Wharton students who are interested in working at or starting their own biotech company in China?***

**George Chen:** First, one has to have a good understanding of what China needs, what opportunities the China biotech environment offers and what limitations or hurdles exist when launching a company in China. Then, one must develop a sound and comprehensive business strategy/plan to support execution. A sound business plan also articulates the rationale behind the project in order to help potential investors understand the value the company creates. In addition, a successful startup should have a world-class management team with complementary skills and experiences. Finally, it is important to remember that success will not come easily. It requires hard work and dedication.

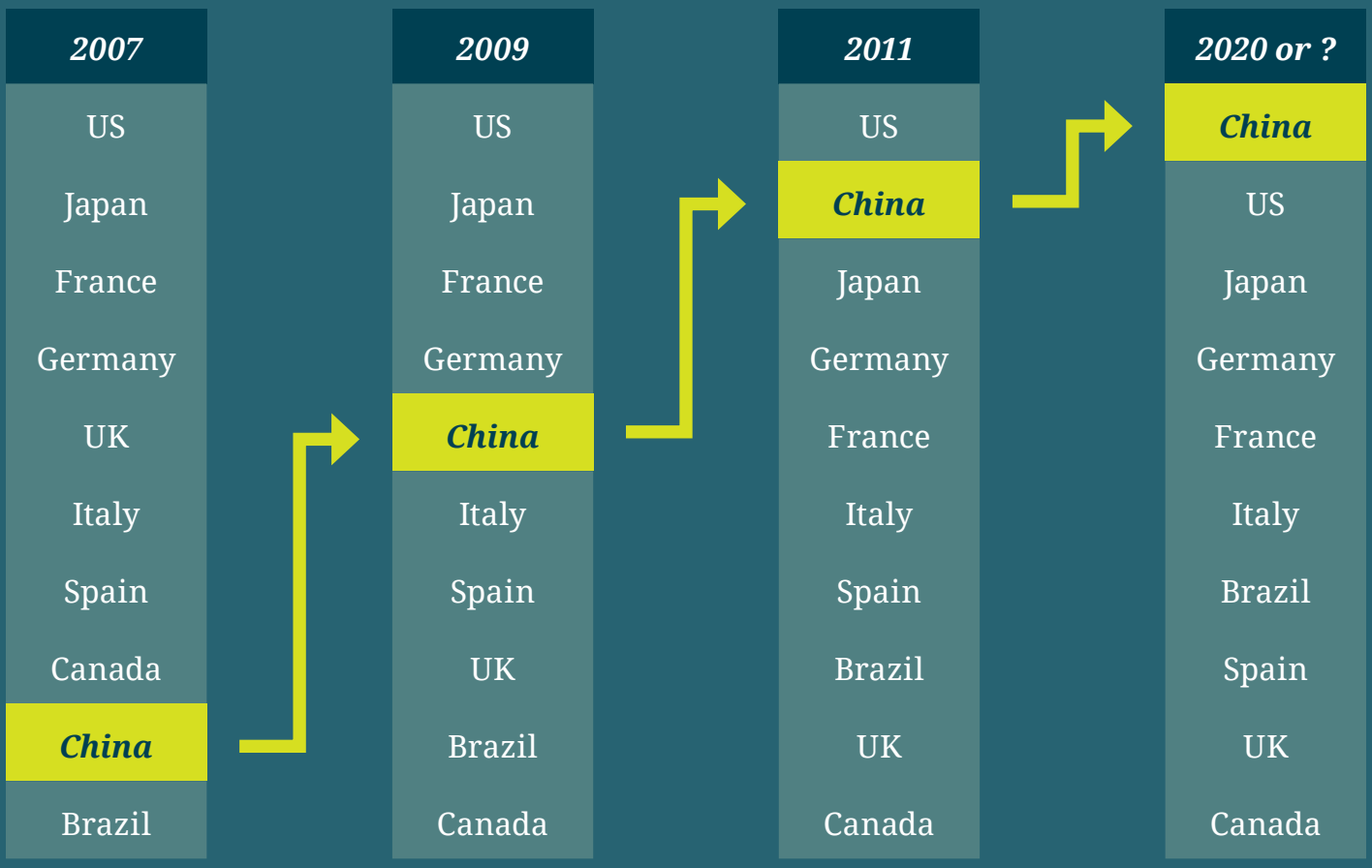
## *Profile*

George Chen, MD is the Chief Medical Officer of BeiGene, a China-based biotech focusing on oncology drug research and development. In his current role, he is responsible for creating and implementing development strategy for BeiGene's oncology portfolio, and managing all medical and safety related aspects for BeiGene. Dr. Chen started his pharmaceutical industry career at Eli Lilly, first as a Strategy Advisor for the Corporate Strategic Asset Management group and then as the global oncology Medical Advisor managing Gemzarand Alimta global development for GI/GU indications. Dr. Chen then joined GSK as a senior director and Chief Medical/Development Officer for GSK's Greater China region. Under Dr. Chen's leadership, GSK's China Medical and development organization successfully completed a number of pivotal studies and NDA filings. After a successful career at GSK, Dr. Chen joined J&J Pharma R&D as a VP and Head of Asian Compound Development Teams, where he successfully led the Resolor global development and filing from Asia. Dr. Chen was also a VP and Head of North Asia Biotech for Sanofi-Aventis' Global Oncology division. Before joining the industry, Dr. Chen was an investigator at the NIH. Dr. Chen received his medical degree from the Shanghai First Medical College of the Fudan University and his MBA from the Wharton School of the University of Pennsylvania. He received his post-graduate medical trainings at Shanghai Cancer Hospital and New York Medical College. Dr. Chen specializes and publishes in the fields of Oncology / Immunology. He is a member of American Society of Clinical Oncology.

*Growth Fact*

# Pharmaceutical Sales by Country

## 2007-2020




Source: IMS

*"It is pretty amazing how fast the pharmaceutical market is growing in China. If you look at a ranking of pharma business by country – China was 9th in 2007. Last year, we were number 2 and by 2020 the expectation is to be the number 1 market in the world."*

***George Chen, MD***

*Chief Medical Officer, BeiGene*

# *The Rise of Health Tech Accelerators*

**By Clifford Jones**

As information technology innovations have come to play an ever more prominent role in healthcare, specialized accelerators have emerged to meet the unique needs of health tech entrepreneurs and startups. These accelerators, which include the likes of Rock Health, Healthbox, and Blueprint Health, have largely modeled themselves after leading tech startup incubators like Y Combinator and TechStars. Providing a suite of resources ranging from office space and technical training to seed-funding and mentorship, they support early stage companies at the cutting edge of health tech.

A slightly different approach is being employed by StartUp Health. Instead of creating an accelerator, StartUp Health designed the StartUp Health Academy to provide long-term support for health tech startups as they mature.

The Pulse sat down with Blueprint Health, Healthbox, Rock Health, and StartUp Health to learn more about these new programs, the health tech entrepreneurs they serve, and the areas of healthcare innovation they are most (and least) excited about.

## PART 1: THE RISE OF THE HEALTH TECH ACCELERATOR

**PULSE:** ***What triggered the recent emergence of health tech accelerators?***

**Mat (Founding Partner, Blueprint Health):** It is a reflection of healthcare seemingly being ripe for innovation, yet a recognition that early stage healthcare companies can benefit greatly by gaining access to healthcare specific resources. Y Combinator and TechStars started in 2005 and 2006, respectively. These sector agnostic accelerators proved that the accelerator model works within the technology space. Now you are beginning to see new sector focused accelerators – in healthcare and education– with industry specific expertise and mentors that can help entrepreneurs navigate the nuances and complexities of building businesses in these industries.

**PULSE:** ***Do you view accelerators as a threat to traditional Venture Capital ("VCs")?***

**Halle Tecco (Co-Founder and Managing Director, Rock Health):** Not at all, in fact it's just the opposite. VCs tend to invest in companies at later stages of development than the ones that come to Rock Health. We help startups get traction so that they will be ready for venture funding (if that's what they want). Our VC partners view Rock Health as a pipeline of high-potential startups, and try to get to know and support the company founders we work with early on.

**Mat (Blueprint Health):** I agree with Halle. In addition, we always make a point in our initial conversation with applicants to explain how we view our role – to borrow a phrase from Vinod Khosla – as "venture assistants." We take a "roll up your sleeves" approach and oftentimes, work alongside the entrepreneurs. We like a big vision, but we also believe focus is a critical component in early stage companies. For us, helping entrepreneurs build a 10 or 30 million dollar business that has a positive impact on healthcare is a very good thing. You don't have to come to us with the next billion dollar idea.

**PULSE: *What are the major challenges that health tech accelerators must overcome to prove themselves?***

**Mat (Blueprint Health):** Two relevant challenges are investor education and patience. There are a lot of investors, including many VCs with life science and medical device portfolios, who are not as familiar with investing in healthcare technology. We hope to be a platform to help people learn about early stage companies in the health tech space.

The second challenge is patience. The adoption cycles tend to be longer in healthcare, especially when you are selling to enterprises. If you are trying to sell to physicians, payers, or hospitals, it takes patience to build a sustainable healthcare company.

**PULSE: *What differentiates your accelerator programs from each other?***

**Halle (Rock Health):** We believe that integrative innovation is necessary to succeed. That's why we've partnered with critical stakeholders – hospitals, investors, payers, manufacturers, and distributors. These folks don't just put their name on our website; they financially support Rock Health and make our work possible. We have over a dozen partners including Nike, Quest Diagnostics, Mayo Clinic, Harvard Medical School, UCSF, Genentech, Proctor & Gamble, and UnitedHealthcare. We also have a wonderful group of mentors and advisors that commit time and energy to supporting Rock Health's teams.

**Dan Phillips (Director, Healthbox):** We're interested in addressing the numerous major challenges of the healthcare system. Many of our applicants and participants are targeting not just consumers, but physicians, health systems, health plans, pharma, employers, etc. To support their efforts, Healthbox has the backing of major industry players including Blue Cross Blue Shield, Walgreens, and Ascension Health. We've also partnered with the world-renowned design firm IDEO to help shape our curriculum. Finally, since healthcare businesses are expensive to get off the ground, we provide $50,000 in seed capital, which is well above industry norms.

**Mat (Blueprint Health):** Blueprint Health has the largest network of mentors and partner organizations with expertise in the healthcare industry. This is important in helping our teams understand the industry players and what types of innovations not only will improve patient engagement and outcomes but also get adopted and have a

sustainable business model. We are a Charter Member of the TechStars Network and the only accelerator in the Network focused on the healthcare industry. Also, we are the only health centric accelerator with a founder that is a physician and a founder that has started a successful company in the healthcare space. And lastly, we are based in NYC, which has a thriving entrepreneurial ecosystem and the best city in the world to start a healthcare company in right now.

**PULSE:** ***Steve, how is StartUp Health Academy different than an accelerator program?***

**Steven Krein (Co-Founder of StartUp Health):** StartUp Health Academy is a 36-month growth program and structured curriculum for health and wellness tech entrepreneurs. We believe that extending our program out over three years gives us the chance to help startups overcome the "valleys of death" all companies face as they progress through the four stages of a startup: idea, startup, ramp-up, and speed-up. At each stage we educate the entrepreneurs and connect them with the customers, expertise, and talent that they need.

*"Our hypothesis is that if we can find passionate, coachable entrepreneurs who are working on the right problem, we can surround them with the right resources and mentorship to help them build successful businesses."*

Accelerators like Blueprint Health, Healthbox, and Rock Health are a great way to jumpstart an idea. StartUp Health Academy is a very different but complementary offering. The natural evolution of any great startup that graduates from a health tech accelerator should be to apply to StartUp Health Academy.

## PART 2: ADVICE FOR ENTREPRENEURS APPLYING TO A HEALTH TECH ACCELERATOR PROGRAM

**PULSE:** ***What do you look for in companies that apply to your program?***

**Dan (Healthbox):** Our selection committee is comprised of Healthbox staff, strategic partners, and mentors. As is obvious based on the diverse business models and entrepreneurial backgrounds of the ten teams we recently selected, there isn't one specific profile we look for. Generally, we prefer teams with multiple founders that have both healthcare and technical experience. Of course, they must also have a business idea that tackles an industry problem. We like capital efficient businesses that are positioned to make significant progress in three short months.

**Mat (Blueprint Health):** Our core focus is to find passionate, coachable entrepreneurs, with at least one technical founder. Additionally, it's really important that the entrepreneurs are working on problems where there is an individual or institution that has a particular pain point and is willing to pay for a solution.

Assuming the entrepreneur is thinking about the "right" problem, we aren't as focused on their current solution. Our hypothesis is that if we can find passionate, coachable entrepreneurs who are working on the right problem, we can surround them with the right resources and mentorship to help them build successful businesses.

**Steve (StartUp Health):** Although we are interested in startups across all stages of growth, we like to find those entrepreneurs that are past the idea stage and into the startup or ramp-up stage. Because each class of ten companies is organized into a peer group for a long-term

## Health tech accelerator and academy lineup

| | Rock Health | Blueprint Health | Healthbox | StartUp Health Academy |
|---|---|---|---|---|
| **Affiliation** | Independent | Charter Member of the TechStars Network | Subsidiary of Sandbox Industries | Initiative of StartUp Health |
| **Basic Model** | On-site accelerator with mentorship, seed-funding, and additional resources | On-site accelerator with mentorship, seed-funding, and additional resources | On-site accelerator with mentorship, seed-funding, and additional resources | Long-term growth academy with a structured curriculum, mentorship, and additional resources |
| **Location** | San Francisco | New York City | Chicago | New York City (relocation not required) |
| **Founding Date** | August 2010 | August 2010 | May 2011 | June 2011 |
| **Number of Classes to Date** | 2 | 1 | 1 | 0 |
| **Next Class** | Summer 2012 | Summer 2012 | Fall 2012 (tentative) | March 2012 |
| **Number of Startups Per Class** | ~15 | Up to 10 | 10 | 10 |
| **Preferred Number of Founders** | 2-3 | 2-3 | 2-4 | 2-3 |
| **Length of Program** | 5 months | 3 months | 3 months | 36 months |
| **Seed Capital Provided** | $20,000 | $20,000 | $50,000 | $0 |
| **Share of Equity Taken** | 0% | 6% | 7% | 3-6% (0% if selected for a scholarship) |

structured curriculum, we carefully consider entrepreneurs and their personalities. Serial entrepreneurs that are new to the health tech sector are welcome.

## PART 3: HEALTH TECH ACCELERATORS SPEAK ABOUT THE AREAS OF HEALTH TECH THEY FIND MOST (AND LEAST) PROMISING

**PULSE:** ***What areas of health tech are most promising? Where can startups make the biggest impact?***

**Dan (Healthbox):** The challenges in healthcare are so numerous and the industry is so big that it's difficult to find an area that does not hold great promise. Care management solutions, communication platforms for stakeholders, clinical decision support tools, and workflow solutions were all well represented in our applicant pool and are all ripe for innovation.

**Mat (Blueprint Health):** Over the next five to ten years, we think insurers, hospitals, and providers are going to becoming increasingly involved in the entire continuum of care. Additionally, we believe insurance and other healthcare purchasing is likely to shift more towards consumers with less employer involvement. And lastly, health technology companies are going to be compelled to open propriety standards and move to API protocols common in other industries. In the next five years we think we will see some companies really taking advantage of these mega trends.

**PULSE:** ***Is there an over-hyped area within health tech?***

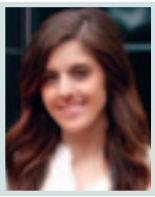
**Dan (Healthbox):** Healthcare is such a large portion of our economy that any business that can capture a fraction of a fraction of total spending will be successful. So no, there is not an area that we would tell healthcare entrepreneurs to shy away from.

**Mat (Blueprint Health):** We love the excitement around healthcare entrepreneurship and the more talent we can funnel into the space benefits the ecosystem. We do think there are inherent challenges to launching a sustainable business in healthcare, particularly given that, unlike many other industries, the payer in the health industry is most often a business.

# *Profile*

**MATHEW FARKASH**

Mathew Farkash is a Founding Partner of Blueprint Health, a TechStars affiliated accelerator that helps early stage healthcare companies get started, a Founding Executive Board Member of Venture for America, an organization dedicated to creating jobs across the United States by spurring young entrepreneurs, and the Founder of the Philanthroti, a membership-based community focused on new models of social impact and philanthropy. Mathew also helps start-ups across a variety industries with business development, sales and fundraising strategies. Previously, Mathew was an Associate Director at UBS Investment Bank, worked in business development and started the NYC office of a European-based advertising agency. He is the Chairman of nycTIES, a 501(c)(3) he founded to encourage young professional to take ownership of their financial contributions. Mathew graduated from Brown University and received an MBA from the Stern School of Business at New York University.



**HALLE TECCO**

Halle Tecco is the Founder & CEO of RockHealth. Tecco recognized the need and potential for startups in the digital health space while working at Apple's App Store covering the health and medical vertical. Previously, she founded Yoga Bear, a national nonprofit that provides yoga to the cancer community in hospitals and at over 200 partner studios. Tecco was named as one of 12 entrepreneurs reinventing healthcare by CNN in 2012, and was a L'Oreal Woman of Worth in 2009. Tecco has written for Harvard Business School Publishing, Stanford Social Innovation Review, Glamour.com and ForbesWoman. She has a Bachelor of Science degree from Case Western Reserve University and a Master of Business Administration from Harvard Business School.

**DAN PHILLIPS**

Dan brings more than five years of healthcare strategy consulting experience to Healthbox. Most recently, he served on the founding team of Physician Career Management Group (PCMG), an agency that represents early career physicians seeking job placement, contract review, and business advisory services. Prior to joining PCMG, Dan served as a senior consultant with The Camden Group. He also spent a few years with Sg2, a healthcare consulting and thought leadership firm, where he worked with health systems in the UK, Canada, and Southeast Asia. Dan earned his Bachelor of Science degree at the University of Michigan in Ann Arbor, where he majored in biology. He currently chairs the Associate Board of Urban Students Empowered, a nonprofit that offers college prep services to underprivileged high schools students in Chicago. Dan enjoys photography and snowboarding whenever he gets the chance.

**STEVEN KREIN**

Steven Krein is on a mission to accelerate technology innovations in health and wellness that help lower the costs and improve the quality of healthcare in our country. Krein co-founded StartUp Health to inspire, educate and provide capital and resources to health and wellness entrepreneurs. He is also co-founder and CEO of OrganizedWisdom, a Digital Doctor's Office and Patient Portal that helps doctors save time, grow their practice and improve their online presence. Krein was previously co-founder, Chairman and CEO of Webstakes and Promotions.com, a global online advertising, direct marketing and technology company. He took the company public on the Nasdaq prior to being acquired by iVillage. In under four years, the company achieved a $500 million market capitalization. Krein began his online career with Law Journal Extra!, now known as Law.com. Krein received his J.D. degree from Widener University School of Law, and B.A. degree from the University of Maryland-College Park. Krein is a member of YPO (Young Presidents' Organization) Metro New York Chapter and lives in New York City with his wife and three daughters.

*"We recently had an executive from a prominent NYC hospital drop by Blueprint Health – and among the many facts he rattled off was* ***that the multi-billion dollar (top-line) hospital operates at 2% margins****. An interesting number when one thinks about, from the 10,000 foot view, having to sell into this type of institution."*

***Matthew Farkash***
*Founding Partner, Blueprint Health*

# *Innovation in Healthcare IT:*
## *Revolutionizing the Doctor Appointment*

*An Interview with Cyrus Massoumi,*
*Co-Founder and CEO of ZocDoc*

**By George Xiangwen Zeng**

ZocDoc is a free service that allows patients to book doctor appointments online. ZocDoc started in September of 2007 as a service to help people find and make dentist appointments in New York City. Today ZocDoc also facilitates appointments with over 40 specialties in some markets, and serves the regions in and around Atlanta, Baltimore, Boston, Chicago, Dallas, Houston, Los Angeles, Miami, New York, Philadelphia, Phoenix, San Francisco, Seattle and Washington DC.

**PULSE:** ***Can you give our readers some background on how you founded ZocDoc; how you came up with the idea and what it took to get the company up and running?***


**Cyrus Massoumi:** I had the idea for ZocDoc after I burst my eardrum on a cross-country flight in 2007 and was unable to find a doctor who could see me for four days using traditional methods. I knew there had to be a better way, so my cofounders and I decided to build a company that gave people improved access to healthcare. We started out by helping people find and make dentist appointments in Manhattan, and then over the next two years expanded our service to cover a range of specialties within the New York City market. We only gradually expanded into new markets like Washington, DC and Miami after successfully tweaking the business model and refining our operations to become more scalable.

**PULSE:** ***Can you talk about some of the major challenges ZocDoc faces right now?***

**Cyrus Massoumi:** Again, it has been a challenge to stay focused on scaling our core services so that we can deliver improved access to healthcare to as many people as possible. With 10-20% of all appointments cancelled last minute, ZocDoc can also help Doctors fill up appointment slots and use their time more efficiently by drawing on a greater population of people that are looking for specialized care.

**PULSE:** ***Can you talk about how you've gone about developing an effective doctor rating system?***

**Cyrus Massoumi:** The key to doctor reviews is the accuracy of the information. Because we want to verify that reviews are written by real patients, we don't allow anyone to post a review unless the appointment was booked on ZocDoc and then kept with the doctor they're reviewing.

**PULSE:** ***What sectors do you find interesting?***

**Cyrus Massoumi:** In general I'm just proud to be surrounded, especially in New York, by such a rich startup culture and a talented, supportive group of entrepreneurs.

**PULSE:** ***Do you have any advice for future entrepreneurs interested in the healthcare IT space?***

**Cyrus Massoumi:** There is tremendous opportunity in Healthcare IT for entrepreneurs who are willing to work hard. One piece of advice I have, though, is to stay focused on building a core business. The type of person who wants to start a company is often the type of person who has lots of creative ideas. It's tempting to try to do everything right

away, but companies that lose focus often fail. It's so easy to get distracted with other opportunities, so focus on devoting all of your talent and time to building and scaling your core business before you move on to the next great idea. One reason we've succeeded is that we've stayed focused instead of chasing down every opportunity that, while fantastic in concept, doesn't fit with our core mission.

A second piece of advice is to hire great people. Vinod Khosla, one of our investors, advised us that the first 20 people we hired would set the tone for the company's culture. From day one, we were very particular about who we hired, which has really helped us as we have grown.

**PULSE:** ***What are some of the things you learned from starting your own company? What are some of the things you would do differently if you could start over again?***

**Cyrus Massoumi:** After ZocDoc launched at the TechCrunch conference in 2007, we thought we'd have an incredible amount of demand on our hands immediately. In reality, it took a few days for us to get our first appointment! Slowly but surely momentum started to build until we started getting a few dozen appointments at a time. After that the growth increased dramatically and has been accelerating ever since. This was definitely a learning experience as it really taught me the value of patience and perseverance. If I could go back, I would make sure to hire great people as soon as I met them even if we didn't have any space for them at that point in time.

**PULSE:** ***How will healthcare reform affect the Healthcare IT space? What will reform mean for ZocDoc?***

**Cyrus Massoumi:** As a result of the worsening doctor shortage, patients in major cities wait an average of 20+ days between the time they make an appointment and the time they see a doctor. On ZocDoc, more than 40% of patients' appointments take place within 24 hours, and 60% take place within three days. This ensures that patients get the care they need when they need it. If healthcare reform is implemented, the number of Americans with insurance that are looking for healthcare will increase even more. Either way, we believe that ZocDoc is a solution that helps make healthcare more accessible to more people.

## *Profile*

Cyrus Massoumi is co-founder and CEO of ZocDoc, which he created in 2007 after rupturing an eardrum. Massoumi struggled for four painful days to find a doctor, and became convinced that a better healthcare system is possible. He has extensive experience in the healthcare-technology nexus, web commerce and management.

Prior to ZocDoc, Massoumi served as an Engagement Manager at the global management consulting firm McKinsey & Company, where he focused on healthcare and technology. Massoumi's four-year tenure at McKinsey & Co. began soon after his 2003 graduation from Columbia University, where he earned an MBA and received the Heffernan Award for Outstanding Service. In 1999, Massoumi founded his first business, a web startup specializing in e-commerce management tools. During the prior year, he worked in Austin, Texas, for Trilogy Software, which recruited Massoumi upon his graduation from the Wharton School cum laude.

Massoumi currently resides in Manhattan, New York. A native of Florida, Massoumi once served as a staffer for a U.S. Senator. He also worked at Disney World, where he learned important lessons about customer service. Massoumi first met ZocDoc co-founder and Chief Technology Officer Nick Ganju when the two shared a desk at Trilogy Software. He met ZocDoc co-founder and COO Dr. Oliver Kharraz several years later, when they collaborated on a project at McKinsey & Company. Massoumi's most proud and humbling distinction to date is ZocDoc's recognition by Crain's New York Business as the Best Place to Work in New York

*"Merritt Hawkins discovered, in a 2009 study, that Americans wait 16-28 days on average between making an appointment and seeing a doctor. ZocDoc helps people get in to see a doctor faster, as 40% see a doctor within 24 hours of booking an appointment online."*

***Cyrus Massoumi***

*CEO and Co-Founder, ZocDoc*

# *Gamification — of — Health*

*An Interview with Nate Bellinger, Director of Consumer Innovation at Humana Innovation*

**By Clifford Jones**

Health insurers, entrepreneurs, and population health management companies are abuzz with the concept of the "gamification" of healthcare; the idea that wellness and disease management initiatives could somehow be fun. Examples of success stories range from exercise-inducing video games like Dance Dance Revolution and Wii Fit to the application of "game-like mechanisms" (e.g. immediate positive reinforcement) to traditional behavior change programs. This momentum has spurred numerous companies to try and capitalize on the savings health insurers could generate by making healthy living a fun and engaging experience.

One of the largest, most successful players in the gamification space is Humana, a health insurance and wellness company. The Pulse spoke with Nathan Bellinger, Director of Consumer Innovation at Humana Innovation, who leads the company's gaming initiatives.

**PULSE:** ***Humana has been a leader in the gamification of healthcare. How did health gaming become a strategic objective?***

**Nate Bellinger:** The strategic objective for Humana is to explore and lead in innovation. Humana's Innovation Center is a research focused entity within the Humana Incorporated structure. The importance of gamification—which we actually call "health entertainment"— emerged as we thought about the best ways to entice consumers to participate in healthy activities.

First, we examined how to make healthy activities more fun. Obvious ideas, like putting a television screen in front of a Stairmaster, might make climbing stairs more fun for a little while, but it is not a very compelling solution over the long run. Exercising on the Stairmaster is still the primary activity. Consumers perceive watching television to be just a side activity. So, we flipped the logic around and tried to make fun activities healthy. We chose to focus on gaming because – in addition to being fun – using a gaming system allowed us to measure results, scale our efforts, and reward consumers.

**PULSE:** ***What health gaming developments are you most excited about?***

**Nate Bellinger:** I'm excited about our ability to leverage general advancements in gaming systems and platforms. For example, the Microsoft Kinect, in conjunction with the Xbox 360 and Xbox Live, has a lot of potential for health gaming. The Kinect is very sensitive to an individual's movements and capable of analyzing sound. Consumers view the Kinect as more than just a gaming system. It's an entertainment hub that attracts families as well as hardcore gamers.

## Selected Humana health gaming experiments

| Game | Description | Target Audience | Platform | Experiment Timeframe |
|---|---|---|---|---|
| **Operation Planet Savers** | Weekly physical and mental missions translate to progress in the virtual world. | Ages 7-9 | Online | Experimental run from June to July of 2009 |
| **Dancetown** | Video-game based dance pad system tested in assisted living facilities. | Active elderly | Console & dance pad | Spring 2009 |
| **Horsepower Challenge; Operation Planet Savers: Race Against Time** | Pedometer data results in game environment progress. Schools compete against one another. | School aged children | Online with pedometer integration | 2008-10 for HP Challenge. 2009-10 for OPS: Race Against Time |
| **FamScape** | Family centered goal achievement and wellness program. Real world activities result in progress in a virtual world and generate points that can be redeemed for tangible rewards. | All ages | Online | Launched November 2010—ongoing |
| **Your Shape Fitness Evolved 2012** | Motion tracking fitness game developed in partnership with Ubisoft. | All ages | Xbox 360 with Microsoft Kinect | Released in November 2011 |

This, combined with the fact that more than 18 million units have been sold, opens up a huge number of potential health applications. To do this we've partnered with Ubisoft to develop the sequel to "Your Shape Fitness Evolved," which has been the number one fitness game for Kinect since its release in 2010.

**PULSE:** ***What are some of the major obstacles with building and launching health games?***

**Nate Bellinger:** The biggest obstacle is maintaining consumer interest. The underlying activities and behaviors we are trying to promote are not fun for most people, which makes it challenging to build a game that people will stick with long enough to yield results. A game built solely for entertainment will always be more fun than one that is also trying to improve your health.

On the other hand, if a health game seems like too much of a game then some consumers may be turned off or not even try the product. It's a fine line; we have to make sure consumers don't view a solution as just another frivolous game while making it fun enough for consumers to enjoy using it.

**PULSE:** ***How were you able to overcome these obstacles?***

**Nate Bellinger:** We learned that solutions have to go beyond just the gaming aspect. Something that just tries to entertain the consumer is likely to fall flat. We had to find other ways to bring value to people or they would choose to do something else.

One way we are trying to do this is by integrating our solutions with consumers' social networks. Understanding consumers' individual goals can also help companies develop solutions that are more relevant and effective. Therefore, knowing a solution's target audience is very important.

**PULSE:** ***Is it safe to say that you are now moving away from pure health games and focusing on developing integrated solutions?***

**Nate Bellinger:** That's correct. Building our own gamification-based products, such as the Horsepower Challenge or FamScape, showed us that it is difficult to improve health using only virtual games. Games are much more valuable when combined with social media and tangible rewards as part of a comprehensive effort to influence behavior.

## *Profile*

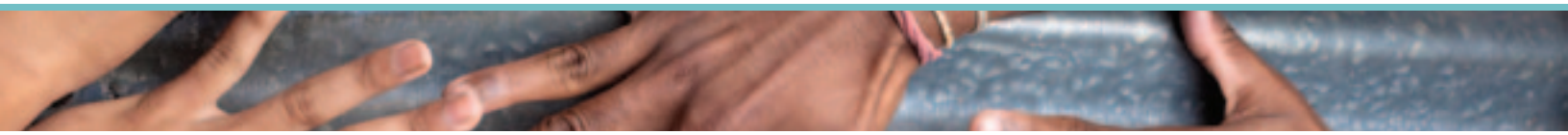
Nate Bellinger serves as a Director of Consumer Innovation within Humana's Innovation Center. While with Humana, one of the nation's largest health and well-being companies, Nate has served in various roles and positions including time with Humana Europe in London, England. As the head of Humana Europe's Wellness product line, he led the development and practice of award winning consumer behavior change programs. Within Humana's Innovation Center, Nate now leads business development teams with a focus on identifying and providing innovative solutions to meet Humana's current and future business needs.

A graduate of the United States Military Academy at West Point, Bellinger served five years as an Army officer. While in the Army, Nate participated in multiple operations including Operation Iraqi Freedom in 2003. The experiences gained in the military continue to drive Nate today with a passion for leadership and assisting others through his work and service.

**Exciting Fact**

*"According to MobiHealthNews, by next summer there will be over 13,000 consumer-focused, healthcare iPhone apps available for download."*

***Vivian Hsu***
*Editor in Chief, The Pulse*



# *Lessons — from — Micro Insurance in India*

**By Thomas Osborne**

The Indian healthcare sector differs from the United States in its reliance on cash payments for service. With approximately 80% of spending coming from patients' pockets, compared to only about 12% in the United States, individuals bear the majority of the risk of unpredictable healthcare costs in India. Although India's population demonstrates remarkable willingness to pay for healthcare, the rising cost of treatment is putting a growing strain on many patients and their families. According to the Indian government, 40% of citizens hospitalized in India need to borrow or sell assets to pay for healthcare costs, with more than one out of every four hospitalized Indians falling below the poverty line as a result of medical expenses. India is experimenting with a number of programs aimed at alleviating the burden of unpredictable and high healthcare costs on the country's lowest income citizens.

One area of innovation that appears to be gaining traction revolves around the concept of micro insurance, which attempts to address the gap between rising healthcare costs and patients' ability to pay. Micro insurance provides a small level of coverage to previously excluded populations in exchange for correspondingly small premiums. A variety of institutions have attempted to offer health insurance to low-income customers, but few have succeeded—either in sustaining profitability or achieving the desired level of social impact. In general, health insurers seeking to serve the mass market in India face high distribution costs and a population with limited knowledge of insurance. The innovations that have allowed some insurers to overcome those challenges illustrate several lessons that may be useful not only in growing the Indian insurance market but also in promoting access to insurance globally.

## LESSON 1: REACH OUT THROUGH ESTABLISHED NETWORKS

Micro insurance reveals a tension between the large populations necessary to make sound actuarial predictions and the small community settings that have been effective at introducing financial products to new types of customers. Fundamentally,

insurers rely on the law of large numbers to achieve financial predictability. However, consumers in emerging markets are often unfamiliar with insurance products, and may resist the concept of paying money upfront when they feel healthy in exchange for a promise of services when they become sick. In order to encourage uptake, smaller, more community focused support groups and local organizations can play a role in educating the market. Compared to large corporations these smaller entities often engender greater trust from the communities they serve. Consequently, patients are more likely to view them positively and follow-through on their recommendation.

*"Micro insurance provides a small level of coverage to previously excluded populations in exchange for correspondingly small premiums."*

Yeshasvini, a program founded by Indian cardiac surgeon and philanthropist Dr. Devi Shetty, has found a way to strike a unique balance between scale and intimacy. Today, Yeshasvini is the world's cheapest comprehensive health insurance scheme and has over 2.5 million members. The program began in the Indian state of Karnataka and scaled rapidly by partnering with local farm cooperatives. The cooperatives were pre-existing groups, somewhat similar to American labor unions, which provided services and materials to farmers in exchange for the payment of dues. Through the cooperatives, Yeshasvini offers cashless treatment at a large panel of quality private hospitals to cooperative members, and in return, the cooperative handles all the last-mile administrative interactions with members. Leaders of the cooperative explain the benefits to their members and premiums are paid as part of members' cooperative dues. This formula allows members to benefit from the close relationships possible in a community organization, while also enabling Yeshasvini's rapid growth.

## LESSON 2: ENGAGE THE COMMUNITY

Insurance relies on mutual trust among members, providers, and insurance companies. Insurers rely heavily on patients and providers to give accurate information rather than hiding critical details or providing fraudulent data, and patients and providers depend on insurance companies to cover their medical costs in exchange for premiums collected.

Unfortunately, in India and many other emerging markets, corporations and customers tend to be suspicious of each other's motives and intentions. However, micro insurers have discovered that they can leverage community dynamics to get through this trust barrier. For example, the prevalence of informal lending among neighbors, the high dependence on local merchants for daily needs, and the significant role of the local gossip mill in maintaining community order reveal the degree to which interdependence and a sense of community dominate.

Community participation is particularly strong among insurers that follow the 'mutual model,' where members own and operate the insurance program themselves. A successful example of this model at work is Uplift Mutuals, a company which provides health coverage to the borrowers of a microfinance institution in India's large metropolitan area of Pune. Uplift Mutuals' members bear responsibility for setting premiums, designing benefits, and approving or rejecting claims. The claims process is particularly interesting: patients pay for treatments upfront (often with borrowed money) and then submit for reimbursement by Uplift. Claims are reviewed first by a panel of medical advisors, who recommend a reimbursement amount based on the cost of the treatment, and then by a committee of members, who decide the final reimbursement amount or reject the claim. Interestingly, the committee typically reimburses less than the recommended amount in order to spread benefits among more members. Despite this, recognizing that the program is administered by their neighbors and peers, members tend to be satisfied with the arrangement.

## LESSON 3: TAP INTO GOVERNMENT PROGRAMS

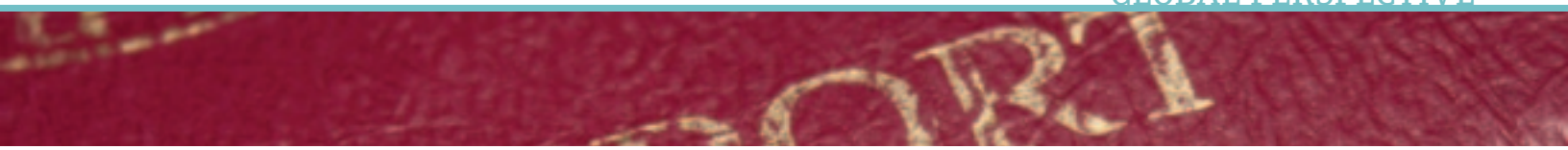
Although no single health insurance program has achieved nationwide coverage in India, a recent government initiative is attempting to bring coverage to any family below the poverty line. The program, called Rashtriya Swasthya Bima Yojna (RSBY), fully subsidizes the premiums of private health insurance for low income families. The government also prescribes a standard benefits package and a standardized system for enrollment and claims.

For private insurers, RSBY has created opportunities to expand their footprint and increase awareness of insurance among previously excluded groups. They benefit from the subsidies provided by the government and from access to the pre-identified population of families below the poverty line. In all, about 7 million families have been enrolled in RSBY, and 10 insurance companies currently participate. Given that only 10% of the Indian population currently has insurance, there is plenty of room for insurers to expand coverage under RSBY and to offer their products to low-income citizens above the poverty line as well.

## LESSON 4: MARKET TO THE LOCAL AUDIENCE

Faced with prospective customers who are generally unfamiliar with the concept of insurance, the insurance industry in India is devising clever ways to spread the word. The Micro Insurance Academy, a non-profit organization focused on research and technical assistance for community-based insurers, created a Bollywood style movie that illustrates how insurance can help families manage risk. The movie is rich with the sorts of song, dance, and love interest typical of the Indian film industry, with the twist that insurance saves the day. The Micro Insurance Academy took its film on the road to rural villages in India, where it has been generally well-received despite its educational undertones.

In India's largely cash-based healthcare market, growing adoption of insurance will depend on increased awareness and cultural acceptance. It will also require continued innovation by the industry to achieve profitability in the face of high distribution costs, growing medical costs, and modest willingness to pay. Fortunately, such innovation is underway, and the success that has already been achieved may serve as a guide for insurers and policymakers seeking to use insurance as a means to expand access to care in India and other markets around the world.



# Senior Globetrotters:

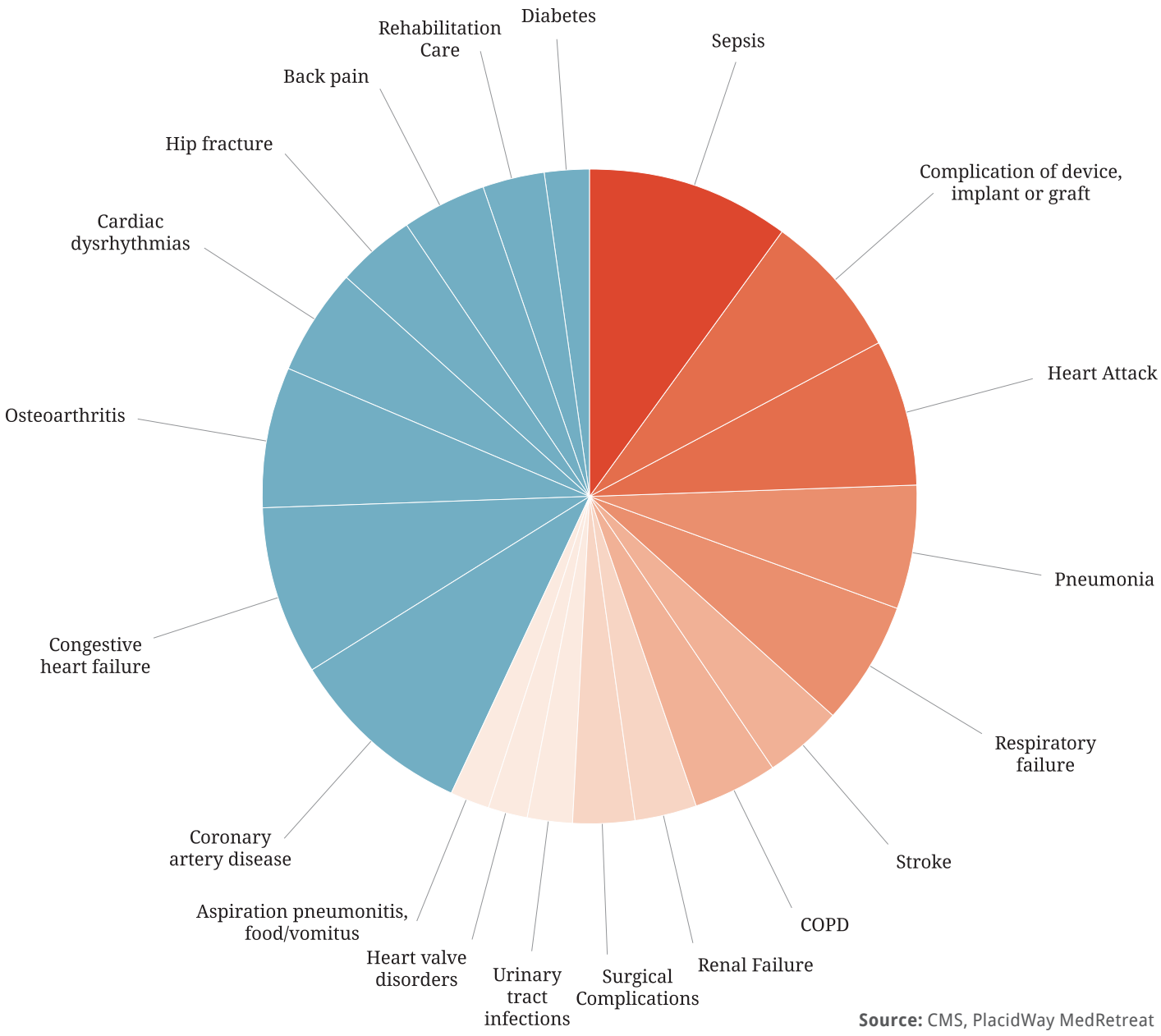
## Medical Tourism and an Aging Population

**By Vivian Hsu**


Brandishing one's passport as a key to faster, cheaper and/or better medical care is an idea that has been around for more than three decades. However, the practice has recently taken center stage following Steve Job's highly publicized trip to Switzerland for experimental pancreatic cancer treatment and Devi Shetty's breakthroughs in low cost heart surgeries at Narayana Hospital in India. Medical tourism has been touted as a potential panacea to skyrocketing U.S. healthcare costs and declining levels of insurance coverage. Although industry statistics have been heavily debated, it is generally accepted that the number of Americans traveling abroad for medical care has nearly doubled in the last three to five years. The industry has been further fueled by companies that help patients with everything from identifying the appropriate physicians and destination hospitals to coordinating flights and English-speaking guides. These organizations have not only served to make the medical tourism market more accessible, but also raised the average patient's awareness of available overseas options.

On the opposite end of the demand/supply equation, governments in countries such as Mexico, Korea, India and Costa Rica have made active investments in developing high-end domestic healthcare facilities in an effort to attract medical tourists. For example, the Mexican President, Felipe Calderón, has actively invested in positioning his country as a low cost solution. He was quoted in the International Medical Tourism Journal as saying, "It is possible to reduce the expenditure of Medicare if the U.S. government will allow the American people to receive medical services in Mexico - very good service, quality service, and it would be cheaper for people and cheaper for the government." International leaders are well aware of the fact that medical tourism not only brings healthcare dollars to their local economies, but also the tourist dollars of family and friends who accompany patients.

Yet despite all of the hype surrounding medical tourism, one angle that is often ignored is medical tourism for elderly patients. Although travel is more difficult as people age, modern medicine has enabled many Americans to remain healthy and active well into their seventies and eighties. Today, elderly patients are a significant driver of overall healthcare costs in the U.S., representing about 12% of the total population but accounting for more than 34% of total health expenditures. Thus, the elderly demographic represents a huge opportunity




**Source:** CMS, PlacidWay MedRetreat

for society, the government and individuals to reduce costs.

Fortunately, or perhaps concordantly, many of the largest buckets of elderly healthcare spending are also leading areas for medical tourism, namely: cardiovascular surgeries, orthopedic surgeries and cancer treatments. The above figure shows the top twenty conditions currently funded by Medicare, highlighting (in blue) all those with development avenues of overseas treatment.

Assuming elderly patients are willing to travel overseas to seek treatment, relatively young, active seniors could save a lot of money. Perhaps surprisingly, in a 2010 Deloitte Consulting survey of healthcare consumers, over 47% of seniors expressed a willingness to travel overseas for medical care. This is higher than the average of 41% across the entire U.S. population.

Additionally, despite the emphasis on potential cost savings, it appears that higher income is also positively

correlated with consumers' willingness to engage in medical tourism. A 2009 McKinsey study noted that although the current number of medical tourists is low, the market could reach as many as eight million patients per year. This estimate was based upon the number of patients who would realize more than $10,000 in cost savings after medical and travel expenses. For Medicare, this would amount to total cost savings of nearly $16.2 billion per year, largely from reduced costs on cardiac procedures. Although this estimate is skewed by the focused efforts of entrepreneurs, such as Dr. Prathap C. Reddy of Apollo Hospitals and Dr. Devi Sheti of Narayana Hospital, to drive down the costs of cardiac procedures, the total savings potential is likely to grow over time as international hospitals continue to apply process improvements to high-cost procedures.

Improved awareness of the potential cost benefits of medical tourism, combined with increased infrastructure supporting the practice, is likely to drive growing numbers of Americans – especially aging Americans – to seek medical services overseas. Based on the significant cost advantages, it behooves both government and private payers to evaluate the opportunity to facilitate this trend towards overseas elderly care.

Medical tourism, while holding significant promise, is not without risk. Investors and policy makers are frequently focused on three major concerns in this space, specifically: safety of housing and provider facilities, legal implications of medical malpractice, and the effect on local community healthcare. Regarding the latter, arguments have been raised both extolling and disparaging the effect that investment in high-end medical facilities has on local communities. However, supporters argue that improving hospitals brings better quality care to these communities as well as an economic stimulus from tourism dollars and traveling patients. The two Indian facilities most notably leveraging this concept are Arvind Eye Care and Narayana Hryudayala Hospital. Both achieve solvency by using revenues generated from serving wealthier patients to further subsidize the care of local patients.

High-end medical facilities also have the added effect of raising the overall standard of care, bringing elite physicians to an otherwise underserved area. However, some recent literature has pointed out that while patients in the immediate area surrounding key facilities may benefit from improved access to care, on the whole, developing health systems may suffer. In part, this is a consequence of private sector and government investors focusing on improving the quality of high-end care under the mantle of building a medical tourism industry, rather than investing in broader care that will benefit society.

A major concern for industry players in medical tourism is that development of the sector will largely depend on government support. In recent history, most governments have encouraged medical tourism due to its positive economic impact. However, should evidence show that providing both monetary and regulatory allowances to higher-end healthcare negatively affects disadvantaged communities, it stands to reason that support will be withdrawn.

Most analysts agree that medical tourism is unlikely to ever become the dominant means by which senior citizens receive healthcare. However, due to the promise of quality care and lower cost, traveling for care could still be a large opportunity for players who are well positioned within the market. The key challenge will be in mitigating some of the risks associated with navigating a largely unregulated industry. The elderly population represents a promising opportunity within the medical tourism market as they are often the most costly to treat and have the tightest budgetary constraints. As such, governments and corporations alike have an incentive to further support senior citizens traveling for medical treatment. The market seems primed for innovative institutions to prove they can adhere to appropriate regulatory pathways, subsequently opening the doors for future investors.

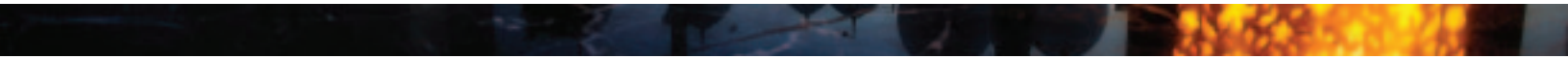
*"Research shows that the cost of treating Medicare's highest-cost population (chronically-ill) is not impacted by physician, practice, or market factors. Health reform policy may have little impact on bending the curve as a result. Instead, we need to focus on interventions tailored to this population to change their health status."*

***Dr. Lawton Burns***
*Professor of Healthcare Management and Department Chair,*
*The Wharton School*

# *Breaking New Ground: Cleveland Clinic Expands to Abu Dhabi*

## *An Interview with Kenneth Ouriel, MD Former CEO Cleveland Clinic Abu Dhabi*

**By Iman Abuzeid, MD**



The Cleveland Clinic is a leading nonprofit multispecialty academic medical center with a unique vision to be the *world's* leader in patient experience, clinical outcomes, research and education. In keeping with this strategy, the Clinic took over management of Sheikh Khalifa Medical City in 2007 (a network of healthcare facilities in Abu Dhabi) following an agreement with Mubadala Healthcare (the state-owned investment organization) to develop and manage a new 360-bed hospital -- Cleveland Clinic Abu Dhabi. Dr. Kenneth Ouriel served as Cleveland Clinic's first CEO of Sheik Khalifa Medical City from 2007 to 2008.

**PULSE:** ***How did you come to lead Cleveland Clinic's efforts in Abu Dhabi? What were your responsibilities as the first CEO of Sheik Khalifa Medical City?***

**Dr. Ouriel:** I began my career as an academic vascular surgeon at the University of Rochester, in Rochester, New York where I treated patients, performed research and wrote papers. Over time I started to take on more "business of medicine" type responsibilities, including assisting in the financial management of the section of vascular surgery. I was recruited to the Cleveland Clinic in 1998 to serve as their Chief of Vascular Surgery, and in 2003 I was promoted to the position of Chief of Surgery, leading the Clinic's 14 departments including cardiac surgery, general surgery, dentistry, orthopedics, obstetrics, gynecology and others. In 2007, Delos 'Toby' Cosgrove, CEO of Cleveland Clinic, asked me to head up Cleveland Clinic in Abu Dhabi. In Abu Dhabi everything filtered up to the CEO, including issues of quality and finance across all departments. Managing the individual facilities and recruitment accounted for the majority of my time. Unlike Toby Cosgrove who had to worry about many hospitals, however, I was able to focus on just one.

**PULSE:** ***What were some of the challenges you faced in Cleveland Clinic Abu Dhabi, and how did your experience differ from your experience in the United States?***

**Dr. Ouriel:** The organizational, IT and financial infrastructure of the hospital in Abu Dhabi was not well-defined. For example, when I started, the leadership structure was very flat with over 30 people reporting directly to the CEO. This made it difficult to manage anyone well. Access to

information was also in a very early state and the hospital did not have an electronic medical record system, so we could not get real-time information on how many patients were in the hospital, how much money was being spent, and so on. The fact that we had entered into a management agreement and were not accountable for the profit and loss of the hospital added another layer of complexity. We still needed access to financial information, but without an electronic medical record system or real-time financial information, it was difficult to factor this into decision making.

The other main challenge was managing change. The medical center was originally reserved for United Arab Emirates nationals only. While the hospital would always accept patients when the necessary care could not be provided elsewhere, elective admissions were by and large reserved for UAE nationals. The government of Abu Dhabi decided that the hospital should begin to accept any patient in need of care, whether elective or urgent, irrespective of citizenship. It was our responsibility to assist in the implementation of this rather drastic change in philosophy.

**PULSE:** ***Can you speak a little bit about some of the challenges you faced with recruitment?***

**Dr. Ouriel:** What good is a palace of a hospital if you don't have excellent doctors? You and I know firsthand how hard it is to live away from family. The doctors we were recruiting to Abu Dhabi from faraway places not only had to think about leaving family behind, but found themselves in a new and different environment. And while English was the official language within the hospital, this was not always the case in the community. We were also targeting superstar doctors. But why would top doctors leave their home country when they were doing so well? Some of us like to teach residents, but we didn't have a large residency program in Abu Dhabi, either. Finally, we weren't paying the doctors that much more than they could make in their home countries. Canadian and European doctors could earn a little bit more, principally due to income tax advantages, but it was still a challenge to recruit great doctors.

**PULSE:** ***What is your impression of Cleveland Clinic's strategy to go international?***

**Dr. Ouriel:** Even though I was not personally involved in the decision to go international, I think it was a very good strategy spearheaded by Dr. Cosgrove. It fits with my vision of the role of top hospitals, which is to take care of as many patients in as many places as possible, within the context of financial limitations. International expansion allows the Cleveland Clinic to bring healthcare to patients in other countries; to patients that may or may not otherwise travel to the U.S. for care. Establishing a hospital in Abu Dhabi, for example, provides better care for local people in a venue close to their family and allows the Cleveland Clinic to capture a larger percentage of the healthcare market, including those people that would otherwise seek out care at other top hospitals.

It is also a very good marketing strategy. Establishing a campus in Abu Dhabi was not only good for Abu Dhabi, it generated great press in the U.S. For instance, if you're in North Dakota and read that the Cleveland Clinic is opening a seven-star hospital in Abu Dhabi you may think "Gee, I should consider going to the Cleveland Clinic, too." This reputational effect within the U.S. is difficult to measure, but it makes intuitive sense that an enhanced global reputation would translate into more patients visiting the Cleveland Clinic in Cleveland, Ohio.

Finally, and this will be a little bit of an odd answer, but I view the decision as providing benefits similar to diversification of a financial portfolio. Operating or investing in the U.S. alone is like making a single investment. By diversifying investments across multiple geographies and types of enterprises, Cleveland Clinic can maximize its "Sharpe Ratio" – or risk-adjusted return – by decreasing volatility. If one market is down, another may be up. I don't think the CEO of Cleveland Clinic would articulate the rationale in this way, but this is my financial take on the question. Without disclosing the financial terms of the agreement, I will say that the move made financial sense at a global level. The major motivation was never financial, but we wouldn't have been able to engage in a relationship where we expected to lose a great deal of money.

**PULSE:** ***Should other academic medical centers ("AMCs") pursue an international strategy like the Cleveland Clinic?***

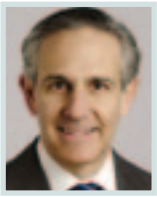
**Dr. Ouriel:** There's a lot of risk in expanding internationally. It's a credit to the Cleveland Clinic and its willingness to enter into creative relationships. It is a credit to the Clinic's leadership to have succeeded in establishing a campus located seven thousand miles and nine time zones from their main campus. Countries eventually won't need U.S. systems like the Cleveland Clinic, but I think that is still a long time away. Countries that want sustainably excellent healthcare first need excellent education. They will need to train local citizens who are committed to the hospital and community for the long-run. If there's a natural disaster, many non-nationals will be up and gone. Countries need people that will stay and complete their work no matter what. Doctors, nurses, administrators; countries need lots of dedicated well-educated people. Success starts with excellent primary and secondary schools, then excellent colleges, and finally excellent professional and medical schools.

Other AMCs can be successful if they go about expansion in the right way. They need to embrace local people and communities. For example, I think it would be great if Wharton opened an Abu Dhabi campus, but for that campus to be successful in the long-run requires the school to not only rely on faculty and students from Philadelphia, but on local faculty and students as well.

**PULSE:** ***Why did you ultimately decide to return to the US?***

**Dr. Ouriel:** My initial plan was to stay in Abu Dhabi for two years, but I came back early when I was offered a position with New York Presbyterian as the Senior Vice President in charge of International Operations. This was not only an attractive professional opportunity, from a personal standpoint it also allowed me to be with my family – who had not been able to join me in Abu Dhabi since our children were in high school, college, and graduate schools.

## *Profile*

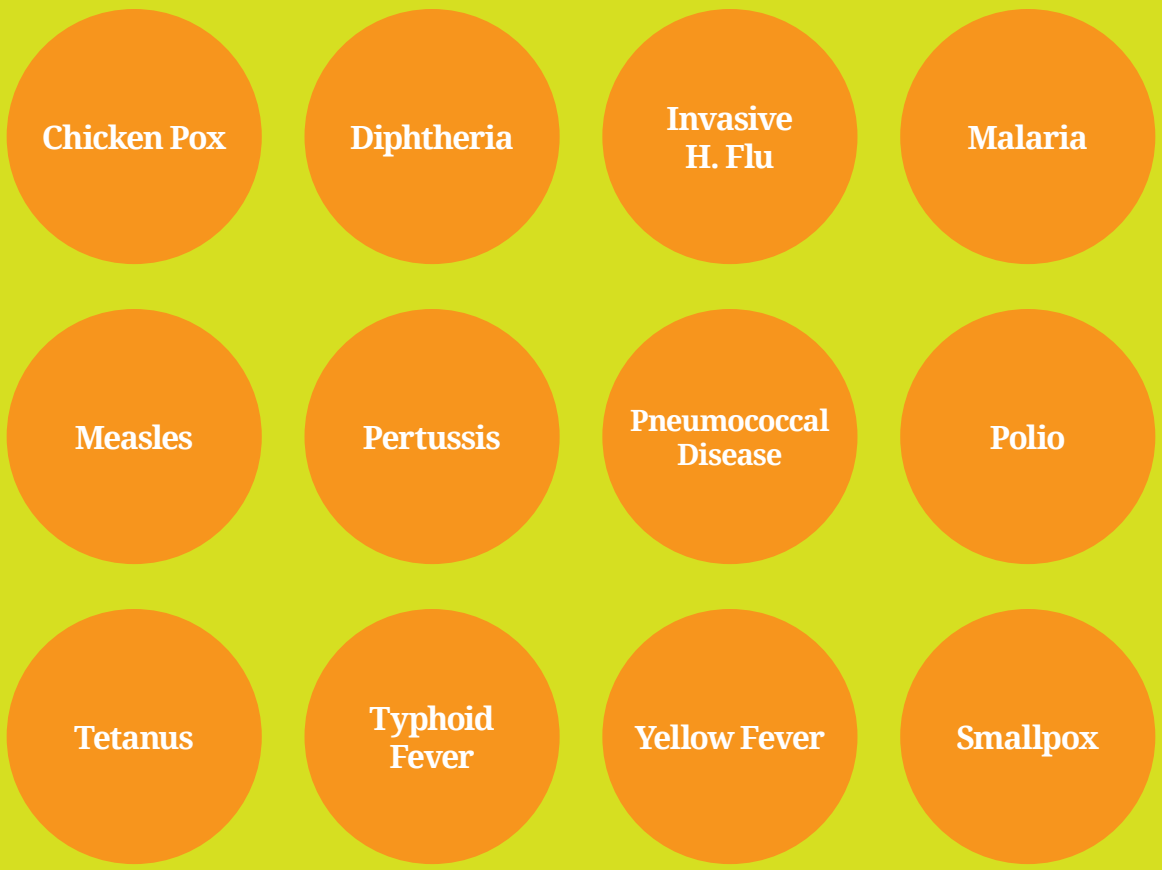


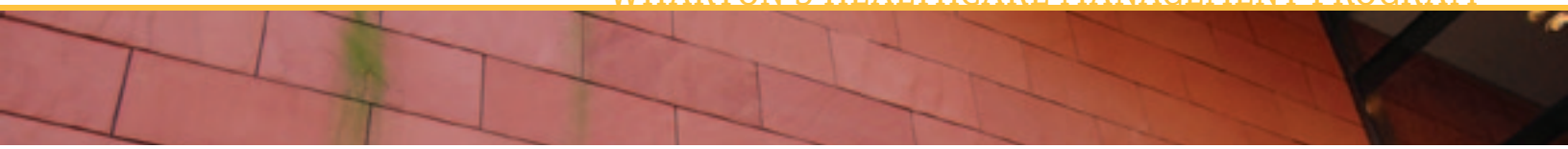
Dr. Kenneth Ouriel is Managing Director and Senior Vice President of International Operations at Presbyterian Hospital, New York. Dr. Ouriel was born in Rochester, NY. He attended public high school there and graduated at age 16. At that time he entered the University of Rochester where he majored in Biology and Psychology, was elected to Phi Beta Kappa in his junior year, and graduated Magna Cum Laude in 1977. He entered medical school at the University of Chicago. He graduated in 1981 with Honors and began a residency in General Surgery at the University of Rochester Medical Center.

Following the completion of training in 1987, Dr. Ouriel went into the academic practice of Vascular Surgery as an Assistant Professor of Surgery at the University of Rochester. He was active both clinically and academically, with a basic research lab funded by an NIH grant on vascular thrombosis. He was promoted to Associate Professor of Surgery in 1992. He led a multicenter study on thrombolysis for acute lower extremity arterial occlusion, published in the New England Journal of Medicine in 1998. He was recruited to the Cleveland Clinic that year to lead its Department of Vascular Surgery and held the academic title of Professor of Surgery. The department grew from 5 to 20 members in just five years, and Dr. Ouriel was promoted to the position of Chief of Surgery in 2003. A total of 14 Departments including Cardiothoracic Surgery, Urology, Orthopedics, Dentistry, Ob/Gyn, Plastic Surgery, ENT, Vascular Surgery, and the Center for Surgical Research reported to Dr. Ouriel, comprising 340 attending surgeons and 2500 FTE. Dr. Ouriel was a member of the Clinic's Executive Team, the committee of C-level individuals and the Chiefs of Medicine and Surgery, presiding over the Cleveland Clinic Health System. Dr. Ouriel was a member of the Executive Committee of the Society of Vascular Surgery, serving as that society's recorder between 2003 and 2006. He is the author of 3 textbooks in vascular surgery and over 250 original scientific articles on a wide variety of vascular surgical topics but focusing on minimally invasive means to treat vascular disease. He was the principal investigator on a five-year, $5M NIH grant on intravascular ultrasound and the atherosclerotic plaque, funded at $1M/yr for 5 years (2003 – 2008). In 2007, Dr. Ouriel accepted the role of CEO for the Clinic's Abu Dhabi project. He fostered the development of a new renal transplantation program and the first kidney transplant was performed in early 2008. In June, 2008, after living in Abu Dhabi for one year, Dr. Ouriel accepted the position of Senior Vice President and Chief of International Operations at New York-Presbyterian.

*"If existing vaccines were made available to all, 12 deadly diseases could be eradicated in the 21st century."*

***Lindsay Rand***
*Editor in Chief, The Pulse*





# New Conference on the Block

## *Wharton Health Care Alumni Association Conference Kick-Off a Success*

**By Kathryn Sullivan**


*Under the heading, "At the intersection of policy, implementation, and innovation in the healthcare industry," Wharton alumni and industry experts converged to talk candidly about the future of healthcare in the United States.*

"By a show of hands, how many of you in the audience are in favor of the Patient Protection and Affordable Care Act?" From the podium, Jeff Voigt, Wharton MBA '85, counted agreement from approximately half of the 140 attendees. "And how many believe this country spends too much on healthcare today?" With a near unanimous response the participants could clearly agree on at least one thing. Thus began a lively day of presentations and discussions at the first annual Wharton Health Care Alumni Association Conference, held October 22, 2011 in Jon M. Huntsman Hall in Philadelphia.

A medical device consultant by trade, Voigt first conceived of the conference in early 2011 as an alumni-focused complement to the student-run Wharton Health Care Business Conference. His goal for the day was to assemble alumni and influential members of the healthcare field to examine topical subjects from a range of perspectives. "I hoped to bring people together in a more intimate setting to talk as much as possible, to catch up, and to introduce one another," Voigt says. "I wanted to create an environment that promoted questions, dialogue and the sharing of alumni's talent and collective knowledge." In all, 25 HCM alumni assisted with planning, 20 spoke on panels, and 140 were in attendance.

Wharton HCM Professor Mark Pauly, PhD, led the first session on expanding insurance coverage through the PPACA. "As a self-disclosed card carrying economist, I am congenitally programmed to be critical and skeptical," he offered as a disclaimer prior to revealing four models for essential coverage. These included: Maximize population health; maximize takeup, or the Tony Bennett crowd pleaser; Maximize Affordability; and Minimize Administrative Cost. "In an ideal world," Pauly concluded, "Everyone would have some coverage, at least catastrophic. That would be better than great coverage for some and none for others – or all of us with great coverage that impoverishes us."

The Innovation in Devices & Diagnostics Panel featured new products that will change how medicine is practiced – once they overcome the regulatory and reimbursement burdens of the U.S. healthcare system. Andrew Taylor, CFO, Angel Medical Systems, described an implantable ischemic monitoring device for high-risk repeat heart attack patients, or an "OnStar for your heart." The company is currently focused on their U.S. pivotal trial and engaged in reimbursement discussions with private payers and Centers for Medicare and Medicaid Services. The bar is high to

prove clinical benefit, and quality of life metrics and cost effectiveness will also be taken into consideration. In all, Taylor anticipates a 10-year, $125 million effort to deliver the device to patients.

Tessarae, Inc. CEO Klaus Schafer, MD, MPH, discussed the challenges his small company faces bringing innovation to market. Tessarae's molecular diagnostic is one of the most cost effective, highly multiplexed, targeted sequencing diagnostics available today, and yet the Food and Drug Administration has stalled approval. Schafer stressed the need for a truly innovative pathway through the FDA. "The U.S. public will wait while others around the world adopt innovative technologies! Incremental change does not equal innovation," he warned.

The panel also included Steve Phurrough, MD, MPA, responsible for designing the CMS program allowing coverage of innovative technologies with evidence development. Phurrough recognized the ongoing need for earlier access to the market with safety and efficacy data and presented additional ideas to hasten the process. Finally, Harlan Weisman, MD, discussed the Patient Centered Outcomes Research Institute established in 2010 through PPACA. Previously known as the comparative effective institute – and "death panel" by others – PCORI is designed to help U.S. citizens make informed healthcare decisions. "A lot of comparative effectiveness research is done in East and West Coast academic medical centers. Many patients don't have access, and even so, the research may not be relevant to a rural Mississippi patient." PCORI strives to democratize information.

Conference attendees were treated to a lunchtime keynote speech by Wharton Professor Stuart Diamond, who stressed the importance of making human connections with all parties involved in a negotiation. "When they don't like you or don't trust you, they physiologically hear less," Diamond said, with Congress in mind. "And when they're not listening, they can't be persuaded." In regards to the ongoing healthcare debate, "The current crisis took decades to build up. We can't expect to save it with a single document."

> *"It is obvious from the camaraderie that you folks share, that the Wharton program is something special."*
>
> **Mark Girard, MD, President Steward Healthcare Network, Inc.**

Conference attendees enjoyed other breakout sessions focused on Health Care Informatics, Health Care Delivery Systems in the Era of Reform, and Financing Health Care Innovations. Audience members and speakers alike praised the quality of programming and the depth and sincerity of the discussions. David Dennis, WG'09, commented, "This stood out far ahead of the twelve or so other conferences I have been to this year."

Arguably the most animated encounter of the day was the closing session, Health Care in 2020: Can We Afford the Current Bill? Comprising the panel were Paul Howard, PhD, of the conservative think tank Manhattan Institute; Ezekiel "Zeke" Emanuel, MD, PhD, world-renowned bioethics scholar; and Jonathan Bush, Chairman and CEO of athenahealth, the leading cloud-based practice management and EHR company. A good-natured yet serious debate ensued as the three agreed on the fundamental problems of the system yet differed on effective policy measures.

Paul Howard described the current situation as "socialized medicine at capitalist prices for taxpayers." He is rooting for more bundled care, perhaps in the form of Accountable Care Organizations and health insurance exchanges. He cited a New England Journal of Medicine report that a fundamental problem in healthcare costs is the lack of labor productivity improvement through market-based competition over the last 20 years. A primary criticism of the current bill is the timing: it increases coverage first and chases savings later. "They should have gone the other way."

Zeke Emanuel adamantly supported the bill, maintaining that ACA would be


From left to right, Dr. Mark Pauly, Doug Arnold WG'84, Jeff Smith

upheld by the Supreme Court and be a catalyst for a better system by 2020. "If you think Congress has never mandated people to do things, you're in another world. I have a very large bet going. And regardless of the 2012 outcomes, it won't be repealed." He admitted the bill is going slower than some wished, but remains convinced it will not only save money but lead to improved quality metrics in healthcare as fee for service is replaced with bundled, coordinated, better care.

In his trademark exuberance, Jonathan Bush expressed concern over any government directives in healthcare, particularly in the IT space where his company plays. He asked the crowd to envision a trip to the physician's office in 1984 and compare it to today. "Pretty much the same thing, right?" Bush said. "Now think about a cell phone in 1984 versus today. Imagine if the government mandated everyone to get a phone from 1984." Bush stressed his fear of the government restricting the range of motion required for healthcare innovation to truly move the needle on cost and access.

Pleased with the inaugural conference, Jeff Voigt reflected on the day. "We have such a depth and breadth of experiences that we should be sharing with each other. Events like this highlight some of the really exciting things our alum are doing in healthcare – all making a positive difference in our healthcare system. Expect to see more initiatives like this from the board and the membership in the future. It will be a lot of fun for all of us."

The second annual Wharton Healthcare Alumni Association Conference is tentatively scheduled for October 26 and 27, 2012, on the campus of the University of Pennsylvania.

# *Wharton Health Care*
## *Management Program Overview*


The Health Care Management Department is one of the oldest, most distinguished, and most comprehensive in the health care field. Graduating its first class of MBA students with a specialization in Health Care Management in 1971, the department was in the vanguard of educating health care executives and leaders within the general management curriculum of a business school, breaking from the traditional public health and health administration models. The doctoral program was established in the mid 'eighties, broadening the department's mission to encompass the training of future health care management and economics scholars. The creation of the undergraduate concentration, also in the mid-'eighties, provides Wharton students and students throughout the university with education and training in health economics, management, and policy. Offering more course electives in health care than any other business school-based program, every important sector of health care is covered in depth.

Today, the department is a vital community of internationally renowned scholars who have spent their careers following the evolution of health care services and technology, domestically and globally, and researching important management and economic questions arising from all aspects of this complex enterprise. The HCM faculty collaborate with medical, engineering, nursing, and other faculty from around the university to create interdisciplinary research and knowledge. HCM students have countless opportunities to work with faculty and health-related research centers throughout the university. Health care executives, entrepreneurs, consultants, investors, and other practitioners are involved as part time lecturers who bring the world of practice to the classroom. The Annual Wharton Health Care Business Conference organized by HCM students attracts more than 600 alumni, health care professionals, and national health care leaders from every subsector of health care. It has become a nationally recognized forum for the exchange of ideas about issues in health care business and management innovation. A vast network of alumni who hold leadership positions in every part of health care work in close partnership with the department in activities such as guest lecturing, recruiting and mentoring students, and providing access to business data and practices to faculty engaged in research projects. This close-knit community of scholars, students, alumni, and practitioners is widely considered a leading source of talent and leadership for the health care field.

# Wharton Health Care Management Student Organizations

Central to the Wharton Health Care Management student experience is each individual's ability to shape and participate in a number of dynamic student run initiatives. We have highlighted some of these activities below. For more information about the program and its student-run initiatives, please contact June Kinney, Associate Director of the Health Care Management Program (kinneyj@wharton.upenn.edu).

### Wharton Health Care Club

The Health Care Club organizes professional and social activities for all Wharton graduate students who are interested in exploring opportunities in the healthcare industry. Members share their knowledge and perspectives in addition to interacting with current industry leaders to develop an understanding of the issues facing hospital, physician, managed care, pharmaceutical, biotechnology, and medical device organizations.

### Wharton Health Care Board Fellows Program

Wharton's Health Care Board Fellows Program strives to cultivate and enhance mutually beneficial learning relationships between Wharton's Health Care Management Program and the nonprofit board. The program serves to meet the needs of Health Care Management MBA candidates who are personally and/or professionally interested in healthcare social sector leadership. Program participants will gain first-hand experience as Board Observers on the boards of socially responsible nonprofit organizations dedicated to healthcare pursuits. The program also serves to meet the needs of non-profit healthcare organizations seeking access to the Penn and Wharton communities, as well as the professional experience and training of current Wharton MBA students.

### Wharton Global Health Volunteer Program (WGHVP)

WGHVP is designed to give Wharton Health Care Management students the opportunity to participate in global healthcare related projects with limited resources. WHIVP trips are student organized, student run, and student led. Projects give participants exposure to healthcare challenges in the developing world as well as the opportunity to work closely with organizations on the ground to develop viable strategies to improve their operations.

### The Penn Biotech Group

The Penn Biotech Group is a cross-disciplinary club with a mission to promote careers related to the biotechnology and medical device industries through practical experiential learning. The club draws members and expertise from graduate programs at Penn, including The Wharton School of Business, the School of Engineering and Applied Sciences, the Law School and the School of Medicine, as well as the larger life sciences community of Southeastern Pennsylvania.

# Editors in Chief

## Ben Herman

Ben graduated from Yale University in 2007 with a BA in Economics. After graduation, he joined the UBS Healthcare Investment Banking Group in New York where he covered healthcare services, REIT and life sciences companies. After two years with UBS, he moved to Chicago to join Cressey & Company – a private equity firm that invests in mid-market healthcare services businesses. Post-graduation, Ben plans to return to the healthcare services sector, likely in an operations or investing role.

## Vivian W. Hsu

Vivian graduated from Yale University in 2006 with a degree in Political Science and East Asian studies. Post-graduation, she worked in strategic and operations consulting for the life sciences industry in Boston and New York. In 2008, Vivian joined the Healthcare Practice of McKinsey and Company in Greater China, focusing on country-level strategies for multi-national pharmaceutical and medical device firms. She is currently pursuing an MBA in Healthcare Management at the Wharton School and is looking forward to a career in the life sciences space after graduation.

## Lindsay Rand

Lindsay earned a BA with Honors in Psychology and a minor in Economics from Stanford University in 2007. After graduation, she moved to Boston and joined Accenture's Health and Public Service consulting practice. When she wasn't traveling for work, Lindsay continued her involvement in academic research. Her work on health behavior and health promotion was most recently published as a chapter in a book about the obesity epidemic and obesity prevention strategies. After graduation, Lindsay plans to work in a hospital and one day hopes to serve in an administrative capacity, helping to improve patient access and physician experience.

# Staff Writers

From left to right, Jonah Enbar, Di Cai, Ben Herman, Jamie Mumford, Tom Osborne.

## *Iman Abuzeid, MD*

Iman graduated from University College London Medical School in 2009 with an MD and in 2006 with a Bachelor of Science. She subsequently worked at Booz & Company's healthcare practice based in New York, on studies including, developing the strategy for a pharmaceutical company entering the diagnostics industry, developing an implementation plan for a hospital building its first patient-centered medical home, and fostering collaborations between hospitals and pharmaceutical companies to improve clinical trial operations. Iman also worked at Click Diagnostics, a Boston-based telemedicine start up, implementing mobile application pilot programs that aim to reduce the cost of healthcare delivery. Iman is currently pursuing her MBA at Wharton Business School, with a focus in healthcare management, and hopes to pursue a career in healthcare technology and services upon graduation.

## *Di Cai*

Di graduated from Tianjin University (Tianjin, China) in 2005 with a B.S. in Pharmaceutical Sciences and a B.A. in English. She then pursued a PhD in Biomedical Sciences in University of Texas Southwestern Medical Center. During her PhD training, she discovered a novel biomarker gene for lung cancer prognosis which is now used by several National Cancer Institute-designated hospitals to characterize tumor development. Di then worked as a post-doctoral research associate in The Scripps Research Institute and led a team of scientists to conduct a drug discovery project for cancer therapy. After Wharton, Di hopes to begin a career in healthcare venture investment.

## *Jonah Enbar*

Jonah graduated from the Northwestern University in 2006 with a BA in Economics and Sociology. After Northwestern he spent three years at UBS Investment Bank as a member of their M&A team based in Chicago. Following UBS, Jonah joined Frontenac Company, a Chicago-based private equity firm, where he devoted the majority of his time to middle market healthcare services investment opportunities. Jonah's primary responsibilities included new opportunity review and due diligence, as well as assisting portfolio companies with operational, capital structure, business development and M&A initiatives.

## *Cara Kiernan Fallon*

Cara graduated Summa Cum Laude from Yale University with a BA in the History of Science and Medicine in 2007, and a Masters of Public Health in 2008, concentrating in Health Management. After graduation, Cara worked as an investment banker in the Financial Institutions Group at Goldman Sachs, completing FDIC-assisted transactions for distressed banks, demutualizations of insurance companies, and strategic changes to asset managers' capital structure during the financial crisis. Currently, she is a Wharton partner (married to Joseph Fallon) and a PhD student at Harvard working on autoimmune and chronic disease management. After graduation, Cara plans to pursue a career in health policy.

# Staff Writers

From left to right, Lindsay Rand, Vivian Hsu, Iman Abuzeid, MD, Clifford Jones.

Not pictured: Cara Kiernan Fallon and George Zeng.

## *Clifford Jones*

Clifford graduated Magna Cum Laude from the University of Pennsylvania in 2007 with degrees in business and materials science engineering. Clifford then worked at Boston Consulting Group for two years, followed by two years at CVS Caremark. At CVS Caremark, he developed Pharmacy AdvisorTM, a behavior change program for patients with chronic diseases. Pharmacy AdvisorTM was recognized with the "2011 Rx Benefit Innovation Award" from the Pharmacy Benefit Management Institute and a "Best Practices in Health Care Consumer Protection and Empowerment Award" from URAC. Clifford is currently a first-year MBA candidate majoring in Health Care Management. He is pursuing a career in health care technology and services.

## *Jamie Mumford*

Jamie Mumford graduated from Stanford University in 2004 with a Bachelor's in Science, Technology, and Society and a Master's in Communications. Upon graduation Jamie worked at Triage Consulting Group, and later joined BlueCross BlueShield. In these roles she specialized in provider revenue cycle activities, payment review and recovery, and payer contract analysis and negotiation support. In 2010 Jamie joined PricewaterhouseCooper's Healthcare Advisory practice. At PwC, Jamie has worked on a diverse range of provider projects including oversight for the day-to-day operations of a multi-facility hospital system's billing activities, cash acceleration support, system implementations, and payment compliance assessments. Currently she is a Wharton partner (married to Martin Mumford) and hopes to apply her keen interest in health policy to helping support the provision of sustainable, affordable, and efficient healthcare throughout her career.

## *Thomas Osborne*

Thomas graduated with honors from Harvard University in 2008 with an AB in English. Prior to Wharton, he was a Program Manager at Microsoft, where he was responsible for the monetization and relationship marketing capabilities of the Windows Live business. Thomas also worked at LeapFrog Investments, the only private equity investor focused exclusively on micro insurance, where he covered investments in the Indian market. He is studying Health Care Management at Wharton and plans to continue his work in impact investing after graduation.

## *George X. Zeng*

George graduated summa cum laude from Princeton University in 2006 with a degree in Economics, Finance and Chinese Languages/Culture. After graduating, George worked in the leveraged finance restructuring investment banking group at Goldman Sachs, the long-short equity investing group at TPG-Axon and at McKinsey Greater China doing pharmaceutical strategy, medical devices marketing and hospital provider due diligence work. George is currently pursuing a Healthcare, Management and Finance MBA degree at Wharton and plans on working in the Healthcare and Technology space after graduation.

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