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*Second Annual
Medical Innovation and Strategies Conference
Consumer Healthcare and Wireless Technologies*

September 15, 2010

Presented by the Duke Fuqua School of Business Health Sector Management Program in
partnership with the Edmund T. Pratt, Jr. School of Engineering



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| David A. Eichler, MBA Managing Member, Psilos Ventures | Richard Migliori, MD Chief Medical Officer, OptumHealth, Inc.; Chief Healthcare Officer, UnitedHealth Group Alliances |
| Raymond G. Falci, MS, MBA Managing Director, Cain Brothers | Jeff Miller Vice President, Head of Healthcare, Capgemini |
| Jim Glasheen, PhD General Partner, Technology Partners | Christine Robins, MBA CEO and President, BodyMedia, Inc. |
| Nancy M. Green Managing Principal, Healthcare Practice, Verizon Business – Global Services | Peter Tippet, MD, PhD Chief Medical Officer, Vice President of Technology, Verizon Business |
| Donald Jones, JD, MBA Vice President, Health & Life Sciences, Qualcomm Incorporated; Founder and Chair, Wireless Life- Sciences Alliance; Founding and Former Board Member, West Wireless Health Institute | Simon Wallace MFPHM, DRCOG, MBBS Healthcare Director, Optima-life |

Meeting summary written by Patricia A. French, Left Lane Communications

Second Annual Medical Innovation and Strategies Conference: Consumer Healthcare and Wireless Technologies, September 15, 2010

On September 15, 2010, Drs. Gopal Chopra and Kevin Schulman hosted the Second Annual Medical Innovation and Strategies Conference, "Consumer Healthcare and Wireless Technologies," at Duke University's Fuqua School of Business.

Wireless technologies have a tremendous impact on the consumer healthcare industry, both now and on future trends in business models, and innovation solutions. Continued evolution in healthcare reform legislation, insurance coverage structures, and changes in consumer behavior must be considered when developing and applying information technologies to optimize the delivery and outcomes of consumer-oriented healthcare, in addition to current and future barriers to entry.

Keynote Addresses

Topic: Issues Around Transformation to Health Information Technology
Speaker: Peter Tippett, MD, PhD, Chief Medical Officer, Vice President of Technology, Verizon Business

Topic: Harnessing Irrationality to Improve Health Behavior
Speaker: Daniel Ariely, PhD, James B. Duke Professor of Behavioral Economics, Duke University Fuqua School of Business

Presentations and Panel Discussions

Topic: Collapsing Time and Space in Healthcare
Speaker: Donald Jones, JD, MBA, Vice President, Health & Life Sciences, Qualcomm Incorporated; Founder and Chair, Wireless Life-Sciences Alliance; Founding and Former Board Member, West Wireless Health Institute

Topic: Panel Discussion: Future of Wireless and Consumer Healthcare
Moderator: Gopal K. Chopra, MD, FRACS, MBA, Adjunct Associate Professor, Duke University Fuqua School of Business
Panelists: Donald Jones, JD, MBA, Vice President, Health & Life Sciences, Qualcomm Incorporated; Founder and Chair, Wireless Life-Sciences Alliance; Founding and Former Board Member, West Wireless Health Institute
Nancy M. Green, Managing Principal, Healthcare Practice, Verizon Business – Global Services
Mohit Kaushal, MD, MBA, Director, Connected Health, U.S. Federal Communications Commission (FCC)

Topic: Business Models in Consumer Health
Speaker: Raymond G. Falci, MS, MBA, Managing Director, Cain Brothers

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Moderator: Raymond G. Falci, MS, MBA, Managing Director, Cain Brothers
Panelists: David A. Eichler, MBA, Managing Member, Psilos Ventures
Jim Glasheen, PhD, General Partner, Technology Partners
Tom Kottler, JD, Cofounder and Chief Executive Officer, HealthPrize Technologies LLC

Panelists (cont.): Joshua Lewis, PhD, Founder and Managing Principal, Salmon River Capital LLC
Christine Robins, MBA, CEO and President, BodyMedia, Inc.

Topic: Improving the American Health System: Decision Support for Your Hip Pocket
Speaker: Richard Migliori, MD, Chief Medical Officer, OptumHealth, Inc.; Chief Healthcare Officer, UnitedHealth Group Alliances

Topic: Panel Discussion: Transforming Healthcare Delivery with Mobile Health Communications
Moderator: Jeff Miller, Vice President, Head of Healthcare, Capgemini
Panelists: Richard Migliori, MD, Chief Medical Officer, OptumHealth, Inc.; Chief Healthcare Officer, UnitedHealth Group Alliances
Mark A. Dente, MD, Chief Medical Informatics Officer, GE Healthcare IT
Terry E. Douglas, Jr., Executive Director, Marketing Strategy, RelayHealth
Simon Wallace MFPHM, DRCOG, MBBS, Healthcare Director, Optima-life

Topic: The Future of Consumer Health: 2010 Healthcare Odyssey
Speaker: Gopal K. Chopra, MD, FRACS, MBA, Adjunct Associate Professor, Duke University Fuqua School of Business

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Keynote: Issues Around Transformation to Healthcare Information Technology

Speaker: Peter Tippett, MD, PhD, Chief Medical Officer, Vice President of Technology, Verizon Business

Healthcare information technology (HCIT) must transition from the horse-and-buggy era to the cellphone age if it is to survive. If it can achieve this goal, as the financial services industry has, then healthcare costs will decrease, quality will increase, and new research avenues will emerge.

Effective deployment of HCIT is not being delayed because of deficits in technology. For example, Verizon has spent \$13 billion to purchase bandwidth on the television broadcast spectrum. In addition, the fourth generation of wireless technology will be released by the end of 2010, and slowest cellphones are already two to three times faster than these new wireless devices. Rather, it is a failure to use, coordinate, and standardize existing and emerging technologies that is hampering efforts to modernize HCIT.

Telemedicine can offer great value—the possibility of reaching remote areas, the capability of monitoring patients at home or work, reduced labor costs, the opportunity to harness worldwide collaborations—but issues related to coordination, connectivity, privacy, security, compliance, and complexity must be addressed first. Intermediation critical in this regard.

Another issue to be addressed is the question of funding. One current project allows physicians in 14 rural states to instantly connect with clinicians at tertiary care facilities. The system is both feasible and effective, but implementation on a nationwide or international level will depend on financial backing. At present, no business models exist that cover such a scenario.

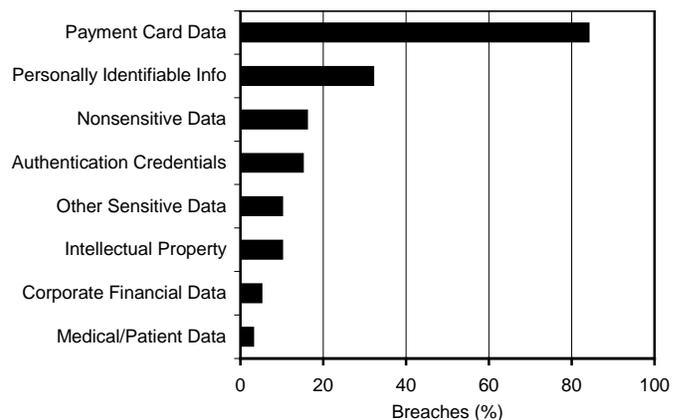
Data collection and analysis are critical not only to the design of HCIT systems but also to their evolution. As with any other science, data gathered from existing systems must be used to inform their

refinement as well as the creation of next-generation processes.

Up to 70% of all Internet traffic in the United States travels on Verizon infrastructure. If only a portion of the resulting data was collected and analyzed, use patterns and other valuable information could be gleaned. It is an axiom in the computer science world that only 14% of the entries in an error log will produce meaningful change, but no one knows *which* 14%. Systematic data collection and analysis can help identify important trends and lead to evidence-driven HCIT.

A recent example of evidence that can support informed systems design comes from [an analysis](#) of more than 500 computer security breaches from 2004 to 2007. Most users and companies believe that simple installation of security software and its updates are sufficient to prevent such breaches. However, exploitation of a vulnerability represented only 22% of the attacks. The bulk of the breaches were accounted for by remote access connections, Web-based applications, the use of default credentials, SQL injections, and weak access control lists. Of note, only 14% of the cases involved the financial industry.

It would be useful for designers to know that most security breaches aim to capture payment data, as shown in the figure, rather than, say, corporate financial data or medical data.



As noted above, new business cases will need to be made for companies to invest in HCIT, especially when the price of the product shows exponential decay. For example, it would not be strategic to enable transmission of pacemaker signals to a cellphone and then to a provider—this would represent only a few minutes of cellphone time—but it might be worthwhile to build the infrastructure to support such a function and thereby capture some future fraction of healthcare revenues.

In addition, new infrastructure must incorporate the provisions of Meaningful Use for electronic health records (EHRs) as outlined in the incentive program called for under the [American Recovery and Reinvestment Act of 2009](#) (ARRA). Efforts in this regard must be designed first with the end user in mind, using intuitive, elegant interfaces that yield clinically relevant information with a minimum of confusion.

Clinically relevant information can be captured only if end users actually use the system, however. At present, EHRs are useful for administrators and researchers, but less so for busy clinicians, nurses, technicians, and others providing healthcare. In one study in Texas, physicians indicated such a dislike for the EHR that they entered only rudimentary information, citing reduced productivity and the possibility of introducing more errors compared with the traditional transcription method.

Evidence bears out their concern: 84% of the records examined contained at least one significant error, compared with only 14% of the transcribed records. Moreover, of the 1.2 billion notes created in one system, 92% of the physicians had used transcription to create them. An ideal EHR would retain the best parts of the transcription system (free text, but searchable) in digital format, and expand current capabilities for digital data transmission, such as transfer of scan images. Natural language processing methods might be very helpful in tagging content for portability across existing systems.

Finally, systems must take into account that 73% of all patient interactions with physicians occur in places that have five or fewer practitioners. Such practices and offices overwhelmingly lack EHRs.

Healthcare costs could be cut substantially, by avoiding duplication of testing, if records from these small providers could be digitized and transmitted easily to tertiary care centers. Put another way: They “need an app for that.”

One strategy to address users’ needs is to create a health information exchange. In this model, any EHR or medical data could be submitted in any format, structured or not. Data could be accessed by anyone with an Internet connection securely and privately, in compliance with the Health Insurance Portability and Accountability Act (HIPAA) requirements. The [National Health Information Network](#) is attempting to create such an exchange. It is developing specifications for a secure, scalable, standards-based way for providers, laboratories, hospitals, pharmacies and patients to send encrypted health information directly to known, trusted recipients over the Internet.

Keynote: Harnessing Irrationality to Improve Health Behavior

Speaker: Daniel Ariely, PhD, James B. Duke
Professor of Behavioral
Economics, Duke University Fuqua
School of Business

Healthcare demands that we care about the future, but the perceived value of improving later health is often insufficient to effect adherence to diet, exercise, or medications now. The farther in the future the reward, the more difficult it is to imagine. Because of this “hyperbolic discounting,” alternate, interim rewards are often substituted.

Reward substitution might be applied to healthcare by getting people to behave in the right way for the wrong reason. An excellent example of the successful use of this technique relates to global warming. This is a problem that people inherently won’t tend to care about: effects will manifest long in the future, effects will affect someone else, any individual’s actions will be only a drop in the bucket, and individuals can’t see progress because of their efforts. How, then to motivate people now? Harness people’s tendency to want to be admired. This is why the Toyota Prius has succeeded while the Honda hybrid has not: the Prius looks very different and it causes people to feel differently. It lets others know visibly that you are doing something for the environment, creating instant validation. The right action for the wrong reason, in other words. Of note, people who drive the Prius do not change to compact fluorescent light bulbs, lower their thermostats, or increase the insulation in their houses more often, probably because these activities don’t carry an external reward.

Other methods of reward include both positive feedback—cash, discounts on future costs, lotteries, loyalty points, public kudos—and negative “rewards”—social humiliation or fostering feelings of regret or fear. In both cases, responses should reflect the magnitude and duration of desired behavior; i.e., long-term reward or penalty for long-term behavior change.

Preventing feelings of regret has been shown to be a strong motivator. People are more upset if they miss

a flight by 2 minutes rather than 2 hours, because things could have turned out differently with only small changes. So a strategy of letting people know that they could have received a reward for participating in a health-related activity will likely increase the chances of their participation in the future.

Preparing for temptation is also a time-honored way to improve one’s chances. One heroin treatment program in Denver used this strategy to prevent relapse. Participants wrote a letter to someone important in their lives incriminating themselves regarding their drug use. The letters were held by the program. If heroin was found during testing, the letter would be mailed.

Another hypothetical scenario could be geared toward patients who are reluctant to undergo procedures such as colonoscopy. In this case, the patient would pay \$500 when the test is scheduled. If the patient undergoes the test, the money is returned. The patient will still be reluctant to undergo the test but will be even less inclined to lose \$500.

A less common but very effective strategy for healthcare might involve the language used to discuss it, as has been shown successfully for the wine industry. It might be possible to create a language for, say, vegetables that would add a reward for improving one’s knowledge and use of them in meals. Children also can be very powerful motivators of their parents, primarily through guilt but also sheer determination.

Providing information alone is not an effective way to motivate people. For example, providing the calorie information for a cup of cooked rice won’t help people develop better eating habits, but if people are asked whether they would like half a portion of rice, 40% say yes. They will need to be asked again and again, however, before they will ask for themselves.

Collapsing Time and Space in Healthcare

Speaker: Donald Jones, JD, MBA, Vice President, Health & Life Sciences, Qualcomm Incorporated; Founder and Chair, Wireless Life-Sciences Alliance; Founding and Former Board Member, West Wireless Health Institute

Overview

Wireless technology has the capacity to make connections possible on an unprecedented scale, which could have profound effects on access to and delivery of healthcare. New business models and collaborations will be required to move forward efficiently and effectively.

Discussion topics

- Five billion cellphones exist currently—more units than any other computing or consumer electronics device. In addition to being inexpensive, the networks supporting them are pervasive worldwide: more people use cellphones than running water, toothpaste, or electricity. The asset in this system is the network, not the cellphone. How to take advantage of the most pervasive technology on earth is the challenge. In this regard, the Kindle might be revolutionary; it is a network-connected device but does not follow a subscription model.
- Healthcare is a critical global issue for which connectivity might offer answers (Table). The wearable wireless sensors market alone is predicted to grow to >\$400 million annually by 2014.

- The cellphone can be the most personal medical device, the hub of the “body area network”. Developers must keep end users in mind—patients, families, physicians, administrators—while creating scalable solutions to connecting applications with people.

| Top 10 Targets for Wireless Technology | |
|--|---|
| Alzheimer’s disease | Vital signs, location, activity, balance |
| Asthma | Respiratory rate, peak flow |
| Breast cancer | Wireless ultrasound at home sent to the doctor; no need for mammogram |
| COPD | FEV1, air quality, oximetry |
| Depression | Medication compliance, activity, communication |
| Diabetes | Blood glucose, hemoglobin |
| Heart failure | Cardiac pressures, fluids, weight, blood pressure |
| Hypertension | Blood pressure, medication compliance |
| Obesity | Weight, calories in/out |
| Sleep disorders | Rest quality, apnea, vital signs |

- Efforts started in 2002 at Qualcomm to build a global ecosystem of >200 member companies, including the first global [wireless health trade group](#), a [clinical research network](#), a [Wireless Health Scholar program](#), standards organizations, health alliance foundations, global leadership, personal emergency response, mobile industry, telemedicine trade group, and innovators.
- Current wireless initiatives include new classes of devices for various use cases; wearable, disposable, mobile devices deliver affordable, accessible 3G wireless for medical consumer health solutions. Personal supply chain management will allow one-touch reordering of medications, with no separate charge for connectivity.
- The [Myca](#) platform combines components of EHRs, practice-management systems, and social networking in a secure environment that complies with HIPAA standards. Patients can make their own appointments, ask for “e-visits,” and select providers, while physicians can scan lists of upcoming appointments, check medication refills, and text or email patients and other physicians. It can reduce overhead costs by up to 40%.
- “Living by numbers:” the question remains—can pts better manage health through connectivity?

Panel Discussion: Future of Wireless and Consumer Healthcare

- Moderator:** Gopal K. Chopra, MD, FRACS, MBA, Adjunct Associate Professor, Duke University Fuqua School of Business
- Panelists:** Donald Jones, JD, MBA, Vice President, Health & Life Sciences, Qualcomm Incorporated; Founder and Chair, Wireless Life-Sciences Alliance; Founding and Former Board Member, West Wireless Health Institute
Nancy M. Green, Managing Principal, Healthcare Practice, Verizon Business – Global Services
Mohit Kaushal, MD, MBA, Director, Connected Health, U.S. Federal Communications Commission (FCC)

Overview

Evolving wireless technologies will spur changes in the delivery of healthcare. Input and buy-in from all stakeholders—patients, payers, healthcare providers, wireless carriers, device manufacturers, and regulatory entities—will be required to develop effective infrastructure and applications for telemedicine.

Discussion topics

- Customers for new wireless health solutions will be both individuals and industries. Technologies will need to address consumers' needs as well as provide integrated enterprise solutions for health systems, retailers (pharmacies), insurers, and wireless carriers around the world, not just in the U.S.
- The U.S. Federal Communications Commission (FCC) is working across federal agencies to remove government-level barriers to achieving telemedicine. A regulatory framework for this infrastructure and its components is being developed in coordination with the Food and Drug Administration (FDA), and funding options are being explored.
- Smartphone applications might be able to tell patients what to do, steer them to sponsored hospitals, and even tell them waiting times. In return, hospitals will get patients who are likely to have insurance coverage, with whom a relationship can be maintained through push technologies. Hospitals must challenge themselves to evolve to a more patient-centered model, however.
- Strategies to overcome inertia within the payer-gear U.S. system include development of applications that are useful, fun, and integrated into patients' lives. For example, earbuds or Wii programs could be created that measure vital signs or other variables, with no extra steps or equipment required. The added value is that care would become more transparent and allow more informed decision-making, in addition to being environmentally friendly (reduced driving, etc.).
- The self-insured market segment might be the most flexible way to test new infrastructure and gather evidence regarding changes in cost effectiveness and quality of care. Collection of hospital-level quality data is driven now by the reimbursement model, which is not possible with wireless technologies. The push for governments and organizations to recognize new data sources will come from lobbyists, but the quality evidence generated by self-funded entities will likely drive changes throughout the system.
- The consumer-pay model might be one business model to follow. For Cigna, 40% of their revenue comes from patients coming to the U.S. for care from cradle-to-grave countries. The subscription model is also attractive: If a new technology offers value to healthcare system, package services around and charge monthly for access to them.
- Evidence is needed to address whether wireless technologies truly reduce costs, generate new revenue, and/or improve health. Although short-term costs will increase, i.e., revenues will increase for some technology companies, personnel and overhead costs of EHRs will decrease. Also, in developing countries, no existing technology is being supplanted. Increased self-monitoring is likely to improve awareness of health in general.

Business Models in Consumer Health

Speaker: Raymond G. Falci, MS, MBA, Managing Director, Cain Brothers

Overview

A major challenge to the adoption of information technology to healthcare is the creation of innovative, sustainable business models to support it. Other industries might offer insights for healthcare systems, technology manufacturers, and payers to consider.

Discussion topics

- The typical U.S. hospital buys IT products from 30 different vendors. The challenge for streamlined HCIT is how to make their products interoperable. In this regard, healthcare lags behind other industries, such as the banking sector.
- One reason for the financial world's success is that records can be tied together by Social Security number, which is unique and follows people through their lifetimes. The concept of a "master patient number" has not caught on throughout healthcare.
- Other advantages that have aided creation of the financial industry IT systems include industry-wide standards, a single regulatory body, limited consumer movement between banks, well-defined data to capture, and widespread access to security standards. Healthcare lacks all of these.
- We are currently in the midst of a "perfect storm" for HCIT and consumer health comprising technological access, a healthcare crisis, and government reform. Technology has brought wireless IT to everyone; it is ubiquitous, allows reliable remote data collection, and better interoperability. Healthcare continues to bear spiraling costs, a lack of access, cost shifting to consumers, and increased scrutiny of quality, compliance, and comparative effectiveness. Meanwhile, the government has passed the 2009 ARRA, the stimulus bill and related Meaningful Use requirements, and the 2010 healthcare reform legislation, leading to creation of accountable care organizations (ACOs) and other ramifications. All of these changes are spurring the adoption of wireless HCIT.
- Monetizing the healthcare consumer involves four groups of stakeholders. First, healthcare payers are searching for strategies for next-generation disease and wellness management. Consumer movement across plans creates challenges for payers, leading to a possibly increased role for employers. Second, the pharmaceutical industry has historically focused on compliance. Despite current financial challenges in this industry, there will be a continued increasing focus on consumer engagement. Third, the advent of ACOs creates incentives for hospitals to measure and manage risk; the physician segment might be involved as well. Finally, the involvement of consumers in shouldering more of the costs will motivate them to improve health, although historically healthy consumers have shown some reluctance in this regard.
- Consumers appear willing to pay for help in compliance with prescribed treatment regimens, which will lead to improved outcomes. Thus data will be increasingly needed to validate product and protocol efficacy. They are also willing to support improved coordination of care, particularly facilitating transitions in care. Their willingness to pay is context-specific and reflects limits of the perceived value of the intervention.
- The most lucrative areas for HCIT likely will include monitoring in high-cost, chronic disease states, such as hypertension or COPD; follow-up after acute-care discharges, ensuring compliance with treatment protocols; member health status assessments, with risk-based reimbursement; and wellness monitoring, within limits.

Panel Discussion: Business Models in Consumer Health

Moderator: Raymond G. Falci, MS, MBA, Managing Director, Cain Brothers
Panelists: David A. Eichler, MBA, Managing Member, Psilos Ventures
Jim Glasheen, PhD, General Partner, Technology Partners
Tom Kottler, JD, Cofounder and Chief Executive Officer, HealthPrize Technologies LLC
Joshua Lewis, PhD, Founder and Managing Principal, Salmon River Capital LLC
Christine Robins, MBA, CEO and President, BodyMedia, Inc.

Overview

As noted, traditional business models in HCIT are unlikely to prove sustainable with recent advances in technology. In this panel, two innovative Web-based HCIT businesses presented their operational models for critique by three venture capitalists (VC).

- **Company #1:** The healthcare industry loses \$150 billion if patients don't take prescribed therapies. [HealthPrize Technologies LLC](#) rewards patients for taking their medications. The HealthPrize model motivates patients by changing perceptions of the value of treatment, through evidence-based loyalty points systems, competitions, and lotteries. Components of the "engagement engine" also reflect evidence from the marketing, gaming, neuroscience, behavioral economics, and psychology disciplines. The platform is customizable, available wirelessly for cellphones, and HIPAA-compliant. The business model is to increase revenue rather than cut costs, and, since consumers won't pay for it themselves, to market the device to pharmacy benefits managers (PBMs) and pharmaceutical companies. Annual licenses are sold plus seat licenses based on points per brand. For health plans/employers, a similar pricing model is used but with a charge per participant per month.
- **Company #2:** The mission of [BodyMedia, Inc.](#) is to provide information to people that they can then use to improve their lives. The product solution consists of an armband plus display and applications that can aid in weight control, corporate wellness, diabetes management, remote monitoring, critical care, and disease prevention. The software is sold under a subscription model to healthcare providers and consumers, mostly by means of a professional endorsement business model. Clinical evidence supporting the device is used to influence medical professionals to see it as a revenue generator, not an engagement tool. The next phase of development might include developing Bluetooth-enabled devices with a suite of supporting applications, then creating machine-to-machine (M2M) interfaces so that families can monitor loved ones, dispatchers can monitor firefighters, etc.

Critiques:

- Elements of both models appear compelling, although the return on investment (ROI) for compliance with FDA requirements has shrunk, especially for devices. Compare the typical 5-year approval process for devices versus the 6-month life cycle for technologies, and add issues of inconsistent regulatory enforcement and difficulties in insurance coverage/payment. More effort should go to "consumer medicine," in which the patient drives the modalities, whether reimbursed by third-party payers or self-paid. One of the biggest unmet needs in healthcare is behavioral modification, which depends upon engaging consumers. Both models can achieve this aim, with funding models evolving over time.
- Decisions will be made according to healthcare economics factors, not the desirability of the technology. The companies should be able to draw direct lines between the product or service and both reduced costs and improved quality in healthcare, then consider how the product/service aligns across constituencies. Such analyses lead more toward models that address larger opportunities, such as management of chronic disease, prevention of medical errors, or new healthcare delivery models.
- Traditional VCs ask several questions before investing resources, for which these companies might not

have answers yet: 1) What is the market opportunity, including the growth rate, whether it is creating or riding a market, what exit opportunities exist; 2) In business-to-business (B2B) models, who benefits, who pays, and why? What are the real clinical and financial benefits, capital intensity, and margins? What is the competition, and how does the company achieve differentiation? 3) Regarding the management team: who are they, what is their experience, and how much have they invested? What kind of strategic financial partner are they looking for? What do they perceive the risks to be, and how will they be mitigated?

- Wireless HCIT creates convergences between products and services. Companies will need to deal with both patent business model variables (patent life, royalties) and service model-related variables (who pays, how). Solutions that can reduce costs will have an advantage due to smaller level of payer involvement.
- Hospitals are not considered in most VC models because they are considered to have a low level of influence, with key opinion leaders at the top, followed by trade associations, specialists, and general practitioners. Also, with the exceptions of preventing medical errors and expanding integrated healthcare delivery models, the current focus of healthcare is not on hospitals, the most expensive type of care. A problem with the U.S. healthcare system is that it has conflicting goals: keep people out of hospitals, but fill available hospital beds.

Improving the American Health System: Decision Support for Your Hip Pocket

Speaker: Richard Migliori, MD, Chief Medical Officer, OptumHealth, Inc.; Chief Healthcare Officer, UnitedHealth Group Alliances

Overview

A primary application of wireless HCIT is for decision support, for both doctors' workflow and patient lifestyle. The underlying philosophy here is that access to better information will lead to better decisions and thus to better health.

Discussion topics

- Focused innovation takes into account healthcare reform, cost controls, and client/partner opportunities. Wireless technology itself is not an endpoint; however, it is an excellent enabler that will figure into advancing wellness and lifestyle optimization, mitigating the personal burden of chronic disease, providing innovative means of broadening access to care for an otherwise overwhelmed system, and enabling consumers and their caregivers to make faster and better decisions.
- In a recent study, 45% of the medical decisions made did not reflect recommended treatment, and 11% might have caused harm. In addition, nearly 20% of all new prescriptions are never filled, and 50% of those that are filled initially will not be refilled at 6 months. Medication nonadherence is responsible for 10% of all hospitalizations.
- Healthcare delivery will be most effective when physicians and patients can make choices that are informed by an understanding of the patient's needs, supported by a solid evidence base, and tracked by tools that will assure progress toward the desired clinical and economic outcome.
- Decision support for patients might include education about their condition, treatment alternatives, recommendations as to facility and provider, and admission counseling. Programs could start by including common conditions such as back pain, knee or hip replacement, or benign prostatic hypertrophy.
- In one study, after implementation of a decision model, the use of discretionary surgery was reduced by 13%, and the treatment recommended was often different from that originally proposed. In another study, greater compliance with treatment recommendations resulted in lower mortality and healthcare costs in patients with chronic myelogenous leukemia. In fact, the total costs of care for CML inversely related to compliance.
- An example of a self-operating decision-support platform for health systems is the [eSync Platform](#). It constantly scans the whole system population—laboratory test results, claims, telephone contacts, etc.—and builds a profile for each patient and his/her health problems. The system passes data through a rules engine and assesses the recommended course of care versus the actual care being delivered. Errors of omission and commission are then transmitted to the patient, provider, and payer for action. The system also generates a personal action plan that includes medication, lifestyle changes, recommended providers, and to-do lists.
- Current mobility solutions include [DocGPS](#), which tells patients where the closest high-quality physician is, wherever they are, and can even make the appointment for them. In the future, patients will be able to use mobile devices to build their own food plans, send/receive messages with their healthcare teams.
- Healthcare providers see HCIT systems as intrusive, distracting, and not useful. To be used successfully, systems must be incorporated into the normal workflow procedures, and their value must be repeatedly demonstrated. The challenge is not with the technology; rather, it is in changing attitudes.

Panel Discussion: Transforming Healthcare Delivery with Mobile Health Communications

Moderator: Jeff Miller, Vice President, Head of Healthcare, Capgemini
Panelists: Richard Migliori, MD, Chief Medical Officer, OptumHealth, Inc.; Chief Healthcare Officer, UnitedHealth Group Alliances
Mark A. Dente, MD, Chief Medical Informatics Officer, GE Healthcare IT
Terry E. Douglas, Jr., Executive Director, Marketing Strategy, RelayHealth
Simon Wallace MFPHM, DRCOG, MBBS, Healthcare Director, Optima-life

Overview

Despite the high costs of investment, compliance issues, quality concerns, irrationality of consumers, and multiplicity of devices in the current murky regulatory environment, wireless devices must find a sustainable role in HCIT. The aging of the population, combined with coming shortages in primary care providers being trained, necessitate the use of technology in efforts to improve access to and quality of care. The best way to incorporate these devices will be to make them simple, fun, and practical to use, integrated into current systems, and of demonstrated value with regard to costs, social benefits, and clinical outcomes.

Discussion topics

- People around the world might lack access to electricity, but cellphones have become pervasive. To develop sustainable business models for the use of wireless technologies in healthcare will require combining revenue streams, but how current payers will fit into these models is unclear, given that ROI varies by stakeholder. Consumers are willing to pay for previously free services if added value is shown.
- The current structure of healthcare systems allows leverage of wireless HCIT, but implementations will differ around the world. Hospitals and physicians must serve as leaders for community adoption of wireless delivery methods. The technology will support underlying community spirit to improve health.
- In the short term, payers are likely to continue to drive the model for healthcare delivery because they have the most financial risk to bear. However, eventually it will be trusted local providers (physician, health system) that will provide and enable connectivity with patients. In the meantime, with improved data about healthcare resource use, insurance premiums might not change, but employee contributions might decrease.
- Up to 30% of all healthcare costs in the U.S. are transaction costs: enrollment, administration, and claims processing. Wireless technology is unlikely to improve this aspect in the U.S., but in single-payer markets, it can more easily enable population-level and public-health initiatives.
- Digital data collection presents several opportunities, but also new challenges. It is generally better to have more clinical data, for example, but not at the costs of increased, possibly unnecessary testing. Data that are collected must be used to support evidence-based decisions; if data are not needed, don't collect them. Data collection also raises questions of liability: once collected, who has the responsibility for action? On the other hand, EHRs allow constant surveillance and monitoring of the highest-priority problems. Aggregated digital data can also be used for signal detection across groups, which is impossible with paper records.
- Wireless-enabled HCIT systems must not replicate existing processes but create new efficiencies and harness human competitiveness, social and financial rewards systems, and other traits to gain endorsement. Vendor success data can be used to select EHR systems, and usage can be linked to care measures and outcomes to show value to providers and patients. As with all other medical advances, wireless HCIT must be built into the culture, integrated into the workflow, and show its value.

The Future of Consumer Health: 2010 Healthcare Odyssey

Speaker: Gopal K. Chopra, MD, FRACS, MBA, Adjunct Associate Professor, Duke University Fuqua School of Business

Overview

The fabric of healthcare is changing, with new technology emerging continuously. The existing healthcare structure in the U.S. is not prepared to adopt these technologies, whether they affect patients, providers, payers, industry, or government. Given the coming shortages in healthcare personnel and finite financial resources, however, the system must adapt to continue to provide care.

Discussion topics

- Unprecedented levels of data are available to stakeholders in the healthcare system, as medical technologies continue to evolve. Integration of various data sources will be critical to harness the power of expanded information.
- The consumer will play an increasing role in driving healthcare evolution, given the trends in cost-shifting and ease of access to technology. As a result, systems must define and understand consumers, and demonstrate their value, if they hope to be integrated into consumers' lives. Systems that can engage, motivate, and encourage people will have greater uptake among consumers.
- Existing provider and healthcare networks have traditionally operated from a data-concealment standpoint, which now hampers efforts to increase interoperability of HCIT systems. Evolving to a shared data environment will require education and demonstration of proven value.
- Wireless HCIT offers the possibility of "moment-by-moment" healthcare. For example, for the first time, we might be able to assess developmental milestones in kids in real time. We might also have access to up-to-date evidence to support decision-making. We can affect behavior at the point of decision; in other words, look for intercept points to offer consumers healthy choices.
- The new technologies have allowed us to make great strides in provision of quality healthcare. Evolving business models will allow gains to be sustained and expanded for healthcare-related industries.