Rising costs, increased pressures and heightened expectations have fostered an environment of risk and uncertainty in the drug development and delivery market. The question now is – How can the industry transform itself to thrive in this new era of complexity?
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Executive Summary

Upheavals across the healthcare industry have forced stakeholders to change the way they collaborate, operate, and measure their success. This added complexity is creating new hurdles, and making the existing hurdles – including regulatory compliance and demonstrating proof of value – even more difficult to overcome.

The question now is, how can the industry transform itself to thrive in this new era of complexity? Participants at Quintiles' 2013 Executive Vision Forum endeavored to find an answer.

“Complexity is the steady drumbeat in the background that’s increasing with intensity and amplitude over time.”

John Doyle, Dr.P.H., MPH, Senior Vice President, Consulting, Quintiles

Overview

“Conquering Uncertainty in an Era of Complexity” was the overarching theme of Quintiles’ 2013 Executive Vision Forum, which took place at the Jasna Polana in Princeton, New Jersey in October. The event provided biopharma executives and thought leaders from across the industry with an opportunity to discuss the challenges they face in this new era of complexity. More than 60 senior executives and thought leaders explored critical healthcare themes, including how to deliver demonstrable value and outcomes, applications for systems thinking and collaboration, and the role that technology and big data will play in the healthcare evolution going forward.

The conversations were largely optimistic. Rather than seeing the increased complexity as a barrier, these industry leaders focused on the opportunities that lie within it. As John Doyle, Senior Vice President of Consulting at Quintiles, noted in his opening remarks: “If necessity is the mother of invention, complexity is the mother of innovation.”

1 Industry Trends, Return on Equity, Sanjiv Karani, April 11, 2012, Cinam.com
Throughout the event, forum participants explored three key themes around complexity and innovation in today’s healthcare environment:

- **Value, outcomes and the triple aim.** Achieving better population health in an efficient way, while simultaneously enhancing quality of care is the great aspiration for the future of healthcare. But getting there requires a shift in thinking and implementation of new business processes that prioritize collaboration and proof of value.

- **System thinking is a multi-plane process:** The pharma industry needs to look beyond its own individual goals, to focus on what success means for payers, providers, and every other healthcare stakeholder. Focusing on the broader goals of the entire delivery chain is an important strategy to cut costs, reduce risk, and delivery high value treatment solutions that the industry will embrace. Operationalizing this vision requires pharma to contribute value at the patient-level and population-level in the healthcare system.

- **Technology and big data will revolutionize pharma.** Technology and the ability to master big data analytics will shift the basis of competition in the healthcare industry going forward. To stay on top of this trend, stakeholders need to uses real-world data analytics to differentiate their products and services, and support the drive for industry-wide data standards that will benefit the entire healthcare continuum.

**SPEAKERS:**
- Tom Pike, CEO, Quintiles
- David B. Agus, M.D., Professor of Medicine, University of Southern California, and author of The End of Illness
- Edward Abrahams, Ph.D., President, Personalized Medicine Coalition
- Scott Gottlieb, M.D., Resident Fellow, The American Enterprise Institute
- Margaret E. Kruk, M.D., M.P.H., Assistant Professor of Health Policy and Management, Columbia University
- Martin D. Leach, Ph.D., Vice President R&D IT & Data Sciences, Biogen Idec
- Kevin Schulman, M.D., M.B.A., Associate Director, Duke Clinical Research Institute, Duke School of Medicine
- Adam Scott, Managing Director, Innovation at Aetna

**MODERATORS:**
- Adrian McKemey, Ph.D., SVP, Consulting at Quintiles
- John Doyle, Dr.P.H., MPH, SVP, Consulting at Quintiles
Part 1: Value, outcomes and the triple aim

INTRODUCTION

Innovation will always be the catalyst for success in this industry, but the measure of that success is changing. As industry pressures increase, the approach to innovation must be adapted to accommodate new rules, regulations and measures of value that will deliver a fundamental common goal: to increase the overall value of healthcare. That means looking beyond FDA regulations and focusing on value at the population level, and measuring that value in terms of improved outcomes, increased quality of care and reduced cost.

Forum participants were clearly motivated to achieve these goals. When they were polled on what they believed would be their organization’s most significant contribution to healthcare in the next five years, 40 percent said improving population outcomes, and another 33 percent said enhancing the quality of care at the patient level. This demonstrates that the value triple aim — to improve outcomes and enhance quality of life while lowering healthcare costs — is top of mind for these industry leaders.

The challenge, however, is that they, like most industry players, struggle to understand how their peers define and measure value, which makes it impossible for them to collaborate effectively.

Why is it so hard to define value?

Results from a 2013 Quintiles survey of healthcare stakeholders demonstrates just how stark the misalignment is. Almost all respondents said that ‘degree of improved efficacy over current products’ was one of the top two factors in their own definition of value, but when they were asked how other stakeholders defined value they were usually wrong.

Biopharma executives believe other stakeholders care most about the potential number of patients who could benefit from new a drug, but this definition usually ranked lowest on their list of priorities. Similarly, payers and health insurance companies assume providers...
and biopharma would choose ‘Cost compared with existing products’ as the top value definition — yet cost got consistently low rankings with all stakeholder groups and was most likely to be last on the list for biopharma.

This lack of congruity underscores the need for better communication and collaboration across the industry — which was a key topic in forum panel discussions.

Before industry players can collaborate effectively, they have to settle on a relevant and all-encompassing definition of value, Doyle said. “The challenge of the triple aim is that we need to solve for all three of these variables at once.”

To get to this agreed upon value definition, panelist Margaret Kruk, M.D., M.P.H., assistant professor of health policy and management at Columbia University argued that everyone in the healthcare industry needs to focus on one critical question: Will this treatment solution raise the bar on quality of life and survival?

“The bottom line is that part of our market is controllable, and part of our market is outside of our control, and we have to get comfortable with that.”

– John Doyle, Dr.P.H., MPH, Senior Vice President, Consulting at Quintiles

That question can only be verifiably answered if disparate stakeholders align behind common value definitions, and identify measures that will indisputably prove that value. That means that the metrics any single organization chooses, must be roundly accepted as a measure of success by all players in order for them to be relevant.

In order to identify acceptable measures of value, forum speakers urged industry leaders to let the scientists and developers take greater ownership of decisions about risk — rather than leaving them in the hands of the CFO and other executives, who are necessarily focused on the market’s myopic measures of value may place undue restrictions on those charged with delivering the innovations that drive bottom-line results.

A big picture approach

One way to begin this transition is to think more holistically about outcomes, benefits and risks, said David B. Agus, M.D., Professor of Medicine at the University of Southern California and author of The End of Illness. In his keynote presentation, Dr. Agus argued that the industry needs to take a broader view of treatment goals and to identify new opportunities for “creative collisions.” Such opportunities are more likely to occur when scientists and business leaders break out of their silos and build partnerships that foster new innovative ideas, he said.
He pointed to examples in current medicine that highlight the outcomes that can be achieved through such creative collisions, including a trial of breast cancer patients treated with drugs to spur bone growth that resulted in more than 40 percent reduction of cancer recurrence. "It is one of the greatest survival advantages we’ve ever seen in a breast cancer trial and it was a drug that didn’t even touch the breast cancer," he pointed out.

Such triumphs emphasize the need for new innovation strategies, where scientists are pushed to question long held beliefs and to think beyond the limits of their existing knowledge capital and team.

“Every disease in humans is from within, not without… so looking under the microscope won’t help," Dr. Agus said. He encouraged participants to seek potential solutions in a broader array of patient data, including genetics, food, relationships and geography in order to identify new paths for exploration.

It’s OK to be out of control

Dr. Agus and several panelists throughout the evening stressed the need for the industry to optimize performance in areas that we can control, while acknowledging those elements that are uncontrollable. In such a complex healthcare environment, knowledge changes so rapidly, that truths we’ve held as self-evident for decades are now being proven false, with new truths quickly replacing them, Dr. Agus said.

He noted that less than a year ago we thought junk DNA was just that — junk — then we learned that it actually controls other DNA. And that in little more than a decade, the cost of sequencing a human genome dropped from hundreds of millions of dollars to a few thousand dollars and can now be done in matter of days, giving the industry data it has never previously had access to.

This new information and the solutions that emerge from it only occur because innovative thinkers are encouraged to question long held beliefs, which both adds to and complicates the quest for innovation. The challenge industry players face today is figuring out which beliefs should be re-examined, and how to harvest relevant data from a broader spectrum of sources so they can rein in those elements that can be controlled to address global healthcare needs.

“Emergent systems are almost impossible to fully comprehend, yet that shouldn’t deter us," Doyle declared. “They can still be controlled.”

Making the case for personalized medicine

Conversations about value and risk lead naturally to a discussion of trends in personalized medicine — a topic that many participants were keen to explore. These conversations focused on the definition of personalized care, the role that integrated care and cross industry partnerships play in that space, and the need for private sector drug companies to drive investments.

The interest in personalized medicine has been steadily growing over the last several years, though few industry members are anywhere near a level of maturity in this area. In the recent Quintiles survey, more than 70 percent of stakeholders said personalized medicine is either ‘very important’ to their product portfolio or organization, or ‘important in some
cases’. Yet less than 10 percent of payers and providers, and only 20 percent of biopharma have developed internal centers of excellence around personalized medicine, which the survey positioned as the leading indicator of readiness.

For many, the interest is driven by a tantalizing financial value proposition. One-third of survey respondents believe these treatment options will receive premium pricing that will justify ROI for this business approach, and another 50 percent said such premium pricing would depend on the individual treatment.

This seems to demonstrate that they recognize the financial potential this category of medicine offers. But as they pursue personalized medicine they are likely to face the harsh reality of conflicting priorities and the need to more aggressively educate providers about the unique value proposition these treatments present if they are going to be embraced.

In the panel discussion on System Dynamics and Atypical Partnerships, Scott Gottlieb, M.D., Resident Fellow at The American Enterprise Institute, argued that educating physicians about the value of personalized medicine is how pharma can best control how this area of medicine progresses, while creating new opportunities to engage in knowledge sharing with this key stakeholder group. “It gives (biopharma) another touch point to have a different kind of conversation with the clinician,” he said.

Having these conversations will help steer the value definition process, and increase the chance that new treatments will be embraced by the broader spectrum of stakeholders. “If you don’t control that conversation, that relationship, I don’t think you can effectively market a drug diagnostic combination,” he said.

### Key Takeaways: Value, outcomes, and the triple aim

- In today’s healthcare economy, any value definition must incorporate the triple aim — improved quality of care, cost effectiveness and meeting the needs of larger populations. Healthcare stakeholders who factor all of these components into their value proposition and value metrics will foster productive collaborations and generate more innovative results.

- To broaden the innovation process, biopharma must question long held beliefs to seek answers in new areas of medicine, and empower scientists to identify risks worth pursuing. Taking a more holistic approach to discovery will lead scientists and business leaders down new paths for treatment options.

- Researchers and executives alike must recognize that some aspects of the development process are out of their control and they have to plan for that. Emergent trends impact progress and value positions, but if teams are aware of the inevitability of change they can adapt with greater agility.

- Personalized medicine will shape the future of healthcare, and those who lead this trend will come out ahead. Few industry players consider themselves experts today, but they all believe this is a vital area of research going forward.
Part 2: System thinking is a multi-plane process

INTRODUCTION

As Quintiles CEO Tom Pike noted in his opening remarks, innovation was much easier to accomplish in the past when scientists like Dr. Joseph Lister, who used carbolic acid on wound dressings to prevent infection in the 1960s, weren’t hamstrung by rules preventing them from pursuing potential advancements. “There was no FDA to tell him that he couldn’t use carbolic acid until he tried it on 1,000 patients because of the worry of side effects,” Pike said.

That freedom allowed Dr. Lister to independently change forever the way doctors treat infections. But that level of risk is unacceptable in the modern healthcare environment. Today every choice must be documented, validated and anchored in a proof-of-concept. On top of that, regulatory, marketing and fiscal challenges add further complexity and risk to an already cumbersome development process.

“Many of us today set strategies on one plane, the plane that we know. But as we move forward and try to innovate in this era of complexity, it is becoming crucial that we think about multiple planes.” – Tom Pike, CEO, Quintiles

Pursuing innovation as a solo act in the face of such complexity is often too risky to warrant support. That is likely why one of the most heavily explored themes at the Forum was the need for, and benefits of, cross-industry collaboration.

What plane are you on?

Pike offered event participants a succinct Star Trek metaphor for this collaborative environment — Mr. Spock’s multi-plane chess set. The game, which is also popular on the TV show The Big Bang Theory, features a three-tiered chess board where players must move pieces across all levels in order to be competitive.

He argued that too many healthcare stakeholders today still build their business strategies on a single, familiar plane, but in a complex environment, such singularly-focused strategies are no longer effective. “The only way that we are going to solve the healthcare crisis... and bring innovative medicines to market is to start thinking not just about our plane, but about the entirety of the system,” he said.
In healthcare, every stakeholder — including patients, payers, providers, regulators and pharma — represent their own individual plane. To function successfully, biopharma must develop business strategies that move them across all of these planes. This can be only be achieved through collaborative projects in which all participants agree to share knowledge and risk while pursuing common goals.

Such collaboration is core to the systems-thinking approach that was discussed at length in Forum presentations and throughout dinner conversations. Participants agreed that the most successful players are those who break down silos and support a corporate culture that prioritizes cooperation to benefit the collective.

This belief was reinforced in the recent Quintiles survey, which show virtually all biopharma executives that responded expect to be mostly (49 percent) or somewhat aligned (41 percent) with other industry stakeholders in the next three-to-five years, and that almost three quarters of healthcare stakeholders view cross-industry initiatives as bringing opportunity rather than challenge to their business model.

The survey also shows that these executives believe innovation and improved health outcomes are among the greatest benefit they can gain from collaboration initiatives. These data all reinforce the fact that they see the benefits of industry partnerships far outweighing the risks.

However, industry members worry that making the transition from a siloed business environment to one that encourages transparency and collaboration — particularly among competitors — will be a hard fought process.

A poll of event participants showed the biggest barriers to cross-industry stakeholder initiatives are lack of defined value (42 percent), and misaligned incentives (31 percent), with lack of trust between players running a distant third (12 percent). This suggests that while they may be open to collaboration opportunities, they have yet to figure out how to structure them in a way that benefits all participants.

These results should spur industry players to rethink their approach to collaboration, and to spend more time up-front pursuing alignment — on goals, incentives and measures of success.
Finding common ground
This alignment needs to begin with the business incentives that make these collaborations feasible, argued Edward Abrahams, Ph.D., President of the Personalized Medicine Coalition. “In order to create innovative partnerships, financial incentives have to be aligned,” he said in the panel discussion on system dynamics. Having these predefined outcomes will drive stronger partnerships and enable stakeholders to more efficiently develop solutions that will improve health outcomes and drive profits — while simultaneously reducing individual risk by spreading it across multiple players.

“In order to create innovative partnerships, financial incentives have to be aligned.”
– Edward Abrahams, Ph.D., President, Personalized Medicine Coalition

In an industry known for its killer competitive instinct, sharing information and working together does not come easily. Panelists acknowledged that breaking down the silos that have built up over decades, and engaging more thoroughly in cross industry partnerships will drag healthcare organizations well outside of their comfort zones, but it is the only way to produce innovative solutions that drive the business and healthcare outcomes they seek.

Abrahams spoke about how collaborations in personalized medicine are particularly challenging, where partners bring different business models, corporate cultures, regulatory pressures and return on investment measures to the table. To overcome these obstacles, he urged participants to follow the money. “In order to create innovative partnerships financial incentives have to be aligned.”

Finding common ground in Africa
While the industry may have a long way to go before these partnerships are engrained in the operating methodology, there are already many examples of successful collaborations that can be used as a roadmap for future endeavors.

In her panel discussion, Dr. Kruk spoke of lessons she learned through work with a healthcare collaboration in Africa that included the US and African governments, Merck for Mothers, a foundation within Merck to support maternal mortality reduction, and other private sector partners.

She noted that early progress was very slow, and the partners faced many struggles even around the most basic collaboration parameters. They spent months developing a common language to communicate about their goals, and there was ongoing frustration over the fact that everyone had conflicting priorities.

“Incentives were different... and we certainly saw that play out in all sorts of miscues and misunderstandings about common goals,” she said of the experience. But the conflict led to some interesting outcomes.

In one compelling example, a senior executive with one of the private sector partners told her that when his company enters a new market, its first priority is to determine whether the business model can sustain and grow profits. But government partners can’t think
that way, she explained, because for them these partnerships are about diplomacy and the common good. “They don’t have the choice of pulling out.”

Though eventually that conflict of interest was transformed into a value-add for both parties, Dr. Kruk said. Over many conversations about project priorities, the government stakeholders admitted that working with the private sector was helping them appreciate that there are different exigencies, and that the focus on sustainable business practices helped them think more strategically about how they source and spend their own resources.

“The secret to success in optimizing system performance is to ensure that we have a diversity of perspectives. That is what tonight is all about.”
– John Doyle, Dr.P.H., MPH, Senior Vice President, Consulting at Quintiles

The lesson is that while the barriers to entry for meaningful industry partnerships are high, so too are the potential benefits. Not only are these collaborators helping reduce maternal mortality through better access to healthcare, they are providing collaboration partners with insights about broader industry goals, and enabling them to learn from these new perspectives. “While some of their philosophies are quite different, they help bring together a more thoughtful way of intervening,” she said.

Following that conversation, Dr. Gottlieb urged the industry not to get too hung up on common misconceptions that pit stakeholders against each other to the detriment of cross-industry initiatives. Many industry members believe that if payers are benefiting then hospitals are getting hurt, and if the hospitals are getting hurt then doctors must be benefiting, he argued. “It makes it very hard to forge partnerships together around anything but narrow issues.”

Emergent properties shape the process
When stakeholders overcome their differences and embrace this systems-thinking approach it makes them more agile and better able to identify and harness emerging opportunities. This is where success will happen in the new healthcare economy.

In the second panel discussion on controlling the uncontrollable, Adrian McKemey, Ph.D., Senior Vice President with Consulting at Quintiles, likened these emerging opportunities to the recent America’s Cup win by the US team. In that race, all of the racers had the latest technology and trusted experts onboard their vessels. But the US team won, in part, because they were able to recognize and respond to emergent situations — subtle shifts in wind and waves that required them to adapt their strategy to stay ahead.

The ability to react in real time to new information is what separates competitors from winners, McKemey said. And it’s equally true in healthcare.

“The analogy to our industry is that those emergent properties are going to happen when patients take drugs in the real world of clinical trials,” he said. And while you always have to have a plan in place for where you want to end up, part of that plan should include

“Incentives were different... and we certainly saw that play out in all sorts of miscues and misunderstandings about common goals.”
– Margaret E. Kruk, M.D., M.P.H.
“What we’re hearing is that data is going to be aggregated in real time. And it is going to be happening more and more at the point of care.”
— Adrian McKemey, Ph.D.

watching for emerging trends and leaving room to react with the practice of medicine in an emergent way.

In that same panel discussion, Adam Scott, Managing Director of Innovation at Aetna, pointed to the need for realtime interventions at the point of care, so that physicians have all the information they need to avoid potential mistakes. He also talked about the importance of being able to better predict emerging trends so that healthcare providers can adapt their processes in advance. “(This is how we) add value to the system where we’re going to be sharing risk in the future,” he said.

Industry members supported this argument: in a poll of forum participants, 86 percent either strongly agreed (43 percent) or somewhat agreed (43 percent) with the statement that emergent evidence at ‘point of care’ and ‘in the home’ will increasingly influence how our products are used and valued.

“What we’re hearing is that data is going to be aggregated in real time,” McKemey said in response to these survey results. “And it is going to be happening more and more at the point of care.”

AUDIENCE POLL #3

Emergent evidence at ‘point of care’ and ‘in the home’ will increasingly influence how our products are used and valued.

- Strongly agree: 43%
- Somewhat agree: 43%
- Not sure: 7%
- Somewhat disagree: 6%
- Strongly disagree: 1%

KEY TAKEAWAYS: System thinking is a multi-plane process

- Industry collaboration is one of the most promising strategies to drive innovation, identify new treatment opportunities and reduce risk in a highly complex environment.
- The best innovators will be those who look beyond their own strategic environment, and take into account the needs, goals and emerging trends embraced by stakeholders on every plane.
- Innovation through collaboration won’t come quickly. It often takes months of communication to build the trust and common language necessary to unearth new knowledge and harness it in a way that benefits the collective group.
- Emergent trends add urgency to the transformation process, requiring healthcare stakeholders to become more agile so they can respond to shifting demands as they arise.
Part 3: Technology and Big Data will revolutionize pharma

INTRODUCTION

Ultimately, all conversations at this year’s Forum turned back to technology and the role data will play in the future of healthcare. Whether they were discussing personalized medicine, cross industry collaborations or increasing quality of care at the point of care, panelist and participants agreed that more and better data will help them achieve their goals.

Many topics focused on the roll of data connectivity, and how biopharma, payers, regulators and providers need the right measures and units of analysis in place to understand how to use probabilistic methods to reduce uncertainty and control the controllable. Only when these measures are harnessed will that connectivity fully fuel transformation in the biopharmaceutical industry.

In the panel discussion, Controlling the Controllable, Kevin Schulman, M.D., M.B.A., Associate Director of the Duke Clinical Research Institute at Duke School of Medicine made an undeniable point about the potential for innovation in the area of big data technology: “Data and information technology... are the least regulated part of the market, so this area has the most opportunity for really innovative ways in which we can change the environment.”

The potential impact of big data technology is formidable, but so too are the obstacles. As with the journey toward personalized medicine, the healthcare industry’s transition to a connected, data-driven culture is still in the very early stages, and stakeholders are struggling to develop even the most the fundamental standards, tools, and expertise necessary to master this new element of their business model.

“The basis of competition is going to shift from having and hoarding data to connecting it.”

– Adrian McKemey, Ph.D., Senior Vice President, Consulting at Quintiles

In a poll of forum participants, 57 percent said that their company has or is developing a capability to harness new evidence from integrating clinical, claims and “-omics” data, and another 30 percent expect to head in that direction in the coming years. This suggests that they will increase their investment in big data analytics to support discovery efforts in the years to come.
However, they are a long way from achieving the level of expertise necessary to deftly integrate their knowledge efforts into their embedded decision making processes. The gap between desire and ability to deliver on the promise of big data analytics is highlighted in the recent Quintiles survey, which shows that 56 percent of stakeholders feel they have neither the tools nor the expertise to optimize use of these data sets today, and 30 percent see the increase in volume and complexity of data needed by other stakeholders as a significant challenge to their organization.

Throughout the event, forum participants discussed many of the obstacles that stand in the way of their mastery of big data technology. Among the most prevalent challenges they face include:

- Integrating disparate sources of data
- Implementing technology and processes to ensure data is pristine and uncompromised
- Creating technology and analytics systems that can translate data into usable knowledge
- Implementing that knowledge in real time at the point of care.

The Integration challenge

“Clinical data can contribute meaningfully to society, but right now it’s wild and untamed,” Scott argued. “It’s part of our charge over the next few years to tame it.”

The next step, he said, is to push solutions that tie disparate sources of information together and make them instantly accessible. “We are working to integrate data to the point of care, so we can marry analytics around both clinical and claims data, structured and unstructured,” he said.

But he added that no-one in the industry has figured out how to do it yet. “We are not even close.”

Despite the seemingly slow pace of change, progress is being made, particularly in the implementation of Electronic Medical Records (EMR) systems. And companies are slowly beginning to integrate the data that arise at the point of care — though their reach is still quite limited. Dr. Schulman noted that Duke just spent millions of dollars on an EMR system that works brilliantly within the confines of the Duke network. But if one of their patients goes to a hospital even a few miles away, none of that data will be accessible.
“It’s not the quantity of data, it’s how much intelligence we can bring,” he said. And turning data into knowledge that is accessible at all points of care — not just within the confines of its home base — is a challenge this industry has only begun to take on.

“As we put all these billions of dollars into electronic medical records, it is criminal that we haven’t first assigned common data elements to them,” Dr. Agus added, urging participants to push for industry accepted data standards. “We need to establish them as a nation.”

Martin Leach, Ph.D., vice president of R&D IT & Data Sciences at Biogen Idec, argued that a major part of the integration problem is that the most valuable data resides in isolated pockets, and that the industry needs a more cohesive strategy to conduct real world outcome analysis research. There is also the constant challenge of how to convert the reams of collected data into defendable applicable knowledge, he said. “Getting people to come up with the big questions has been the harder part of it.”

Forum participants seemed to acknowledge that the solution, at least on a broad scale, is to keep investing in data management technologies and to build their own expertise so that they can tackle the big data challenges that will shape the healthcare industry for many years to come.

Leach shared a poignant vision of what he hopes these investments will accomplish: “I want every single piece of data I can get my hands on,” he said. “I want to get as much information as I can from internal sources, external sources, and proprietary sources, and put it into the hands of clinicians and commercial entities, so that they can actually make sense of it to show that our drug has a better value.”

It is a bold vision, but if healthcare stakeholders are willing to work collaboratively toward common goals, and to commit the time and resources necessary to meet these goals, it may finally deliver the triple aim results they seek. The great promise of big data analytics after all is to capture, analyze and apply vast arrays of data in every stage of decision making. When that is accomplished, it will drive costs down and deliver the improved quality of care and better outcomes that the industry so desperately needs.

“A pharmaceutical company’s value in the future is going to be its data...This is what the technologies conceivably do.” – David B. Agus, M.D., Professor of Medicine at the University of Southern California and author of *The End of Illness*
Words of wisdom
In his closing remarks, Doyle shared one last piece of advice from an unexpected source. Citing The Te of Piglet, he offered this insight on how to rein in complexity: “(When) you see simplicity and complexity, use intuition as well as logic in order to understand what you see. Look for connections, notice patterns and relationships. Study the natural laws you see operating through them. Then work with those laws, applying the smallest possible amount of interference and effort in order to learn more and achieve what you need to achieve.”

In other words, Doyle added: “The way to conquer complexity is to solve for simplicity.”

KEY TAKEAWAYS: Technology and Big Data will revolutionize pharma

- The ability to manage, access and apply data will drive innovation across the healthcare industry and determine success in the near future. Healthcare stakeholders who want to stay competitive must invest in their own skills and expertise to stay on top of this trend.

- The ultimate goal is to push analytics to the point of care and to the “point of policy-making.” This will allow physicians to make real-time decisions based on all the information relating to the patient and enable policy-makers to weigh the collective risk, benefits and costs of alternative interventions to optimize population health.

- The only way for all stakeholders to benefit from advances in big data analytics is through cross-industry collaborations to build integrated systems and standards. Without this connectivity and common language, data will remained trapped in isolated silos, and the industry will forfeit the tremendous scientific and financial benefit that such information sharing can provide.

- The landscape for big data analytics in healthcare is still wide open. The technology is young and because this part of the industry is less strictly regulated than other areas of healthcare, it offers some of the biggest opportunities for disruptive innovation.
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In his time at Quintiles, Adrian has helped large pharma clients with business process reengineering and organizational change, along with new product R&D/Commercialization strategies. He has also worked with several PE firms focused on the life sciences industry.

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