

ROUNDTABLE DISCUSSION

HEALTH CARE INNOVATION

From access to patient information to the rise of free-standing emergency services, the health care industry is ever changing. Delaware Business Times sat down with four business leaders from the health care arena to learn more about technology solutions and how the industry is evolving. David Brond, vice president and director of account services at Aloysius Butler & Clark, moderated the discussion, which touched on value-based care, the business side of health care and the impact of demographic changes.

David Brond: *Gina, let's start with you. How is Nemours helping to change and provide delivery technology solutions so that clinicians can provide better and safer care?*



Gina Altieri

Gina Altieri: A variety of ways. We're building the infrastructure so we can take on some value-based reimbursement which changes how we provide care. It also changes incentives for physicians. In addition, we're leveraging our digital assets and our EMR (electronic medical record) to provide information when families aren't with physicians.

We're fortunate in that we have had an EMR for over 20 years, and we have had one of the first child information websites — KidsHealth. We have a million visits a day on that website, and it serves as a huge funnel of patients coming into our network to first learn about health care. The fact that we're a pediatric organization means we are focused on millennials. They want information, services and transparency, and they want it now. What we're trying to do is leverage all of our digital assets and provide that information on their phones.

David Brond: *You bring up a point I'd like to ask Randy about: the EMR. How is your organization helping medical professionals and others share information without violating HIPAA laws?*

Randy Farmer: Everything we do should be under the context of not violating HIPAA or any other laws for sure. Fortunately, you're only limited by your imagination and innovation. This is a real exciting time. I previously worked in financial services, and there are a lot of parallels now with the health-care industry and what financial services went through in the '80s and '90s, and the whole idea of interoperability. I think of Citibank back then, and how they were growing at breakneck speed, buying all these small banks and building up a massive portfolio, but none of the banks could talk to each other. We have had a similar challenge with interoperability. If you have a chiropractor and a primary care physician and

maybe even a cardiologist, are these folks all using different EMRs? About 75 percent of practices in Delaware are independent from a hospital system. So, with that risk there needs to be a common platform, and I think that was the genius behind DHIN when it was created in 1997. From that, we continue to promote better tools and more options for patients, either with regards to a patient health portal, or by providing alerts when a lab result has been delivered, or by alerting a loved one when a patient has been admitted to an emergency room. There are so many possibilities with technology and how to help people.

David Brond: *In the State of the State address, Gov. John Carney called on the industry to change the way health care is delivered. Gabriel, talk a little bit about how your organization is supporting that.*



Gabriel Humphreys

Gabriel Humphreys: We are attempting to connect not only directly with the person receiving care, the patient or resident, but also with their family, close friends, external care providers, basically anybody in what we call their care network. With Danio Diary, it's an app you install right on a smartphone. When somebody begins using Danio Diary, it can be as a diary in that they record what's going on in their life, or it can be a spouse who is caring for a loved one who has returned home from Iraq or Afghanistan and is now a paraplegic or suffering from post-traumatic stress syndrome. Little bits of daily information — someone had a nightmare for the fourth night in a row, or someone has reduced their medications, or someone is drinking grapefruit juice with a medicine that causes a bad interaction — can be recorded very easily and, if so chosen, shared with that wider care network.

David Brond: *Bill, from your perspective what's going on in the business side of health care?*

Bill Holloway: What we're seeing is the ability of health-care providers to take their services into the communities. Some folks call this the retailization

of health care. We're seeing more organizations such as Christiana Care, Nemours, CHOP interacting with commercial real estate folks, and looking at how they can market their services in the same way retailers do to customers. Part of it is the technology we have discussed, but part of it is the physical embodiment of how services and care are provided. We're seeing micro hospitals — for example, Bernardon's doing a hospital for a small group that is a private hospital with only about 40 beds. We're seeing smaller emergency care centers here locally, including the new one Christiana Care did in Middletown. What those things do is bring services closer, but they also provide a feeder for those organizations because hospitals are huge capital investments. So, how can they be more competitive in an environment where they're gauged on quality and outcomes versus how many procedures they can turn around in an hour?

David Brond: *What are some of the strategies being considered to keep some continuity of care within the continuum of care?*

Randy Farmer: That's a great point, because as health care becomes more of an everyday transaction and you have this retailization, how does that lead to a break or a gap in terms of the documentation of care? That's where a regional network like DHIN — we are getting feeds or alerts on Delaware patients from six states and the District of Columbia — comes in. We have urgent-care facilities that are sending us information, and walk-in clinics leveraging the community health record so they can speak with some background and insight about a patient they have never seen before and may never see again. I'm going to the national HIMSS conference, which is a major health management/health IT conference, and I'm trying to set up meetings with Walgreens, CVS and similar organizations to talk about how — in terms of their footprint in the mid-Atlantic region — they can be an asset.

David Brond: *Randy brought up HIMSS, or the Healthcare Information Management Systems Society. Gina, HIMSS Stage 7 — you have that for your hospital, ambulatory care facilities, nearly all your physician offices. Why was this important for Nemours?*

MEET THE PANELISTS

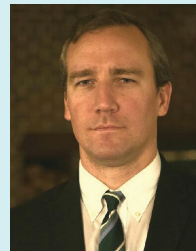


WILLIAM E. HOLLOWAY

Architect and Principal

Bernardon

William Holloway, AIA, LEED AP, is a registered architect and principal at Bernardon, an architecture, interior design and landscape architecture firm with offices in Wilmington, Philadelphia and West Chester, Pennsylvania. Bill has a special area of expertise in the design of health care and senior living projects, with 36 years of experience in creating environments that promote health and productivity through a sense of comfort and well-being. Bernardon specializes in a variety of health-care projects for nationally prominent providers including Children's Hospital of Philadelphia, A.I. duPont/Nemours, Rothman Institute, and Christiana Care Health System.



F. GABRIEL HUMPHREYS

Director of Technology

Danio Diary

Starting in the mid-1990s as a web developer, Gabe Humphreys has spent his entire professional life promoting and developing internet technologies. He was employee No. 742 at Amazon.com in 1998, working with them to refine the click-to-ship lifecycle, just-in-time inventory practices, and anti-fraud intelligence algorithms. He left Amazon.com to attend college at the University of Delaware, then went on to working at JPMorgan Chase, developing data center management policies, managing the 99.9 percent up-time promise for Chase.com, and supporting the 24/7 broker-dealer trading network environment. Having lost a number of family members to cancer, he recognized the life-changing possibilities that Danio Diary provides to those receiving care and their care networks. The app gives family and friends the ability to track individuals receiving care in real time as updates are made by authorized users.



RANDY FARMER

Chief Operating Officer

Delaware Health Information Network

Randy Farmer joined the Delaware Health Information Network (DHIN) in September of 2011 and currently serves in the role of Chief Operating Officer. As DHIN's COO, Farmer is responsible for all customer facing aspects of the organization specifically in the areas of new business strategies, marketing, product development, operational support and customer service.

Farmer joined DHIN after a decade at JPMorgan Chase in Wilmington, where he served most recently as senior segment manager of strategic partnerships. He also served as senior communication and public affairs manager during his 10 years at Chase. Prior to working in financial services, Farmer served as the Director of Student Development at Villanova University. Farmer earned a Master of Science in Human Organization Science at Villanova.



GINA ALTIERI

Enterprise Senior Vice President of Corporate Services

Chief of Strategy Integration

Nemours Children's Health System

Gina Altieri is Enterprise Senior Vice President and Chief of Strategy Integration, responsible for Nemours' strategic planning process and corporate services which includes information technology, health informatics, enterprise intelligence, corporate information security, project management, and marketing and communications with responsibility for Nemours' websites, online patient access and video communications. Her latest endeavor is the launch of the Nemours' Center for Healthcare Delivery and Innovation — a consumer digital health strategy including telemedicine and web-based patient education and related services.

Nemours was an early adopter of the electronic health record and today, under her leadership, Nemours Alfred I. duPont Hospital for Children, Nemours Children's Hospital in Florida and Nemours ambulatory locations in five states have all achieved the prestigious HIMMS Stage 7 top ranking. In addition to her strategy integration responsibilities, Gina also leads Nemours Corporate Services Division and serves as an executive champion for strategic planning support, associate satisfaction and engagement and brand management.

Gina Altieri: It was important because we made a very conscious, strategic decision to invest in technology a long time ago. Now that we're leveraging that investment and really using the technology to improve care, we thought it would be well worth the effort to have some kind of an expert validation, if you will. It's like being a certified public accountant. I also wanted to add to what you guys were saying about the retail space and things like that. We're up to about 70-something locations within the Nemours Children's Health System. Everything we do is documented in the electronic medical record so that every patient or family has access to that portal. All of our locations also are equipped with telemedicine. With Nemours CareConnect, you can with a simple button have a visit with a specialist. If you're at a partner hospital and it's a little more complicated than what that partner hospital can provide, that specialist can access a Nemours specialist. All of that is documented in the same record, which is very helpful with continuity of care.

David Brond: *Bill, you talked a little about the built environment before. Talk about the design and technology features that are being incorporated into health-care facilities.*



Bill Holloway

Bill Holloway: It's a great question, because Gina mentioned telehealth. Telehealth affects what we do as architects because we're evolving to design telehealth rooms. You need to have an environment that's private. You need to have an environment that gives a patient a sense of security. We also see the proliferation of kiosks for self-registration, especially for outpatient centers and specialty-care centers. Additionally, we're seeing changes in design. One of the new or rising trends is patient-centered design, which is involving patients in the design of facilities, whether it's a specialty-care center, a primary-care center or an acute-care hospital. What do they think? How do they feel? How do we all feel when we're sitting in an exam room with a paper gown on, and how do we make that a more pleasant experience? Because we're finding psychologically that when we reduce stress, healing and care improve and outcomes improve.

David Brond: *I want to push on that idea of getting patients involved not just in design, but with the idea that they're engaged in their own health — not just being aware of the systems but actually using the systems.*

Randy Farmer: I think it's pretty well established that part of the equation to bringing down health-care costs is better patient engagement. Gina made a wonderful point about needing to meet people where they are, and that is on their phones, even populations such as Medicaid patients. We have launched a patient health record, with a soft launch, and now we're about ready to do a

statewide mailing to introduce it. One of the things clinicians have guarded us to be aware of is not getting in between the intimate relationship that exists between a care professional and a patient. We are there to complement, not to interfere. In addition, we want to partner with innovative organizations like Danio to find out how we can better complement each other's mission.

David Brond: *Impress upon that point — the innovation.*

Gabriel Humphreys: One of the things we've learned is from the genomics testing company 23andMe, in which you mail a saliva sample and they perform an analysis. They send you back the analysis of your ancestry, but also will tell you if you have a predisposition to developing Alzheimer's later in life or breast cancer. 23andMe asks users if they can take the data gleaned from these tests and submit it to organizations that do research to find cures. Some 83 percent of people who use 23andMe donate their data, and they opt in to do so. When we learned that, we said this is something we have to enable because we also are creating a large data set. So now what we are building with an eye toward population health is the ability for our users to submit their data to organizations they care about on an opt-in basis — we're not trying to trick anyone into giving away their data. So, if someone is undergoing treatment for breast cancer, they can go to the page in the platform we're currently building called Danio Connect and choose to donate their data to the Breast Cancer Research Foundation. What we're finding is that the conclusions that these organizations come to when they have a large data set — it's already contributing to breakthroughs in medicine.

David Brond: *I want to talk a little bit about demographics, including aging baby boomers and millennials, and how that's impacting how you do business today and what you think it's going to mean for the future of health care.*

Gina Altieri: Millennials are the parents of our patients. They want access to information and access to convenient care. They don't want to have to wait six weeks for an appointment. They want to be able to make that appointment online. They want to be able to see that physician when it's convenient for them. They also want to know how they can know if that physician is any good. Just like when they choose a hotel from ratings, they want to see physician ratings. We have chosen to be very transparent in our patient-satisfaction ratings so they can see everything they want to see. We did our app using a proof of concept for asthma; so around age 11 or 12, a lot of children are starting to care for themselves using their phones and tracking information. And with CareConnect, parents don't necessarily have to take time off — the child can be seen by the nurse, and if they do need to pull a doctor in, they can do that in school over the phone and include the parent.

Bill Holloway: I'll address boomers, and I'm going to go off on a little bit of a tangent on senior living. A huge component of that is senior health

care, so what we're experiencing is the growth of: How does a Methodist Country House respond to me as an aging baby boomer and where am I going to go when I get to be 85 or 90 years old? That is creating a tremendous impact on the built environment and how we respond to that. We're also seeing in the business community the rise of home health, which I think was mentioned a bit, and that interfaces, obviously, with technology. You will never be able to build enough senior-living communities to accommodate everyone, and most people can't afford it. So that whole component of health care in our communities is going to be something we ought to pay attention to.

David Brond: *Randy, talk a little bit about baby boomers and what it means to be aging in place.*



Randy Farmer

Randy Farmer: It means empowering people with tools that are going to make it possible to be at home as they age and deal with chronic conditions or other challenges of aging. It may mean more Bluetooth devices that report blood pressure or blood sugar measurements, and having that information be accessible

by a population health management team or specific chronic-care management team. It may mean having a Bluetooth scale so that if somebody's dealing with congestive heart failure and experiences a spike in weight which may mean water retention, that that information hits at a time when it's more actionable and could prevent a hospital admission. It goes even beyond the in-home kind of monitoring devices to how healthcare is delivered and the advent of accountable-care organizations.

David Brond: *Gabriel, do you want to add anything to the conversation about millennials and aging baby boomers?*

Gabriel Humphreys: I was born in the final months of 1979. According to most metrics, I am not a millennial, and I was among the last generation to grow up without internet technology being pervasive in my life, although I did start using it fairly early. I come from a medical family, and before I discovered the internet I wanted to be a doctor. After I discovered the internet, I wanted to be a computer scientist, and that's what I ended up doing. I have always wondered what the next big thing in technology is, and how I can leverage technology to change my life or someone else's life. I think an important term we're not hearing much about yet, but definitely will be hearing soon, is "ambient intelligence." Ambient intelligence is when the little pieces of technology that are connected to your life in some way begin making conclusions. One of the things in labs right now are internet-connected smart tiles, and when you walk across these tiles they measure you. The ambient intelligence there is that if you put your foot down and it has a tremor to it, a shake,

that's an early sign of Parkinson's. So, your tile flooring may be the first device to diagnose you with Parkinson's perhaps months or years before a doctor would or before you would notice any symptoms that would cause you to go to a doctor.

Gina Altieri: I think you're going to see that at HIMSS. They're taking the smart home to a whole new level, rather than just a way to lock your doors or turn on your lights. They say every single morning when you walk into the bathroom, you will get a physical exam based on all of the technology.

Bill Holloway: One of our specialties is custom homes, but we don't see as many folks as you might think wanting totally automated homes. I wonder about the paranoia of folks incorporating that technology into their homes and the fear of it being misused. On the other hand, we love to do it as designers, and we're always looking for ways to do it.

Gina Altieri: I think there's two reasons for that. One is that the people who can afford those homes are older, so they haven't grown up with it being ubiquitous in their lives. But it's coming, and sooner than you probably are hearing — as we see more and more in television commercials, people with the money that can build those homes will want to just for the gadgets. And then there's the paranoia. The idea that someone is watching every single move, and when I walk in the bathroom or get on that scale, everyone is going to see that on some kind of feed somewhere. I think it's those two things.

Bill Holloway: I think you make a great point that millennials are of a mind that's very different, so therefore they accept it. As we see that rise in the influencers in our society, we will see those things taking place, and it's our job to make sure we're able to integrate those things.

Gabriel Humphreys: One of the reasons we created Danio Diary is that we saw people using Facebook and oversharing. We wanted to give those people the same outlet to share, but to do it with only the people who should receive it, their family, their close friends, the people who can respond in a positive manner rather than adding a derogatory comment to a public Facebook post.

David Brond: *Amazon, Berkshire Hathaway and JPMorgan recently announced that they will form an independent healthcare company. That's changing the face of the health-care industry — new players, new names. Talk a little bit about that, and how your organizations are going to be positioned to be a vibrant part of future health-care solutions.*



Moderator David Brond, Gina Altieri, Bill Holloway, Gabriel Humphreys and Randy Farmer gather at Delaware Business Times' Wilmington office to talk about innovation in health care.

PHOTO BY RON DUBICK

Randy Farmer: You can put something like that in the category of an opportunity or a threat. I think we need to make it an opportunity. You look at those organizations, and they stand out in their industries. They are results-oriented cultures. Clearly they are saying we will be a better company if we can provide some disruption in terms of the normal course of conduct of health care and employer-sponsored plans. Every one of us could go to those organizations, especially given the local footprint of JPMorgan Chase and even Amazon to a degree, and share how we're a piece of the puzzle they're trying to solve. From a Delaware perspective, I think there are things to be excited about in terms of positioning us as a leader. They are at the forefront, no doubt, but other companies will take note. This isn't going to be the first announcement of its kind.

Gina Altieri: It's very important for health-care organizations to partner and collaborate, because if we don't fix or change the healthcare paradigm now, some other company or some other industry will come in and do that. It might be a tech company, and I wouldn't want that to happen. I would want it to be a collaborative approach to change. I agree with you — culture, vision, those kinds of things matter in a partnership. But if we continue to just compete, it won't work.

Bill Holloway: I'm excited about it because

of the results-oriented composition of those organizations, and they are for-profit. I think they're going to find things we can all use. They're going to find ways to deliver care just like our client in Lancaster that's doing the micro. And I think this partnership is going to take those things to the extreme, create examples for the rest of the industry, and force the traditionally formed providers like Nemours, Christiana Care, St. Francis, whatever to step up in terms of providing competition. So, I think it's going to be a shot in the arm. I can't wait to see how they do it differently than the way we have been seeing it done to date.

Gabriel Humphreys: I worked for four years for Amazon and 10 years for JPMorgan Chase, and they are definitely full of results-oriented individuals who are looking to disrupt anything they get into. I think what they're doing is part of a movement that's not going to stop. Half the world works in a position that could be called a middleman, and often middlemen are referred to derogatorily. But middlemen add value, they connect people, they connect clients and providers. What Amazon, Berkshire Hathaway and JPMC are doing is positioning themselves as the new middlemen that are leaner, meaner and faster. Hopefully, they're going to be able to provide a more comprehensive environment that is less expensive.

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