



July 25-27, 2011 • Hyatt Regency Santa Clara  
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## ***ePharma Insights and Prescriptions***

A Conversation with

Jennifer Shine Dyer, MD, MPH, **Nationwide Children's Hospital**

**Why don't you tell our audience a little bit about yourself, your role at Nationwide Children's Hospital and how mHealth fits in? How or why did you become interested in using these new media in your capacity?**

**Jen:** Well, just to tell you a little bit about what I do. I'm an academic, clinical Endocrinologist, meaning that I see patients every Monday, Tuesday and Wednesday and I also am a researcher generating new knowledge and pushing the forefront of how to do things the best that we can and how to help patients the best. I would say that I'm definitely a patient advocate and I look at everything that I do through the eyes of what is best for patients. My patients are all mostly teens and their parents are only maybe a little older than I am in my thirties. I'm also the doctor for many younger children whose parents are all my age and we all use mobile phones. I just thought that it was a perfect fit to specifically help some of my patients with diabetes who are all really great kids, but just were not really taking their medication the way that they should.

**Was there a specific instance that comes to mind that made you wake up one day and go: "You know what? I'm going to start doing this by mobile phone."**

**Jen:** Well, two different things really led to this emergence in my life. First of all, I didn't even text until 2007. That's because my younger cousin, who is now 22, she wanted to be in touch with me as I lived away from Texas (I'm a Texan and married a mid-Western guy). And I really like the mid-west here; it's very much my speed. So, anyway, my cousin, she said that she wanted to be able to send me pictures of rashes or ask me different questions that she would have asked me when we lived in Dallas. So, I started texting because of that and she, in college, would say: "You know, Jen, this is what my rash looks like" and she'd send me pictures. Well, I'm a very lucky person that I have a lot of friends that also send me pictures of their children's rashes and ask me different questions about what to do, is this croup or whatever it is. So, I thought that, you know, it might be a good idea if I actually texted my real patients instead of all of my family and friends. So, I was reading in a pediatrics' journal about this really interesting texting program that was started at Mount Sinai in the liver transplant clinic. They are taking care of teens that were facing the possibility of needing a second liver transplant. So, these children were born with a congenital problem with their liver called: "Biliary Atresia" and they required a liver transplant in their age two or three. But, then when they reached their teen ages between 11 and 16 particularly, they just didn't feel like taking their rejection medications. Their parents would ask them if they took their medication and they'd say: "Yes, I took it" and they didn't. Really, they were facing a second liver transplant if there wasn't something that could be done to help them improve their medication adherence. So, interestingly enough, the researcher that I actually got to meet at some of these meetings that have been going around with mHealth, I got to meet the primary investigator who said that he really talked with one of the programmers of one of the texting applications at a BBQ and they said: "Oh, this would probably be a good idea just to send texting reminders to the teens to take their medicine." So, this was automated texting reminders that would tell them to take their medications. In fact, whenever they looked at the end of the study, they had biomarkers that correlated that yes, the teens that got the text reminders actually had less rejection, they had less inflammation and that correlated with the fact that they were taking the medication better. Furthermore, what's really impactful is that a couple of the patients that got reminders, only two actually still needed to have a second liver transplant. But, of the comparative group of the same ages and everything else comparative, there were 12 in that group that needed another liver transplant. So, essentially they saved 10 liver transplants by just doing simple texting reminders. Probably the two that did end up needing the second liver transplant, it's probably because there could have been more impact had this started sooner, perhaps. But, I just found that really impactful. I happened to read that on the day that I saw three teen patients in my clinic and just thought: "You know, I'm just going to text them." Because I didn't really know what else to do because these were really good kids that have really good families and parents that care and, like I said, really good kids that just don't really feel like having diabetes. They just don't press their bolus button or prepare their bolus insulins with meals. But, they are taking their long-acting insulin, which inherently means that they aren't frequently in the hospital or a diabetic coma. So, they're relatively healthy, but long-term effects of not taking your insulin like this is that they're facing dialysis perhaps in their thirties. They are facing blindness, amputations, significant problems. And teenagers don't really think in those terms. They think

that being thirty is old and, you know, they are just developmentally not able to conceptualize the future in this way. So, I really think that texting teens (from my point of view as the doctor) is meeting them where they are right now meaning that I know, right now, that they can't think about the future and being thirty years old and having families and living their life and being fabulous and what have you. They are thinking about right now. They are thinking about the dramas of who's their boyfriend, which girl will like them, how is school, where are they going to go to college? So, the way to get in their lives now is to do that through the phone.

**Even to adopt this approach, despite the incredible and very compelling evidence that you just cited for using texting, it's fairly radical. When we spoke prior to this interview, you revealed a fact that I thought was a little surprising about the adoption of what I'll call: "mHealth" (for lack of a better term) among the physician community, which I'll refer to as the small-town grocery store dynamic. Can you tell us a little bit about this dynamic and why? What are the barriers to adoption and what are the implications for mainstreaming mHealth solutions? How do we get past this? And can we, realistically?**

**Jen:** Well, what you're referring to as the "small-town grocery store dynamic" is really the fact that over the years, the doctor/patient relationship has become very, very sterile and that we as the doctors really put a wall between our patients and ourselves and our personal selves. To some extent, of course, I think barriers are important. But, whenever you talk with another generation of physicians that were treating patients in the 1950's and 60's (particularly in small towns), everybody knows everybody and the barriers between the doctor and the patient were a lot less in the sense that their patients know which church that they go to, their patients know that they like to have Heinz ketchup, not Hunt's ketchup if they happen to be at the grocery store and they know that they might drink a glass of Chardonnay at the July 4<sup>th</sup> town picnic. They would just know more personal aspects about their doctor. And their doctor would just really know more personal aspects about the patient. That is what I mean by the small-town grocery store dynamic. And it's interesting that one of my fellow colleagues, Bryan Vartabedian on Twitter -- he's Dr. V. He is a pediatric GI specialist in Houston. He was speaking to the Texas Medical Association speaking about social media and the adoption of social media. He was pretty nervous about speaking to this particular group, which skewed more to the older ages. He thought that they were going to look at him like he had three eyes. But, indeed, actually they were one of the groups that really understood this the best, about relationships with your patients and how that can improve their health. And they understand the barriers, as well, that as a part of the community (particularly in smaller areas, but also in bigger, metropolitan areas), as physicians we are given a really special place in society. People tell us the most uncomfortable things about their lives, about their health. They look to us for help and we are entrusted with medications and with surgical instruments that can kill people. We are given this very special place in society that we owe society back a level of professionalism and thought about the people that we take care of. I think that the older generation really understands the fact that you can maintain professionalism, but also have relationships that are meaningful with patients. That's what social media does. It enables you to have conversations and relationships with people outside of the walls of the office. So, it really improves the sterility of the relationship between the doctor and the patient.

**So, that older generation, anecdotally or as far as you know, how attuned are they to using the tools of social media? They are obviously very good at relationships.**

**Jen:** Well, being a pediatrician, I don't really have that much interaction with too many of the quote "older" generation, except that my parents are baby boomers. They are turning 65 this year; they are of that generation. I'll tell you that my dad tweets and he sends multi-media text messages. The baby boomer generation is certainly embracing new things. My dad is a racquetball champion and he really doesn't want to think about aging of any kind. So, I think that embracing new things is ---

**How about physicians?**

**Jen:** Well, in particular, physicians, they are (as a group) not very embracing of new technologies and pretty petrified right now about liability and putting yourself out there as far as any kind of media, anything that they say and just about litigious society. But, I think that really when you think about the benefits of improving health with patients that maintaining professionalism is really the key. I just don't think that doctors really have a problem with that necessarily --or, I mean, that there is a problem with that. They are afraid that they wouldn't be able to, but I would venture to say that we do this all the time. We are always trying to be our best self. I don't think that it's really that different with social media.

**The new generation, let's say the med students for example, are obviously being instructed to do the opposite of some of the things that you've been encouraging and doing yourself. What are the barriers and the implications for mainstreaming mHealth solutions? How do we get past this?**

**Jen:** Well, I think that medical students, particularly, they are not doctors yet. They have a lot more things to learn and the fact is that social media does have a power. Your voice does have a power. And it should be used appropriately and strategically so that

misinformation is not out there. So, a medical student needs to spend their time learning about medicine and feeling certain about medicine so that when they are a professional and finished that they can create a new knowledge and that they can also put the correct information out on the Internet. I feel that because all of my patients (and I know this from multiple studies and surveys all over) that all patients look things up before they go see the doctor. I think it's a civic duty of all doctors, particularly ones that are able to write clearly (which I am because I was a journalism and English major) that I think it's important to put appropriate content, correct medical content, out on the Internet so that whenever they are searching, they are able to find and filter that information correctly because in our day and time, there's information overload. But, helping to filter information is something that all people, all patients, really need. I don't think that you can do that as well as a medical student until you really have practiced medicine and done your training. I think that that is specifically regarding medical students what is important. Because as a medical student, they still have power in the sense of their words and if they are saying the incorrect information, then that can be damaging to patients.

**I think that communications' background is an intriguing element here because most people in the healthcare industry don't have that. You do. You're actually friending patients on Facebook, you're texting, you're tweeting. You have an aptitude for that. Before I go any further, what advice would you have for people who might not be as secure in that as you are?**

**Jen:** Well, I think that we should all use our strengths and aptitudes in our lives. If your strength and aptitude is not writing and communicating, then you probably want to do something else to contribute civically to the patients and helping them do well. I would say that it's not something you should do if you don't feel comfortable communicating. But, for instance, I'm not a good golfer. So, I'm not going to help patients by golfing. But, other people could. So, I think it's being creative about using your aptitudes. This just happens to be mine. Friending patients on Facebook, texting them, tweeting them -- well, I don't really tweet patients, particularly. I mostly -- if I speak to patients, it's mainly through texting, as well as email, but also Facebook. The reason that Facebook evolved -- I'm very selective about patients that are on Facebook because it is my personal Facebook page. I don't have a group page. It's my personal account. So, that's why I'm a little bit more selective about who is on that. But, as far as texting, I do very much strategically pick people that I think that the texting will really help with. And Facebook evolved more because a lot of the patients that I was emailing all asked me -- they said that they don't use email and that I'm the only one that they email and they wanted to get rid of their email accounts. These are patients that I had been texting and emailing and I thought -- well, I had to think about it for a while. The strategy that I used was that, well first of all these are patients that I have been communicating with a lot. So, they know me, I know them. I felt that in these instances, I'm -- the things that I do and say on a personal basis are actually things that can be helpful to them, inspiring to them to know that I'm somebody who's enjoying my life when I'm older, so to say, as they think. I'm not a big dud, or anything. That they might see that that's how somebody enjoys their life fully and eats healthy and tries to be a good role model. So, they know that I had champagne on New Year's Eve and that's okay with me. So, I do think about the fact they are on -- whenever I say anything on Facebook, that they're there.

**And not just Facebook. Grant it, you are not tweeting patients, as you pointed out. But, you are on Twitter. You do have sort of a broadcast presence. And you also have a really, really critical one-on-one that you maintain with people. Sometimes, even though they are a patient, it's not necessarily a really deeply serious communication.**

**Jen:** Correct.

**My question would be that, obviously, this has had an impact on your performance as a physician.**

**Jen:** Certainly, it has. I would say that in the Twitter realm, that is a wonderful realm (and social network) for advocacy and for educating about issues and making the correct information available. And also showing who you are. When I signed up, I knew that I was mostly going to be talking about advocacy and talking about health literacy and improving information that -- say there was a topic like the pregnant man on Oprah (which everybody is going to ask an endocrinologist about) that I would just say that this is what it is, kind of because I keep saying it a million times in my life -- to people in real life. So, I felt that Twitter would be a great avenue for that; for getting correct information. Also interacting with patient advocates. But, I also wanted to really be -- because you have to be pretty involved with Twitter to get the benefit of it, I wanted to talk about things that I really like, as well, outside of medicine, like fashion and New York City and wine. Just things that I thought would be interesting to talk about so that it would make me want to check Twitter more. So, in fact, I have more of a personal bend to it, but it is strategic that I only talk about these certain things. But, I will tell you, how has Twitter or social media improved my practice? I have really learned so much from the patient advocates and really what it's like to live with diabetes. I first learned the most about what it's like to live with diabetes by participating in diabetes camp, which I've been an avid volunteer for since my residency days. In diabetes camp, you just realize that the diabetes never goes away. You always have to think about it. But, I would also say that on Twitter and social spaces, I realize whenever I'm really about to go to sleep and I might look on my Twitter that I get to go to sleep without worrying about low blood sugar or having to wake up and check my blood sugar in 15 minutes. I just really realized how it's so annoying to have to do that

whenever I have that exact same feeling of being tired at the same time. I think it just impacts me more personally and that that has really given me the kind of empathy that I think a good doctor needs.

**On some level, that's a natural talent that you have. What about the people who find communicating cumbersome? Who find new media communications (I use air quotes) "texting" for example, to be frightening? What advice would you have for them?**

**Jen:** Well, I think it ultimately comes down to what do you want to achieve being a physician? Do you want to have a job every day? Or do you -- it sounds a bit harsh, but remember what you wanted to do when you applied to medical school? You wanted to help people. Sometimes helping people means not telling them what they should like and how they want -- like, "You should like Picasso" or the doctor can't tell somebody what they like. But, if you really want to help that patient, then you're just going to have to learn a bit about Picasso so that you can talk about Picasso and that they can know that you cared enough about them to learn about Picasso. I think that that's the best approach in order to really help somebody. I call it: "meeting people where they are." It's not me being the doctor judging about anything. It's just me being the doctor trying to help them be healthier. That's my goal. So, if that means that everybody loves bowling and they're all at the bowling alley, well if I really want to influence some of my patients, I should know at least a little bit about bowling. Like a strike and, you know -- which I don't know about bowling.

**There is a very clear ease to you. You have a very easy and approachable manner that people, whatever their profession is, many people don't have. But, clearly, you've demonstrated that there is some advantage to brushing up on one's communication skills, particularly with a generation, Gen Y (I hate the term), bubbling up. And they are using these tools. So, my next question would be more related to, not so much training, but getting mHealth buy-in both literally and figuratively. It's a challenge. So, I would ask you: "What's your current take on mHealth business models and where do you think we're likely headed?"**

**Jen:** Well, it's really an exciting time to be thinking about new, innovative ways to push healthcare forward. I'm very hopeful that the future is going to be patient-centered. That is in Medicaid and Medicare, CMS and the Department of Health and Human Services. That is really the new motto of the developing healthcare reform and the President's most recent Healthcare Reform Bill. It's part of that. There's actually a new center for patient care-oriented thinking. I think that anything that improves the experience for the patient, improves communication with the patient, is really going to improve health outcomes. mHealth is one of those things that it's being shown to do just that. In fact, there is a national program that is just so exciting. It's called: "Text for Baby". It's helping to improve pre-natal care and infant mortality by improving literacy for new moms about what is the best thing to eat? What is the best way to be healthy during pregnancy? Answering lots of questions. It's a communication tool back and forth and it's critical to improving patient care. And it's convenient for patients. Cell phones are ubiquitous. They are completely in our lives and before 2007 -- so in 2002 mobile phones were the number four thing that you couldn't live without. But, since 2007 it's been continually the one thing that people can't live without. It's part of our culture now. Recently, the Pew Internet Research Group just sent out a report called: "The Social Side of the Internet." It really shows about how the Internet and mHealth -- how the Internet connects people through groups. And that these groups can use the Internet to do all kinds of things, such as solving or changing an issue in society at large, raising money for good causes, providing emotional support and assistance, helping elect new Congress, all kinds of things. What I think is really mostly amazing about the Internet is that it's really connecting people again. What I mean by that (and what I think mHealth is good for, as well) is that when you connect communities and connect people together, not only does it help make outcomes happen -- make good things happen, but it also makes people healthier and feel a sense of accomplishment, feel a sense of pride to be connected with their communities. That's just a basic tendon (sp? 32:28) of being human. In the 80's and in the 90's and in early 2000, we were all sitting in our houses, not knowing our neighbors, watching TV, going to work, coming home. Just overloaded and not connected to each other. I think that the rise of social networks and the rise of social media is just evidence that people are hungry to connect. And they are connecting and through social media like Facebook groups -- like in my city when I moved here. We didn't know anybody. We met so many people by going to different events that I didn't -- The Columbus Young Professional's Group and going to different wine tastings or what have you. I feel that I am a valuable member of Columbus because I've taken all these opportunities through social media to meet a lot of people that have the same interests that I do. It makes me proud to live where I live, to be a part of my community, to be active, to give to it, to make it grow and thrive. And it just makes people happy. I think mHealth is particularly able to help patients engage. That's what I mean with social media. It helps you engage in your community and that is the value. It comes down to something really simple. That we are human and that good health is being social.

**What is your take on -- I hate to be crass, but from an mHealth business model perspective, where are we headed?**

**Jen:** Well, I was recently invited and I'm traveling next week to go to Orlando for an insurance payer's Conference called: "Health 3.0" to discuss innovative models, such as mHealth, that help reduce overall healthcare costs which, of course, is a concern that I have as a provider and as a future patient. I am going to be presenting about how mHealth can cut the cost curve and really save

many diabetes ketoacidosis admissions which, and I'm not even talking about saving for all of the long-term, down the road problems like dialysis and heart disease of poorly controlled diabetes. I'm just talking about the immediate cost of saving a patient from having to be admitted in a diabetic coma. If you engage them, that that will help them take their medication better and that will help them not have to have that hospitalization. I made a cost curve analysis that shows what the overhead costs of mHealth is, which is minimal (three cents a text for storing it on an outside database so that there is no HIPPA violation and that everything that has patient information is stored on an outside server), but also paying the physician for their time because payment delineates what is important of a physician's time. If prevention of admissions is important for a physician's time, then it should be compensated. That's just the way that hospitals work and that it's not going to be embraced or used until that happens. So, I just made a broad assessment and said that mHealth really doesn't take that much time. It's easy to text. I've made an iPhone app myself in correlation with a programming medical student that can automate and personalize the text messages. It only takes really 5% of my total time in a week. So, that's how I proposed a business model and that it's a huge -- basically, in the end (if it ends up being the way that I propose), \$65 per patient that the insurer would pay vs. the fact that there would be \$1.4 million in admissions just at our hospital. Preventing those admissions and paying \$65 a patient (and there are only 70 patients that met all of this).

**What do you think is the likelihood of other med students adopting the application that you referenced? At this point.**

**Jen:** Well, I think a lot of people would adopt it if they were going to be paid for it (meaning the physicians) and that it's easy to use. It has to be really easy to use. And trust me, this is pretty dorky because it's so easy. But, it has to be like that for a physician to use it because we are already bombarded with EMR changes. We just want it to be fast, easy and that's it.

**Jen, let me ask you one final question. What advice do you have for pharmaceutical and medical device marketers, in particular, who are interested in using social media to connect with physicians, like yourself, and healthcare professionals? The model that we've been discussing is really between the physician and the patient. But, what would you recommend, if anything, for people who want to connect with you?**

**Jen:** Well, I think -- I have a really strong opinion about this. I think that the best way that marketers for pharmaceutical and medical devices could really make a huge difference is by helping to empower the patient's voice. The patients want people to hear what it's like to be in our health system. I think that listening to the patient voice -- because any time that you put the patient first, nobody's ever going to be wrong because we are all going to be patients. We are all in this together and I think that pharmaceutical companies and medical device companies and marketers that stand behind what the patient experience is like and trying to improve that, they can never go wrong. And that would be helpful for physicians to have that out front and center.