The #HCBiz Show! Episode 17
PD07 - Going Deep on Provider Directory - Dave Marotz - Surescripts
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Don Lee:	You're listening to the HCBiz show. The podcast dedicated to unraveling the business of Healthcare. I'm Don Lee and I'm joined as always by my globe-trotting co-host, Shahid Shah. Shahid, how are you doing today?
Shahid Shah:	Doing well. Finally, in my home city, Washington D.C. for a little while, it's exciting to be back for a few days.
Don Lee:	Very good. Good for you man. We are continuing our Provider Directory series today. We've gotten into lots of "why's and what's" to the problem we know what's going on and why it's going on and we've been starting to talk with a lot of different groups about solutions and we're going to continue that today. We're very excited to welcome to the show, David Marotz, who is the director of Directory Services from SureScripts. Dave, welcome to the HCBiz Show.
David Marotz:	Thank you very much, Don. Great to be here.
Don Lee:	Just by a way of a quick introduction, Dave, if you could tell the folks a little bit about yourself. A 30-second intro of what is it that director of Directory Services do at SureScripts?
David Marotz:	Great question. My responsibility is for our directory which we view as a shared service that is enabling and powering our network connectivity. Enabling providers to find pharmacies and organizations and organizations to find those providers for all of our products and capabilities that we offer to our customers across the nation.
Don Lee:	Very good. We have been talking about this provider directory problem for quite a while now, for several weeks, and we're starting to see a lot of variety and solutions, Shahid. What do you see of these categories out there of different ways of approaching the problem? Let's talk a little bit about why there are so many different approaches.
Shahid Shah:	It sounds like what we are seeing in the market places there are probably no two companies handling this the same way. In fact, Sure Script which has, I think, the largest directory and in a shared manner outside are probably the CMS and API database. What we often are looking at what the company is doing is rolling their own. Perhaps looking at a couple of standards and they're not fitting their needs. Rolling their own because they have 150, 200, 5000 providers and they just need to do something quickly. It's getting to be both a little annoying as well as a little disturbing that there are so many different ways of doing what seems to be a pretty

simple problem. What we've seen on a course of the last few episodes is there's nothing simple about this. But if you look at it just at the high level we are talking about keeping a directory demographics, network data who is in which particular network. Whether or not physicians are in a particular network and accepting patients for that network or in the network but not accepting new patients but sustaining older patients. Then, there is the idea are the demographics and their basic credentials up-to-date? When you look at the problem from a high level it seems like it's pretty easy. We know, and David I'd like for you to comment on this, we know that there are a number of standard bodies out there that have been working on this problem probably for a couple of decades, not just most recently. Give us a sense of the landscape on the standard side. A layout the land almost as it was when people were trying to solve this problem, where should they first start? Should it be the standards community or is that in such disarray that they should just go on their own like we see many people doing?

David Marotz: Great question. I totally agree with that introduction about the what should seem like a simple problem it's extremely complex. I started working in the Space four years ago after upgrading our network support e-prescribing control substances which has a lot of stuff focused on requirements from the DEA, focusing on identifying providers and person and a strain who they are. So, after about 4 years ago, my manager said: "Hey, I have another challenge for you. Maybe you can go and solve this directory issue." Four years later, although our directory is probably at least doubled in size, there's still a definitely big challenge. Our directory for the background is today our directory isn't based on the standard explicitly. We're based off of the NCPDP specification because we look at our directory through the lens of the [00:04:07] that we enabled. Our primary initial [00:04:10] focused on the NCPDP prescription routing standard, script standard which drives all e-prescribing messaging and then we've also been involved in X12 and HL7 and other capacities and other products that we work on around HL7s ADT messages, X12. Then 270, 271 benefits transactions. Our directory is really inspired by what is the use-case that we're looking to solve. That kind of through the needs of convening are participants and stakeholders. We built this directory starting before the standards really existed. Although, even when I say that, one of the initial standards that people point to is the LDAP standard which was the LDAP or Lightweight Directory Access Protocol and even calling it lightweight is probably a missed name. It's very, a very heavy protocol. We've been, at our company, very much embrace standards. It's all about enabling. Using a standard to enable communication between different district entities working across different organizations and I do always think of one joke that I've heard, actually, I think it's from someone at the ONC they comment said: "Wonderful thing about standards is that the standards are like toothbrushes. Everyone has one, but no one wants to use yours." It's an unfortunate thing where I go to a lot of different

meetings with different organizations and people say: "The problem is a lack of standards." It's not really a lack of standards, but the standards when you start expanding the standard to meet every single use-case under the Sun, sometimes it collapses under its own weight. I've mentioned some of the organizations that we work with that are [00:05:44] accredited HL7, NCPDP, X12. What we've also been doing and what I've been involved with over the last couple of years too, more recently is couple of years ago ONC sponsored an effort around healthcare provider directory plus HPD+ and so we worked with that space off of LDAP inspired by LDAP and HPD and they threw in this at Specter Federation and kept piling on more and more and it became a very... I'll say a very robust specification but almost became too heavy and it became [00:06:14] to everyone which meant that it didn't really need anyone's needs. We and number of other entities commented on it and said: "We like where this is going but we can't necessarily implement this spec." Now, where and also, I'll say HL7 and NCPDP didn't really have a directory specifications themselves directly, what has happened those past years back in 2016 we worked on the Orgonite initiative. Which is an effort working with HL7 and it spun out and sponsored independently from the HL7 community from a financial perspective but it's got the support of HL7 to say let's look at FHIR. The Fast Healthcare Interface Resource, I believe it is what the acronym stands for, sorry. We're looking at the FHIR resources which is a very palatable lighter-weight protocol and saying: "How do we use the FHIR based specifications to create a provider directory exchange to enabling providers to be found and organizations to be found?" And that we'd, at very much, we're at the table participating to connect the thoughts and to make that work. Now, more recently, ONC has spun up with their, what they're referring to it "A Tiger Teams". They're looking at different standards for inspiration. They're looking at HL7. They're looking at X12. They're looking at what was in the HPD specification and they've got a standards group Tiger Team that's saying: "Okay, based on these different entities which one should we embrace and really looking at the FHIR resource as the basis but making sure we're getting inspiration from those other enterprises and then there's other groups within the Tiger Teams focused on data elements. Focused on the architecture and then of course where everything starts on the use cases, so ONCs has been involved in driving health drive this effort to help the define all the different use-cases for a provider directory and trying to come up with that. And all in compassing standard. I think that's got the most promising legs and of course, we're at the table with many of those Tiger Teams trying to help, make certain things and make sense for our customers.

Shahid Shah: Do they say that the understanding of the various entities we're talking about, should we think about the probably the four or five major entities were thinking about one is a series of institutions? Primarily, I think SureScripts, because you're focused on the prescription side, the institutions you're mostly dealing with would be health systems.

Potentially ambulatory as well as acute care settings. The folks where you see a lot of healthcare providers been either subcontracted or directly employed within those institutions. For one institution view, when that institution is looking at provider directory, what they're thinking about is: "Who works for me or who am I accountable for that may not directly be employed by me? I need to know their demographics. I need to know whether they're quote credentialed and not all the way through full credentialing but at least know are they supposed to be in my directory." Then you have profile data, demographics data and things like that. There is this other view the provider directories, when you look at it, especially from the payer or even the patient's angle which is: "Your directory is fine. Health systems A, B or C. But I need to know, are you seeing patients for this particular insurance company?" So that introduces a new institution into the entity so institution there is the third-party administrator or the person or the group responsible for paying for the services rendered by the first institution which is the health system on behalf of the patient. What I'm seeing is that we're lacking a... SureScripts has a great directory of providers on the institution's side. The national provider identifier database I think is a reasonable shot at showing that, but it seems to be that we're missing one major component. What groups do they belong to? What networks do they belong to? What plans and products do they belong to? Do you know of any type of... and either they're going to be a standard but a data set that says: "Here is just the list of plans and products and networks and insurance companies in the country", that's one dataset, think of it as a Venn diagram. There is another Venn diagram saying: "Here are all the providers." And then, there is an intersection of the two that seems to be the most complicated and the things like penalties and things like that for provider directories are being levied by CMS on payers. What is the state of that Venn diagram's intersection between these two big institution groups?

David Marotz: Great question. It's my experience in exposing the payer space. It's really just been these past years on looking out beyond what the SureScripts products are and it's been a lot of learning experience looking at the providers. Although, I'll say ten years ago I did do some consulting at a large national payer and at that time was eye opening when they said: "Some of our master data is in Excel file on so and so's computer other stuff is in a Unix system that's been maintained for 20 years. And other places in is in a top of the line CRM but they could never deploy it. Honestly, I don't know if things have changed that much in 15 years based on my latest exposure into these areas. It's what you would think as far as those groups and everything would be [00:11:22] easy to solve. It's highly complex. A lot of the challenges too is, this is where I always go back to, the reason why our directory has been very successful is we look at it through the lens of enabling capability. Even that capability sometimes becomes the challenge because of what our end customers are looking at the directory through their lens and consideration is... For example, our

directory, I view it as one of the [00:11:48] use-cases for refill renewal request so after you got the prescription from a provider, has been sent to the pharmacy across our network. The directory's course is used to find that pharmacy. Now, you've say expired and used all the refills on that prescriptions and you need a refill renewal request. Our directory is then used because sometimes those prescriptions show up as paper for the pharmacy to look and say: "I need to find a physician in the right organizational context to send this refill renewal request." In that sense, our directory needs to be able to account for the doctor where they were and up to a year later from that date of prescribing. Because of a very operational concept of that perspective. If we step back in that work flow a little bit to the pharmacy context when a pharmacy and a pharmacist is looking to perform a dispense of a prescription, in that moment in time, their lens for their provider directory is very different. In that context, they're very much looking and saying: "I want to make certain that I've got enough information about this provider that I can validate and say If I dispense this drug number one I need to make sure this doctor is credentialed. It's going to control substance and meets those regulations. So that I don't get subsequent to any sort of action by the DEA or the States. And number two is making sure they did the information on that provider correction from a payer perspective. So, when there are audits and validations making certain they were the appropriate checks and place that point time." Snapshot in time for the rights to dispense puts a very different view on the data than "I need to find this doctor where they had been a few months or up to a year later and send that refill renewal." That puts two different scenarios on the data. Then to your point where you start out with saying the institution view. I've got a number of discussion over the years with our large institutions that say: "These are my docs. Why are my docs receiving fax refill renewal requests from pharmacies? This is my doc, they should send everything for my doctor to my institution." What we see from our data is that these doctors... it's not a situation of maybe a 50 years ago when a doctor had one single practice, one location and that's all they do. These docs they may do rounds, I hear that on some of the earlier podcasts. They may do the rounds at one or two hospitals and they might not be related. They may have their own personal practice. They may be volunteering. They may be part of a Locums Tenens in terms of volunteering when they travel. There are now telehealth situations. If we looked at one situation where we had a site that said: "These are my 5000 doctors." When we look to it we said: "Your 5000 doctors have 5000 registrations at other locations and other systems, so to call them your doctors puts a different spin on it." And that's that whole context. Either if some would shift more employed doctors where you think you might have information. Either within those institutions they don't... [00:14:32] enough to say this doc will be here at this month for scheduling purposes but they're really proactively trying to say: "Here are all locations that doctors could practice at in my enterprise." You run the challenge of some sites and they're going to say: "I've got a doc, a

1000 doctors at a hundred locations" When they push all one 100.000 elements in registrations to our directory or to the payers they just say: "Well, in case that doc shows up at one location, what do we do?" And that's just the complexity around the doctor at the locations within that organizational context and to your point. Now let's throw in the payer scenario of as my understanding with these payer contracts is if you can dream it they've probably got it. In terms of the payer, to the group, the relationships is it to the group, is it to the doc? Some of the earlier conversations I highly recommend people to listen to these other podcasts talking about the payer complexities. That's a whole other layer to it. I also look at this is on this payer's space and the clans and this scenario just the enrollments saying: "Today, looking ahead to next year's as a patient, what docs are there?" Then, when you fast forward down the line further, things change. Doctors move, doctors move out of networks. There's a lot of shifts and so even as we can try to develop a better payer-provider enrollment directory at what point do we look and say: "Even with this information, we need to get more real time because really the payer might be the source of truth and who is that authoritative source of which elements and where do you go to find out that answer?" I see this definitely appreciate all the conversations that are happening in the standards world, the use-cases. The other engagements too, that are happening like CAQH and their Provider Data Action Alliance conversations and they're outlining a roadmap for the industry as well as some of our work in other areas too, Shahid.

Shahid Shah: Yes. And Don as we... it seems like every time we talk to a smart person like Dave, things get worse. It doesn't seem to get any easier.

Don Lee: That's exactly what I'm sitting here and thinking, it's a new context.

Shahid Shah: Absolutely. From the last episode Don, we've heard from a lot about system vendors who were trying to solve this. What are you feeling with a respect to, and I want to open this up to David in a second, but just based on what we've heard in the last number of episode, who should own, there is this idea that as they've mentioned these doctors of my doctors or they belong to another institution... it almost seems like the first thing to do when it comes to consensus around... is this shared data? Is it a public resource, a public asset? For example, roads in the United States don't belong to institutions. Institutions use them, truckers use them. You and I use them, I mean... what do you think, from an opinion point of view as well as what you're hearing from some of the other smart people that we interviewed in the earlier episode... who's supposed to own this and is there any consensus being driven in that area?

David Marotz: From my perspective, it's a thrill, challenges far as like the authoritative sources and who owns which piece. That's almost one of the pieces I have not seen in a group surely talking about is defining just the different data

elements and who owns what piece. In an example, I've been stumbling on just what is someone's name? Who are you? What is your legal name? Then I had someone from NPEZ that comment said: "That's a social security administration." That's what it is. I haven't heard that one before. That's a source that none of us really have easy access to the validated data against. We can see this data against the NPEZ system but NPEZ admittedly will say: "We're really the enumeration identifier" that isn't really the name the purpose to be the name. I had one of my colleagues who said: "Really it's the States that license and credential but license the provider" so is that really their name? Then the DEA their own listings and the DEA says [00:18:19] identifiers say this is for the purposes of controlled substances and has very definitions around those pieces. As a quick aside as far as names just figure who someone is. I may have faxed a couple of years ago about 600 doctors in the country trying to confirm their information for sending secure [00:18:39] covered information to their fax machine want to get their signatures. I was working with a third party that did the aggregation of data and created really the most correct name for a provider. I very much believe that they have the very most complete, correct information. I had a number of providers and I've started using their data to augment our system. What we do is we create a person like a belly button to the door knobs. The belly buttons we try to create as more of a common resource within our network. The idea being that if I'm in there as Dave Marotz at one location and I go somewhere else and say you know I really go as David Marotz the last one in wins the idea being this is your latest information. We have this concept of who owns the data, are data sourced directly from the EHRs but then I've introduced this third party saying: "Really, David Robert Marotz is my fully legal name?" And I was augmenting our data with that but then we had providers going like: "No, I want to be called Dave. I don't want my middle name shared in this context." So, as something simple as your name is a challenge, let alone the addresses and the formatting of addresses. This is another challenge as well. Those are just the two basic elements that when we think about creating your databases and structuring in your relationship. We have difficulty agreeing on those pieces, let alone on the next level of the join. Then that who owns the next layer out in building out on the layers of the onions in that perspective.

Don Lee: Yes. What's interesting too is that you brought up a couple of times here the concept of what lens are you looking at the data from. That changes everything. That's this context bid that keeps coming up and it's a part of every conversation that we have and I was kind of joked about it earlier but it's true. Every time we talk to another group and you ever see you're looking at it a lot more from a pharmacy perspective so you have a different perspective from the people you've talked to. You're adding a new complexity to it that we hadn't considered before. When you think about the ownership issue or even when you think about all of the different standards bodies and the different vendors that are out there and

the solutions they are putting out I begin to wonder if we are in fact all trying to solve the same problem. I almost wanted to take a step back for a second and say with these different solutions, are we, in fact, trying to do the same thing and might our struggles be related to the fact that they aren't doing the same thing and we're trying to put them in a box as if they were? We're trying to say these two standards are trying to accomplish the same thing. And conflict with one other and competition with one other, but they're actually aren't. They're not trying to accomplish the same thing. What do you guys think about that?

Shahid Shah: One thing I could elaborate there a little then David I'd like to hear your thoughts. The first thing we're trying to do is to establish identity resolution, right? The question you ask, who the heck are you? I think if we divorce these multiple things like identity from what networks you belong doing just as two Venn diagram circles. When you think about identity resolution and you brought up social security, the government already has this identity resolution problem because we're trying to figure out who is a particular person that's supposed to be submitting? Regulations in one state. Driver's licenses. The IRS tax records and so. The identity of resolution isn't the new problem, but I think we need to write about is that we're not using the common solutions to identity resolution before even getting to other pieces. What is your strategies at SureScripts around identity resolution? It sounds like you guys get the information from your institution, both PBMs and Pharmacies et cetera. as well as the healthcare institutions who are connected to you via EHRs… is that where the data start? What do consider [00:22:18] or the identity that you consider to be valid?

David Marotz: Yes. Our identity for providers is what comes from the provider systems. We, our relations to the EHRs are that they will work with their doctors and get go through the appropriate identity proofing vetting to makes sure they know who that doctor is. With a third of that through that process essentially, we point to two things. One is that we point to the EHRs saying you're responsible. We also provide the support what we've learned through e-prescribing control substances. NIST 863 identity proofing guidelines. With e-prescribing controlled substances which is my initial stepping into introduction into the e-prescribing space, there is a very strict rule that are defined by the government, defined NIST about how do you go through an identity proof and say I know this person is who they say they are and there is a requirements outreach checking your identity every three years. As our EHRs are upgrading and supporting EPCS e-prescribing controlled substances. For states like New York that has mandated it, and I think there are about four or five other states that mandated EPCSs.That by default this is the doctor proving who they are. Systems kind of use that initial seeding data like are you Dave vs. David? Some of them are trying to use NPPES to at least precede the initial identity proofing and they lock down that identity and say this is who you

are. We do, if there's ever debates outside of the EPCS world, then we have, we differ if there is a debate, sometimes that Dave vs. David may be in my private practice I want to be Dave but when I go to a hospital I want to be David. In those contexts, we would see situations of an identity kind of changing. Then we do a reach out and we have a full support infrastructure that says oh, if there's something happening and there is a debate, they say okay, what's on their NPI. That's still creates the contention that they might say what's your state licensure and try to create, try to play the, I don't want to call it a traffic cap but try to coordinate between the different entities and say kits from agreements and collaboration on, who you are as a person? That's critical, but we do differ and say we source our data from who we need to source the information from for the purposes of operating our network for e-prescribing and clinical direct messaging and enabling all clinical communication that goes across our network.

Shahid Shah: That makes sense. Don, do you remember if there were any of our prior conversations, anyone else brought up the NIST800-63 identity proofing standard? Because if we use that in the government side all the time that's a common standard that we use there or creating new systems but we got to figure out which person is correct versus not correct. I don't remember it coming up before but I find that interesting.

Don Lee: Definitely, has not. Even just like this level of granularity of focusing in on the names as that's kind of simplest nugget of truth that we need to get to. I think even that this is the first time that's coming out.

Shahid Shah: Yes. The reason I'm asking is that maybe then here, from a SureScript's perspective, doesn it make sense to extend that from just the ECPS and say or is it, Dave, is it too much to obviously, at this state 863 identity proofing has a per user dollar cost for proofing? We've estimated it, Don, to some of our project to be somewhere in the range between three to seven dollars per person, sometimes per quarter. Sometimes per year, depending on how often they do that. It's not... if you have a 100.000 people, that's a significant chunk of change. It's not a small number as far as dollar are concerned. Do you think that that's something that, obviously, you can't speak for Sure Script and say yes SureScripts will do it? But does it make sense for just someone, and I'll use SureScripts as a place holder, someone like SureScripts, doing the identity proofing so that you at least know that the identity is valid for this person, and then other data you can keep in other places. Does that make sense or even this is so hard and is so expensive that you do it for ECPS because it's worth it to do a controlled substance prescriptions?

David Marotz: Yes. It's a... I've mentioned this. So, it got me into this space was looking at from the e-prescribing controlled substances aspect because I did. Looked at this challenge for each of EHRs saying you know, every, so we

talked about the example, the doctor goes between three different enterprises. Are there requirements that are essentially you need that identity proof and the reality of a way that this needs to be implemented is that each of those situations the doctors are going through the process each time. The doctors have been identity proof at three different institutions. I will say this is not an approach that we are using today. I had a proposal years ago that was that identity kind of concept of how can we prove, because once Doctor Bob says I'm doctor Bob and proves it, that same authentication could be carried around. The authorization to actually interact with the system and do the prescribing. There is another set of checks in that perspective. How do you prove who you are? Having a way to take your identity from site to site, rather than being someone who has the whole old days of having the ring of keys from a local janitor from the school. It was, well we're doing that to providers. Here is your two-factor authentication for this system. Here is your two-factor from here, here and here and asking for real authentication. I looked that years ago and the challenge in building up network does take a long time to get that going, get that momentum. Get that critical path. We didn't sense at the time. Now we've seen New York where it's, I think... what're the numbers... It's on our website of the adoption of e-prescribing controlled substances. I want to say it's around 90% of providers or so. That it's proving that it has been done. The EHRs are implementing a working with their institutions to institute. NIST 800-63 compliant. The approach is to do identity proofing, we just don't have the efficiency and we still have the isolated data. We do see the registrations coming to our system and it's tightening up the data more, but it's not a universal authentication that can be used wherever they go.

Shahid Shah: That seems to be the crux of the argument then that Don brought this up a while ago is if we decompose this, let's think of this as architects, all three of us are architects at least on the software side. We're not real architects like buildings but at least pretend architects on the software side. So, in this case, when you decompose if we say there is just somebody, for example, Facebook has over a billion users, you can use your Facebook ID to come in. And you are reasonably assured of their basic level of identity proofing. That Shahid on Facebook actually might be Shahid, as an example. What I'm thinking is, if there's a way to solve this problem it's going to have to be in decomposed manner and that is someone is either assigned or takes the, you know, raises their hand and say I will handle identity proofing but not authentication. I'm just going to tell you that Dave is Dave, Shahid is Shahid and Don is Don. Authentication, you can have that as an add-on service, but somebody is managing just the identity proofing for clinicians, not even physicians specifically. Then, there has to be a group that says okay, I'll manage the authentication to let you also then augment your profile. The profile is deep enough to say this is my home address, these are my work addresses. They're not saying that this is where I do e-prescribing. These are just pieces of data that I have about

me. This is just the part of my profile. Now I have identity proofing data stored. I have a profile data stored. Now I need to then add-on and say okay, what does the health system need to know? If I connect the identity with these two addresses associated with this person, then I can add-in the ability for additional data to be collected, now comes the ability for us to connect the network that they belong to. Connect the health plans. That's going to be in another database. The first thing we need to help figure out is who's going to hold some of these canonical stores of the lookup data. The lookup of the identity, the lookup of the profile, the look up where all the insurance products. A lookup of contracts that might be available. It seems like we're trying to solve in, I like the way you said it Dave, capability style. I think it makes sense to us to maybe decompose this and say, let's pick some organizations in a way that Facebook has basically picked itself to be our social profile. As is Google second and third Google, Microsoft, Yahoo. These are all social profiles. Maybe the professional profile is like with Daximity, SureScripts. It's a combination of these that say I know the identity that this is my profile plus identity. I can then have the authentication and authorization either in that system. Then I have to go back to the payers and the contract holders and tell them guys, you need to create directories of all insurance plans in the country. All products associated with those plans in the country. The names of the networks and contracts and they can be holders of that data. Then they might afford the fifth data store that connects those up to say okay, now I know the identity, I have to profile. I have networks. Now my database connects to one and says this physician at this address as part of his profile has seen patients for this contract in this network for this product and this plan. It seems to me we cannot have single databases in the sky to do this, it's going to be some federated model. Does that decomposition approach make sense or is that even too complicated tour?

David Marotz: Just thinking through it on the fly, you're hitting on a very key part about it authentication and the access to different systems. I agree definitely from the architecture and the creature data ones and then reference with pointers. And how the appropriate deference for this is the authoritative source for the name, authoritative source for contracts. And you did hit on it as you started talking through the different connectivity's and different peers in the organizations and I think about our poor providers and how many different per maybe their agents. And how many different portals are they logging into to go and have a different credential at every one of those. I don't know how did you crack that math and get those different entities to all agree and say you know what? let's just refer to this NIST 800-63 identity at the start so at least then, they can come in when they need it, if I'm saying as a payer, I'm the authoritative source from my contracts. I need doctor to come in and sign this contract legally. Let's figure out how do we use that same identity and as talk through it thought about you know we also at SureScripts we have a couple of portals that we've created to bridge those gaps. Our preferences are deep integration

into the EHRs. When we're waiting for those networks to occur, we've developed portals around electronic prior authorization capability. Having the ability so when a provider gets a fax from one of our supporting payers, they can go and go through identity proofing with the NIST 800-63 compliant approach and then log in and now they have a credential with our prior off capability and also our clinical direct messaging capability that as well require identity proofing NIST 800-63. I suspect we tried to require separate authentication for both of situations but trying to build out that credential that can be used across different places saying why should I have to reauthenticate or reidentify proof you Doctor Bob if you've already been met those needs in e-prescribing controlled substances how do we make this a transferable network wide cross enterprise, cross industry approach? Exactly like the Facebook and Google have done.

Shahid Shah: Yes. Don, I think maybe this might be a useful supplementary episode for us to do is bring some folks in who have done this on the government side like I'm very familiar with. There are a little over two million government workers, subcontractors et cetera, that are already in NIST 800-63 if identity proofing model through the multiple agencies, they all have their true factor cards called HSPD12 and peers that cap with the common access cards from the DOD. This has been happening for about 15 years or so in the government and when you look at the total numbers, you could actually say that this is whatever the government is doing, it's not the best but it's great based on what they need for the time being. Could we use that similar model with the same technologies because they're basically Microsoft and others have been doing directory management for a lot of these agencies and as they do their identity proofing and as they go into their systems, for example, until you have identity proofing and a basic background check you don't get the .gov email address. Are we at the point now where we can say alright, given there's only a few million physicians that need to be in most of these directories, could we use that same model? It hasn't come up as interesting as we've been in so many different directory conversations. I've never heard even that the government that [00:34:43] ones that we've been to people saying let's extract out the identity proofing from the other data problems. What are you thinking Don? Based on the conversations that you had before, maybe we can propose something like that and just have an event about identity proofing and see who wants to jump up and do that.

Don Lee: I think it's a really interesting way to look at all this because that is going to be a hurdle that everybody needs to get over and no matter how else you're approaching the rest of the problem, you know, the further down the road here. You're going to have to solve that and you're going to have to deal with the fact that as Dave pointed out, these doctors we got to ring the keys like the local janitor. I think it's a really good way to break the problem down and I think it would be interesting to take a look at how the

government has approached it and has success with that. My question back to you would be are you thinking about this more as a mandated government thing or you're thinking about this as a grass roots that industry goes and does this and if it's the latter, do you think it could be done standalone or does it need to be done as part of a larger solution? I guess just to break that last part a little bit is I'd be interested in your universal identity proofing solution if it got me further down the road on some of these other problems that I'm trying to solve. I feel like something else would have to come with it.

Shahid Shah: Yes. That's the great point. I look at it as the latter. I'd be the last person to say let's get a government and institution to begin something. I think if we did this grass roots, got it going and really let's talk about this from a system engineering approach because that's what this first problem entails is how do we break this up? Where are the most important pieces of data and how could we connect them? Just like the internet wasn't invented all on one day and grew as a network, I think the same thing with SureScripts, they started up slowly but then picked up steam as the network started to grow. I like the idea of crowd [00:36:35] and doing it as a third party, but then one moved far enough along. People now aren't joining fast enough. At the beginning, you'll have the smart groups joining because there is value in it. But then it starts to slow it down and that's when you need to say hey, now we need some government help to start mending and saying CMS will penalize you if the data is incorrect and you are not using these existing solutions. Right now, they're just saying I'm going to penalize you if the data is not correct but payers are being penalized for things that they have no control over. They've been told your data has to be accurate and valid but payers, in this case, have no way of confirming that without the providers. That, I think when we do, penalties are in place, we don't have to change those regs, we just have to change the regs slightly of guidance to say, if you're not using identity proofing, with combining of data sets of these multiple sources. And the reason I like the multiple sources of data is that they are the comparative problem here because you can't just store everything in one place because networks, especially high-value networks of physicians tied to particular contracts, products and plans, and insurance companies are proprietary. It means if these are high performing networks, not everybody is going to say yes, sure, I've built this high performing network over the last five years, feel free to take all of these great doctors out of the bind I've worked for years. They got to be separated but we do this often in the classified world. When I work on the data side, you take there might be five pieces of data, they're all completely unclassified. You can take portions of one database and portions of another and it becomes classified. That happens all day, every day. That model actually might work. We can learn a little bit from the government to say okay, I can take completely common public data sets. Managed and maintained by different vendors. These are called centers of excellence other things like that on the government side. When I say

government, I think let's look at them for what they've done. What can we learn from them? But not mandated as the government agency requirement and instead let's see if we can do this ourselves first. Start this off and then see could we continue down this path and get it to work or do we need government help with small guidance? Not even a congressional mandate but regulatory kinds of additions to say [00:38:49] use this database like we have the MPI database. That's what I meant. What do you think about that, Don?

Don Lee: Yes, definitely. I think it's an interesting approach and I certainly like the idea of not trying to get government folks to involve too early on. I can see the value on that later on for sure. Again, I think it needs to be tied to something else of very tangible of clear value. I think in and out of itself, if it was just an identity proofing solution standalone but I didn't move the ball further down the field on some of these other issues, I think it might be tricky to get uptake on it. If you take that same concept and you just go on a little bit and say okay, what are these other [00:39:31] things that we know we need to figure out like we know we need to figure out the name issue that they were addressing early on. We need to figure out some of the other contextual questions that we've been hearing about over and over again like where do you work? Well, the question of "where do you work?" has a lot of different meanings depending on what lens you're looking through. What are these tangible, fine elements of data, the facts that are out there that we need to know? How can we source those from the appropriate place? David mentioned the social security administration for the name. Maybe the billing system at a practice or something related to billing. Whatever it is but find that [00:40:11] bit of information at getting into the central spot. The next level that we need is some kind of wave for the readers of the data, the consumers of the data to apply their own map to it so, now I can apply my context to it. I think that's what it is. If you can get those finite bits into a place where they can be agreed on that this is true. This is my name. This is an address where I work. And these are the hours that I work. Something along those lines, so everybody else can come in and know what that means and they'll consume it in their own way.

Shahid Shah: Dave, tell us a little bit then, maybe finish this sentence: "I wish I could . . . to solve the provider directory problem." What is it that you know all of this very well, you've been on it for a while and you work into an institution, which if it puts its mind to it and stop working on everything else, they could probably run in and solve this problem. Tell us what do you wish the industry was doing? What do you wish even your own in at SureScripts or others are working on?

David Marotz: Great question. I've got a backlog of my own stuff just for the next year to try to further iterate and improve upon our directory even with its broad reach to it we've got right now. As an industry, the biggest thing I always

come back to is the use-case. What's the focus, what's the problem that we're trying to solve? Through that lens, then you can come up with very tangible solutions that you can iterate on and I've heard someone used this analogy of thinking about this is like planets and the solar system. What's the Sun and how do we keep building those out? I keep looking at this through the lens of which products am I supporting right now, the e-prescribing lens through the direct messaging lens as we look at the payers' space and how to expand in there and how to support the payers? It's really looking at and I know that on one hand told thinking about your customer's problem the one we're trying to solve but I also jumped to solutioning of the product and saying okay, if this is the problem that you have, how can I incrementally address that? Knowing how I've solved my current challenges then I can look at the next problems saying okay, now let's layer in that payer relationship space. Really understanding, okay payers, I understand you once thought that your directory for enrollment but there's got to be something to it more than enrollment issue. Where are we going with this? I don't know what that future looks like. In this world of building up networks and directories, this is not a one, two-year problem. This is a probably five plus year challenge of iterating and building out. It might be able to be accelerated by some capacities with certain ways but saying, where are we going? Although we don't want to build the end today, we want to build with the end in mind and how we want to keep iterating on that to build that out.

Shahid Shah: Yes. Although a time is perfect for this interesting debut said that it will take a while and just to give you an example on the government side, a Homeland Security directive what's called HSPD12 which talked about two-factor identity proofing et cetera, came out during the early part of the Bush administration soon after 9/11. We are still probably under 50-60% of the way and that's in a group where, in theory, the government has a top-down institution which could direct its people, I mean there are 100.000s of people that they have to direct. Even there it's taken a long time just to work on a "who are you?" problem. Exactly what we should be making sure we've said expectations are even if everybody put their attention to this it would take time. What's really interesting is that you guys have gone through and gotten the two-factor authentication for EPCS who work done much faster than many agencies government have and without command and control. There is one thing here, if a doctor is not able to prescribe a controlled substance that has a revenue implication for them and it has patient implications, what kind of patients they can see. There is an incentive there that has driven I think your approach to success so quickly. That's another lesson. What are the other incentives available that we can use. Don, you had some other questions for Dave, I didn't mean to interrupt there.

Don Lee: Yes, you bet. We wanted to get into a little bit here Dave, we talked about the standards now, we talked about these really up front problems that

haven't bubbled up to the top of our conversation so far at least. This has been great. We also wanted to get into a little bit what are people actually are doing out there right now? We've seen a bunch of different approaches to solving these problems. Now, not speaking I guess from a standard standpoint but the point of view from the vendors that are out there and like I've said, we've talked to a bunch. We've talked to Availity, Better Doctor, Gain Healthcare, CAQH... you're working with a bunch of them. What are the different approaches that you're seeing in the market from the commercial entities that are trying to solve this problem?

David Marotz: There is preferably four different approaches out there and it's really a continuum on evolution within the approaches that customers use or entities that are out there that I see. First is probably the self-reporting kind of just the like for the payer saying "okay, doc. I'm working with you. Just give me what you've got." And I view that as an unstructured and just kind of an open-ended solicitation. We can come back and talk through more of the details in each of these. There is more of the data aggregated. The entities that go out there and really try to scrape the data out of the authoritative sources and their pitch to their customers is "Look, I pulled this data on your behalf from these states. I've got traceability all the way up and down, as far as when I last got my data." Here's how you know this is the correct information pulled from state license insurance. The DEA, NPPES and try to create that composite golden record. Then they also factoring some of the less private or less public information such as claims data. Trying to layer in more aggregation of data. Next progression of that is updated for a [00:45:46]. Those entities will say: "Okay, now that we maybe have some of these other pieces in place or someone gave me a data set. The base off of, let me go to the doctors. I mean I'm going to fax them, I'm going to phone call them. I'm going to try and drive those doctors to my portals." They try to get the doctors to come in and validate the data themselves. Then, the last one is the different permutations of extracts and platforms that trying to deeply integrate into either integrating from the standpoint of getting those systems that are quote-un-quote source the truth to do it export and ship that data out to some other third party, do the consolidation. Or the deep integration through APIs such as an update add-prescriber, update prescriber messaging that really is an extension of that EHR into a centralized system which is what SureScripts do. Each of these entities have their pros and cons and deal with all the challenges we hit leaving up for this conversation. Those are the different opportunities or approaches out there.

Don Lee: Got it. Do you see them as all really trying to do the same thing? To me it looks like these are a couple of different ways of trying to identify the facts but not necessarily even getting into the context just yet, would you agree?

David Marotz: Yes, they're all trying... I mean, on the one hand, yes. It's all provider data.

Trying to get out of it, improved their repository is the best they can. When you put those different lenses on it, other conversation said "One of these challenges in the segmentation of data in different payers, there's the need for enrollment purposes for those people. They're out there trying to sell. They are plans. They want to show the biggest enrollment possible." There is a contracting division that wants to make sure this is absolutely to the letter of the law exactly what we contracted you with the doctors in which context. There is the enrollments trying to keep that data, you get these three different repositories. Then on the one hand, why do you have your data in three different spaces? The other side is, each one of them has a slightly different new one to what are they trying to prove. This left out the whole purpose of what would up retrospective auditing and knowing where was the doctor and why was this claim paid? Why was this message sent to the four locations? At that point in time, each one of those lenses influences it. I think, based on who these different, the entitles that use these different approaches depends on who are they serving and what the context is. Back to the DEA, if I was the pharmacist and dispensing the controlled substance for the practitioner I want to make certain absolutely that this doctor has got their current DEA number because I don't want to get into any challenges with the DEA.

Don Lee: Right on. We're not really looking at your traditional VHS beta max thing here. Where one of these methods will probably win out and be the ultimate solution. We're probably in the scenario where they each have, as you said pros and cons and depending on the scenario, A versus B is the appropriate one. How do we take that? How do we go from this combination of approaches that we're seeing out there to something that does solve the problem more globally or nationally, I should say. Do you think that's possible? Do you think it's possible to have the national solution? If so, does it require all of these parts and all of these approaches that we're seeing?

David Marotz: I can't say I know the solution to solve this on a national level. Act on my earlier comments of just taking the pieces and building upon them… What works and what are you trying to accomplish? It actually starts out with the stakeholders involved. Thinking about the inclinations, the EHRs, the hospitals, the PBMs, the pharmacies, the technology vendors. Those are all the entities that SureScripts has worked with. Then you can throw in that would we think nationally, what do the payers want? What do the reporting agencies want? There is that bringing together the multiple stakeholders to... these are the use-cases. This is what I need to solve. This is what I'm dealing with today. Having those multiple institutions also involved throughout the process, there's far as the end users' systems like the doctors that are represented. We need all those compartments and pieces there. I would say too is, so you got the stakeholders, you got the people... How do you make things start happening? Standards? Open APIs? In SureScripts, we love standards. We're involved in the HL7s, the

X12s, NCPDPs of the World and are helping work in those areas is the great space to convene entities. The risks on it, the certain standards and that's really government enterprises. On the one hand having a government mandate to say "Thou shalt be at this version as a minimum of a standard." That really helps those laggard moves along it can shift the industry. On the other hand, it can also be hinderers. When certain early adopters are saying: "This new version does what I want but I will be penalized if I'm not at this current, older version." I think the third part about this is making sure we're federating. Federating the data as we talked about from our conversations on a [00:50:26] sources and where is the data? I say federated I'm not thinking I sent a query out and I hit every single resource in the country but federating in the terms of who are the right sources? How do I get the data from this for whatever entity is responsible for that data as the authoritative source? How do we get that contributed into the systems so it's available? And then, of course, you lay your back for that, how do you maintain it, the accuracy? The other funny parts of accountability and enforcements.

Shahid Shah: All right Dave. You've talked a little bit about the federated model and I want to bring in another model which we and the healthcare community don't seem to like very much or certainly not used very much and that is the open source. An open APIs model. I think you talked about FHIR aside of the equation on the HL7 side Orgonite and FHIR these have been developed in the open. Both open source as well as a transparently being developed, you don't need to pay for it. Do any kind of licensing in order to consume it then use it. Those are all good, so I see we have one sample here about open source and open transparent kind of development. But in that same spirit of fill in the blank, I wish to reuse more open source for . . . what would that look like? I still think especially all of us as [00:51:43] on this call at least. We use so much open source. The intranet would not be anywhere near its success today if it wasn't for the ton of open source and we all just use this all day long but in healthcare, we don't seem to. Could this provider directory and other models benefit from that or is that just a something that is wishful thinking in being an open source and open APIs and transparent kinds of design doesn't really work well here?

David Marotz: Like I said, we as an organization this is how I get my start in the healthcare industry is HL7 version 3 modeling. Defining and working across three competitive companies in the device industry. I absolutely saw the benefits of it this slowdown and the challenge was that, though I was working on the project, it wasn't until 10 years later until I finally had validated, approved vocabulary. There is always these challenges which is where our effort came in saying "okay, let's get some more backing and support and really put some effort engineering time and dollars to try to really evolve this standard and make it something that's implementable and usable in the real world." I definitely can see the benefits, where we're interested in watching. Challenges, of course, is making certainly stay on

the old days, OSI stacks and the HL7 being on the seventh level. You got to be careful when you get to the certain parts of standards and making certain that doesn't overstep into the implementation under the hood and really saying if you going to do this standard then you need to implement this way and this stack and this approach. Because then you lose the ability to innovate and you inherit some of those problems. That's where it gets a little tricky. I think continuing the work, like you said, an OMCs convening on their Tiger Teams. They're talking about the standards. The goal is to create a draft standard for trial implementation used and have that through the September [00:53:32] cycle and this part of going through the HL7 processes it. So, ANSI accredited forum was allowed to others the way in. The risks, of course, being, well, not risks but the opportunities that everyone can contribute. Sometimes that can be very good. Other times you can get things getting pushed out and so I keep saying: "What about this? What about this and this?" You don't want to let the perfect be the enemy of good enough. That's always the challenge from these spaces.

Shahid Shah: To summarize there, it sounds like if you follow the FHIR and Orgonite model that was a day [00:54:05] first and then go build some code. I'm saying like a real open source style model where we all build code and we show it working and then we take it to HL7 to say: "Okay guys, this is what we should work off of, because of that prototype, that initial code, that initial repository becomes the specification input." The spec is built of something that works. Is that possible here in this provider directory world? We saw it, it helped to work for FHIR, but what do you think about that you [00:54:33] at open source and then taking it to a standard to move beyond it rather than the opposite which is worked the standards and then hope to have it have solid afterward.

David Marotz: I'll say from real world experience. With the DEA and the [00:54:46] one thing I really liked with the DEA and the [00:54:49] for e-prescribing controlled substances, it didn't specify you shall use this standard, the name, and version. They just said here are the outcomes we expect to see. At SureScripts, we initially convened our key stakeholders bonded them together and said: "Okay, well, how can we make, what is required work in the standard?" So, we said: "Okay, this is what NCPDP looks like, here is what we think would make sense." Then to your point, is we had it working as, this is workable, we have implemented and said we can do the messaging, we can shoot translations, we can score digital signatures through translations from ex [00:55:23] fact back and forth. We can handle all these different components. Then, when we knew how it would work, then we went and said: "All right, let's bring in the broader NCPDP group. Let's take it through the validating process and got that instantiated into the here is how you do it with eight that one NCPDP here is what 10-6 looks like." And so, to your point, that's exactly that kind of scenario of we've proved of what could be done, now let's take it, get it further validated, vetted, approved. It's the way to make messaging happen. In the

directory space as well, this a working I think it's agile mentality. Working code is more important than documentation and I'm not going to quote beyond that, but essentially proved that it works.

Shahid Shah: Great point.

Don Lee: Yes. I think that's a good approach to anything in technology and business and life really is that everybody is dealing with so many problems in whatever space they happen to be working in, that if you have A solution to their problem and it works, there is a pretty good chance they're going to give it a try. If you have an idea for a solution for somebody's problem, that feels like a whole bunch of work and now I want to find out if you've got the right idea, or this idea and everything is [00:56:33] up. So yeah, that working.... I'm with you a 100%. Agile mentality. Working code, working solutions. You might as well give it a try. Because all of the other paths require a lot of work before you can get to the point where you can try it. So, Dave, as we get to the closing point here, for anybody out there who's listening and maybe wondering why SureScripts is doing as much work as they are around these provider directory solutions. I wanted to tie up with giving you the opportunity to tell us a little bit more about the company and about the evolution of what you're trying to accomplish and why you have this approach to the world of this collaboration and the tendency towards the open source and things like that. Tell us a little bit more about SureScripts and how you arrived at this spot.

David Marotz: Excellent, thank you, Don. SureScripts is a very unique position and that we were nationwide healthcare information network. We started in 2001. as a network designed to increase safety, reduce cost and improve quality. Which is kind of tri-fect of patient-healthcare delivery. The organization was initially based off of the pharmacy associations formed SureScripts systems. Three of largest payers, Caremark Express, Scripts and MedCo formed our ex hub. In 2008. they decided to merge the organizations and say let's focus on connecting the [00:57:54] the EHRs, the hospitals, the PBMs, the Pharmacies, the Technology vendors to really make certain and ensure that we have a comprehensive patient information view available at the point of care. What we had is, of course, talking through the different products that we offer and when we started out an evolution was one side of the network was focused on the prescription routing making sure that a prescription gets from the provider to the pharmacy. We don't create the software that the pharmacies use or that the EHRs create. We have the connectivity we use to standards base and NCPDP script and certify the EHRs to talk to our network and the pharmacist talk to our network. To really trying to make certain we don't end up with that problem of you've seen one standard specification. It's real once the EHR talks to our network they can talk to anyone of the pharmacies on our network. And the same thing, any pharmacy can talk to all the EHRs on our network. Last year we had over 10,9 billion transactions. That's beyond just e-

prescribing, core transactions. There's 1,6 billion e-prescriptions. That's about 4,4 million transactions a day. We've been definitely proving a robust network and operational system. The other aspects too of our network, beyond just the prescription messenger going from EHR to the pharmacy, was that our payers' community said: "I want to make certain that a provider has a well-informed prescription from a making certain that the prescription is unformulary. I'm certain that the best-priced item for the customer and for their benefits. There's benefits check that says before a patient shows up, it says what benefits does this patient have they can inform the formulary selection and drive an informed prescription for the prescriber and from that perspective as well as we have medication history products that offer information in the angulatory setting. The idea being that from a pharmacy they'd rather had the doctor make those choices if there's going to be aware if there's going to be a drug-drug interaction. This information is brought in. Medication history from the payers, from what's been paid for and dispensed as well as from the pharmacy systems in terms of the fill data. It creates a full view for the provider within their EHR so the idea being now when the prescription shows up at the pharmacy, the pharmacist can focus on the other aspects of the fulfillment purposes with the patients. We also have expanded over the years this is continuing iterate on these based capabilities to expand into a clinical direct messaging which allows first secure direct project messaging between providers and providers from an organization adding them and bringing in the pharmacies as well on to that communication channel. In the past year, we also added a national record locator service which is from when a patient may present in a hospital or a clinical setting the provider in this context wants to say: "Where else does this patient been seen? What are the information out there?" They can do a query and go out and say: "Oh, here is additional information where this patient has been." Again, in form the care for at that point in time. We continue to expand out in other areas around the medication management for adherence to allow for payers to send the communication if one of patient presents said: "This patient has been staying in hearing to their medication and he may want to talk about other opportunities there." As well as too, the electronic prior authorizations that we offer a fully electronic ETA prior authorization product capability for embedding within the EHR to answer all those questions that used to take weeks to get it done, to days or even hours potentially to resolve a prior authorization challenge. Some of these products we had to build up portals as well to help accelerate the connections which given the identity proofing directory. Across many of these products, there is a directory component that says how does a pharmacy find the doctor, how does the doctor find a prescriber. Just keep iterating on our directory and building this out. We're deeply integrated into all this EHRs. I believe last count 95% of all meaningfully used certified EHRs are connected to our network. Or been certified to our networks. We've got deep integration for the management of our records and messaging across our enterprise to sits between different end systems.

Don Lee:	That's great. We can definitely see you where that mentality of.... you know, start with the core problem and then build out from there and solve the next layer and next layer and keep iterating it. It's clear that's been an evolution of organization and it's a... that showed through it he conversation throughout today. Thanks for that background. Where would you send a listener, who wanted to learn more about SureScripts, about you, or about the need these initiatives that you think are or if people are going to look into. Any web links or anything along those lines.
David Marotz:	Yes, I'd recommend going to surescripts.com and check out our national progress report was released roughly last month. That talks about all the [01:02:38] of our network and all of our customers that have enabled us to accomplish what we have. We sit behind those systems and help power them to deliver care for all the patients in the nation. If you want to reach me my email address is dave.marotz@surescripts.com
Don Lee:	Very good, thank you. We will link both of those up in the show notes so if anyone is listening you'll be able to just jump in there and click them nice and easy. With that, I'd just want to say thank you so much, Dave, for joining us and for continuing to show us that we have a long, long way to go before we even understand this problem. I added a bunch of new contexts to it so this has been a really good, I think it will be a great addition to our series here, Shahid. I look forward to continuing to open this one up and trying to help spread the word about how we might solve some of these issues.
Shahid Shah:	Yes, looking forward to it and, Dave, I appreciate it that you join in here for sure and especially for making the problem much worse than it was about an hour ago.
David Marotz:	It's so funny. I'm still laughing because I get brought in for a 15-minute conversation and then we end up with an hour of a discussion. It's exciting, challenging problem, but do you think the future is bright and there is a way to solve this problem.
Shahid Shah:	All right. Optimistic note. Thanks.
Don Lee:	Agreed. Awesome. Thanks, everyone and please check us out at thehcbiz.com and you can sign up for our newsletter there. Check out all of our archives and past shows, podcast etc. Again thehcbiz.com Thank you, everyone. Have a great day.