NewSTEPs
A Program of the Association of Public Health Laboratories™

APHL Newborn Screening Health Information Technology Webinar

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Presentations:

- Clinical Data and Messaging Standards 101 — Swapna Abhyankar, MD
- State of Florida's Journey to Electronic Reporting f Newborn Screening Results— Andrew Richardson & Eddie Gonzalez Loumiet
- Texas Newborn Screening HIT—Brendan Reilly

Moderators:

- Careema Yusuf, MPH, Senior Specialist, NewSTEPs
- Jelili Ojodu, MPH, Director, APHL Newborn Screening and Genetics
- Pat Scott, Newborn Screening Manager, Delaware Public Health Laboratory

Please direct all comments/questions pertaining to this presentation to Careema Yusuf at careema.yusuf@aphl.org or 240-485-2761.

Careema: Thank you. Okay. I will open for Jelili who'll give us a brief introduction.

Jelili: All right. Thank you, Careema. We are all excited to be hosting this first webinar on Newborn Screening Health Information Technology. My name is Jelili Ojodu, the Director of Newborn Screening and Genetics here at APHL. This has been a need to bring together folks in the communities of Newborn Screening related, especially around health information technology, health information exchange or informatics. We had a discussion, the last symposium. Actually it was a roundtable that was put together to discuss health information technology. From that round table it was obvious that there was a need to bring the community together in one way or another.

From APHL, being that health information technology is one of those cross-cutting issues where we have folks working in the Newborn Screening and Genetics and public health department, the Informatics Committee and department here at APHL. We thought that it would work very well and of course all of the activities that we have related to new steps to bring folks together to have not only a dialogue or a discussion

on a monthly basis or as needed, but also created a list serve related to health information technology. Next slide please.

The work group on Newborn Screening Health Information and Technology was put together several months ago now; at least three months ago and they've met a couple of times already. The goals of this group are highlighted on the slide on the screen there. As noted, this is one of those cross-cutting initiatives within the APHL Newborn Screening and Genetics program. The scope certainly goes beyond what we do at Newborn Screening. As noted here, it's to collect and distribute health information technology questions to experts in the subject matter area.

We want to try as much as possible to enhance and increase the awareness of health information projects through networking and collaborating opportunities and activities. We also wanted to use this opportunity to have the workgroups serve as a major resource to Newborn Screening programs as they navigate towards all the HIT issues in state Newborn Screening programs. We wanted to use this opportunity as well to build trust and strengthen relationships at state level, regional level, local level and private partners. We'll talk about the private partnership in a minute, as well as with our Newborn Screening technical assistance and evaluation program new steps.

There's a lot of data that we are planning to collect as it relates to the Newborn Screening database. We wanted to make sure that all of the components of the Newborn Screening system are addressed as well there. Building that trust and strengthening relationship is going to be key in moving forward. Next please. W,-and correct me if I'm wrong Careema, we solicited folks from the Newborn Screening community as a whole to apply to this particular work group several months ago.

This was an opportunity to pretty much see who would be interested in engaging in all of the activities and goals that I noted earlier. From the open solicitation, we selected 11 states Newborn Screening program representatives highlighted on the slide here, including folks from Delaware. Pat Scott is one of our co-chairs. Andrew Richards from the state of Florida is also a co-chair. Georgia, Indiana, Kentucky, Massachusetts, Minnesota, Texas, Virginia, Washington State and California.

These activities wouldn't be truly collaborative if we didn't engage our federal partners as well. The National Library of Medicine, the Centre for Disease Control and prevention and the health resources in Seven Seas administration. We also reached out to all of the Newborn Screening, at least the major Newborn Screening vendors that are out there; PerkinElmer, StarLIMS, Oz Systems at least among others. Those are actually active

participants on our workgroup calls that we have on a monthly basis, and then other stakeholders.

They meet on a monthly basis to discuss other activities and as needed, host webinars. This is one of the first ones that we're hosting here. I'm sure this will be one of many in the near future. How do you get involved? As I noted earlier we do have a Newborn Screening Health Information Technology list serve. If you have any questions related to that list serve, feel free to email Careema Yusuf. Her email is on the screen there, careema.yusuf@aphl.org send question to anyone of those co-chairs including Careema as well and Andrew Richards from Florida or Pat Scott from Delaware.

As noted, we are looking forward to not only engaging the Newborn Screening community and informatics committee as specifically relates to Newborn Screening in the near future, but also be able to help address a number of issues and build a community that we can easily rely on and depend on in the near future.

That's a quick update from me here and I'm going to pass it back to Careema.

Careema: Thanks Jelili. I'm going to pass it on to Pat who has graciously agreed to moderate us. Pat?

Pat: Thank you Careema and Jelili for making this webinar happen. I can't agree more with Jelili. We need to share what we collectively know and to grow in our knowledge of health information technology and increase our ability to implement electronic messaging. To start off with today's message, we have Swapna Abhyankar, I hope I said that right, from Lister Hill National Center for Biomedical Communications. She is our National Library of Medicine contact. Swapna it's all yours.

Swapna: Okay, great. Can you hear me?

Pat: Yes we can hear you.

Swapna: Okay, perfect. I know I've presented several times about LOINC codes and Newborn Screening in the whole one panel and very specific details regarding Newborn Screening. I just want to take a step back today and take more of a high level view on just general information about clinical data and messaging standards and just why it's important and basically what's out there. Careema, the next slide. Just as an overview again the need for standards, just talking a little bit about LOINC, SNOMED-CT and HL7

to give an example to tie it together and then just a couple of slides with some resources on them. Next slide. Thanks.

Basically, why do we need standards? Everybody knows that data related to newborn screening are created in many, many different places including hospitals, other providers, the lab, Public Health departments. All of this is very important, but it's not really meaningful or very useful at a higher level if individual pieces can't be aggregated and shared in a meaningful way. Careema, the next slide. This is an example. Basically the main challenge is that everybody represents the same information in different ways. For the test I specifically said "What do you call one of the Newborn Screening tests for congenital adrenal hyperplasia?"

These are actual abbreviations. I'm not going to go through all of them, but offer 1700 hydroxyprogesterone that I've taken from several different Newborn Screening state websites as well as several different labs. The list was much longer than this, but these are all different ways that people represent the exact same analysis.

Next slide, Careema. Imagine you are in one of these places, the public health department, the HIE, the hospital, somewhere and next slide- and basically each place is representing the exact same piece of information in a different way. Imagine if this is the case, it would be very difficult to send this information from one place to another and have the receiving facility understand what you're talking about.

It's one thing if you send a fax to a provider and they can read it and they can interpret it but for a computer to be able to interpret, it has to have something that's the same across systems. Next slide? The way we can tie it all together is with data standards. In this case there's a LOINC code for 1700 hydroxyprogesterone and there's a long common name and a short name and has a lot of different attributes.

Basically if each place attaches this code to their own 1700 hydroxyprogesterone test then when they send the information, as long as they send it with the code, all the receivers will be able to interpret it as long as they're also using the same code. This isn't to say that you need to replace what you're using with LOINC but just to use it in addition to. Basically an extra piece of information that you attach to it and then you just send it so that every place is basically able to interpret the information in the same way. Next slide?

A quick overview of the standards, so next slide … Starting with … there's two types of standards. One is for the data if you guys have heard a lot about LOINC and LOINC

actually goes beyond just lab tests which I'll get into in a minute. There's LOINC, there's SNOMED CT for diagnosis codes. For billing codes there's ICD- 9, ICD-10 and CPT codes for procedures. For medications, there's AKNORM and then there's also messaging standards. Not only do you tend to code the data but you have to send it in a certain way. Those standards are via HL7. Next slide?

Basically both are important. If you have the messaging standard, so let's say everybody's sending everything in the exact same way but you don't have the data standard then the receivers don't know how to interpret the data that was like my 1700 hydroxyprogesterone example. On the other hand let's say everybody is using the LOINC code for 1700 hydroxyprogesterone but some are sending faxes, some are sending emails, some are sending stuff through the mail. There's no standard for actual messaging then the receiving institution won't be able to process the message.

They might be able to interpret it if somebody looks at it or when somebody types into the computer but they won't be able to automatically process it. Next slide? These standards are basically required for meaningful use and so LOINC is required for laboratory and other clinical observations; SNOMED is required for the patient problem list so that's been pushed off for another year. You don't have to worry about it until 2015 and then HL7 is required for transmitting the healthy information. I just have a couple of little snapshots from the actual regulations over on the right side of the slide but you don't need to read that stuff. Next slide?

Going back to LOINC, logical observation identifiers names and codes. It's a universal code system and it's maintained by Regan Street Institute in Indiana and it covers not only lab like I said before but radiology, clinical observations including different measurements like blood pressure, height, weight. It has surveys, it has vital statistics reports, lots of different things and they're in different formats. You can have you're individual tag like your hemoglobin or your 1700 hydroxyprogesterone. You can also have panels of tests, so things that are grouped together.

Something like a complete blood prompt panel has the hemoglobin, hematocrit, platelets, white blood cells and several other things. And then you can have actually panels that include other panels like the Comprehensive Metabolic Panel. There are many different levels and the new board screening panel is a panel of panels. Go ahead and go to the next slide. This is just a screenshot of the different vital records reports that are in LOINC. You can see the fetal death report, the birth certificate and the death certificate. Next slide … basically LOINC code asks the questions.

If you're asking what is the 1700 hydroxyprogesterone level or what's the hemoglobin or what's the hospital admission diagnosis. LOINC is the question part of that and then the answer depends on the question that you're asking. For something that's a number, like a lab test for the 17 of each progesterone level, it's a number 68. I just made that one up. Let's say for something else, like for a hospital admission diagnosis, the answer itself is a code from a different vocabulary so if you're using ICD-9, It'll be 255.2 or if you're using SNOMED CT, I think it's a tentative number that you see but basically the question itself is a code and then the answer is also a code.

In some cases, the question's a code but the answer's just a number or whatever it is. Go ahead and go to the next page … There's a couple of tools for mapping to LOINC. RELMA is actually a software program that you can download. It's a free download and it's very useful if you're mapping a whole bunch of tests at once. If you're trying to basically map everything your lab does to LOINC, you can basically load in the information about your tests, the units of measure you use, the normal ranges that you use.

There's also information like the average value, the mean the max things like that. RELMA will take all this information and basically help you find the best match for that test, and I'll present you with several different matches and then you'd have to choose the best one. That's useful because then you can go through one by one and pick the best match for each of your tests. If you just want to look up, let's say, one test like really quick you need to find out the code for sodium, then you can just go to search.loinc.org and you can just type in sodium and it'll present you with all of the results so that you can pick the one that's relevant based on the body fluid and units of measure and all that. Next slide …

This is less relevant to new born screening but LOINC also has things like the top 2,000 list. Basically they took the lists of orders from three very big hospital systems and found a little more than 2,000 tests covered actually 98% of the test volume. This is basically a publication that lists the top 2,000 plus 2,017 to be exact tests with their LOINC codes. If you're a hospital lab, this is very useful because you know it's going to cover most of what you need and then you can do this very quickly and then it'll take some time to map other 2% of the test.

There's also a continuum guide which is very helpful and helps you decide which codes to pick in different situations. Both Web Search tool and RELMA can be constrained to just the top 2,000 and again if you're just looking for sodium and you want the most common one, you can constrain it to show the most common tests. Next slide please …

We're switching gears a little bit to SNOMED CT, it's my nomenclature of medicine clinical terms and this is an international content of critical terminology. It's maintained by the IHTSDO which has many countries as members and NLM is actually the US representative to the IHTSDO.

The difference between SNOMED CT and ICD-9 is that ICD-9 wasn't created for billing, so in many cases it doesn't differentiate between a lot of different disorders. I think a lot of the metabolic disorders end up having one ICD-9 code but for SNOMED CT, they have a lot more detailed breakdown of the different conditions and so it's much more granular. Sometimes it's actually too granular, sort of breaking it down to too much detail but in general it's a little bit better for problem listing than ICD-9. SNOMED CT codes are available via the UMLS which is NLM service and all you have to do is obtain a license which is free and set up an account and have the URL for that at the bottom if you're interested.

Basically the UMLS takes concepts from many different terminologies, so it also includes LOINC and ICD-9 and Rx Norm and many other vocabularies. Basically will create one concept which shows all of the different codes from all of the different terminologies for that one concept. Yeah so if you want to map ICD-9 to SNOMED CT, you can do that and ICD-9, ICD-10. We also have maps available which will become important for meaningful use of ICD-9 codes to ICD-10 codes. I think there's ICD-9, there's SNOMED CT map, there's a couple of different versions of it. Those are all freely available from the MLM site. Next slide please…

HL7. That's the standard for messaging so for transmitting the clinical data. HL7 was also specified by the regulation for the standards that had to be used for electronic messaging. It basically provides the structure for transmitting all of the information and it can be used both between institutions like between the hospital and a public health lab. It's also actually used within institutions and I think most hospitals at this point actually use HL7 within their hospital from the billing system to their clinical system because those are usually two independent systems. Go ahead and go to the next slide…

Basically, HL7 provides the structure and next slide … for sending the information which is the content. If you go the next slide … Basically HL7 has different types of segments to carry different types of information. For example, the speaking with the envelope analogy, the administrative segment which is the envelope, it has the message header segment, the patient identification, next of kin. You can imagine those spots where you

put the recipient address and who it's from. Each of those is very specific. It's very important you put the stamp in the upper right hand corner and HL7 is the same way.

Each of these segments have specific fields to have specific information. There is specific holders for those. It has results segments, which is kind of like the envelope contents that provides structure for all the results you're sending. The OBR's observation request which is order and OBX is the result.

Each segment, like I said has many different fields and each of those segments hold different types of information. Next slide please?

Basically just putting it all together, I wanted to go through a really quick example. I know this looks really scary but don't worry about all of the different things it says on the screen, but basically I'm just going to go through a quick example of sending a 17-hydroxyprogesterone result and admission diagnosis for a test [inaudible 00:21:20]. The first segment is the PID segment, which is the Patient Information, then we have two OBX segments with the results. Obviously this is very much simplified and I'm leaving out a lot of important segments, but I just wanted to show you, just so you can get a quick idea of what HL7 segments look like. Next slide please?

This is just a breakdown of the Patient Identification segment and the vertical bars, separates each field. I have a legend below, so that you can decipher what the actual segment says. Again, it's patient identification, you see the patient ID which is 1234. Test Baby is the name. You see the date of birth, 2014 to '15. All of these pieces of data I just made up but you can see each one has its own place. If I wanted to send the baby's name, I can't just put it wherever I want. I have to put it in that specific field, and that way the receiving system knows, "Oh this is the person's name," and they're not going to miss interpreted as the date of birth or the race, or anything else. Go to the next slide.

This is the OBX segment for the 17-hydroxyprogesterone result. You can see it says OBX one, because it's the first result, and N means the number. The 38473-5 is the LOINC code. 17OHP is the short name, and then LN is the abbreviation for the system; the code system. Sorry actually my screen just … went to a black screen so now I can't see the screen anymore. Hang on one second. I'll bring back up. Then you have the result which is 68, the units of measure which are in a different field, the normal range again in different field. You can see there's several blank fields where you just see a bunch of vertical bars in a row. Those holes also offer information but for this example it wasn't

important to go through each one. S is the status, which is final. Go ahead and go to the next slide.

This segment just shows just how you would report the admission diagnosis. Again, it's OBX because it's an observation result. It's two, because now it's the second result. You'll see, again the data head is NM for number even though you think, "Well, but congenital adrenal hyperplasia." Those are words but you're actually sending the code - the [inaudible 00:23:51] CT code, so the 237751000, that's the number. You can see the question, which is the LOINC code 8646-2 hospital admission. That's the question, and then the answer is the SNOMED code for CAH.

I think the next couple slides are just resources, so you can go ahead and go to the next one. There are several resources for LOINC,SNOMED CT, HL7. We didn't talk about UCUM but that's the Unified Code for Units of Measure. Again different places use different units of measure, and even different representations of the units of measure for the exact same thing. UCUM is the standard for units of measure and that also [inaudible 00:24:36] for the regulations. Next slide, you can go to it.

So sorry, I know I talk very quickly and we covered a lot of material but hopefully it made sense and then for those of you who are familiar with these standards, hopefully it wasn't too simplistic.

Careema: Thank you Swapna. We're going to go on to the next presentation, Pat?

Pat: Okay, we have next [inaudible 00:25:09] journey to electronic messaging, and our presenters are Andrew Richardson who is my co-chair on this committee and Eddie Gonzalez Loumiet. Something close to that I hope.

Andrew: Thanks Pat. Can everybody hear me?

Careema: Yes, they can hear you.

Andrew: All right, great. This is Andrew Richardson, I'm going to be presenting along with Eddie Gonzalez Loumiet. I'm going to go ahead and kick off. We can go ahead and go to the next slide. First thing I want to do is give you all a little bit of a background about some of the things that maybe different in Florida, from state to state. I put a couple bullets on here about some of the things I think Texas was presenting after us, and they're actually a two screen state.

Florida is a one screen state. The volume of cards that we processed in 2013 is about 265,000. The birth rate in 2013 was about 214,000. One thing that may or may not be unique is that, we collect both CCHD and hearing results on our blood card. If for some reason, there is a logistical issue in the hospital, and the [inaudible 00:26:25] folks, and hearing folks, and the blood collection folks aren't able to all get to that card before it goes out, we do have a web based system for the CCHD and hearing results reporting.

Another thing is that out follow up system is completely integrated with our laboratory information management system. I guess I had three hopes here as I take you through our profile. I think that everybody on the call or all the states on the call, are probably in one of three statuses. They're either a little bit further behind us, than us on these projects they are probably at about the same state. There are several that are further ahead. I think, as Hilary said at the beginning of this collaboration, and the ability to ask questions and get them answered from other states that are dealing with the same stuff, will be really helpful to us.

I'm hoping that any states that are behind us that they haven't talk about anything that they have additional questions [inaudible 00:27:21] … just a second. Sorry about that.

Eduardo: Oh, no problem.

Andrew: I had another phone call coming in, and it's ringing buzzing loud. I'll turn it off; just want to mute for a second. We can go ahead and go to the next slide. When I say in the beginning, I mean the beginning of us trying to start electronically reporting, not the beginning of newborn screening. Just give you, how we reported back to our submitters. We have an auto fax solution that when the laboratory is completed their testing that automatically faxes the results back to the submitter. In some instances that the fax failed they would ultimately be mailed in regular USCS mail.

Obviously there is a business need for a more efficient, more reliable reporting system than that, and so we started to look into various things. Actually one of the first things that we thought would be helpful in expediting the reporting back to the submitters is to have a web based system where the hospitals could log in with their username and password. It will be limited to each hospital. Then of course they could maybe enter a date of birth and print all of their lab reports for babies on that date of birth in a batch format.

One of the things that was a drawback on that, is that it's still a manual process. We still have to manage all the user accounts. There's still someone at the hospital that needs to

log in, and it's not fully automated. It's more automated than what we had but I think it was a baby step. As we went through this, you'll see when some of our decisions were made, that changed that from a baby step to a giant leap.

One of the questions that I ultimately ask, is some of the other people in the program say, "Well, you know, this is electronically but it's not automated. Can we do this and then automat it, in a purely electronic manner." Around that time we started trying to find some people inside our state department of health that had some knowledge on basically electronic processing with health data. You can go ahead and go to the next slide.

I remember even asking, is this possible and how, and I'm going to go ahead and pass it over to Eddie Gonzalez Loumiet here. He is our data and creation team community project manager. He's been routing data in standardized formats for a long time. He's been our saving grace for this project and I'm going to let him talk a little bit about his team and how they came into the fold when we were trying to improve our reporting rights. Eddie …

Eduardo: Okay great, can you hear me here?

Andrew: Yes, sir.

Eduardo: Okay, great. What we did is, we took a step back and meet with the new born swinging experts [inaudible 00:30:36] day in and day out and we educated our IT specifically the integration team on what was the need, what was the problem. Thankfully we … Over the last … Actually from 1999 when Lady Janice Firestone worked with our IT team that created Enterprise Bed integration team. In other words [inaudible 00:31:00] behaving theme of different program areas, could leverage for data coming in and out of agency and of course for data within the agency as well and for National recordings and to things are nature. The answer is yes, Drew and the inborn training program areas … We can help you.

Naturally some of the things that our team is comprised of, is listening part of viewing. We are a little bit different than others service stuff agencies, where we are a little more enterprise, essentially for consolidating but I have been seeing more and more agencies and state … Public Health Organizations, the union that directions. I figure that we share with you some of the things that we use and some of the standards that we use as well which is the perfect sideway from the original secrets today. Next slide please.

Okay. One of the first things we have to do as I mentioned was a presentation. Drew please educate us and that's what we focused on is we … Many of us are children. We know we can do more screening process, look at us from a hospital perspective as a patient or as a father or a mother of a patient. What does it entail from a reporting perspective, what does it entail from a Public Health perspective and that was extremely helpful for us to move forward.

One of the things that naturally are asked when a project like this is started is, is there funding. For this project per say that we've started there is no funding. However based on the benefits and the cost of improvement, analysis that we did to start off, we know there will be savings in the future and hopefully will be funding as well. Next slide please.

Okay. This is our tool belt. The core components are the integration broker. We have [plovety 00:32:56] which is used in many hospitals. We've had that for many many years and many of our browsing interfaces like ELR [inaudible 00:33:05]. We also know [inaudible 00:33:06]; and so we also take advantage of the modifiers and specifically MIRTH products which is open source in Java. It allows a little more flexibility. We also have a third tool which has benefits as well and these are our three four components from generation site and naturally you can use really an inward interface engine, immigration engine if you can't get the data. One of the things that we've done is, we've positioned ourselves to be able to accept data using different transform protocols.

Naturally [inaudible 00:33:41] I know some of you from the AP shell R&R in other world that is a big, big … from a very point tool in our tool belt. Of course as a TP, VPN web services becoming more popular and we also learn from [poke around direct 00:33:58], we mean we use and EMRs investing in direct. We believe that we have to be in a position to be able to communicate with organizations that use direct. Next slide please.

Standards. We need to [inaudible 00:34:12] 30 minute session with some of the explained, the standards. We are lucky, we have a lady named [Broke00:34:21] we've asked the several we know whom kind of our standard SME. There are situations where we have marking documentation and specification guides and things that really are way over our heads. Thankfully we have some of that as in train, some of that really loves this stuff which is a big advantage for us. Having stewards or someone you can rely on more and for example; a hospital has an issue related to I think so some of the methods and long codes or showman codes. Having someone in a team that you can rely on for advice and guidance and really to provide for the support from a mapping perspective, is huge.

Yes. We are big believers in national standards. Our [inaudible 00:35:03] is why we invest in you because the rest of the Federal government in use and pilot exercise approximation. Why not use it as well. Next slide please.

Jelili: Eddie, this is Jelili with APHL. Can you move just a little bit closer to the microphone?

Eduardo: Sure. I'll change these items, sorry.

Jelili: No problem. Thank you.

Eduardo: A little problem, let me actually adjust my microphone here. Okay. As well in addition to the integration broker and the standards we also use different open source solutions but we also are begging to virtualization. For example, where big users of EMware, so if Drew comes to us and says, "Eddie we need some additional servers, being able to replicate servers quickly has been huge. Some versions are a version system so as we improve our interfaces, our change interfaces, the difference between one interface and the other is logged, provides art of ability as well. We also have a weekly called track which is extremely useful when you are working on hundreds and hundreds of interfaces, it's important to track that and that's an open source search. Next slide please.

Okay. This is my favorite slide because it shows a little bit of what we do in Florida. Once again when Drew says, "Can we do to this?" I say, "Well, we were doing this already and these are some of the program areas thanks to projects like the sleep project managed APHL and other national projects forced us to be in a position to help folks like a [Guru 00:36:44] and obviously this important project and build more screen. Next slide.

Okay. Our overall goal was ELO (Electronic Lab Ordering) and Electronic Lab Results by direction in a secure fashion from hospitals through the integration team, to a laboratory for [inaudible 00:37:06] numbers system to be able to value tests and for that result to get up to that hospital in real time. Naturally, I think today was down at 14 data entry operators had taken the blood cards and entered the information at the Bureau of Laboratories. Being able to make that "Electronic" with reduced time for the hospitals to get the results will also decrease duplication and decrease efforts and ultimately in our position potentially stabilize. Next slide.

I've mentioned earlier, big founder of the National Library of Medicine and the standards. One of the things that we did was, we studied this. We studied the National

Library of Medicine HO semi version 251 for new born screening. We analyzed it and we said how does this relate to the state of Florida? Next slide.

What we did is we also sent our hospitals. Today we are working with 10 hospitals, the 10 hospitals attending the most new born screening tests to the state. One of the first things we do is we find out their capabilities are. Who are the team members? What tools do they have or don't have? Are they doing any Public Health reporting to date? We do that through a registration form and based on the answers to the registration form … Next Slide.

We offer technical systems to the point that we actually get the National Library of Medicine HL7251 guide and we create a constraint profile and we also create a mapping document. If you are a hospital and you are overwhelmed with meaningful use ICE10 conversions before the extension and things to that nature, we want to make it easy for you to send us the data. We take the dozen of pages from the National Library of Medicine guide and constrain it, and we do some of the school trade product spreadsheets that they can then use at the hospital to do the mapping that would then facilitate and seek sending a compliant HL7 message. We call this technical assistance from the State side. Next slide.

Okay. Naturally there's always an issue, right? Our biggest issue or challenge in working with hospitals has been competition from a project perspective. Eddie and Drew, we've got meaning for you [inaudible 00:39:28] so worried not. Which one is the immunizations? We're trying to connect to an HIEUR RIO. We're also trying to do an ICE conversion and by the way HIPPA is really a pain and with the Omnibus rule we are getting [inaudible 00:39:40] once a month. We don't have time for this so what we've done is we've had to educate, we've had to explain what the importance of this project is.

Drew and I have actually gone to a hospital with two and talk to them and in real life not over a conference call and explain from how and important this is for the residents and the visitors of the state of Florida. Funding is always an issue. Every hospital has to [inaudible 00:40:06], "Is there any money for us? Can this be subsidized?" Natural we go through benefits that allows them to justify with their project and their CIO and their sponsors. Next slide. Okay that's it for me.

Andrew: Alright guys I'm going to go ahead and pick back up here. We are going to go into a couple of things that we have found to be an issue so far in working with our hospitals. Probably the first is that the hearing test results and the CCHD results don't tend to be

in the same information system as the demographic information that we need for the blood card order. There're some data aggregating issues which we hope that a hospital could send us a HL7 packet with all of the data that we want in one file. What we're finding is that's not going to be the case in too many instances.

That puts a little extra work on the hospital. We have tried to meet them half way by … Eddie's team has come up with some creative data techniques that we could get the packets separately and then rejoin them on our end so that the hospitals just need to send us separate data packets with each of those sets of information. Next slide.

As I mentioned briefly, we're currently unfunded. We had a bunch of go-getters here in Florida that saw the business sense of doing this for the Newborn Screening community. We continue to work on it. It's moving a little slower than we'd like, sometimes we're all holding different directions and things of that nature. Next slide please.

As Eddie mentioned, we have a lot of … the hospitals; we need to incentivize this to get into the top of it. They do have a bunch of other competing projects. One of the questions that I specifically have and I would love it if somebody on the call has some additional information on this to reach out to me afterwards is, how do we leverage meaningful use and how can we determine how much funding is meaningfully useful to afford a hospital? I would love to go into one of our hospitals and say "Hey last year you sent us 7000 specimen and if you are able to convert the meaningful useful and that you X amount of dollars."

I have no idea what goes into that right now and I think that that would be another incentive that we can lay on the table when we got meet with the hospitals. Next slide.

We handed around with a lot of different vague areas of the project. I don't know if you guys have a more distinct idea of where we are currently. We've been having planning meetings between our laboratory, me here on the follow up programs, division of information technology and the data integration team that you've seen.

We have multiple hospitals the we've done conference calls, we've gone and done site visits with them as Eddie has mentioned, we even sent some surveys with positive response. I think initially one of the things that we did to see if there was enough interest from the hospitals we sent an email and just said "We're looking into processing the blood card electronically. Is this something that you would be interested in if we can make it happen? "Something along those lines and I only got one "No" back, out of about 120 hospitals and about 80 "Yes's."

Most of the "Yes's" had a series of exclamation points after them so there's a lot of interest from our private partners in the hospitals to do this. Actually one of the hospitals that Eddie and I went into here is Tallahassee Florida, Tallahassee Memorial Hospital. They had their coordinator who had commended all the blood collection in the blood cards. We explained how the process would go. They would actually scan the card and not have to hand write all the data on the blood card anymore. She was glowing saying how much time this would save her, how much easier it would be.

It's also a big deal to try to get those hospitals on board and seeing the value for them in a permanent efficiency and reliability standpoint. We have a partnership with [inaudible 00:44:24] because [inaudible 00:44:25]already had a hub connection to DLH and we're already sending data through them. They made it a lot easier because several other hospitals are also partnering with [inaudible 00:44:33] so we already have a path way for the data to get into us from some of those hospitals. Eddie's team they've already started to develop some of these channels. We are receiving test data from some hospitals.

There's obviously some … earlier on and then we have some ... some of the data is not quite showing up where it should be and some of it may not be complete. We're having meetings back and forth with the hospitals to try and get all those little details ironed out. We're [inaudible 00:45:06] as Eddie mentioned we have a wonderful person at out laboratory, Robin [inaudible 00:45:12] who is great at doing that. She built a beautiful mapping document that we give to our training partners. Next slide please.

This slide is just some of the hospitals that we've already engaged. We've had discovery meetings, we started giving them some of our documentation, and getting them on board and we continue to work with them. I think it's about 10 hospitals or so right now that we're working with. Next slide.

I think the biggest point of this is, it is a massive effort of collaboration between follow ups, the laboratory, data immigration, our division of information technology, our leadership at the laboratory, our leadership here at follow up and even being guided by NLM APHL for the standards.

I remember a lot of my a-ha! moments came from going to the APHL conference or to the Eddie conference where a lot of this data standards have been discussed in the last few years. Had it not been for those conferences and my eyes being opened I don't know that I would have even asked Eddie's team if this was possible. Go ahead next slide.

Anyone has any questions? I'd love to hear them. You can ask afterwards, send me an email, give me a phone call if you heard us discuss something that you think that you're state is already figure out.

Looks like there might still be a problem in Florida, give me a call I'd love to hear it. Any sort of question either way. If there's anything that I could answer for you or we could answer for you of course we'll try to get that back to you. Thanks a lot everyone.

Pat: Thank Drew and Eddie. Our next speaker will be Brendan Reilly. He's from the Texas Newborn Screening department. He's going to talk on HIT in Texas.

Brendan: Okay thanks Pat. I would also like to say thanks to Drew and Careema for getting this set up. I think this is a … I'm finding a lot of utility out of this. I've been working on HL7 in Texas for 6 or 7 years now and just from the first two presentations I've learned a lot more. I have a slightly-I wouldn't say I have a slightly different perspective from Drew And Eddie, but I think it's going to … my impression is that they've covered a lot of the IT side of it and roll out side of it. I'm more of a program person and I have a bit of understanding on IT side but I have more of a program background so I think this is going to equate really well into my presentation.

Next slide please. What I'm going to try to do really quickly I'll try to speak as quickly as Swapna does because I have a lot of information to cover. First I'm going to go over basically how our project initiated. I'll give an overview of how our system is configured and then I'll try to quickly go through a history of our implementation of HIT in Texas, where we are today and then importantly the lessons we've learnt through our projects up to this point. You'll hear a lot of the same lessons learned that I heard Drew and Eddie saying but a lot of different ones as well.

I'd like to present what I see as an overall summary-a very high level summary of what an implementation looks like. I want to drill down to a couple of pieces of that in terms of remote specimen handling, once it's received in the laboratory, some business rules that we had to think about. I'd like to talk about validating these interfaces a little bit and another thing that I think was overlooked earlier on with us, is the up keep and maintenance of the these systems once they're in place. Finally, I'd like to talk a little bit about the next steps that we have planned here in Texas.

The start of this project it was initiated back in January of 2006 was when the whole proposal was first put out there. The roll out actually didn't occur until sometime later. I'll talk more about that in a minute. As it is in Florida the project goal was basically to

set up web based application where Newborn Screening orders could be sent in and results could be accessed. There's also an aspect of that system to where that's partial HL7 where partially completed data could be accessed through the application and then finalize the order through the application.

The other half of that is a by directional HL7 interface so ordering … the same is true and Eddy just talked about it. The funding source for this was … We did have funding for it and is funded by Medicated Funds and Public Health Services. It was initiated by the operations unit manager at the time who put together a business case for why it made financial sense to put money towards this project and then ultimately could save money through cost of mail and printing and data entry operations and things like that. The next slide please .

Just a quick overview of what this initiation looked like. It went up to very high levels within the agency. I have it broken off to the yellow side as the IT side and the green side as the program side. You can see that we had it up to the Commissioner, assistant commissioner level, IT director, Information security, Applications manager. On the program side we had Operations manager and Branch managers. Down here at the bottom you'll see that we had a Program project manager for this whole thing and an IT project manager that, as you see when I go through my slides that really we've kind of had …

We felt that we've needed both sides represented throughout the initiation of the project, roll out of the project and maintenance of the project. We're really lucky in Texas to have an IT project manager who has a lot of experience in new born screening and understanding of our processes but they're not always going to be 100% complete. By first on the program side, we're going to understand a lot of our program needs but not as educated as I can get on the IT side. I'm not going to be as educated as our IT folks. Next slide please .

You see those two folks at the top of this list but for roll out and maintenance of this project. Once we get all funding then RFD has completed things like that. There's a lot of people involved that should be involved and that we've included in figuring out how to make this whole thing work. On the IT side we have IT operations. There's a lot of hardware and things like that involved in this. When this project rolled out we had an HIT Vendor and a primary LIMS Vendor and that's our current model. Our HIT Vendor right now is NeoMetrics and our primary LIMS Vendor right now is PerkinElmer.

You can see that they're two different vendors working together. On the lab side of this, one thing that I think was maybe not … the second one down here would be the laboratory LIMS liaison. I don't know to what extent this was in the original plan but its ultimately ended up being really necessary to have somebody on the lab side who can coordinate the testing, the validation and make sure everything is going correctly. This all has to do with demographic information received and reporting so we definitely needed to include representatives from our Specimen receiving department, the Demographic entry department.

Demographic entry and reporting are together in Texas but they're two different aspects of one department that needs to be consulted and considered. There's a lot of quality assurance questions that came up for us during this whole roll out and continue in our current system and that we need to make sure that we have a representative from our QA department making sure that we are doing things correctly. Ultimately at the bottom of all this you have the providers that we're working with and I'm not going to go into the elaborate structures on that side. I think that would be another great presentation someday down the line as this whole thing from a provider's perspective because there's a lot of people involved there as well.

Next slide please. This is a bit of a mess. I apologize but I'll try and get through it quickly. This is … It didn't quite come across right either. That said, we initially started rolling out this project in the middle of 2007 and that involved development and testing of the web application as well as development of the HL7 message that we're currently using. I'm going to go ahead and point out now that the NLM guidelines didn't come out until the end of 2011. I know there was much discussion back then but ultimately our current system doesn't include LOINC codes and I think some of the challenges that we see may result from the fact that we don't use LOINC.

I think some of the things that Swapna mentioned earlier about data messaging standards could be really helpful moving forward. Ultimately this initial roll out, you can see that it overlaps with our first two HL7 implementations. You see that the first two HL7 implementations took about 16 to 18 months to actually get into place. I will say that one of these that have implementations one and two. One was really successful and the other was where a lot of our lesson learnt came from. That's that point.

Moving on from there to another 2009, you see we implemented our ... We started our third HL7 implementation and we ultimately conceived that that had to stop and then restarted back at the end of 2010. A lot of that had to do with our CF expansion and some priority issues that Drew mentioned on the hospital side so they had to redirect

resources and ultimately come back to us. Ultimately towards the end of 2010 we restarted that project and also had a project going with another site and we were successfully able to get those two hospital systems on board.

Point out that each of these implementations is multiple facilities ultimately when we set up these interfaces we're talking about, multiple hospitals not just a single hospital. The NLM guidelines coming out at the end of 2011 and shortly after that we got directive to start expanding to [SQuiD 00:57:10] which put a hold on everything for us in terms of HL7. Since that time we've had additional set ups on home. There's multiple reasons for this reassessing our system, we had some vacancies but we're looking to move forward as quickly as we can. Okay so enough of that nasty slide. If we can move on to the next slide please.

I'm going to give a quick overview of how our system works. Basically the health care provider in Texas has two options in terms of how they can just send the demographic information to us. The first is, they can go directly into the web application that we have, enter all the demographic information, submit it to us and all this information will be transferred to a holding table that's part of but separate from our primary data base. It's populated into this holding table. Another way to get information into this holding table is the hospital can generate an HL7 message which is picked up by the IDHS HL7 engine.

NeoMetrics has come up with some solutions for extracting information out of that message and populating it into the same holding table that the web application sends things into. Ultimately when the fiscal card is received at the DSHS lab we receive it, it goes up to our Demographic entry department. They'll scan that same form in with the same kit number and the system goes out and finds that kit number in the holding table and if it does so it populates that into their demo entry screen where they can do a double check to make sure it's valid and then save it into the main database. Next slide please.

Okay. On the opposite side of that on the result reporting end of things, basically we generate result reports and the images created for every one of our result fortune. Historically most of these are going out to regular mail and we also have the fax option but every report gets a PDF image created. Overnight PerkinElmer … We have a data extractor is transferred from PerkinElmer over to NeoMetrics that provides a list of specimens that are being reported. It also has some additional information that's necessary such as abnormal slugs to unsatisfactory slugs that will ultimately be used in HL7 message.

NeoMetrics ultimately developed a pretty neat solution of actually going out to the result image and parsing the information out of the result image to create the HL7 message. The HL7 message is created that way. It's sent out through the HL7 engine and the hospitals HL7s engine will pick it up and then import it in to their internal system. Again on the hospital side I just have Healthcare provider but there's … We've seen that there is multiple systems within their systems so they can have a lab system and a billing system and an admitting system and a hospital system so there's multiple systems within there as well. I think that's for another presentation. The next slide please. Oh I'm sorry, could you go back Careema I'm sorry. I skipped the web application.

The other option for a healthcare providers is that they can also go in through the new NeoMetrics Web Application and directly use that as a portal to access the result image of the patient whose results they are looking for. Okay. Now next slide please.

Okay. Our current status in terms of use of this web application, order entry for demographic entry; we have about 18 active users that are actively submitting demographic information through the system. This constitutes about one and a third percent of our, the screens that we process each year which is about 10,000 specimens. I'll say getting for writers to use the order entry portion is a bit more of a challenge because we are essentially asking them to do double data entry. Most of this information is already entered into another system. It does have the ability to print a label so they don't have to write all the information on to the form but we still have some challenge getting folks to use it.

Now the results access portion of it is not nearly as challenging to get them to use it. We do have a pretty high rate of usage on that. All the new born screening results are available through that application regardless of how it's submitted to us. Ultimately we have something like 75% of our screens, the submitters of those screens have access to the system. We get about 12,000 views a month. If you just imagine printing in and faxing over results on 12,000 reports, those costs could add up really quickly and that's every month. Next slide please.

Okay. Our current status in terms of HL7 ultimately now we have three healthcare systems with which we have interfaces setup and these are complete ORM ORU ordering and results by directional interface. We've ultimately of these three systems ends up being seven representative interface systems. One of these healthcare systems actually has what would be considered five distinct systems that we need to validate to make sure are functioning properly. That's where we get seven. It ends up being, we have 39 hospital facilities that we are interfacing with thorough these interfaces.

It constitutes 10% of our screening which last year would be about 75,000 specimens where we didn't have to do the data entry and results were directly sent to the hospital and they don't have to do data entry. I mentioned during one of our first two implementations that we ran into some issues with one of the hospital systems which was made up of two hospitals ultimately they are using a partial HL7 web ordering solution. Where the ADT order is sent over to our holding table, they can access the ADT orders through the web application and finalize the order and send it in to us. The concept is, is this does cut down on their data entry a little bit but in one of the hospitals ultimately said "No, this is still too much work we are just not doing it."

All the works that we put in to setting up an implementation with them. One of the hospitals just opted not to do it. You see later on that ultimately we are leaning towards not accepting hospitals that want to use an ADT or a partial order of any sort. We are still in contact, we have a lot of hospital … healthcare systems and hospital representatives that are really interested in this. I have 19 different contacts from different facilities and systems, it's not individual hospitals.

I couldn't even tell you … I haven't been able to go out and say which hospitals this would represent. I can say that at least one of them is currently working with Drew in their hospital in Florida. They have multiple hospitals in Texas, the fax that we talk about standardizing the concept is they get something setup with Drew. They've already done it, they know how it works and to have all the mappings and the bars are really similar then it's going to be much easier adjustment for them to get an interface with us. We also do have some separate format messaging that's going out to other NBS programs to share data. Next slide please.

Overall real quick through remote ordering either through HL7 through the web we get about 12% of our specimens remote ordered and on the reporting side we … electronic reporting only, either through HL7 reporting or providers have opted to just go get all their results directly from the Web application and not receive a mail or a fax. We have about 80,000 specimens that are reported that way. No printing and no mailing on any of this. Next slide please.

The lesson that we've learned over all these processes and there are quite a few, I'll try to move through this. One thing that I don't know how much everybody thinks about but once you have a web application in place, either for remote ordering or resulting that application must be considered for any changes that you make. If you want to add a new data entry field, a new data element that you are collecting on the report cards, I have to adjust that application as well as your primary lens if they're separate.

We also found that it's really important to clearly establish the requirements for the web application from the get go. This is something I think we've really helped to vendor out a lot more during our initial implementation to make sure that we clearly establish the layout that we want. What security controls are in place, not so much on the application side but on our program side? What accounts setup and removal forums and processes do you have in place to make sure that we are taking care of our system. On the actual application side what reports do you want to have accessible? Do you want every report available to every healthcare provider or are there limitations? We ultimately put some limitations into ours and made our lawyers happy.

Also things like password resets and security words and things like that. At the time we didn't setup a self-service system that could do password resets and that something presented some challenges for us. Other things to think about are the validations and the demographic information field that these sorts of things that, we thought of during the implementation as opposed to providing this upfront to the vendor. When we tab off of a field do you want them to be stopped there or do you … What information can they save and fix later and what is required to be able to submit a specimen. You can have a future date and things like that.

Then another thing that we found that was really important and ultimately found solutions for was a communication plan. Not just the roll out … Obviously you are going to let all your providers know that it's available but there's recruiting involved. How do you go out and get people to start using the application. Just telling them it's there isn't going to get everybody to change their processes. There's … We found that going out and showing them how to use it and how to use it within their system. It takes 10 minutes out of their day and then they know how to do it.

Also what happens if there's down time? If the system comes down or you have schedule maintenance what's your communication plan to make sure people are aware of it. Next slide please.

Sorry I'm going to go on and on with these lessons learned but the web application that would cover it, from the HL7 side, the lessons learned. We ultimately got to the point where we had to see each implementation as a unique project and having multiple projects at the same time. There's competing resources and each system is a project of its own and should be treated that way. Ultimately at this point we're planning on nine to 12 months per project. As Drew mentioned, when scheduling these projects you have to ...

Not only are the partner sites going to have competing projects and things like that, but on the laboratory side as well there're competing projects. If you're rolling out new tests, if you're going to be making major changes to your LIMS or anything like that those things have to be considered and you really have to put a timeline to get it to include all these things.

Again, HL 7 messaging has to be considered for any program changes both on the demo entry side and HL 7, more so on the reporting side. If you're going to start reporting a new ratio you need to make sure that hospital systems can receive that ratio and have a place to put it. Again, a point where LOINC codes I see it's a real benefit especially after Swapna' s presentation. Again, establishing clear communication lines- There's a lot of people involved with HL 7 systems so you have end users on the hospital's side.

You need to make sure that they are not contacting my IT guy because they can't log in to their Outlook or something. Our IT folks would say they get those calls from the hospital side all the time. We also found that it's really important to earlier on to find leadership in roles for all these projects both on the program's side and the provider's side; executive leadership for escalating any issues that come up and then the project managers that I talked about and LIMS coordinators on either side.

We found ourselves with at least on implementation getting into a situation where the project manager on the hospital side wanted us to manage their individual LIMS coordinators for 11 different sites. That's difficult if you've not established earlier on that that's not going to happen. Next slide please.

Another important lesson that we learnt and Eddy mentioned this is assessing the provider before an implementation is entered into, a new project is put into place. It's important to make sure project approval and funding is provided on the hospital side before you put too much work into it and assessing the capability of their hospital system, their ability to provide requested data elements.

Not all hospital systems automatically have all the data elements that we request on a Newborn Screening form. Also what kind of front-end validations are they going to have on their side? I can't tell you how awesome it would be if every hospital system that we put in an implementation with had a validation to ensure that the check digit was checked on the kit number then sent to us because that would cut down on a lot of our QA issues.

Ability for the hospital to post all the elements and revise results and whether they plan to use a label, what that label looks like and whether they can meet the requirements that we have for the labels. We clearly establish what we want our label to look like; our receiving department demo entry department had really specific requests for that. Timelines and risk on the hospital's side and then the staffing that Eddy mentioned. Who's going to do what on the hospital's side? Next slide please. I mentioned the ADT message issue with us.

There are possible benefits to it but we ultimately determine that if there's too many risks and that by accepting a partial message we run into situations where we might- Our business rules for accepting data might get a lot more complicated. Along those lines there are additional QA systems that are going to be required for processing this specimen so a lot of the reporting responsibility is shifted to IT staff and to make sure that they're adhering to the guidelines that we have on the lab's side.

Something to think about, through a web application where reports are immediately available; in the olden days you might have printed a physical report and said "Oops that was wrong. Let me go pull that, we're not going to mail that out. Then you go send a [revere 01:15:01]end, I'll go create a new one" That's been out there. It's going to require a revised report. I alluded to earlier front-end validations but we do have situations where end users are going to enter incorrect information. They're going swap the physical form with somebody else's kit number that they send to you. We really found that we had to have systems in place to cover this.

This leads right into the fact that we received multiple data sets on every electronically submitted specimen that we received. It could be up to three different data sets so if they submit electronically we have an electronic data set. We almost always have a hand written data set on the demographic form. A lot of times we'll have a label and we could have all three. We do have … Some hospital systems that regularly will hand write all the information entered into a system, print out a label, put it over the hand written information then send the electronic message.

Next slide please. Overview of what I see as an implementation summary. We talked about developing our requirements and implementing the solution. I think that's where Eddy and Drew talked a lot about with the hardware and software and message formats. I think it's important to set up business rules for handling these remote entered specimens. Then identifying and assessing HL 7 partner sites, establishing agreements with those sites and probably the longest portion is assisting those sites with assessing their system and their interface.

The most successful implementations we've had are those sites that go through and completely re-evaluate all their processes for collecting and submitting and reporting new [inaudible 01:16:59] specimens. After that we have validations that need to be done and then go live and then the maintenance of the system will be on that. Next slide please. I'm going to drill down and focus on just a few of those aspects of specimen handling all those validations and maintenance.

Next slide. Ultimately for handling these multiple data sets what we did is we put together business rules that we could include in our business agreement with these hospitals and say that, "We have these three different data sets. This is how we're going to treat them." The highest priority is given to the electronic data set if the order is received and validated then the electronic data set we say will supersede anything that we receive on the label or on the printed form.

Above that we say that if we have a label on a kit and there's some written information underneath it we are going to not pay any attention to the written information underneath it and we're only going to use the information on the label. Last we have the hand written information if there's no label. In those cases where we receive an electronic message the label and the hand written information -If there is no label will only be used to validate that message.

Our data entry operator scans the form, the demographic information pops up into their demographic entry screen, they're going to look at the form only to- They have a couple of fields that they look at to make sure the data sets match. If those two fields match then whatever else is in the electronic data set is accepted as the data set. That's ultimately the solution that we've come up with there. Next slide please.

I'm not going to go through this but this is just a visual representation of the processes that we've needed to put into place when handling remote enter specimens and the different possibilities that we can get in terms of what happens when the electronic data set doesn't pass that remote entry validation. What happens when the kit number that is on the label doesn't match the kit number on the form? We've put pretty elaborate processes in their place and walked through every possibility and made sure that we had a procedure in every one of those instances. Next slide please.

I want to move along to validations. I think I'm running a little bit long- I apologize. I'll try to move through this pretty quickly. Here are a few excerpts that I took out of the CAP requirements for an interface system. The first one; verification must be performed by reviewing the first downstream system in which the ordering clinician or client may

be expected to routinely access patient data. Ultimately we've set up our validations directly with the hospital and this is where I think I've mentioned to some folks on the HIT work group that I have concerns about just validating with an HIE. Not only is it a capital requirement but are we really making sure and protecting patient's safety and making sure that the receiving system is receiving it correctly? I also mentioned multiple sites if the user is the same as the recipient system, you only need to validate with one site.

This's something that we didn't quite get early on but ultimately this makes things much easier for us for those recipient systems that have 12 hospitals using the same system. We only have to validate with one. They also mentioned that a validation should include individual results, abnormal flags, comments, notes and corrected results. In Texas, we validate every possible result that we could get out. You can imagine this is a lot of results and so we can need up to 100 test samples to make sure this happens. We're still looking at how necessary it is to do every possible result and how we can get around this. Next slide.

Again this is just a quick overview of our validation process. I'm not going to go into the specifics of it but to say that there're a lot of people involved in any validation. You have multiple steps on hospital sites and then we have our LENS coordinator. If there's a failure, everybody has to get involved to figure out whether the hospital staff did something wrong or if there's a problem on the hospital side, on the lab side, if there's a problem with HL7 message; in any number of places. Ultimately since the past, it's a real collaborative process with our LENS coordinator, our lab's department and the hospital representatives as well. Next slide please.

Maintenance I think is something that could really easily be overlooked in setting up a system. Hospital systems on their side are constantly making upgrades and changes and have new test environments. We regularly need to do tests just to make sure we still have the capabilities that we set up just for hospital system changes. On the lab side again anytime we have a new disorder or analyzed ratio, changes to result reporting statements, we'll have to test to make sure those are going across correctly.

There's some question in terms of the remote entered specimens in terms of our responsibility if they remotely enter something then we never receive it.

We've put some processes in the place for that. You need to think about system additives, lost connections and reconnecting those with a pair of pretty … I'm not going to say all the time but they're regular in an every two year review. Next slide please.

Jelili: Brendan, you have three more minutes.

Brendan: I got you.

Jelili: Thank you.

Brendan: Moving along. Our next step is in fact just what we're looking to do on the website, we want to improve security, we want to incorporate the self-service tools we talked about and looking at mobile device capability. Last slide please.

Next up on the HL7 side is, we really want to see what we can do to move more towards the NLM guidelines incorporating LOINC codes but that's going to be a challenge for us since we have 10% of specimens being interfaced at this point. We need to figure out how to transition to that new format. As part of that we're accessing our reporting models and Texas is currently … we only report qualitative results and we need to move that.

We need to assess whether we need to start incorporating quantitative results and then we're going to need to develop new specifications and input together those implementation tools that we talked about before. I think that's all I'm going to have time for. I'm sorry I did have one more slide.

We're also looking at and investigating how we can integrate with all these other systems and how we can piggy back and get everybody on the same page. We have 12 HIE's in Texas. How can we leverage that? How can we leverage this point of tear MBS systems? We have separate applications that are reporting here in results and not CCHD yet but I don't know exactly what's going to happen with CCHD but how can we put all of this together?

Is there a solution there? And then how can we also piggy back with all these other systems, vital statistics, Medicaid, immunizations and disease reporting is a big part of our main [inaudible 01:25:03] use too. A lot of hospitals are contacting us saying we need to report back to the agency. How do we do that? And that's where I'm wondering can we somehow piggy back on the fact they're already setting a connection with their agency? I think I'm definitely out of time so thanks to everybody for your time and I think we'd be ready to move on to questions.

Careema: Thank you so much Brendan. We are open for questions now, I just wanted everybody to know that I'll be sending out a survey to everyone who participated today and you

can also put in your questions there. If you'd like to ask a question now please dial *7 to un-mute the line the line or you can type in the middle of the chat box that's appeared on your screens. Thank you.

Pat: Careema, this is Pat Scott. Will you have the files available to the viewer's today?

Careema: Absolutely because we're recording this, it'll be available on the website as soon as it's ready in about a week or so. We need to put things together but yes it will be available. Any questions anybody? Well if you can't think of any for now please feel free to contact myself or the two chairs and like I said I'll be sending out a quick survey, just three questions, asking about the webinar today. Please feel free to put in your questions there and I'll be sure to forward them to the speakers that we had today.

Jelili: Are there any questions from the audience? That was *7 that you said they should dial?

Careema: *7 to un-mute the line.

Jelili: Oh, un-mute their line. That's correct.

Mike: It's Mike from Ontario. One question just of Texas. If I read your numbers right, you had more people submitting data, than you did receiving results? Did I read that correctly?

Brendan: We have more people, yes, but that includes the web applications. We have the option in Texas for providers to opt out of receiving a physical report and just going in and getting their reports on the application. We had more people that are actually using the application to submit their information then have opted out of receiving a physical report and that's where the difference comes in. In terms of HL7 its exactly the same.

Mike: Okay and so what percentage then did APHL raise and take the web out of it. APHL7, what percentage of, if it's exactly the same, what percentage … and I'm sure it's [crosstalk 01:27:57] getting in and taking data out by HL7.

Brendan: That would be 10%.

Mike: Okay. That's 10% on each side. With 10%, like you have 750,000 births a year. Did I do that multiplication correctly or?

Brendan: In Texas, We have 750,000 specimens a year and about 375 - 380,000 births.

Mike: Oh got you, how you deal with those. Okay. Perfect.

Jelili: Thank you. Are there any other questions?

Pat: Brendan, this is Pat, I have a question. On your validation of the message, you're saying that you have to validate the message where the positions of a hospital would pick it up. That first place they would go. Is that right?

Brendan: Well, you know I'm not going to say that's right for sure, but I'm going to say that was our interpretation of the capital requirement. It's actually …Yeah go ahead.

Pat: This year in this state like Delaware, that is going to use some information silo intermediary place. I would have to validate that and then the hospital.

Brendan: That would be my interpretation of that requirement.

Pat: That's a good place where we might need more information.

Brendan: Yeah. It would be interesting for someone from CAP to weigh in on their perspective on that. Like I said that was my interpretation of it.

Pat: I don't know. Is there anybody from Colorado on the call? Unless if they use South or maybe Kentucky also.

Jelili: They maybe typing their question or they may have dropped off Pat but are there any other questions? We're right at the top of the half hour, 3:30? Alright. Fair enough Careema?

Careema: Yeah. If not. I'd like to say thank you so much to the speakers today. I think it was a great webinar. We've learnt a lot of information and I thank you so much for being the folks who are first up. Again we'll be reaching out to you to answer a quick survey and I'd like to thank everybody for taking the time this afternoon to join us. This webinar will be available as a recording on the New Steps website in about a week and I'll be sending out an announcement about that once it's ready to go. I'd like to also encourage everyone to please join the APHL New Born Screening HIT listserv where you can post questions or to see what folks are talking about as well.

You can reach out to myself or you can go to the New Steps website to sign up for the listserv. Thanks again everybody and have a great afternoon.