NewSTEPs 360: October All-Awardee Meeting
Laboratory Workflow
October 20, 2016

Marci: I'm joining you from Colorado. We're lucky enough to have all of the CQI [continuous quality improvement] coaches in one room here in Colorado. We're doing some networking and training on the coaches today. We are all here. We are glad to welcome you, our speaker today is going to be Brandon Riley from Houston, Texas. He's going to be talking about some improvements that Texas has made related to their workflow with the next state to help with timeliness. We're really very excited to hear Brandon's presentation, so Brandon I think we have muted everyone so if you can un-mute yourself. At the end of Brandon's presentation we'll have some time for a conversation. To plant the seed now, we would like you to be thinking about other ways you may have changed your workflow in your state to help improve timeliness. Things that you have done in your lab and say, "Lab or follow ups, hey how could we think about this creatively?" We'll have a discussion about that and then we have a couple of other [inaudible 00:01:02] call, as well.

Brandon with that, we're going to hand it over to you and let you share your screen and your slides.

Brandon: Okay, great. Can everybody hear me okay, real quick?

Marci: We can hear ya.

Brandon: Okay, I am now going to work on sharing my screen. Right. If you can just let me know if you can see it?

Marci: We can see it, we're set.

Brandon: Okay, cool. All right so, as Marci mentioned I'm going to talk about a workflow project that we recently completed and real quick can you guys remind me how long you wanted me to speak because I need to know how quick to go?

Marci: Brandon, really take the time you need. We're thinking about half a call on this but we're not really set so if you need more time, go ahead.

Brandon: Half the call is fine.

Marci: Sounds good.

Brandon: This is a workflow project that we recently completed and what I think is ... I think the outcomes are great but I think may be more helpful to a lot of the folks on the call is really more of the process. I imagine that the changes that we made are probably in most states changes that aren't necessary. I think the process is cool. With that said, what we followed was is the lean six sigma process and I'm sure the majority of you are familiar with either that or the plan do check act process. I'll be honest, a lot of this

was explained to me as I was doing the project. We would do a lot of things and then our lean six expert would say, "Well that part is the define phase." Then show me what I was doing.

It's really cool in retrospect and moving forward I think it's going to be really helpful to us in all projects that we do moving forward. Especially me, now I know what it is, what I'm doing and I can quantify it a little bit better. That's basically the process we follow, define, measure, analyze, make the improvements, and then control it. I'm not going to provide a full training on lane six sigma but those are the different pieces of it and I'll kind of walk through how we did each of those.

The project timeline, this is actually a pretty long project, as I said we just closed it out last month. It started back in July of 2015. We took a few months to define exactly what it is that we were going to do, we spent several months taking all sorts of measurements and doing all sorts of data analysis. Ultimately then we made a series of recommendations and then it took some time to actually get those implemented. The real reality of the timing is that a lot of this is all tracking changes and changes to schedule, hours and numbers of staff and that type of stuff can be pretty time consuming to implement.

Once you see it, you'll see that it is theoretically a pretty simple change and a lot of times people said, "Well, why don't you just do it?" We have a lot of staff and it's affected a lot of staff so we wanted to go to it a very careful process to make sure we were thinking of all aspects of what was going on. The definition, and to go to the definition you have to look for the whole purpose of any turnaround improvement. I don't think I have to tell anybody on this call about our timeliness efforts and the HT&T recommendations for timeliness. When those recommendations came out we went ahead and measured where we were in terms of reporting out time vertical, presumptive positives, within five days, time sensitive presumptive positives within seven days, and reporting out all results within seven days, whether normal or out of range.

These are our measures for our first screens, of course. We're a two-screen state. I don't think anybody would argue with me that these are pretty poor numbers. The time sensitive was passable, I guess. I guess it was technically a passing grade but not anywhere near that 95% goal that we all want to achieve. The time critical presumptive positives and our recording out of all results we felt was the dismal and although we pre-cursor to this we had made all kinds of efforts in terms of timeliness, transit time and delivery of the specimens, we wanted to talk a closer look at our internal turnaround time and see what we could do at that next phase to potentially improve those numbers. One of the first things that we did and this jumps ahead a little bit is of course, we want to look at our overall process and measure our process, map it out, and all of the different aspects of that. During that process one of the really quick things that we found was ... This is just in our definition phase, again this wasn't part of the project, it was just trying to figure out what to do.

Really quickly notice that, the timing of the generation of the result reports was having a really big impact and this was just a historical that's the way we've always done it way, of doing things. Well, they do it first thing in the morning. The reality is most of those tests were complete the day before and we quantified what time that was and our

reporting manager said, "Well, why don't I just run these, it only takes me a few minutes to run these. Why don't I run them in the afternoon?" She made a very simple change during that process and it immediately had a huge impact on that final reports measure. You could see, ultimately it was very obvious to us that we were barely missing that mark of seven days and by her just making that really quick change it really quickly improved that measure.

There before we even got the project, we increased our percent of all results reporting out within seven days up to close to 60% from less than 15%. Real quick, before I go on as we're looking at these baseline numbers that we started out with, there are two ways to measure all these percentages. When we first started talking about this, we started talking about within five days. Five days is not the same as 120 hours. I just want to clarify when you guys look at any, the data that we're reporting to the repository, is actually the data in hours. That's the way it's asked for so that's the way we're reporting it there. In this case, we're just reporting in terms of days so the data is not going to be exactly the same, the days, measure to be honest with you is a little bit more flexible and the numbers will look better.

Not that much better. That's my disclaimer. As I said, and in terms of defining our project we wanted to do a full constraint analysis of our whole system so we mapped out all of the different aspects of our laboratory testing process, I'm not going to go through these all of them, but moving left to right you can see our specimen receiving and our punching, and then there's the demo entry piece that's going along. Each of the eight different lab test areas that we have. What they're over arching process flow is and the black line from there indicate a new day. You can see each of the eight test areas. The first and most obvious issue and this is likely I'm assuming not assuming with a lot of states but because of the way our volume works and the way our process has functioned for so long we had this really big constraint on our system. In red here, you can see we had this huge wait time from the time that specimens were received and data accessioned into our system until the actual specimen sampling and punching process started.

Historically, in a little bit defense of ourselves the previous process for date receiving and specimen accessioning took all day and basically they weren't able to complete all that process until the end of the day. The mail came in at all different days. The punching process was set up to begin the next morning. This was all before we have our new carrier system in place, which gets specimens to us much earlier in the day and then following that our specimen receiving group did a similar process to this project to assess their internal processes specifically to that area and to refine how quickly they're getting the bundles of specimen ready to be punched. Ultimately that leaves us with this big constraint.

We're close to 24 hours, those bundles are sitting there and nothings happening with them. Very obviously, off the bat a big wait. Several of these tests theoretically can be started the same day and run over night. All kinds of downstream effects if we could actually get that punching done the same day. The next constraint I'll point out is our Bio Ten A Days testing that the way that that process our current testing process works, they didn't have enough time if the specimens were punched in the morning, they wouldn't have enough time to start the assays, complete the analysis that same day. Ultimately, they went to a process where they were waiting another full day. Both

these are very obvious things that we could approach as part of a project. The other two constraints you see on here, and I know a lot of states struggle with this is completion of the data entry associated with that batch of specimens.

This is a relatively small data constraint and to be honest with you, it only occurred two to three times a week. The other weeks the data entry group would get caught up and remove this constraint. I wanted to point it out here because we knew if we got rid of the first two constraints, that these constraints would get much bigger. As part of the process like this, what was advised to me was to focus your efforts and a very specific portion of the process. We're already talking about a very complicated process. Anyway, the data entry piece was outside of the scope of the project that I'm going to present but we did make the recommendation that a separate and continuous project go on to improve the data entry turnaround times.

Honestly, this is something we struggled with for years and this was just one more reminder of how important it was to find solutions for that. As I mentioned, the scope of the project was cutting down the time from the date those specimens were completed, being date received and accessioned until we actually completed the punching process. That's the very specific portion of what we were trying to solve and the demo entry was outside the scope of that. For any good projects and I think Yvonne would back me up on this because I've heard her say it a million times in the new sets 360 stop and say you have to have hard data that you're starting with and a hard goal that you're trying to reach. You have to establish these goals. The goals that we set out, first we took measurements of how often we were actually punching the specimens the same day that they were received and we found we were only achieving that 16% of the time.

Which made sense to us, we had a process where we actually on Fridays expedited things and did two rounds of work load. The goal we set out for that was 50% I know that seems a little bit low but going into the project we didn't know what kind of things we were going to need to do in order to be able to achieve improvements in the process. We wanted to leave the things open for different ways of thinking. We didn't want to say it has to be 95%, we wanted to leave it open for different options that maybe we'd punch specimens the same or some test areas the same day and others another. We didn't quite know but we wanted to make it significant but achievable. That's where we went with the 50% mark. That was our goal for all of our first screens.

On top of that, we wanted to have a more stringent goal for specimens that were ultimately reported out as presumptive positives for time critical disorders. You saw that in my first measure that was where we were really struggling the most and it's also the most important aspect of timeliness. It's the most important goal for timeliness. Those are the things where we could have really terrible affects if things are delayed. We set a slightly higher goal there to go from 12.1% punch the same day to over 75%. That was the primary goal of the project. Ultimately, that takes us on to the next phase. I'll warn you guys now, I'm going to move through this stuff quickly, this is a year long project and it really did take a long time and so it sounds like not much that we did but there was a lot that was done.

The next part of our project after we defined exactly what we were going to do, is we decided to take all sorts of measurements of what was specifically happening within

the different areas of our process. We looked at the carrier delivery times and the volumes. Probably the most important measurement that we took is ... Actually, we did this twice but I've got three weeks of data in here. We actually had much more data than that where we took measurements of how many bundles were ready. We actually measured the exact time that every bundle of specimens that we receive every day was completed, date received, accessioned, and ready to be picked up and taken to the punching rooms. We took very specific measurements of when those occurred. We looked at certain times of day and what percentage of the workload was prepared and ready to go.

As a reminder, when I say bundles we have 88 specimen bundles and we get about 32 a day on average with some variation. That also takes it to another thing that we closely studied was our average daily specimen delivery volume. As well as the volume of specimens that we handled on a day-to-day basis. We looked at those, that's all data base stuff that we have available but we did some data analysis on it and looked at it by day. We already closely monitor how long it takes to complete all of our different, the actual punching processes so we had all sorts of data to work with on that. Ultimately we pulled that out and reorganized into ways that we could treat it better. We wanted to look at how long it took to complete plates and bundles for the different punching processes that we handle. In Texas, we're in the process of transitioning to a plate handling Panthera. We currently use the six plate multi puncher so historically our process involves splitting up, we have eight plates overall so we would need to split our punching process into two rounds of punching.

A lot of that occurred, we'd do six plates, and then go back and do two. There were also certain situations where we would split them evenly. We'd do four plates and then go back and do four. We also do have some Pantheras in as well so we took some time measurements on how long it took to punch on the Panthera. The next measurement phase of the lean six process is what they refer to as Wisdom of the Org. I refer to it as a bunch of meetings that we held and really we had meetings with each of these eight test areas, specimen receiving group, the demographic entry group, basically everybody involved with the process and all sorts of meetings. We worked on current workflows, we looked at projective future workflow is for those and every one of those areas would look like if we were able to punch the specimens that same day. We actually got it down to where we mapped out each of their benches. Each of their staffing members on each day, what it looks like now, and what it would look like in the future.

A lot of work going into that and mapping all that stuff out. Of course, throughout that process we're collecting any sort of recommendations, issues, concerns, that those individuals have regarding how we could better accomplish achieving our primary goal. Really what came about that more importantly than that was some of the downstream concerns they would have by us doing that and it's going to change a whole bunch of other things. It was really hard to pin this down into that kind of vacuum kind of setting that is ideal for a process like that. We also held separate inter areas staff only meetings. As opposed to pulling together a whole team, we pulled together staff members from each time where their supervisors weren't there so they could speak freely and talk about how they hate their supervisors or whatever they wanted to talk to.

Basically, creating an atmosphere where they felt more comfortable providing any sort of recommendation that they had in mind. Following our development of initial recommendations we convened all these meetings a million times more. I'll say there must have been a 100 meetings that went into those. Measurement sounds really fast but it wasn't, that takes us on to the analyze phase and some of the things that we analyzed in the process, we took those workloads, we did a whole lot of data modelling. We took all the data that we had and we said, "Okay, well what if we put this constrain on it." The first example there is, "What if we reduce the maximum workload of bundles that we handle a day to 24." We modeled out over a very long period of time what that would look like and whether that would be sustainable or make sense. We also did that with the different punching models that I mentioned.

We looked at our current process and our current SOP's for how to complete the punching process as a group. We looked at some other possible models that were presented and recommended. We actually mapped all those out and did an incredible amount of data modelling and time consuming. Actually, I think this is a very cool graph because it very quickly shows that the one model that really was the least efficient was the one we were doing. We had three different ways of doing it, they were already faster than the way we were doing it. I kind of touched on this a little bit earlier too but we did a lot of mapping of the individual test areas. This is just one of our test areas so it's one of our teams that actually handles three different plate types for IRT, CH, and T4.

We worked with them to map out every little piece of what their future state process was and then we looked at when they would have availability to send one of their staff to go help with the punching process. The way we work now is each of the different test areas will send different folks to help with the punching process and everybody does the same work for all the test areas. I know they're different models for that in other states but this is just the kind of map that we came up with in our analysis and mapped out what the ideal times would be to complete the punching process and also where each of the different test areas could comfortably provide staff and assure that they could so we weren't getting into situations where, as we have in the past folks were like, "Well, nobody showed up to punch today." We wanted to get to a process that was much more defined.

Again, the analysis phase was not that quick and I'll say that the define measure and the analyze phase, although in a presentation I can separate those out really really simply, in a project in my experience, they were really overlapping and you'd kind of start on one and then go back to the other. When you look at the PDCA or the other one, they kind of group those all into plan. That in a lot of ways makes a lot of sense to me. This takes us to the improvements and this is, I'll try to quickly summarize the specific improvements that we recommended to achieve our goal. Again, when I say specific these are not as specific as our actual recommendations were, there was a lot more detail to each one of these but I kind of don't want to bore you with it, we don't have all day to go through it.

A few things, ultimately we recommended after doing a lot of analysis on the staffing of each of the areas, there were ultimately three different positions that were recommended to be added. One of them we kind of found as an already existing deficiency in staffing and then two additional ones we felt were necessary in order to

implement the changes that we had recommended. For the specimen receiving area we actually went through and clearly defined specific deadlines for their areas, most importantly for when they were going to complete the work. These were things that were not necessarily clearly defined before and so when we were working with different areas you have to have somewhere where you can be sure that you can start from. We worked with them to come up with something that they were comfortable with. Ultimately, when we implemented these improvements during our improved flash control phase they were able to meet all the deadlines 100% of the time.

It also required some adjustment to staff hours. We also have our specimen logistics team that handles oversight, punching room, and troubleshooting, things like that but also delivery of the specimens amongst many other tasks. That's just part of their role. Again, we very specifically defined some bundle pick up times, delivery times, and they were able to meet those 100% of the time, as well. It also required some additional staffing from their area on Saturdays. You can imagine that Saturdays were the biggest issue with this whole project and I'll talk more about that in a minute. More importantly, there were many things that were already happening in terms of communication and oversight of the punching room and coordination of activities. One thing that we found from staff is they felt that it was really important to very clearly define those as opposed to, "Hey, they do a pretty good job of it. Or you know what they should do." Reiterated a lot of things that were already in place.

The next thing that I think a lot of folks will probably find it interesting is we had a requested repeat specimen category. This is not just an indicator that the specimen was previously abnormal but we had a very specific specimen category and these specimens were handled differently internally, the way we handle them they were expedited and what we ultimately determined was there was a lot of additional touches and additional work and time consuming efforts for a relatively small number of specimens. This affected all the areas from specimen receiving and all the different lab areas and reporting. We saw that it was time consuming and we really asked the question is it really necessary? Ultimately, it was determined that as long as those specimens were mated into the workload for the day there was ... Once we went to the same day processing there was really no benefit in terms of timeliness for using that specimen category.

Ultimately, after consulting with everybody, case management, everything we determined to eliminate that category although we still track it on the form and in our database that these were previous abnormals we just don't give it that specific category. Ultimately, once we implemented that we did track it and make sure that they were getting into that same day workload when other specimens may not. That 95% one of the time they were getting into the same day and later on you'll see that that's much better than all of our other ... It's significantly better percentage than other specimens. The next aspect was the punching summary, I'm sorry the punching staffing, again as we, I kind of alluded to earlier we wanted to set very specific time frames for when the punching would occur to make sure that all test areas could provide the staff that they had assigned. We set out a minimum number of staffing that would be each area would commit to sending to the punching room during those times.

I have some things in red, during our control phase we found somethings didn't work exactly as we planned. We made some adjustments, I forget what it's ... We adjusted.

We made those and clearly defined those. You can see that we have fewer folks on Saturday, again I'll talk more about that in a minute. We made some additional recommendations if the staff sent punchers there was no reason they couldn't send additional folks. We set out that traditionally if one person was sent to punch then in every area if it was one person that was the one person they had to go the whole time, so we kind of said there's really no need for it to be the same person. We had this kind of gap period between the two punching rounds and ultimately during our control phase we kind of came up with some ground rules, in which case folks could go do additional work if it was available. We did have to come up with ground rules because of ... I'll just leave it at a lot of staff inviting from different test areas about so and so did this, and things like that.

There's no oversight during that round so we had to shut down rules on that. This is just to scare you but this is actually a much more simplified punching process for how our staff are determining what it was they were going to punch. We looked at all the different punching models and determined that the most efficient way for all the test areas was to split, if you think about it we have eight plates. No matter what instrument that you were using it's going to be more efficient for two people to be punching four plates at the same time than any one person to be punching eight or six or two. Ultimately, that's essentially what this comes out as is that we have what we refer to it as all our 4B plates, that's the MSMS skid, hemoglobin's Bio Ten A Days. Those are all done first, so everybody punching will work on those until they're all complete and then they'll go on to what we refer to as our 4A plates, which is the other test areas.

Ultimately, what was determined to be 4B there was other efficiencies but the most important aspect of why we want to do those first is because those included test areas that we're going to have additional plate prep time after they completed the punching process before they could load on to machines. Whereas the other areas is largely, you get the plate, you load it on to the machine and you hit go. There was a lot less prep time after that. In terms of maintaining our regular work day. I'm not going to go too far into these except just say that we modeled them out and we came up with time frames where we expected things to be done and they were. During our analysis of what happened, it's a really cool but I don't think in the scope of this I have time to explain it all. Ultimately, we measured and made sure that after the fact we were able to complete all the punching for a full workload with the staffing that was assigned within the time frame that we have laid out.

Ultimately, we wanted to make sure that what we were presenting was something that was sustainable and maintainable. That's more or less what these slides are showing. First was the 4B and then the 4A and this is averaged out over I think this is still when we had eight weeks of data in here. Okay, moving on from that I talked about Saturdays a little bit, and this is really not part of improving efficiency of the process but the biggest feedback that we got is by going to this process it was doing and it's going to drastically increase the number of people in our lab that needed to work on Saturdays.

You can imagine that this is not very popular at all. We felt it was necessary but we wanted to see if there was anything we could do to address the concern while not reducing the impact of the efforts of the project. Ultimately, what we looked at is reducing the overall workload that we handled on Saturdays, traditionally we average

anywhere from 30 to 32 bundles of specimen and that includes first screens and second screens. We proposed what would happen if we reduced that down to 24 bundles at the max workload. Ultimately, we projected that there would be no negative impact on the first screens, we would still get all those done the same day. We actually found that it would normalize the workflow on Mondays. On Mondays, it's a really heavy mail day so it was taking our specimen receiving group a longer time to prepare specimens.

By having carry over from Saturdays, the staff could actually start on that earlier on Mondays so our workflow ended up being more of the same as the other days of the week. As I mentioned, we did find that we could reduce weekend staffing by just reducing the workload by that amount. Then the results of the added benefit that it would reduce the time for demo entry to complete the workload for that day. They also had very minimal Saturday staffing and so it was really that Saturday workload, part of the reason it was hard for them to keep up with our old process. Our hope was not only would it help them improve our old process but also help them make the improvements that were really going to be necessary for the new process.

On the negative side, we did project out that it will increase the percent of follow up specimens that would carry over to the next day, meaning we would receive it on Saturday but not start on it until Monday and that increase we projected to be about 11%. Ultimately, the reminder was that that 11% increase is just going back to our current day process for follow up specimens that already have like a very wide range of collection time frame from seven to fourteen days. We really felt that it was an okay trade off to let just that small percent of specimens be delayed back to our current process. Ultimately, that's kind of how things played out, you can see that on Saturdays we ended up with a high amount of follow up carry over, about nine bundles. We'd also have nine different bundles, not the same bundles, but nine different bundles of follow ups carry over on Mondays to Tuesdays and by Wednesday we've completed caught up the workload.

You can't see the historical on this but these are the one for average first screens that were carried over was consistent with what we were doing before. That's not a change and that usually has to do with poor specimen quality and review times or missing dates of collection, things like that. That was consistent. Ultimately, although ... I'm sorry I've been referring to the chip project and that's what we refer to this so it's the check in punching work group. Prior to the implementation of the chip project on Saturdays we had 13 staff from the different lab test areas, this does include specimen receiving or demo entry. To go to this process we went to a full workload it would require 23 staff but reducing the amount of bundles down to 24 as opposed to 30+ we were able to reduce the number of staff that had to work every Saturday vice three.

Improve phase, the feedback I'm sure you could imagine there was a lot of negative feedback about the increase Saturday staffing and the later Saturday schedules prior to this those folks that did work on Saturday had very early schedules and they could get out and get on with their day. That's not really possible with the new process. Weekday scheduling became more difficult because of trying to work in those weekends and that was difficult for managers and ultimately all this is how to deal with staffing and scheduling. I'm not sure how I'm doing on time so I'm going to move on and to the most important thing and it's the outcome of the project. Ultimately, if you remember our baseline of the percent of first screen specimens that were getting punched the

same day was 16.3% our goal was 50% and after implementation of the project during the first 10 weeks we were able to maintain that number well over 90% of specimens were getting punched the same day.

Week 11 is not on here, I decided not to include that because we had this crazy lens outage and everything went to ... Let's just say it looked bad so I like to keep the good looking numbers on there. We did have a lens outage for a day that next week but I didn't want a [inaudible 00:39:07] thing. If you look at the other primary measure of our project that was a percent of time criticals that were punched the same day. First screen specimens ultimately reported out as presumptive positives for one at a time, critical disorders we went from 12% to not quite as high up to 85%. You can see there's more variation in that number and ultimately, I tribute that to just a very much smaller end number for what we're looking at here than our, it's a very small portion.

For our time critical disorders if you go back to our original constraints analysis, on the left here you can see our baseline process where we have the punching delay and then we had a data entry delay, well under the new process you can see that the punching delay is now completely gone. Demo entry starts at the same time and then for the CAH and the MSMS testing, they're not able to start those testing processes a full day earlier and they're able to release their final results a full day earlier. Punching is going earlier but these two time critical results were getting results out a full day earlier, as well. For galactosemia on the right you see that we now have a new constraint so again, those specimens are punched and ready to go but they're not starting the testing process for a very long time.

Not part of our project to make that change but as part of all these things are cyclical so that's the next thing in line. I'll take a little bit more about some of the future improvements that were going to be added on to this. This whole project is going to allow us to set up a whole bunch of different things on top of it. How do time critical disorders look now? Our baseline we were only reporting out less than 30% within five days of life. Since we've implemented the project that's well up over 70% so a really huge improvement in the percentage. It's not the 95% goal that we want to reach but it's much improved. I will point out a couple things, these are all demographic entry dependent disorders, or not all but at least two of them are.

What I failed to mention is the demo entry group was able to implement improvements. Not only were they able to implement improvements that removed the constraint that they had on our previous system they actually improved that beyond our improvement so there's no time constraint, we're not doing any waiting on demographic entry anymore. They've completely removed the constraint and as a result we expected no change in this measure. We expected our results would be available but we wouldn't be able to analyze and release them. Since they did make those changes, really huge improvements. If you look at the first two measures on here, on the green part, 41.5 and 68.6, that's a reflection of when demographic entry was still working on their improvements and haven't quite gotten them all into place.

This is where I usually ask people to guess what the 55.7 dip is but since you're all on mute I'll just tell you that that would be labor day. Labor day we're closed on Mondays and then so you can see by a one day closure what a really huge impact on a week to week basis it's going to have on our turnaround times. All kinds of cool stuff that you

can see in the data. For those time sensitive disorders, so all the other disorders, we've got T4, IRT, Bio Ten A Day, hemoglobinopathy, and [inaudible 00:43:19]. Again T4 and IRT are now able to start their processes a full day earlier because of punching process is complete and they can load those machines the same day. The Bio Ten A Days were able to initiate their process a full day earlier and all three of those areas are able to cut a full day off their turnaround time.

That still leaves us with some constraints so Bio Ten A Days we're still not starting until the next day after punching and the same with hemoglobinopathy and skit. Again, we have new constraints to address, we've made improvements but there's still room for more. Our outcomes on that again we started off with a pretty decent baseline of 71%. We've already improved that up to well over 90% so we're getting very close to that 95% measure. I fully expect us to meet this 95% measure within the next six months or so. Our project is complete and our hemoglobinopathy area already saw some ways that they can improve and have already implemented them. Again, it's a more low hanging fruit that wasn't expected and then we also have changes in the pipeline for our skid area to reduce their turnaround time by a full day and remove those constraints.

Bio Ten A Days, we have projects in place for that, as well. Just a couple more slides, this is our final reporting time, I don't like this one as much because it is a crazy ugly slide. In the last slide you saw that our skid turnaround time did not change so that's still our final result to be released and as a result of that being the last thing released, we're not going to see significant impact on the reporting time. That's still the last thing to be released and that hasn't changed and we can't report until all the disorders have been released. Once the skid area is able to reduce their turnaround time we're expecting this number to go up pretty significantly, as well. We've also recently, we wanted to look at why this wasn't closer to the time sensitive number and we noticed that again although our reporting group was reporting out of, changed their times to reporting in the afternoon, they didn't make that change on Saturdays. That's why we see some significantly lower numbers this last number of 76.5 was Saturday where they did report after our skid area released and we already saw some improvement there.

A few more things ... Additional opportunities for improvement I've already touched on these but the next thing that we have to stack on top of this project so more projects to follow and go to the next stage in the cycle, as I mentioned our hemoglobinopathy group already saw some low hanging fruit implemented a couple of weeks ago. I'll say that I saw some preliminary numbers that had that time sensitive disorders at almost 94% just with the hemoglobinpathy changes. As I mentioned we need to re-assess our report generation time yet again and every time we change results we're going to have to look at that report generation time. If we change our release times for any individual area, we have a new extraction protocol that we're looking for a skid that's going to reduce their turnaround time by a full day.

We're also looking at new instrumentation for both galactosemia and Bio Ten A Days. Again, this instrumentation really wouldn't have the impact that we're projecting if we didn't do this project first. Once those get implemented we're expecting full day reductions and turnaround times for those test areas, as well. I am done. I guess that's

everything I have. I have no idea how long I went, so I hopefully it wasn't-[crosstalk 00:47:39].

Marci: It was just perfect, Brandon, thank you so much. That was great, I am just in awe of all the work that you all put into it. So excited to see there's only positive results, that's fabulous. Thank you for sharing each step of the process there and I suspect there will be questions. I'm going to open our questions menu and ... Un-mute if you are ... What's the?

Speaker 2: Star six.

Marci: Star six to un-mute. No questions? Brandon, while we're waiting for other questions I have a question for you just about how you began this process and you may have said this at the beginning but was this a process that you said, "Okay, because of the six sigma leaning process you're going to sort of approach you and say, hey do you have a problem to try or did you say, here's a problem I'll let you use this process to solve it?"

Brandon: It was a little bit of both. Our lab director a few years ago really was promoting the concept of CQI's through a lean six sigma process. There was multiple projects that were started, this one wasn't really one that was in place. We knew it was a problem so we knew it was a real problem that we weren't punching the specimens the same day that we were receiving. I say that we did this analysis and found it but we knew that was an issue. Our lab director thought it was a really good opportunity for us to implement this process to actually address that particular issue that we knew existed.

Marci: Right. Well, great. It was incredible results, it was ... I know you said you had to skip over a lot of things but the detail you gave us really demonstrates how hard that process is and to really ensure you have engaged all our partners and thought about each step along the way. The day that you collected, getting back to your point that Yvonne really likes, we're the data people, we love that and you really had to collect really solidated, I don't really know what those outcomes were that you wanted to look at. Congratulations on that, well done project.

Brandon: I would say that, first I really love the data also and I'll say this is not a really popular project. We were talking about changing a lot of peoples flows and workloads. One thing you see there's a lot of aversion to change at all. At every step in the process we can really find there's always somebody that's going to find some hole and say, "Well that's not going to work because of this." Ultimately, we just got to the point that any time anybody had an argument or said that's not going to work because of this theoretical we'd say okay, and then we would go and get some data, we would data crunch and say, "Well you said this is what's happening and here's the data and that's not what's happening." Or, "That is what's happening and you're right and we need to address it."

I'm a big proponent, especially after this project you can really fight emotion and a lot of theoretical by just getting hard data out there and saying, that's not what the data says or that is what the data says. I think that was really important to making people who aren't comfortable with the change.

Marci: Right, I think it's exactly the point if you can say, we have data to support this and we can demonstrate that this is an important change to make and you're a lot more convincing than the theoretical stuff.

Speaker 2: To the other side of that, when you have data to show the impact of the change I think that also maybe gets some [inaudible 00:52:07] and helps move people along. This was fantastic Brandon, thank you. You did an awesome job.

Brandon: My pleasure.

Pat: Brandon? Can you hear me?

Marci: We can hear yeah.

Pat: Okay, this is Pat X, I had a question for Brandon. That schedule is like beautifully jam packed, but how do you deal with mandatory training where everybody has to take it in and it's two hours long? What would you do with that? How do you set in-

Brandon: Are you talking about the training that we provided for the new process?

Pat: Talking about something everybody's got to go to safety training, everybody's got to go to chemical hygiene. We have so many training.

Brandon: I gotcha, I gotcha. Okay, one thing that we did is when we work with those test areas to work out those staff mappings, we were very adamant about making sure that they were not over committing themselves. Although we do still have struggles with those things, that is something that's become more of a challenge since the implementation of the project. We try to be really conservative with staff and when we did those maps and we got the test areas to commit to say, I'm going to send this many people at this time, we actually had to back some people off and say, "No, you can't send that many people." They're like, "Well, we have a free space." One thing that we didn't want to do is get into those trouble situations where we weren't getting the people that were committed and so you're going to have days where staff have to go to training, you're going to have days where you're going to have five people call in sick and you're going to have vacancies and things like that.

We really encourage the team leaders and managers to carefully consider that in their planning process. Some of these maps didn't include, they might include all the benches an area has but not necessarily each staff member. They may have more staff members and some areas have more staff members and number of benches on an individual day.

Pat: This whole thing just seems incredibly complex, I mean are you going to consult for this kind of stuff? Come and figure out how I can get my five staff members to cover a Saturday?

Brandon: When my business is set up I'll go ahead and send you a visit.

Marci: That is fantastic we have now introduced [inaudible 00:55:04], Rachel's going to kill us I think for this.

Pat: That was fabulous, really fabulous. Thank you Brandon.

Brandon: Thank you Pat.

Marci: All right, we are approaching the top of the hour. Brandon, again, thank you and really thank your whole team. I know this was not a ... This was a huge group effort and from the Texas [inaudible 00:55:25] thank you all for the work that you did and for presenting to us today. I have a couple of announcements to remind you of. We are preparing for our all state kick off meeting for year two and that is coming up in just a couple of weeks [inaudible 00:55:45]. Because of that, we will not have a November all state webinar. The next all state webinar will be on December 15th so mark the calendars for that.

At the in-person meeting in November we will have a show and tell, where we want you to bring something from your program that you have worked on 360 that you are proud of. It can be a thing, it can be an idea, something that you would like to talk about and we'll have some time ... Round table discussions, you'll be sitting at a table and people can probably visit you and talk about that. We want to remind you to bring that with you and to keep you on task we're asking that you send your idea whether you're going to bring just a brief description of that to Sarah McKasson by November 2nd. You have a couple of weeks to send that into Sarah.

Also to submit we are looking for quality indicator data. I sent an email out a couple of weeks ago to remind you to submit your 360 quality indicator data and I want to thank you all, many of you responded to that and entered your data so thank you for that. The [inaudible 00:56:46] are looking at it and we are analyzing it and we'll have some data reports to give you at the in-person meeting. If you haven't submitted data we are going to nagging you for that quality indicator data and what I'd also like to remind you to be working on is shared outcome measures. Your coaches will be talking with you about those on your calls but please remember to submit those shared outcome measures for education and or HIT depending on what your projects are.

Finally, year two subcontracts are coming your way shortly. There's a delay here internally working on some risk assessments that our franchise people are working on here. We will get your subcontracts out of the signature shortly in the next few weeks or so. If you have questions related to any of those following items, please reach out to us and let us know.

Anything else team? All right, I think we are done. Thank you all, Brandon thank you and the Texas team for presenting, and thank you all, have a good rest of your week. See you in DC.

Speaker 2: See you in DC.

Brandon: Thank you.