SECRETARY'S ADVISORY COMMITTEE ON

HERITABLE DISORDERS IN NEWBORNS AND CHILDREN

8:30 a.m.

Friday, September 17, 2010

Washington Marriott at Metro Center

775 12th Street, N.W.

Washington, D.C. 20005

APPEARANCES

COMMITTEE MEMBERS:

JOSEPH A. BOCCHINI, JR., M.D.

JEFFREY BOTKIN, M.D., M.P.H.

REBECCA H. BUCKLEY, M.D.

BRUCE NEDROW (NED) CALONGE, M.D., M.P.H.

R. RODNEY HOWELL, M.D. (Committee Chairperson)

JANA MONACO

KWAKU OHENE-FREMPONG, M.D.

MICHAEL SKEELS, PH.D., M.P.H.

TRACY L. TROTTER, M.D., F.A.A.P.

GERARD VOCKLEY, M.D., PH.D.

EX-OFFICIO MEMBERS:

COLEEN BOYLE, PH.D., M.S.

DENISE DOUGHERTY, PH.D.

ALAN E. GUTTMACHER, M.D.

KELLIE B. KELM, PH.D.

PETER C. van DYCK, M.D., M.P.H., M.S.

EXECUTIVE SECRETARY:

MICHELE A. LLOYD-PURYEAR, M.D., PH.D.

APPEARANCES (Continued)

ORGANIZATION REPRESENTATIVES:

FREDERICK M. CHEN, M.D., M.P.H., F.A.A.F.P.

TIMOTHY A. GELESKE, M.D., F.A.A.P.

JANE GETCHELL, DR.P.H.

CHRISTOPHER KUS, M.D., M.P.H.

MARY J.H. WILLIS, M.D., PH.D.

SHARON F. TERRY, M.A.

ALAN R. FLEISCHMAN, M.D.

BARBARA K. BURTON, M.D.

C O N T E N T S

C O N T E N T S (Continued)

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P R O C E E D I N G S

CHAIRMAN HOWELL: Ladies and gentlemen, I think we're ready to start here. We have a very busy day, and we will need to stay on time for a variety of reasons.

This morning we're going to start off with our subcommittee and workgroup reports, and the first subcommittee report is that of Laboratory Standards and Procedures. And Gerry Vockley who chairs that committee will lead off the morning. Gerry?

DR. VOCKLEY: So, yes. This is the Lab Standards and Procedures Subcommittee.

We had a spirited discussion yesterday. Our committee members, including our additional committee members. We started off hearing from John Vogt about an update on SCID testing quality control who reminded us that all of the programs that are currently doing SCID testing are doing it by TREC with the quantitative PCR. The CDC has assembled controls and distributed those to the labs that are currently doing TREC testing, and he quoted that

number as six.

He did note that there were going to be modifications needed to expand the program, and we talked a little bit about those technical details and they seem to have a very nice handle on developing materials that will be used nationwide for that.

We did have a little bit of a follow-up discussion that ventured out of our immediate realm about the potential need for additional treatment centers and long-term follow-up, and we just note that that is likely to be something that will be of interest to the larger committee and maybe the Treatment and Follow-up Committee moving forward.

Going a little out of order, we closed the meeting with Clem McDonald asking for some input on data entry fields for newborn screening information as it will be integrated into HL7. There are a surprising number of trivial issues that command a lot of attention to make sure that these data sets are consistent and integratable. So we did a little bit of nitpicking on terminology, and that seemed to

be quite helpful.

We spent most of our time talking about the CLIAC report, and it is fair to say that it was a spirited discussion. We do want to note up front that this is a very comprehensive document and there's a lot of information there. We view it as a great starting point to put together something for the MMWR, but we also had some discussion about what exactly should be in that publication and what shouldn't.

I also want to note that we clarified that at this point this report is something that went to the CLIA agencies, CMS, CDC, and FDA. So this was not a report that was directly commissioned by the Secretary. I don't know whether she actually has a copy of it, but it was primarily meant to go to the CLIA agencies. And our CDC colleague took great pains to note that at this point these are suggestions and not regulations. However, saying that, it is safe to say that there were some very specific concerns that we had as a group.

First of all, this committee really wasn't

involved in areas where its expertise and charge should have brought it into the process, especially around the issues of newborn screening. The charge for putting those guidelines together really started with biochemical genetics testing in the diagnostic sense and not in the screening sense. So in going forward, anything coming out of those guidelines, including the MMWR publication, really has to be very, very careful to point out when the things that are being discussed apply to one, the other, or both.

We also thought that the document exceeded the scope of laboratory practice definitely regarding informed consent, and then there were some other areas where there seemed to be a little bit of mission creep.

Now, it was actually very difficult to talk about a lot of the details. Passions were a little high. The document was very dense, and so we kept trying to go back to it and pick out specific pieces regarding some of the discussions. And to be fair to the report, actually many of the things that

the group was questioning, when we went back and actually read the language very carefully, seemed not so egregious when we pulled out the actual language. But without any opportunity to plug into it up front and make sure that especially the areas of overlap with newborn screening, it's very difficult to be comfortable with that document.

And although, again, we were assured that these were not regulations and were not likely to become regulations, there was skepticism and concern that somewhere down the road someone was going to look at that and say, well, this is the definitive document and we need to codify this.

So what did we manage to do with all of this? Well, first of all, we bounced around the possibility and then we agreed that someone from this committee will be involved in helping to put together that MMWR publication, that we'll try to help focus that on lab best practices and not on larger programmatic issues where the mission creep on the document tended to be greatest. And then as I said already, we will certainly clearly

differentiate the differences, as well as the overlaps, between the diagnostic testing and newborn screening.

Of course, we also feel very strongly that if there's any attempt to try to move in the direction of changing or developing new regulations, that this committee should be a part of that.

Finally, we feel that it’s certainly worth some communication from this committee to -- and wasn’t quite exactly sure who this would go to, whether all of the CLIA agencies, the CDC, the Secretary, but from the standpoint of letting it be clear that there is at least an interest in this committee to weigh in on a formal basis on this document.

So I’m going to stop there.

CHAIRMAN HOWELL: Thank you, Gerry.

Are there comments about this document of Gerry?

We had some of these discussions, obviously, during the presentation yesterday, and these concerns were expressed by the committee at

large. I think that the key thing is that your group felt that the correspondence should go forth to outline these things about being involved in the MMWR publication in those areas and then a letter go to the appropriate persons regarding these deliberations and so forth.

I guess the issue is -- is there general support of sending a communication forward about these concerns? I think that's the first thing. And I thought yesterday, when we heard this discussion, there was a feeling that these concerns should be expressed by the committee. Is that correct?

I hear noddings of heads. I don't know whether it's early morning or agreement, but I think it's agreement. I see a thumbs up from Mike over there. So the thing is there's agreement about the correspondence, and a letter will be fashioned to include these points.

Now, the question is where should such a letter go? Obviously, it would need to go to the folks involved at the CDC that manage the CLIA and

CLIAC activity. Michele and Peter, should it go elsewhere?

DR. LLOYD-PURYEAR: I don't think so.

CHAIRMAN HOWELL: Our experts to my right say that they don’t think so.

Mike?

DR. SKEELS: I think Gerry already said this, but I just want to emphasize that in this letter, I hope we’ll commend the people who worked on this and say that in general it’s a very good product and that we are happy with how comprehensive and thorough and thoughtful it was, but that there are some issues we want to raise. And so the tone of the letter I hope will be very positive.

DR. LLOYD-PURYEAR: We will share the letter with the Secretary.

CHAIRMAN HOWELL: We should vote. I would like to vote on the fact of sending such correspondence forth. Can we have a recommendation and a second for that?

DR. BOYLE: So moved.

CHAIRMAN HOWELL: Second?

VOICE: Second.

CHAIRMAN HOWELL: Those in favor, raise your hand.

(A show of hands.)

CHAIRMAN HOWELL: Is there opposition or abstention? Denise?

DR. DOUGHERTY: I don't have opposition, but I'm wondering if it could be sent to the full committee as well. The letter could be sent to the full committee as well as the subcommittee.

DR. LLOYD-PURYEAR: Oh, sure.

CHAIRMAN HOWELL: So it seemed that everybody approved that and I saw no abstentions, et cetera. So that's unanimous.

Thank you, Gerry. Is there anything else from your committee?

DR. VOCKLEY: That's it.

CHAIRMAN HOWELL: That's it. Great. Thanks a lot.

We now are going to hear from the Subcommittee on Education and Training, Jana Monaco and Tracy Trotter.

I should announce that one of our new members of the committee, Dr. Bocchini, will be serving as a member of that committee, and we're glad that you're going to participate in that committee.

Tracy?

DR. TROTTER: Thank you. Yes, we're happy to have Joe with us.

We had a lively and long meeting. So here are our subcommittee members. I think all were in attendance with the exception of our newest member from ACOG was not available, was not able to be here this week. And we had maybe twice that many folks who joined us and helped with the conversation as well.

We had a usual number of updates from the partners who are involved in education and training throughout the United States. The first was Natasha who gave us a nice update of the Newborn Screening Clearinghouse. If you all have not been to the website lately, I urge you to do so. It’s really changing by the day, and it’s becoming a better and

better place to go. Most of you know most of this information. I will point out that they're already tired of being called the Newborn Screening Clearinghouse. They're looking for something catchier. So Baby's First Test is being thought about, and if you have any thoughts, I'm sure they'd love to hear from you about that. But it really is making remarkable progress and it's becoming a better and better resource for us pretty constantly.

Emily Edelman from NCHPEG gave us an update of a program they're just about ready to -- in fact, they have the beta version ready to go, which is a tablet-based family history for prenatal providers. And you see all of the partners involved in that on this slide. And she hopes that by January we may have some first looks at that, and by May we should have a good review of how that program is going.

Freddie Chen updated us on the Genetics in Primary Care white paper which, again, we hope by the next meeting we may have draft availability of that as well.

Sharon came by to talk about the Health Information Technology Workgroup, mostly to touch base, as she did with all of the other committees as well I'm sure, to see if we had any special needs, things that we wanted to ask her or ask them to work on. We asked for a 3-hour LOINC workshop.

(Laughter.)

DR. TROTTER: But she just wasn't able to do that. So we moved on.

We also heard from Summa Finn, and Natasha spoke about the congenital conditions program and SACGHS Education Workgroup. The final report of the Education Task Force, I believe it is, she hopes will be out by probably the first of the year or the first quarter of the year at least, which many of us have, I think, already looked at and commented on in the past.

Liza Creel represented the genetic collaboratives, and Kathy Harris gave a special presentation from NYMAC on emergency preparedness, which made all of us feel like we probably needed to go home and do that in our own regions, which I'm

sure is true.

The other members of our committee who you see up here either gave reports or chose not to because they hadn't anything to add at that point.

I will point from Tim Geleske of the American Academy of Pediatrics -- very interesting. One of the CLIN projects, which is a quality improvement program within the academy that has to do with newborn screening, has one of their sets of expectations in that quality improvement program for physicians in primary care is that they would have the newborn screening result back and in the chart and reviewed and reviewed with the patient within 2 to 4 weeks of the child's birth.

I'd like to point out that's actually how the real world works. I was dismayed by yesterday's quality -- whatever that was that said we have to have it in our charts by 6 months. I think 6 months is probably not the way it ought to go. But anyway, pediatricians are doing it well.

In a review of Senate bill 1858, section 4, paragraph 5(h) says that we shall include

recommendations, advice, or information dealing with the public and provider awareness and education. And as most of you who have been here the last four or five meetings know, we've been emphasizing the primary care physician approach with the understanding that if the obstetricians, family physicians, and pediatricians are more well informed and more on the team regarding newborn screening, all of their patients benefit and we then impact both the public and the client, if you will.

Another emphasis that we would now like to look at from our subcommittee's standpoint and look for your input to us as a committee as a whole is the area of a national newborn screening awareness campaign to raise the entire level literally of awareness among pregnant and pregnant-to-be ladies, their partners. Again, the trickle-down effect would be exactly the opposite in this case. The physicians would have to be on board to answer the questions.

And we invited -- thank you, Coleen Boyle, who actually I think came up with this idea first

maybe 6 months ago, and we've been batting it back and forth on email. We invited Angie Colson, who is the Director of Communications for Coleen's department at the CDC, to present us how she would envision at least the outline of such a campaign would look. She presented an example of a campaign that CDC had done and that she had been involved with that most of us, at least in primary care, know which is called Learn the Signs, Act Early, which was a response to concerns about the fact that increasing rates of autism, increasing numbers of children with developmental delay who are diagnosed late, many not until they were in the school systems. And this was a very, very successful campaign over the last number of years. Angie took us through how they did that, what the pieces of that were from a communications and public relations standpoint, and then we turned to how we might use that approach to the area of newborn screening.

Most of our room felt this was a very important issue. They also felt that the timing was right. We currently have a tremendous success rate,

as you all know, in the United States with actually getting babies screened, and I think we do an awfully fine job. Probably the number one public health measure from a success standpoint ever. But there is erosion, as we all know, and there is concern that there will be further erosion and that one way to avoid that is to make people more aware and make them smarter and make them understand what is being done so it becomes part of their expectation and part of the experience that everybody would expect to have in having a child.

All studies that we could find, anecdotal or otherwise, that have been done have revealed a relatively low awareness, often in the ranges of less than half of the women who delivered within the last month say they don't know if they had newborn screening done or not and even less understanding.

We would look at this as a collaboration of the federal agencies who have both the money, manpower, and expertise to pull off such a thing. One of the questions in our group was whether this is a funding priority or not. Luckily all I do is

pay into the federal government. I don't have any control about how it pays out. So I think we're just going to come up with good ideas that we think are scientifically valid and make sense for the population, and someone else, I'm sure, will tell us whether or not they will pay for it.

So we do bring that forward, I guess, as a balloon to the committee as a whole as to whether you think this is something that should be pursued. Is this the right time to do that? And if so, what would be the right way to approach that?

While you're thinking about that, I'll give you a brief update on the Genetics in Primary Care Training Institute. As you know, the last time we reported from our subcommittee, an RFP was out for a contract. All the applications were not fundable because there wasn't enough funds to do the applications the way they were presented. It has been reworked. It's being reworked -- I'm sorry -- as we speak into a collaborative agreement that will, I think, probably be coming out in the near future. So we will hopefully come back to that.

Just to remind you, these were envisioned as a learning collaborative where we paired physicians who are busy primary care practices with genetic experts, defined a program for them for a year, specific one-year projects, with mentoring on a monthly basis and meeting at the end of that year and then see how it worked from there. Much of a train the trainer, certainly an extension of the initial Genetics in Primary Care Program that was so successful some years ago.

Thank you for your attention. Questions that you have or, more importantly, any thoughts you might have about potential programs.

CHAIRMAN HOWELL: Thank you very much, Tracy, and we like your Labrador puppy.

Are there comments about his report?

(No response.)

CHAIRMAN HOWELL: Well, let me break the silence. I think that I'm one of the people who are extremely concerned about the fact that newborn screening is an extraordinarily successful program, but much of the media you see has to do with not a

large groundswell but a group of folks who, I think, have a great possibility of impacting negatively the screening program. So what we're hearing are potential negative aspects, and we see very little about the incredible positive aspects. So I think that having a major effort in public awareness would be extremely worthwhile.

I guess the question that comes, if you go that route, is what would be the mechanism of doing that and how would it evolve and who would fund it. I would assume that was in your committee yesterday, those concerns.

DR. TROTTER: Right.

CHAIRMAN HOWELL: But maybe others would not feel that way.

But I think that we see very little in the press about the extraordinary benefit of newborn screening.

DR. TROTTER: Yes, I agree, Rod. It’s easy to get individual stories about families whose children have literally been saved through newborn screening. The converse -- the families whose

children have died or are severely impaired were among the biggest assets that we had going forward in getting these laws passed in the first place in the States. So it is concerning that a really very, very vocal minority has driven the discussion thus far. I don't understand why the other side hasn't come out more. But I think we should at least promote the idea that this should be done. I don't know if it's our job to do it. If it is, that's fine, but I think that we should make it clear that newborn screening is a success and we should make that clear to the general population.

CHAIRMAN HOWELL: Alan, would you comment? Your organization has been at the forefront of public information and advocacy for newborn screening. Number one, is this a good idea to increase this awareness? I would hope you would think so. Or else Jennifer might tell you not to take the Metro home.

(Laughter.)

CHAIRMAN HOWELL: But do you have ideas about how that could be accomplished and who would

lead the charge to make that happen in a big-time way?

DR. FLEISCHMAN: Well, I think, first of all, we were very pleased and impressed by Coleen and Angie's presentation. The CDC has lots of experience and knowledge and capability here. I think it would be a stepwise progression.

We pointed out at the committee -- and I think perhaps some of the perhaps reluctance or lukewarmness in the committee -- it wasn't embraced as an exciting venture mostly because this is an awareness campaign, and we're not asking people to do anything. You know, when we have immunization awareness campaigns or we have other kinds of awareness campaigns, we want then behavior after awareness. Here we want an expectation that this is an important part of my child's first day and that we want the mother to drive the expectation and the knowledge that she's going to receive some information. So the pediatricians will then be helping her. So it's a little different, but I agree completely that it's a critically important

thing to do.

So we were talking about the strategy, as Coleen raised and Angie raised, that we would develop such a program, and then there would be partners. The clinical community would have to be partners. The March of Dimes would certainly wish to be a partner and that it would be collaborative among the agencies as well. And perhaps the next steps might be the development of a plan, you know, not the 25-page plan, but the 2-page plan and some back-of-the-envelope calculations about what that might mean in terms of dollars.

CHAIRMAN HOWELL: And who should develop that plan, and how would that be developed? Coleen, do you have some ideas to add to Alan? You have had experience and success in this arena.

DR. BOYLE: Well, I think we could take a first stab at at least a concept here, formalizing a concept and maybe bringing it back to the Education and Training Committee and bounce it around because I know there were a lot of ideas that were floated out yesterday in the context of the subcommittee as

to what the objectives of this campaign would be and what the components would be. So maybe if we just put a little bit more meat on the bones and a two-page, five-page concept piece, and then we could kind of take it to the next steps.

CHAIRMAN HOWELL: The other obvious group with great expertise in this area is HRSA. Peter, how could HRSA come to the table if the committee thinks this is a valuable work?

DR. van DYCK: Well, we'd be happy to be part of collaborative group to review and develop it.

CHAIRMAN HOWELL: It sounds like that there's a general feeling that this is an important thing to do, and the question is the mechanism of doing it and how we would do it.

Jeff?

DR. BOTKIN: I would say it's an empirical question about whether increased information to people leads to increased support. And I would say at least our research is showing that folks who do know more about newborn screening are more

supportive of the program. So that's reassuring at the beginning.

But I guess one question would be whether this would be a program that would be funneled through State programs or it would be a national initiative. It seems to me the States might be very interested in sort of branding these programs in creative ways for their own communities, and so if the federal resources could be done collaboratively through State programs, it might be a real win-win for everybody.

CHAIRMAN HOWELL: Ned and Chris?

DR. CALONGE: I just want to talk right at that point, being in a State that doesn't always do the right thing from my standpoint. I think having a national program might be helpful as well. We don't always get to do what we would like to do. We work for the administration. If it wasn't something the administration really liked, you could give us money and we could do nothing. So I think making sure that the States are involved is a good idea and for the States that are receptive to wanting to

participate, but I wouldn't necessarily depend on the State government always to do the right thing. This is only after a few years of experience.

DR. BOTKIN: I think the other thing I would want to make sure of is that we focus on what Jeff talked about, that there's some problem we're trying to solve and that there's an outcome that we expect after we raise awareness. I think that's real important before the committee puts a lot of effort into it. So it's a little bit of a social marketing campaign without a call to action. So you measure the success of the social marketing campaign by seeing how many people do what you want them to. And I just want to hit on that point that there needs to be deliverables that we know that we've been successful.

CHAIRMAN HOWELL: Well, I'm pleased that your empiric research shows that people that know more are more supportive. That's encouraging.

We have Chris and Sharon and Mike.

DR. KUS: Yes, I think it would be a great idea with the idea of what's the purpose and those

kind of things. The questions I have would be how long a campaign and then the other thought is that this is going to be an information need whether it's 5 years later or 10 years later. So the plan of having recurring information should be taken into consideration.

CHAIRMAN HOWELL: Sharon?

MS. TERRY: Of course, I would speak in favor of this as well largely because the Genetic Alliance has had each State be involved, especially on the legal side around these lawsuits that are arising. And it's hard because we don't have the kind of public hue and cry on the other side, as has been stated. So I see this very much like the genetic information nondiscrimination campaign for GINA to be passed, and that was 12 and a half years, and I don't think we need anything that long at all. But in many cases, people said to us we were a solution in search of a problem. In this case, we have a clear -- and I believed then we had a clear problem, but we have a clear problem in the lack of understanding and even the adverse events that are

happening in various States from the very, very small minority. This is a really small minority and they just are really well organized, and the media likes them because they're sensational. I believe we can be equally sensational -- and I don't mean that in a crass way -- if we did come together to work on this kind of activity.

We'd be really interested. We'd also obviously make the clearinghouse available for the kind of long-term repository of information that continues to need to be done. And we have built already -- and Natasha related some of that to the committee yesterday -- some of the social media pieces and certainly partnership with March of Dimes and the kind of State activity they have, not necessarily in public health labs, but the chapters. I think there could be quite a comprehensive campaign done on the backs of all of our already-existing infrastructure. And of course, we'd need the resources to create this new campaign to go forward.

CHAIRMAN HOWELL: Mike?

DR. SKEELS: I also agree this is a great idea, but just raising parent awareness probably doesn't go far enough. I think that we need to get to elected officials as well because we've seen that just one disgruntled advocate getting to just the right State legislator can have a huge impact. So if we could get some sort of tools that we can use State by State to brand, as Jeff said, or whatever to work with our State legislatures and others -- I don't know whether NCSL ever goes anywhere near this kind of stuff or not.

CHAIRMAN HOWELL: They do.

DR. SKEELS: It might also be very helpful.

CHAIRMAN HOWELL: Sure, they do.

Tracy, I hear considerable enthusiasm for looking at this and trying to see -- Joe?

DR. BOCCHINI: I just want to say that this discussion has significant parallel to vaccine hesitancy and people who are against giving their children vaccines. I think Mike's point is very appropriate, that many of the local changes that

occur in State legislatures have a significant impact on what can be done in an individual State. And that's how sometimes things change.

I guess about five years ago, the AAP worked to develop a consortium of individuals, of public agencies, and I think March of Dimes and others to develop what's now called the Immunization Alliance which has the goal of public education and social marketing to give the positive aspects of the use of vaccines. And I think this really parallels that.

And I think if there's a vocal minority to which we need to provide information on the other side to help legislators understand the benefits and the public understand the benefits, probably a consortia which includes governmental agencies, as well as primary care organizations like AAP and AAFP would very helpful in developing an approach to support information for the legislatures and the public.

I think they ended up with a group that keeps up to date and looks for opportunities for

social marketing and even helped develop a spokesperson who was positive for vaccines.

CHAIRMAN HOWELL: A good idea. What I'm going to suggest that we do is that I will appoint a working group, and we'll ask Coleen to help lead that. But we'll have Tracy and Sharon and Joe and a variety of people around here and obviously HRSA who represent important constituencies to come together. And if anyone has a burning desire to serve on that working group, let me know. And Michele will convene that group by some mechanism. I think to define what we might do. Everybody I think feels that this is worthwhile, and we need to figure out what can we do.

But I think that Joe's comment about the analogy with vaccines is extremely accurate because you've had a very small group that has really affected substantively vaccination in the U.S., and we do not want to see that happen. And although one can say, well, what are you working on, everybody gets newborn screening, and that is correct, but most people don't know they get newborn screening.

That's the first problem. And then a vocal minority is really being destructive, and it could spread.

Any further comments? Jeff?

DR. BOTKIN: Yes, just a quick point about the need for infrastructure to address these kinds of issues longitudinally. I think this initiative is good, but I think it is Minnesota. I think their program has within their newborn screening an education director. I'm not sure how many State programs have that. It might be quite a luxury in this day and age. But to the extent we can foster infrastructure for ongoing education needs because I think a one-time program might well be great, but new parents come along. So are there ways that we can foster infrastructure development at the State level to have a longitudinal support for this?

CHAIRMAN HOWELL: That would be terrific.

Thank you very much, Tracy.

We need to zip along here and we're going to have now a report from the Subcommittee on Follow-Up and Treatment, and that's Coleen and her new co-chair, Jeff Botkin.

DR. BOYLE: Jeff is on.

CHAIRMAN HOWELL: Jeff is on. He's not only the new co-chair; he's doing the work this morning.

DR. BOTKIN: I'll rely on my co-chair and colleagues here to move through this material.

We had a very active discussion, a large group. I personally, at least, don't have a lot of context for some of the conversation, so that will be helpful for me to rely on colleagues to pitch in here with some of these elements.

We have several things that the subcommittee accomplished that we think are ready to move on to the main committee for review. So there have been quite a few very active projects that have been quite successful to date.

So we had a presentation by Brad, improving data quality assurance in newborn screening. A white paper has been drafted and is in excellent form at this point. Basically four recommendations coming out of this effort. A State dried blood spot program should use standardized

format for their serial numbers. These are much abridged from the actual recommendations here, so my apologies to Brad. Inform NAPHSIS of importance of including serial numbers on the birth certificate. Include a field for serial number in the next revision of the U.S. standard birth certificate. Apparently that doesn't get changed but once every 10 or 12 years or so. So we want to get in line for that possibility. And then program should consider ways to cross-validate demographic information between dried blood spot and birth certificate. So this is a very focused, potentially achievable improvement in how States function.

Part of this effort was a survey of States to see how they deal with these issues.

So a lot of discussion about this, a lot of support for moving forward with this. One point of discussion was about the need to avoid the notion that what we were pushing for was a single national identifier sort of number. That idea has been around for a while and not been met with support for a number of years. So just to be clear about what

the intent here is. Perhaps less problematic but still potentially concerning at the State level to have a single unique identifier for individuals, but at any rate, we are certainly not talking about a national identifier here.

So the white paper is, the group thought, in excellent shape. Brad is going to accept any additional edits over the next couple weeks or so, I think is what we had decided, and then hopefully submit it for the full committee review at the next meeting or so, if that's feasible.

We had a wonderful presentation by Christine Brown about the impact of health care reform on heritable disorders, wonderful in the sense that it was a great presentation with disturbing news. There's really a lack of coverage under the Affordable Care Act for medical foods. It's pretty clear that of the listed benefits that are part of essential health benefits to be supported required under the plan, that medical foods are not covered in this regard.

Also, some of the new elements of the

legislation that seek to protect kids, say, with preexisting conditions that go into effect or have gone into effect, I think, already don’t apply in this situation, again because these are not essential health benefits.

The legislation also does not impact military coverage under TRICARE. So the pattern really is that there's a variety of ways in which the new legislation does not adequately cover kids and families in this situation.

Some questions also about whether federal and State high risk pools are going to be helpful. Clearly they're expensive. Some States have mandates for medical food coverage, but I guess unclear at this point whether the federal established high risk pools within States that have a medical food mandate would, in fact, cover that within those States.

Does that sound like an accurate description of the problem?

DR. LLOYD-PURYEAR: Your second bullet is not quite accurate. The mandate does apply to

children about preexisting conditions.

DR. BOTKIN: Oh, yes, I think that's right, and I think what that meant to say was that it's preexisting conditions -- well, this was felt to be a loophole. The preexisting exclusion didn't adequately cover kids because this was not an essential health benefit.

DR. LLOYD-PURYEAR: And in fact, just to clarify, what's going to be determined as essential health benefits is going to be a 2-year process. The Office of the Secretary is actually going through current health care plans and Medicaid and Medicare benefits to determine what would be a basic package. So even that statement -- it's sort of too early to say.

But that being said, we need to make sure it's addressed during that process.

DR. BOTKIN: Good.

DR. KUS: Somebody brought up the point that TRICARE wasn't affected and was one of the issues. And the other issue is that as essential services are being defined, these programs are

already going into effect. So that's a concern.

DR. LLOYD-PURYEAR: No, it is, yes.

DR. DOUGHERTY: There is one thing that the mandates -- and you can correct me if I'm wrong, but those mandates on preexisting conditions only apply -- and the covered benefits -- only apply to new plans. Is that right? As of September 23rd?

DR. LLOYD-PURYEAR: They only apply to children at this point, and they only apply to new plans.

DR. BOYLE: There was an issue here. I don't recall it accurately. And Christine is here.

MS. BROWN: I think you basically essentially have it correct through your discussion that children with preexisting conditions are now covered as of this month.

The loophole, though, continues to be that with the Patient Bill of Rights that actually Dr. Howell talked about yesterday and the passing of that, that the Patient Bill of Rights essentially talks about the elimination of lifetime caps and annual limits, but those are only based on essential

health care benefits. So at this time, even with children, that can now access coverage that might have been denied in the past, that insurance company can still put caps, a lifetime and an annual limit, on medical foods because medical foods are not listed as an essential health care benefit. So that perhaps is the loophole that was maybe perhaps trying to address bullet number two.

DR. BOTKIN: Terrific. Thank you.

So part of the point then being that we do have an opportunity to impact some of these determinations as Michele had indicated. The Essential Services Subcommittee is moving forward with these sorts of determinations, and you may want to think about strategies to encourage closing of these types of loopholes.

The subcommittee and others talked about other services that might also be important for these kids that should be perhaps also considered in this whole process, things like neuropsychiatric or neuropsychological evaluations, not clearly covered under essential services, things like genetic

evaluation of siblings, for example, also uncertain about whether those would be adequately covered. So an opportunity to think more about where to go, how to press the system in order to try to address some of these concerns.

DR. BOYLE: I was just going to add that we did come up with a workgroup that was going to look at this issue in more depth, and Sue Berry kindly volunteered, as she’s rolling her eyes, to lead that workgroup because I do find there's an opportunity that we have to take advantage of.

DR. BOTKIN: I think the idea was that we were going to come forward with some fairly specific recommendations about this. It wasn’t going to be necessarily a white paper, but some specific thoughts about gaps here.

Dr. Carl Cooley provided a very interesting presentation about the medical home, making co-management explicit, integrating care in the medical home, really an overview of the medical home concept with a significant emphasis on communication between primary care providers and

subspecialty providers, making the point that the medical home is a place but also a process, development of integrated systems of care being the point.

The discussion afterwards was spirited and interesting. Others offered variant models of the medical home that perhaps would be led by subspecialists rather than the primary care provider, and that some families have found that to be an effective model for them. Other uncertainties about how the model would work in this particular context, how would mid-level providers, for example, be included, ancillary services. Perhaps that's not the right term, but psychologists, nutritionists, folks that may not have electronic medical record systems, may not be likely to have those in the near future, how do they get adequately integrated into these systems of care.

There was clearly an invitation from Dr. Cooley to coordinate with the National Medical Home Workgroup to develop models for the medical home for families with the kinds of issues that are of most

concern to us.

There was a suggestion that the collaboratives could help identify promising practice models and that these might well be used then as a way to communicate this sort of concept in fairly tangible, practical system ways to providers who are working with these families. So I think we had some fairly specific initiative coming out of this discussion to try to develop specific models coming out of the collaboratives.

Cindy Hinton provided a discussion of overarching questions and long-term follow-up. Folks had been working very hard on this project, I understand, for a while. A white paper has been developed and is thought to be, at this point, in excellent shape for forwarding on to the full committee. There had been an initial discussion, as I understand the history of the project, to sort of think about specific outcome measures that might be developed, but folks decided then it's most appropriate to sort of step back and say what are the questions that we want to have answered as these

long-term follow-up systems are evaluated. So care coordination, evidence-based treatments, continuous quality improvements, and then new knowledge development were the four domains that were developed.

So Cindy is welcoming any final edits from folks within the next 2 weeks. This is not a significant revision of this paper. It's thought to be in good shape, and the hope then is to submit this on to the full committee for evaluation at the next meeting or two as is feasible.

DR. KUS: Can I just add something to this one? Because it fits with the previous discussion that Carl presented. The domain says care coordination, but it actually is care coordination through a medical home that's in our document. We had some discussion about that, but the idea is that we've already said that that's an outcome that we're looking for, care coordination through a medical home.

DR. BOTKIN: Good. Thank you.

Not a lot of detail here. We're going to

hear more about this from Susan, medical foods survey. A survey has been conducted about medical foods issues. Part of the question that she posed to us didn't really get an answer back in the conversation time we had. But one of the questions will be, is additional data necessary for this survey or project to move forward? Should the results be published? I think there was a general consensus that this would be important to publish, but we didn't get into additional detail about that. So I believe this is an issue that will be more fully discussed during today's agenda.

Susan, does that sound adequate for right now? Okay.

Amy Brower. Another significant effort that's been taken by a number of folks -- this is the NCC long-term follow-up supplement. Update and next steps was the presentation. And unfortunately, we didn't honor the quality of this work with enough time on the agenda. Clearly several activities that are part of this enterprise: coordinate and accelerate the health information technology for the

long-term follow-up; actively developing uniform data sets, disease-specific data sets and some pilot projects. Obviously the key issue here is to try to get uniformity across systems so that people are talking about the same things, have the same data elements so that data can be shared appropriately. So this is a big effort to get folks to agree on these sorts of issues, and it sounds like they have made some substantial progress.

A number of key stakeholders in this effort. A plan to move forward with this to finalize uniform and disease-specific data sets and to transfer it to NLM and other partners and to identify data elements of interest to State programs. So this was an update for us that's not ready for any particular action at this point, but an impressive amount of work on an important project.

Are there any other comments? All right.

Robert Bowman provided us with a little bit of information about the Health Information Technology Workgroup, and I believe we'll also

discuss that more today. Development of quality measures for newborn screening and the specific question for our discussion yesterday that we made a little bit of progress on, what's the role of our subcommittee and the larger committee with respect to this enterprise. I think there was general feeling that the development of quality measures is a complex and labor-intensive sort of effort and wasn’t the sort of thing that was appropriate for the subcommittee or larger committee to do. Nevertheless, given the interest and expertise of folks on the subcommittee and on the main committee, that it would be most appropriate to provide some detailed input on the quality measures as they are developed. So we can provide a lot of support for that effort but not to be the source of those quality measures.

Now, I don't have a full understanding of this issue, so I just may want to comment on this. There is a pending deadline in about 3-4 weeks or so for comments on national quality priorities.

MS. TERRY: So in our report Alan and I

will address that.

DR. BOTKIN: It sounds like it's timely for folks to be thinking about how we might impact the national process and resources for quality for newborn screening.

Other comments about this? Okay.

CHAIRMAN HOWELL: Thank you very much, Jeff. Any further comments for Jeff?

(No response.)

CHAIRMAN HOWELL: We're now going to go to our final workgroup this morning, actually a formal report, and that's the Workgroup on Health Information Technology. And that's Sharon and Alan Zuckerman. And we had specifically requested that they come back with a succinct, one-page document, and they've done that with a font that's never been seen before.

(Laughter.)

CHAIRMAN HOWELL: I think they had to have a special Microsoft program flown in to get this small. But anyway, it is one page. Congratulations. And you have it at your place.

DR. ZUCKERMAN: Copies of these are at the table for the committee. We also have a number of extra copies for the audience. We should bring them in and make them available. All the information on the one-pager is also in the slides.

CHAIRMAN HOWELL: And I think the bottom line, there's a lot of important stuff that the committee is being asked to support, and our presenters this morning will outline exactly what those are and what we should do to support them. And again, we are dealing with this deadline of October 15th.

DR. ZUCKERMAN: We also had a very exciting and vigorous meeting. This was really our first chance to look at the measures that were actually submitted because these have come in only in the last few days. This was our first opportunity to really discuss the specifics in depth.

Just to give you a brief update for the rest of the committee, yesterday you heard from Dr. Cuthbert and Dr. McDonald about our various HL7

encoding activities. It will be continuing. Today we're going to come back to the quality measures that are focused around a very time-sensitive opportunity around the Recovery Act, and this is only one part of what we hope to do with quality measurement activities, which again is not developing them but to facilitate electronic implementation.

In addition to this, we've been having discussions on surveys and case studies to assess the State readiness to really adopt and implement standards. And the conclusions are that this is not a time when we believe these surveys are going to have an impact because change is rapid. As Dr. McDonald showed you, many States are beginning to become role models. We also don’t want to do this ourselves when we have an opportunity to work with APHL and with the National Newborn Screening and Genetics Resource Center that are going to be addressing some of these issues. Our main priority is to minimize the burden of surveys on States to see that they're given questions that they're ready

to answer.

But again, just to review what we introduced yesterday, in order for newborn screening to be included in the ARRA meaningful use incentives in the phase II/phase III, there have to be endorsed and tested measures available to be selected for that purpose. And it's the National Quality Forum that reviews and endorses measures that have been developed and are in use by other organizations. Just a few days ago, 11 different newborn screening measures were submitted, and they're going to be going into a consensus review process that should finish before your next meeting in January. So we have an opportunity today to recommend that NQF does endorse these measures so that they will then be available for us to recommend them to the Secretary for use in the next generation of meaningful use incentives.

The workgroup wanted to simplify, as much as possible, the recommendation. It's on your printed handout. But again, what we're asking is for this committee to strongly endorse the proposed

measures that have been submitted on newborn screening and to recommend their endorsement by the National Quality Forum in order to improve quality and achieve full compliance with newborn screening programs. The 6-month window proposed by the National Committee on Quality Assurance is not the intended interval for initial screening but is an appropriate time to assess completion of all screening-related activities and referrals. We will have more to say about that.

But before you can actually consider this recommendation, you need to take a look at what has been submitted. And from HRSA, under stewardship by Sarah Copeland, there's a proposal to measure the portion of infants covered by newborn blood spot screening. Essentially what percentage of infants had valid blood spots performed as mandated by the State at birth? So the number of infants are going to come from the birth certificates and hospital discharge records, but the details of what counts as having complied will depend on the State mandate that may exclude infants for various reasons. And

of course, this is a measure that has been out there, but in fact we need to get examples of this in use and see how we're really doing.

We have a total of eight measures on early hearing detection and intervention. Three of them focus on completing the initial screening. The first, the percentage that are screened before hospital discharge. The second, what is the refer rate at hospital discharge, looking for situations where there may be excessive failure to pass or false positive rates. And the third area in which we're interested to see data coming back from a few States that will need to test these measures in the next few months is how often is outpatient hearing screening actually performed on children who did not complete their screening before hospital discharge. In this case, the measure calls for 31 days of age as the time to assess. And again, all of these are looking to have electronic data sources contribute.

The second set deal with risk factors in the medical home. Hearing screening is a little bit different from other forms of newborn screening in

that there are high risk populations that have been defined by the Joint Committee on Infant Hearing: infants who have been in NICUs, who have received ototoxic medications, who need to be followed and retested more closely. Here again, the first deals with just has the medical home done a risk assessment in identified children who, because of their newborn history, should looked at a second time and not just during that initial hospitalization. And of course, the second measure begins to look at whether those children who have identified risk factors have actually had audiological diagnosis and been either confirmed to have hearing impairments or to have normal hearing.

The third set deals with the diagnostic evaluation and referrals for interventions. The first one is looking for audiological evaluation no later than 3 months of age in those children who didn't pass their initial screenings. The second deals with starting intervention primarily on language by 6 months of age when we know it will have impact on outcomes later. And the third one

deals with when confirmation of a permanent hearing loss is made that referral for educational intervention take place within 48 hours. And the data sources for these measures are a little bit more difficult, but by putting them through the NQF process, others will demand to see people finding this data and people to measure these.

The National Committee on Quality Assurance shifts the perspective from the overall State programs to hospitals to look at the reporting of newborn screening in the medical records in the medical home. They have two measures: one for hearing, one for metabolic screening. And these measures are tagged at 6 months of age because they represent one piece of a comprehensive well child profile that's being audited simultaneously. Yesterday we had a chance to look at the other measures of preventive care that are going to be looked at at the same time. Many of these in the past have been done through manual chart review. It's our hope in the future that we'll be able to automate this process and do it through electronic

chart review and they set standards for what constitutes adequate documentation.

And the goal here, when people ask whose medical record, it's really child of 6 months of age seen within a particular practice. So it would apply to the specialist records, to primary care records, and applies to all children coming into a practice. And this is relatively new. We don't really know how often these results are getting into the chart. Particularly for children who move between practices, do the results move with them?

What we can do as an advisory committee today is really constrained by what people have placed in the hopper because we're not developing our own measures. So essentially we need to vote up or down on these particular measures. We can also take the additional step that the workgroup is planning of submitting comments and changes to the stewards of the measures and continuing to work to improve these measures as they go into their test phase. In the future, of course, we can think about adding additional things that are missing dealing

with patient experience, dealing with long-term outcomes of screening. But for today, we have to look at what's been submitted at the present time.

Of course, if we do nothing at all today, we're really missing an opportunity to try to get candidate measures available in January that we could recommend for inclusion in future meaningful use regulations, but there are other opportunities that will be coming through other legislative mandates. NQF serves all of these programs as the reviewer of the measures.

And it’s also important to remember what we're not asking the advisory committee to do. NQF is going to do the actual evidence reviews. They're going to look at scientific validity, usability, and feasibility. What we would do by endorsing these measures is saying that there are appropriate measures of quality that are important to measure that have an opportunity to improve the quality of care by identifying problems or by filling gaps in our knowledge. At this point in time, we're not asking to make these measures part of regulations or

incentive programs. We don't encourage NQF to get them on the potential list. We're not going to have that opportunity in the future.

Again, the workgroup has examined the measures. We're going to continue to work to improve the measures and help identify electronic sources that are going to make all of these measures easier to implement.

So in closing, I want to return to the recommendation as it was simplified by the workgroup essentially calling for this committee to send a letter to NQF and to inform the Secretary that we've done so that strongly endorses the proposed HRSA, EHDI, and NCQA newborn screening quality measures, recommends their endorsement by NQF in order to improve quality and achieve full compliance with newborn screening programs. The 6-month window proposed by NCQA is not the intended interval for initial screening but is an appropriate time to assess completion of all screening-related activities and referrals.

CHAIRMAN HOWELL: Sharon, do you have

anything to add at this point?

MS. TERRY: No.

CHAIRMAN HOWELL: Thank you, Alan. I think that is very clear to me today about what you have done and what you would like this committee to do.

Ned has some comment?

DR. CALONGE: I just have a motion that we strongly endorse the proposed newborn screening quality metrics with whatever change suggested by Michele.

CHAIRMAN HOWELL: Right. Can we have a second?

DR. DOUGHERTY: I would like to make a comment.

CHAIRMAN HOWELL: We need a second before you comment.

DR. OHENE-FREMPONG: I second.

CHAIRMAN HOWELL: Kof has seconded it. So we can hear a comment from Michele and then from you.

DR. LLOYD-PURYEAR: Since the original

purpose of the NCQA recommendation was to actually look at care coordination, which is an important aspect to measure, could we change the recommendation to it is an appropriate time to assess care coordination before the completion of all screening-related activities and referrals?

DR. ZUCKERMAN: I think that's a very important point to make because, again, the focus at NCQA is on care coordination, and one of the special dimensions of newborn screening is this coordination between the hospital and the medical home and the health department between primary care and specialists.

CHAIRMAN HOWELL: Would you accept that modification, Ned and Kof?

DR. CALONGE: Yes.

Now we're going to hear from Denise.

DR. DOUGHERTY: Well, this reminds me of back in the day, the evidence base for endorsing conditions for newborn screening. And I think that this committee should think in those terms because I'm a little concerned. I think this is a very

fuzzy area. Right now, NQF -- I don't think they do an independent evidence review. They just look at what gets submitted, unless you have other information. I've never seen the sausage get made during one of these decisions.

And there some issues with the validity and reliability and feasibility of these measures to varying degrees, which you all discussed last night. So I really hesitate to have the committee as a whole vote on something without knowing the pros and cons of making this recommendation and knowing what the issues were as to validity, reliability, and feasibility. Importance we know.

And here's my concern. One, yes, we should do this because there's no other way to get this in front of somebody important. Right? I mean, we've tried using the use case and ONC and all that kind of stuff. So, yes, this is the only group that we can touch on. However, we don't want to lose our credibility by endorsing measures that may not get endorsed by them because of issues with validity and feasibility.

CHAIRMAN HOWELL: Well, it's my understanding that we're not endorsing measures. We are recommending that these are measures that would be appropriate to assess. Is that correct?

DR. DOUGHERTY: No, that is not what that says. Recommends their endorsement by NQF.

CHAIRMAN HOWELL: Ned?

DR. CALONGE: So I understand your issue, Denise. I wonder if phrasing of the letter could talk about the issue that we're endorsing these as conceptual measures that if found able to be collected in a valid and reliable way, we endorse their use, because your question really is to make sure that -- we're not actually doing that work. We're just saying if this measure can be used, measured reliably and with validity, then it should be used. And I think we can just have it do that. NQF does spend a huge amount of time trying to decide whether or not the numerator and the denominator data can be collected in a reliable and valid way. But I think that caveat would be an important part of the letter if the rest of the

committee agreed.

DR. LLOYD-PURYEAR: At break time, can we have a rewording of this and come back?

CHAIRMAN HOWELL: Are you comfortable with holding the vote until after the break so that we can see a slightly modified -- okay, we will do that if everyone is comfortable with that.

Fred has a comment.

DR. CHEN: What are the implications of submitting eight measures on hearing screening and only three that are much more broadly focused on all newborn screening? Because you could argue you could make these eight measures for any of our conditions that we screen for. So what are the ramifications of that? And I'm not sure sort of what happens after we make this recommendation. People teach to the test is what happens.

CHAIRMAN HOWELL: We will hear a comment from the curator for HRSA.

MS. COPELAND: For one thing, none of the newborn screening blood spot measures have been validated and tested, and so putting forward eight

measures like they did with EHDI was not really feasible. This is one measure that in the past -- the one that we submitted for percentage of newborn screening had been tested under the National Health Survey, but right now we're not doing the linking and it’s not being monitored. So that was why I chose that one measure. The other seven we really have not tested yet, and the feasibility of doing it is not yet there.

However, EHDI has tried theirs, most of theirs, not all of theirs. So they're using this, and they may not get approved and we have 12 months to prove the feasibility and validity.

I don't know about the political ramifications so much, but I do know that I would rather do this with something that is pretty feasible and we can test and actually get good numbers for before throwing out a whole bunch. It takes an enormous amount of time to do one of these measures, and without the data and the literature to back it up, I really wasn’t ready to do it.

CHAIRMAN HOWELL: Thank you very much,

Sarah.

I think that there's obviously great support for this, and there's been an interest in making a slight change to be clear. And it will make Denise sleep better at night. So we'll come back after that and then we'll vote on this. So thank you very much. Very well done.

We now are going to try to stay relatively on time, and we're going to move now to the Evidence Review Workgroup Report on the candidate nomination for critical congenital Heart disease. And the format we're going to provide is after Alex does his report, we are going to have the public comments about this condition, and then we'll have our discussion.

Alex has presented a number of times to us, and as you'll recall, he is from Duke University School of Medicine and has been intimately involved in the evidence review program working closely with Jim Perrin, who's sitting in the front row that will keep everything clearly on the line.

DR. DOUGHERTY: Do we have a paper or

slides on this at all?

DR. CALONGE: It was on a thumb drive.

(Pause.)

DR. KEMPER: Sorry for the delay.

CHAIRMAN HOWELL: Everybody on the committee got this report as an email. It was not in the original thumb drive, but everybody got it.

DR. KEMPER: So while I'm waiting for this to boot up, let me just update everyone with where the Evidence Review Group is.

As you know, we completed the hemoglobin H report. That's been submitted to the Journal of Pediatrics and they asked for some small revisions which have been done. And we are now, under Dr. Perrin's leadership, working on screening for hyperbilirubinemia or kernicterus.

So this morning I'm going to be presenting the update of the screening for critical congenital cyanotic heart disease which in large part is going to recap the data that I presented last time from published reports, as well as a supplement with what we've learned from speaking to experts and advocates

in the area.

CHAIRMAN HOWELL: While we're waiting for his computer to come alive, it looks like his little green ball is working up there. But last night the group dinner was extremely successful. I think it was the largest turnout ever, and when we arrived at the restaurant, which Michele had picked -- she knows all the good restaurants -- we were quite surprised to find that each of us attending the dinner had to be inspected by the Secret Service, including a complete body scan and a patdown and so forth. And it turned out that Michele had not told us that one of the guests at the restaurant last night was Michele Obama and her friends. She, unfortunately, sat at a different table.

(Laughter.)

CHAIRMAN HOWELL: But we obviously knew that we were at the right place. So just remember that for the next-time dinner. It’s hard to imagine who Michele will invite next time.

(Laughter.)

CHAIRMAN HOWELL: But be sure you don’t

have a concealed weapon when you go to the restaurant.

(Laughter.)

DR. KEMPER: Well, I'm glad we had that anecdote to share while I was sweating while my computer was booting up.

So again, this is what I just mentioned to everyone a second ago.

Again, I'd like to thank the members of the team that worked on this, including my colleague at MGH-Harvard, Dr. Perrin, as well as Alex Knapp and Danielle Metterville, who have been very helpful in putting this together.

In terms of the material included in the final review that we've submitted, it includes the report that has our detailed review methods, the summary of the evidence from the literature, as well as the material that I'm going to be discussing today that we've learned from the experts, as well as various tables and a complete bibliography.

So what I'd like to do to start with, again, is focus on what we're talking about with

regard to critical congenital cyanotic heart disease. So when we talk about congenital heart disease, we're talking about the full spectrum of structural heart defects that are present at birth. We're focused in newborn screening on critical congenital heart disease, that is, those lesions that can be severe and life-threatening within the first year of life. And when you think about pulse oximetry screening, we're further restricting it to critical congenital cyanotic heart disease, that is, those lesions that are associated with hypoxemia in those cases.

Congenital heart disease overall, the big basket, affects about 7 to 9 out of every 1,000 live births in the United States. And depending upon what series you read, about a quarter of them have critical congenital heart disease.

In terms of our systematic literature review, I think everyone is well aware of our methods now. I'm going to summarize the evidence from the published studies and update what I've spoken about previously, as well as the experts that

I mentioned before.

The rationale for reviews we discussed is the critical congenital cyanotic heart disease causes significant morbidity and mortality. There are several large studies that have examined newborn screening with pulse oximetry, and that identification in neonates of critical congenital cyanotic heart disease seems to improve health outcomes.

One of the challenges in this review is thinking about exactly what it is that we're talking about, what are the lesions that screening is to identify. And to help clarify our thinking and ensure that we were working with an adequate definition, we convened a technical expert panel, and the members are listed here. Again, I'd like to publicly thank them for helping us think through the definitions that we've used in our review.

So our definition of critical congenital cyanotic heart disease is a lesion requiring surgery or a catheter intervention in the first year of life that presents with hypoxemia in most or all cases.

And the specific lesions that we included are hypoplastic left heart syndrome, pulmonary atresia with an intact septum, tetralogy of Fallot, total anomalous pulmonary venous return, transposition of the great arteries, tricuspid atresia, and truncus arteriosus.

Our review period covered January 1990 through June of 2010, and ultimately there were 26 articles that met our inclusion criteria for abstraction.

This summarizes the types of studies that were included, and I'm not going to go in-depth in these.

In terms of the outside experts and screening advocates that we spoke with, this is a list of everyone that we contacted, and those who completed either a written survey or participated in the interview are highlighted in yellow. As a former University of Michigan person, I kind of feel like saying maize, but I will hold off from doing that.

(Laughter.)

DR. KEMPER: So what I would like to do now is go through the individual key questions that we asked and present alongside that the evidence that we found.

So the first two questions are related to natural history. What's the prevalence of critical congenital cyanotic heart disease among those neonates eligible for screening? And to clarify, when we talk about neonates eligible for screening, we're talking about those kids who are not already known to have a critical congenital cyanotic heart disease because they were picked up, for example, in utero by prenatal screening. And then the second related question is what's the natural history, including the spectrum of severity of disease among those neonates who are eligible for screening.

There were 11 articles that we looked at related to natural history. Again, these individual tables are in the full report, and unless I receive specific questions, I'm just going to keep it a high-level summary.

The next two slides present each of the

individual conditions, estimates of the prevalence, the age of symptom onset, and the untreated survival. What I'd like to highlight in the untreated survival column -- these are all very serious conditions. Hypoplastic left heart syndrome affects about 1 to 7 per 10,000 births. Pulmonary atresia is much less common. Tetralogy of Fallot affects about 3 in 10,000, and total anomalous pulmonary venous return, depending upon the series that you look at, affects between 1 and nearly 3 per 10,000 live births. All the conditions, as I have mentioned, are important to identify because their untreated survival is poor, and these generally present in the neonatal or first couple of months of life.

Similarly, the three remaining conditions, transposition of the great arteries, tricuspid atresia, and truncus arteriosus, are all very serious, but their prevalence is in the neighborhood each of about 2 per 10,000 births.

Now, let's move to the question of screening. We looked at four general areas related

to screening: the accuracy of pulse oximetry in the newborn period and how this varies by age of the neonate, where you place the probes, and threshold value for action. How many additional cases of critical congenital cyanotic heart disease would routine neonatal screening with pulse oximetry detect prior to hospital discharge compared to current care which would be prenatal ultrasounds, as well as routine clinical exam? What's the false positive and false negative rate of routine screening with pulse oximetry? And then finally, what are the potential harms or risks associated with pulse oximetry screening?

So there were 11 published articles that we found related to screening. When we think about screening, again remember we're talking about sort of the first-tier screening, which would be pulse oximetry which estimates the percentage of oxygen-saturated hemoglobin in the blood, and then echocardiogram, which is considered to be a diagnostic test. So pulse oximetry first, then echocardiogram.

This slide -- now I regret having such a small monitor. Maybe I need new glasses.

This slide summarizes studies, and these are studies that I've presented previously related to the number of children that were enrolled in screening studies, the threshold for a normal pulse ox result, where the screening was done, and where the probes were placed.

I'd like to highlight the prevalence row because you'll see there's some variation there, and this is the prevalence of critical congenital heart disease based on the cases that were found in the study. And I think some of that large variation probably reflects differences in prenatal care, as well as how clinical exams were conducted.

Where possible with the studies, we recalculated numbers, taking out things that were not considered in our group of critical congenital cyanotic heart disease. For example, if a ventricular septal defective ESE was found, those often are not critical congenital cyanotic heart defect lesions. And so to be as conservative as

possible, we counted those as false positives in recalculating our numbers.

In the interest of time since the delay from before, I have some graphs that summarize the test characteristics I think more clearly.

This graph shows the sensitivity of screening across the various studies based on the age of the child at screening. So you will see that there's variation in how studies did things, ranging from one study that screened neonates at 4 hours of life to most of the studies screened 24 hours or later.

The last column is a study that looked at screening at three different time points in neonates who were younger than 6 hours of age, who were 24 hours of age, or at discharge, and the way the data were presented, we couldn't disambiguate when it was that they were screened.

And then there was one study that didn’t have the necessary data to calculate sensitivity.

So as you can see, there is some variation ranging from 50 percent to 100 percent sensitivity

for critical congenital cyanotic heart lesions, but without doing a formal meta-analysis, if you average things together, they're in like the 60-70 percent region.

Dr. Calonge?

DR. CALONGE: Alex, so this graph doesn't make any sense. Right? There's no reason why we would expect a sensitivity to vary this way based on the age of the child. So there's no --

DR. KEMPER: Yes. So I should clarify. The results of the graph don't make any sense, but in terms of protecting myself and the graph itself --

(Laughter.)

DR. CALONGE: The pattern is a non-pattern.

DR. KEMPER: I got to keep my job.

(Laughter.)

DR. KEMPER: You're exactly right. The sensitivity doesn't make sense. It actually does make more sense around specificity, which I'm going to show you in a second, but that is actually a

concern. And I'm not sure what the reason is for the variation.

DR. BOYLE: I was going to ask to try to clarify this a little bit. Does a cutoff value factor in here?

DR. KEMPER: So it's hard to tell because the raw data are not presented in here. So I don't know at what point people were testing positive because I think that it's either an issue of timing for some reason, although you wouldn't expect that to affect sensitivity. It's affected the cutoff. So we're looking at 92, 94, and 95 percent. And the third thing is where is the probe is placed. And then there's probably also -- but we can't get to this -- an effect of the actual pulse oximeter because there are newer pulse oximeters that are more reliable.

And I can tell you from talking to people -- well, actually talking to one person involved in one of these studies, but my guess is that as children have an abnormal pulse ox, people have different thresholds for what they do next in terms

of are they going to try screening them longer or as soon as something is abnormal, do they go right to the echocardiogram. So I can't describe why there is this variation in sensitivity.

What I can describe better is the --

DR. FLEISCHMAN: Alex, may I ask something?

DR. KEMPER: Yes.

DR. FLEISCHMAN: I'm just a country doc, but I seem to remember there's some physiologic changes that occur over time as fetuses transition into neonates.

DR. KEMPER: Right.

DR. FLEISCHMAN: So there is some --

DR. KEMPER: Clearly babies may --

DR. FLEISCHMAN: If you waited a little longer, you know, your ductus is going to be closed. If you test earlier, your ductus isn't going to be closed.

DR. KEMPER: Well, the timing -- again, I'm not a cardiologist, but the timing of the closing of the ductus probably isn't as much of a

factor. Even at 24 hours of life, my understanding from the cardiologists is it's still going to be open enough to keep the kid from having cardiovascular collapse, which is why you need the screening in the first place. It could certainly play into it, but most of the babies are relatively hypoxic as they're making the transition because of issues like transient tachypnea of the newborn and those kinds of things. Ultimately at the end of the day without getting more granular data from the studies, I can't tell why that is.

CHAIRMAN HOWELL: Alex, before we leave this point, it will be a little bit disruptive of the schedule, and maybe we can call on Dr. Martin who is in the audience. I happen to know he's an expert in this area. He's a pediatric cardiologist from Children's National Medical Center, and maybe Dr. Martin would make a comment about this chart. Or maybe you'd rather not.

(Laughter.)

CHAIRMAN HOWELL: But here he is.

DR. MARTIN: So I think there are two

points with this chart.

Timing is critical to when the testing is done both from sensitivity and specificity. The issue here can very much be explained by the presence of the ductus that can have the child with a normal saturation during the first 24 hours, and the duct is one of the reasons why we may miss some cases.

It also depends upon the inclusion criteria. Not all tetralogy is cyanotic immediately. So you can have some false negatives during that time period based upon either the disease severity or the presence of the ductus.

Most experts have said after 24 hours is the preferred time, and you see a little bit of that trend in this that it’s improving after 24 hours.

DR. KEMPER: I should also add, in terms of methodologic things, that not all studies were the same in terms of case finding as well. And so if you're less rigorous with your case finding activities, it will make the sensitivity look overly good.

It's very clear that the false positive rate is highly related to the age of the child which you screen. So one study that screened at 4 hours of life had a false positive rate of nearly 6 percent, but it fell off fairly dramatically after that. In the one study where they screened at multiple time points and we couldn't sort out exactly when the screening was done, again, it had a higher false positive rate than you would expect compared to the other studies. So this tells a much nicer story.

There were a couple of studies that looked specifically at the issues of clinical exam versus pulse oximetry. There was one study that compared newborn screening with pulse oximetry at a single institution during a one-year period and then compared it to the previous year. And they didn't find any significant increases in the number of echocardiograms that they needed to do or the number of cases of significant congenital heart disease.

Now, in contrast, there is this study from 2005 where they compared pulse oximetry cases or

cases that were detected by pulse oximetry versus those by clinical exam and by those that were identified by both methods and found an added benefit of pulse oximetry in addition to clinical exam.

Now, we spoke to experts to try to understand these issues better. One of the questions that I began worrying about was this issue of prenatal diagnosis. And the thing to remember with the prenatal ultrasounds is that you just get a four-chamber view, and so it’s very easy to miss important causes of critical congenital heart disease simply because it’s not in the image that you're looking at.

Anecdotally, experts said that in the region of about half or so of cases of critical congenital heart disease were diagnosed prenatally. And as I mentioned, prenatal ultrasound has only looked at four-chamber view. So you can miss things like total anomalous pulmonary venous return. You can miss transposition of the great vessels and truncus arteriosus.

The next set of questions we were interested in was how available is echocardiography to evaluate those who had a positive pulse oximetry screening result. As I mentioned, echocardiography is the diagnostic test. It allows for confirmation of critical congenital cyanotic heart disease in addition to structural and functional characterization of the heart. We were not able to identify any evidence regarding the availability of echocardiography or pediatric cardiology services in birthing hospitals in the United States.

There's certainly lots of ongoing work around these issues. In general, there are two ways that telemedicine is being used to follow up babies who are thought to have an important cardiac lesion. The two general methods are a storm-forward process where an ultrasonographer would perform an echocardiogram and then upload it to a system where a cardiologist later would review the result. And then there's also live telemedicine where a cardiologist would be looking at an image as the ultrasonographer is taking it, and the cardiologist

could direct exactly what view is needed. And you could see the advantage of doing it in real time would be making sure you got exactly the right image that you want. The disadvantage is that both parties need to be available at the same time to get that done.

I don't have any data about the frequency with which these things are being used or the relative merits of those two strategies. Again, there's limited information that we were able to find regarding availability of such systems between, for example, smaller and larger birthing hospitals.

Next we moved on to issues related to treatment, and the two general categories of questions was whether or not pre-symptomatic or early symptomatic intervention in newborns or infants with critical congenital cyanotic heart disease improves health outcomes, and related to that, what's the availability of treatment?

There are a gazillion, if I’m allowed to use that number, of articles out there where individual surgeons will talk about their experience

with different techniques, but it is hard to look across those to really understand how effective is surgery for these lesions. Remember that we're really focusing on lesions that are already known to lead to significant morbidity and mortality in the first year of life. And so we did include review articles in this evaluation on the effectiveness of treatment.

In the final report -- I won't read the individual numbers, but depending upon the lesion, it seems that mortality is significantly altered by timely surgery. Now, I cannot use these data to tell you whether or not detection with pulse oximetry prior to when they would become clinically apparent makes a difference, but again, these are pretty significant lesions. So hypoplastic left heart syndrome, for example -- the mortality is around 65 percent at 5 years of age with surgery that typically happens in the first, you know, very early period of life. Pulmonary atresia, 81 percent. Tetralogy of Fallot has a 25-year survival rate, as high as 94 percent.

And again, you can read these individual numbers, but note that all these lesions have interventions that happen early in life and the mortality with intervention is positively improved. The experts that we spoke with corroborated that the heart defects we're talking about have surgical interventions that improved the outcomes.

And again, we did not identify any other data regarding whether or not detection by pulse oximetry before they might become clinically apparent makes a difference.

The next group of questions that we talked about are related to economics. So what's the cost associated with the screening test, what are the costs associated with failure to diagnose in the pre-symptomatic period, what are the costs associated with treatment, and what is the cost effectiveness of newborn screening for critical congenital cyanotic heart disease?

So we actually found one study. We were very excited. And this was done in England, and I would be very cautious because economic analyses

done in other countries don't directly translate to how things happen in the United States. Obviously, our health systems are organized very differently.

What they did, though, was they compared three different strategies in a model. They compared clinical examination alone, clinical examination with pulse oximetry that's done within the first 24 hours of life, and then clinical examination with screening echocardiography. And we're not this morning talking about echocardiograms for all newborns, but I'm going to present their results.

So in their model, if you look at 100,000 newborns, clinical examination alone would identify 34 children with a critical heart lesion. If you combine that with pulse oximetry in their model, you get up to 70, and if you use a screening echocardiogram, you would find 71.3 cases per 100,000. So you can see there's a big jump when you add pulse oximetry and a very small, incremental benefit by going to echocardiogram. So it's not surprising that clinical examination with pulse

oximetry in their model, which includes a fairly long time horizon, is about 5,000 pounds. But if you go to screening with an echocardiogram, it's about 5 million pounds. So it's a fairly big jump for that little extra identification.

And so their conclusion -- and again, this is in the UK setting--- is that screening with pulse oximetry in addition to clinical examination was cost effective and that screening with echocardiography was not cost effective.

So in summary, for the seven conditions that I've talked about, they all have onset of symptoms that occur within the neonatal period. The symptom onset ranges from birth to a few months of age when symptoms can develop, again depending upon the lesion, and there is some variability in the onset and severity. But again, we've really picked lesions that are highly significant.

For the 11 screening studies that we identified, all but two have a specificity of greater than 99 percent. There was this range in sensitivity from 42 to 100 percent, and I can't wrap

up the explanation in a tidy little bow.

The two lesions that seemed to be most missed by physical exam alone are transposition of the great arteries and total anomalous pulmonary venous return. And pulse oximetry appears to identify neonates that prenatal and clinical exam alone may miss.

In terms of the treatments, all the lesions identified in the case definition have surgical interventions, and the surgical interventions happen early in life. And they all seem to affect mortality.

I discussed the one economic study that made pulse oximetry look cost effective compared to usual care.

But that left us with a number of questions that I'd like to summarize.

First of all, how does screening accuracy vary by age of the neonate in conjunction with the placement of the probes and the threshold value for action? So one thing that I neglected to mention earlier is that most of the -- or actually all the

studies of the sensitivity and specificity of pulse oximetry used one threshold for referral. So if you have a pulse ox for 92 percent or 94 and 95 percent, that was considered abnormal and it would be referred for echocardiography.

From talking to some of the programs that are developing around the country, they actually use a more nuanced approach where they might say, for example, all babies who have a pulse oximetry of 90 percent or below need to have echocardiography in a very short period of time, but if you're between 90 and 95 percent, then there's time to watch and reevaluate before they move on to echocardiography. So that may really affect how these programs work and how many babies are referred for echocardiograms in the nursery, but unfortunately, there is not sufficient published data for me to comment on that.

Let’s see. I’m going to just jump on to some of these other questions.

How available is echocardiography to evaluate those with a positive pulse oximetry screening result? Is telemedicine a practical

alternative for birth hospitals without access to pediatric cardiology services? What's the availability of treatment and costs associated with treatment? What are the costs associated with failure to diagnose in the pre-symptomatic period?

So from that, these are the four questions that at least the team highlighted as being most important in general, and those are the evidence that using pulse oximetry adds to the clinical exam. What methods exist to improve false positive rates? What's the availability of follow-up and diagnosis? And what's the evidence that early intervention is beneficial?

So I put together this slide -- and I think Dr. Perrin is going to be talking about this a little bit more -- as a way to kind of focus thinking. I pulled out again four of the high priority questions, the additional sensitivity of pulse oximetry over the clinical exam, the specificity of pulse oximetry, the availability of follow-up care, and the effectiveness of early intervention. And I used this kind of modified

grade table where I'm presenting the number of studies and subjects involved for studies that specifically are related to the question highlighted in blue, as well as looking at the consistency of those studies, the degree to which they are direct or indirect evidence, the precision around the estimates of the effect, and then the overall strength of evidence. Again, I'm sort of borrowing from the grade methods in what I've done previously.

So I'm hoping that this thing can help the committee make its decision. Again, Dr. Perrin is going to talk about this a little more as we think about future ways to present these sorts of data.

So now I'm going to go back and thank you and see what other questions are remaining.

CHAIRMAN HOWELL: Thank you very much, Alex. Is Jim going to comment at this point?

DR. LLOYD-PURYEAR: This afternoon.

CHAIRMAN HOWELL: Why don't we then do the following? We're going to have the public comments, and then we will come back. Okay?

Our first person on my list is Dr. Martin,

who we have heard from briefly. But Dr. Martin again is a pediatric cardiologist from Children's National Medical Center. We appreciate your being here today.

DR. MARTIN: Well, thank you very much. I appreciate the opportunity to speak to this committee.

I am the Senior Vice President for the Center for Heart, Lung, and Kidney Disease at Children's National Medical Center here in Washington and a practicing pediatric cardiologist for the last 25 years.

I think, as I did last time, I self-report that when the first studies came out on using pulse oximetry, I thought it was a silly issue that we should not act upon.

Now, as I began to critically look at this issue over the last several years in preparing for an invited talk, I had to go back on my word and change my mind in part because I approached a parent group, the Children's Heart Information Network, the president of that group, Mona Barmash, and because I

was going to prepare a talk on screening, I asked her what was the most important issue that you hear from parents across the United States. And this was her quote. “Over the 11 years since I started the Children’s Heart Information Network, hardly a day goes by when I do not hear from a distraught parent whose child was not diagnosed at birth, leading to tragic or serious lifelong consequences.”

And I then reflected on my own experience and the truth being that I had routinely, at least several times a year, even in our nation’s capital, experienced this where a child was not diagnosed at birth, not diagnosed in the first month or the second month of life, and that child has presented to our emergency department in shock or, worse yet, presented to autopsy.

And I realized that over the years, I've been teaching for failure. I teach pediatricians at our hospital that a child presenting in the emergency room at 7 days of age in shock most likely has heart disease. I have not worked with pediatricians up until more recently in trying to

solve that issue.

And I think that pulse oximetry represents a means by which we can work with pediatricians and our allied health care professionals to improve detection. It has been shown in several of the European studies that hospitals using pulse oximetry, in addition to the clinical exam, have up to a 5- to 10-fold improvement in their detection rate, and I think that that is very good evidence for supporting this.

Now, I did go through, and I think you had a very nice summary of the research that has been done with this. What we started doing is we reviewed all those same papers. What we found was the need to actually look at implementation and to get at kind of some of the questions that have been raised in this presentation, as well as the American Heart Association in their document in which they looked at the science as well and said that clearly cases are missed. Pulse oximetry may help. Pulse oximetry has low risk, has acceptable sensitivity, acceptable specificity, but we don’t know how you're

going to put it forth in the community.

And that was exactly what we started testing several years ago. We went to a community hospital, taught them how to use it, and looked at that implementation. What we want to know was feasibility, barriers, any additional staffing needs, and to see what we found. We worked at this community hospital, and we had what we thought was pretty good results.

We implemented through education. That hospital didn't have to add staff. That hospital had very low false positives along the line that you were seeing in here. We did find some critical defects and we did have some false positives, as well as some true positives. We didn't have the type of material because we didn't do informed consent, so we did not test every child, or did we have the follow-up to know what our sensitivity was.

But we did find that it was valuable, and we're testing those pediatricians about their acceptance of this to their community. And basically what we have found since starting this,

the number of hospitals in the Washington area that are interested in this -- we now have about 13 hospitals in this community that are in various stages of adding pulse oximetry to their normal vital sign sets to help the pediatricians at those hospitals identify babies, not only babies with critical heart disease but what has been shown in the European studies, that some of the babies, even those, what you called false positives -- those babies -- that the pediatrician can see the saturation of 92 or 89 percent because it’s not visible to their eye. Those babies have been shown to have other life-threatening conditions, pneumonias, lung pathology, PPHN, TTN, all of the other conditions that you identified.

So in summary, I believe that this is a tool that assists the people providing care in newborn nurseries. I think you're absolutely on target with the sensitivity and specificity discussion of this. I think that some of the questions that you had up as the important questions at the end, availability of echocardiography, those

are things that do need to be addressed across the country. But I think that shouldn't hold us back from recommending that this be put in place and then let the pediatric cardiologists and the hospitals respond with the means by which those babies can be screened.

I would say that all babies that are found do have access to surgery across the country, and the results with surgery are excellent and are well known. And you can go to the Society of Thoracic Surgeons and the Congenital Heart Registry to see those results for the conditions that you're talking about.

Thank you.

CHAIRMAN HOWELL: Thank you very much, Dr. Martin.

I would like to now ask Dr. Balaji Govindaswami, who is here from Santa Clara Valley Medical Center, for his comments. Dr. Govindaswami?

DR. GOVINDASWAMI: Thank you and good morning.

I couldn't agree more with Dr. Martin's

comments.

I'm here to share some of our experience in San Jose. We are one of four tertiary pediatric centers in the Bay Area. The other ones are UCSF, Stanford, and Oakland Children's. So those are the three centers that would be doing heart surgery. We don't do heart surgery at our site, but we do have a three-campus regional center that brings in babies from as far away as Gilroy, which is about 25 miles away from San Jose, and Stanford is just about 20 miles away from us.

In my written comments, I have submitted the results of the first 4,000 babies that we've screened in San Jose where we found two defects at our center. And by January we will be rolling out the two other centers. So we are poised to begin to screen 10,000 babies every year in San Jose.

We just think that the preponderance of the evidence and the cost-benefit -- no matter which way you look at this, this is something that we need to do.

The cost at our institution, which is also

submitted in my written comments, averages about $5 per patient at this point. And I think there's a Hoffman review that gets the costs at about $11 per patient with the disposable probes.

In preparing for the way that we would implement this program at the different sites, we also looked at the literature that you presented, Dr. Kemper, and excluded, I think, some of the studies that started screening very early because we know that due to transient shunts, there would be a high false positive rate, and we felt we could ill-afford the cost of a lot of cardiac ultrasounds. As it is, we incur a lot of costs of ultrasounds in babies who have murmurs, and that’s a much commoner way. If you look at all the review of the literature that pediatricians are looking at murmurs and not being familiar with various murmurs -- are more expensive pathway leading to cardiac ultrasounds than pulse oximetry.

In reviewing the literature, we also felt that we had to exclude a couple of the studies that you alluded to with sensitivities of 15 percent

because they did not use technology that we think is most appropriate for babies. So I don't think there's a range of sensitivity from 42 or 50 percent to 100. I think those three studies with 42, 50, 50, and everything is 75 to 100.

And so we can look at these data in various ways, and when I looked at all the studies that do it the way we do it now, which is starting at after 24 hours and doing hand and foot, basically the sensitivity is never less than 82 percent. The specificity is 99.99 percent, and the negative predictive value is 99.98 percent. So I think that’s as good as we can do with a lesion that has such tremendous implications for morbidity and mortality.

And I think the costs of babies with congenital heart disease, knowing that we have such simple technology lying around in all the hospitals that we service, as a neonatologist and having practiced for 17 years and having put pre and post double pulse oxes on babies for over 20 years and doing bunches of babies with pulmonary hypertension

and heart defects and a variety of conditions, I just find it unconscionable to not be implementing newborn screening in all babies at this time.

Thank you for your time.

CHAIRMAN HOWELL: Thank you, Dr. Govindaswami.

We're now pleased to have three parents with us this morning, and the first if Annamarie Saarinen who is a parent, representing a group 1in100.

MS. SAARINEN: Dr. Howell, committee, Dr. Kemper and your team, I'm kind of nervous today. So bear with me.

CHAIRMAN HOWELL: Get close to the microphone so we can hear everything you have to say.

MS. SAARINEN: It's probably because I'm here for the third time that I'm nervous and probably because my mother is here too makes me really nervous.

(Laughter.)

MS. SAARINEN: I wanted to introduce you

all to my daughter Eve because I've talked about her before, and much of the reason that I come here and take such a passionate interest in this issue, but she is crashed out in the stroller back there. So if she wakes up, I'll hold her up for all to see because she's a shining example of heart health when a baby can be diagnosed fairly early. Her defects were caught at 40 hours of age, so we were able to have good intervention. We kept her alive on a cocktail of about eight medications through those first few months of her life before it was down time. We had about a week left of her life before we had two heart procedures that were able to put her in the place she is now, which is where she climbs on everything and I can't keep up with her.

But it's hard to speak after two physicians because they so accurately stated what I would want to say, but if I had to just put it into a nutshell here, we lose about 28,000 babies in this country before their first birthday. 4,000 of those are from heart disease or heart defects. That's -- I don't know -- 1 in 7 or 1 in 8, something like

that, but it is a significant number.

And if you take the results of the most recent studies, for instance, the German study, which I think has been pretty widely recognized as having -- it's such a wide study across rural hospitals, et cetera, and their false positive rate being virtually nonexistent and the need for unnecessary echo as sort of being nonexistent as well. But they were able to close that diagnostic gap from clinical exam alone at 20 percent, meaning 20 percent of these kids were still going out the door, to 4.4 I believe. I don't know, Dr. Kemper, if you remember the number exactly, but it was just an exponential reduction.

And again, we've heard a 5- to 10-fold increase. That's not a 5 to 10 percent increase. That's 5- to 10-fold. Dr. Julia Hoffman's recent paper was a 7-fold increase in detection just using this extra tool that we sort of have at all the hospitals. And most nurses and newborn nursery staff know how to use it. There will be some training hurdles, of course.

But if I would ask you to rewind a little bit -- and I don't know the exact timing of this committee versus when hearing screening actually happened, but if you had to take a look at those two things and you were kind of forced to prioritize between saying, okay, we've got one we can pick today and we can pick hearing screening or pulse oximetry screening and you weighed those two, I cannot imagine that we wouldn't prioritize pulse oximetry screening above hearing screening. And I'm a lover of hearing screening, by the way. But if you just compared the two in terms of cost, the training involved, the follow-up with the patient, which doesn't come into play with pulse ox screening -- and this is clearly something that saves lives as well -- I can't imagine that we wouldn't maybe have bumped it up to the top of the list back in the day.

So hearing screening wasn't easy and it's still not easy, but we still did it. And I think the outcomes and the benefits for those families have proven out over time, and I think we will not take nearly as long to get this rolling in a way

that makes sense, shows efficacy, allows it to be scalable among institutions in major metro centers, as well as in rural parts of this country, because I don't think there's a pediatric cardiologist that I've talked to that will tell you that if they've baby screening at 88 percent on a double screen, that they need to see an echo. That baby needs to be transported. End of story. It's either a heart problem, sepsis, respiratory distress of some nature that doesn't allow them to be treated in their outlying hospital anyway.

So I like the idea of talking about echo technology and telemedicine in the rural hospitals, and I was sort of all over that in Minnesota as we were doing our pilot and still am exploring those options in Minnesota. But it turns out there just aren't that many babies in this gray area, in that 90 to 95 percent area where you would have concerns about do we need to transport the baby or not.

So I guess I'm hopeful that all the good work that's being done in different States already in community hospitals, as they roll this out just

as a standard of care, will help inform the implementation of this as we move forward. And I think there are a lot of us that are really, really willing to work through the hurdles of implementation if we can just get a recommendation that recognizes the need.

So thank you again for all your hard work and all of your diligence. I know this is a painful one to go through, but I'm very grateful. Thanks.

CHAIRMAN HOWELL: Thank you very much, Ms. Saarinen.

We now are going to hear from Dr. Olivia Easley, and Dr. Easley is also a parent and representing Bless Her Heart.

DR. EASLEY: Thank you for allowing us this opportunity to speak. I was here in May. I shared this. I'm sorry. I'm pregnant and very emotional.

I shared my daughter Veronica's story in May. She died suddenly at 7 weeks of age of undiagnosed total anomalous pulmonary venous return, and I won't repeat her story again.

But I am just here to remind you of the personal toll that is taken by not screening babies for critical cyanotic congenital heart disease. This is a real problem. It's not a theoretical issue. There are defects that are missed on physical exam because there are no signs. Like Veronica, she didn't have a murmur. Her heart and lung exam were normal or the symptoms are too nonspecific. Veronica had feeding difficulties, and I know that that's a common way babies present and it leads to a significant delay in diagnosis. So please do not forget Veronica and other babies like her when considering the data. I'd go a thousand times over enduring a little extra anxiety over a potentially unnecessary test than to lose my child to a treatable condition.

I also ask that you not make a decision based on the lowest common denominator. Please don't penalize patients who do have access to tertiary care because there are patients in rural areas where access may be more difficult. I live in the D.C. metro area and we could have easily had

Veronica screened and treated. So I would ask that we hold medicine to a higher standard.

Thank you very much.

(Applause.)

CHAIRMAN HOWELL: Thank you, Dr. Easley.

And our final commenter is Vi Kennedy who is also a parent from the group Bless Her Heart.

MS. KENNEDY: Good morning. My name is Vi Kennedy and I do represent Bless Her Heart. It's an organization that my husband and I founded when our daughter Terren Kennedy passed away January 9th, 2009. My Facebook update, when I left Dallas yesterday, was bringing it from Texas to D.C., so I hope I live up to that today on behalf of my family and all the other families with children with congenital heart defects.

I was here in May, and I did talk about my daughter Terren. She stopped breathing when she was 27 days old. I did CPR. We went to the hospital. That's when we found out she had a congenital heart defect, and she did pass away at 29 days old. Terren had passed her birth weight. There were no

signs of a congenital heart defect, and she didn’t have a heart murmur.

I've done my part in Texas to make changes. I’ve heard excuses from hospitals. They are excuses, excuses such as we don’t want to review the information. I've heard about the excuse of, well, we have to have separate policy and procedures for babies in the NICU because we don’t want the pulse ox to be 95 or above. That is just an excuse. We're talking about a newborn nursery here. I've heard the barrier about transporting when pulse ox does indicate 95 or less from rural hospitals. And my thought there is what's the alternative? To allow these babies to cope and then transport?

It broke my heart in 10 million pieces again. After Terren passed away, she made up five generations. My great grandmother, my grandmother, my mother, and myself. On Christmas 2008, we took a picture, and I told Terren next year we’ll decorate the house. We’ll light up the house, and we will do it next year. There is no next year for me.

I received a bill in the mail after Terren

passed for her hearing screening. I think off the top of my mind, it was $138, and I thought to myself, you screened her for her hearing but you didn’t screen for the thing that could have given her a chance at a life.

I can’t provide you any more data than you already have. Any more would just be the grief talking, and I wouldn't be able to give an objective point of view. I’m trying but I can’t provide you with a business case because I can’t put a dollar value on the chance of life. I can’t quantify the value of minimizing complications due to delayed diagnosis. I think the information presented today is enough to support pulse ox as a standard screening.

I am here because I need to do my best in Terren’s memory. I’m not here because it would change my outcome or Terren’s outcome, but the other families -- I feel like I have a responsibility. I have all this information. It does no good if I can’t help other families and prevent this. So, again, I’m doing my best with the information in my

ability, and I hope that you do the same and move forward with recommending pulse ox as a standard of care.

CHAIRMAN HOWELL: Thank you very much, Ms. Kennedy.

(Applause.)

CHAIRMAN HOWELL: The committee has heard the review of the evidence report and you each have the detailed copy of the evidence. And we've benefitted from having some very thoughtful and important contributions from our audience today.

Can we have questions and comments about the evidence and where we are at this point in time? Jana?

MS. MONACO: I think we're really fortunate to listen to both the experts and the consumers that can truly speak from their hearts and from their own personal experience on this. And my perspective I think is very clear to us that this is something that in all the decisions that we have to make and address, this is probably one of the easiest that we get to look at, and it’s very clearly laid out on

the table what needs to be done. And I think we should really consider moving to accepting this.

I don't think we need to hear more babies -- about what happened to them. It is clearly the alternative because these babies die. It's not a question of whether like the children like mine with the tandem mass spectrometry, where you can manage a baby with a diet even if they're not screened and then you suffer the consequences. These children do not have a future, and it's very easy to do something about it now.

We have the experts. I think Dr. Martin put it so eloquently that we can make the decision to help move this along and let the experts, the cardiologists, handle the how-tos, and what we need to do to remove the disparity as far as the timing of the pulse oximetry and so forth.

CHAIRMAN HOWELL: Gerry?

DR. VOCKLEY: I find this a very compelling presentation. We have a disease with disastrous consequences. We can identify it. We've been told that in a hospital setting it can be

implemented at a very, very reasonable level. It's technology that is readily available, and although there may be some geographic mismatch in the availability of treatment and diagnosis, it's still readily available.

And I don't see very many negatives. If you look at the critical evidence lacking in Alex's presentation, this is a good bit stronger than many things we have already passed on. And I'm in favor of recommending it.

CHAIRMAN HOWELL: Further comments from the group? Mike?

DR. WATSON: I think I'm mostly curious about the explanation of study design accounting for that sensitivity variation we saw, the degree to which study design was part of the evidence review, because it looks like it's fairly straightforward, if it's true that those three studies are quite different in quality of the design.

DR. KEMPER: Right. I think in terms of quality of design, the prospective cohort studies of babies that are born in the nursery, the variations

come from differences in technology that are used for screening, the cutoffs that are used for screening, those sorts of things. That's listed out in the report. I can't tell you the degree to which changes -- you know, one particular study would change the sensitivity that they reported just because of the way the data are reported.

And then, you know, as Dr. Fleischman alluded to as well, timing may be important because of changes in the ductus.

CHAIRMAN HOWELL: Ned, you had your hand up.

DR. CALONGE: So, Alex, that evidence of early detection versus -- the difference in outcomes of screening versus unscreened cases -- that's all based on observational data.

DR. KEMPER: Yes. So there's no, for example, randomized trials of screening to look at outcomes. The studies that have been done don't follow children long enough for me to comment on the outcomes of treatment.

Again, just by nature of the lesions that

we pick, these are all lesions that benefit from early intervention. So part of the missing data that we have is from usual care when would these cases come up. But again, these are really very cherry-picked conditions. Does that make sense? I mean, we don't have the level of evidence that you're asking about.

DR. CALONGE: Right. So I guess the point to Gerry's point and other points is that while I understand the case, there is what we would call a critical evidence gap that we're going to have to deal with, and that is that screen-detected cases and non-screen-detected cases in almost every other setting are not the same. And making the recommendation will take that level of comfort that we can apply what's known from observational studies to be successful in screened- versus unscreened-detected cases. So I think that's saying that there's not an evidence gap isn't quite right. We're going to have to have a level of comfort with that in adding this to the group.

The other thing I'd like to say -- and I

think we're going to talk about it in the next hour -- is this issue about implementation. So 25 percent of my State is rural. When you call the Haxtun hospital and talk to the person who answers the phone and say I want to talk to the newborn nursery nurse, she says, you've got her, honey. And making sure that we look at the implication of making a recommendation, which I think we now have some learning from after doing SCIDs, will be important for us to think about not just for this condition but for every condition with a new technology that we can add in the future.

CHAIRMAN HOWELL: Alan?

DR. FLEISCHMAN: I think this has really been a superb piece of work that's been done. I think we need to remember that the symptomatology in this particular group of diseases is based on the physiologic changes that are going on in these neonates. I am a certified neonatologist, and I've been in the country and in the city.

(Laughter.)

DR. FLEISCHMAN: Neonatology does have

regionalization in this country. It was the first. It is perhaps the best. There are some concerns about deregionalization, but rural hospitals really are linked in this country to tertiary care. So I think that's important.

Second, the symptoms are devastating. They're not transitional. At times they are rapid fire. Very different than all of the other diseases we're talking about so that we really do have here a technology that has the ability to pre-symptomatic give us a clue to do this testing. So I think these are all important.

I think we will need, if we make this recommendation, some expert opinion to be aided about what is the appropriate testing strategy. We've got some good examples. We've got some pilots. But clearly, we don't want the children to be tested at 4 hours only. It doesn't make a lot of physiologic sense. We also know that the vast majority of children leave the hospital before 72 hours. So we really do need a carefully thought-through recommendation about the best pilot. And

then we need so-called phase IV long-term study of this intervention so we can look at its impact over time.

But I would urge the committee to consider recommending it, creating a pilot protocol, and a longitudinal study of the outcome.

CHAIRMAN HOWELL: Gerry, do you want to comment again?

DR. VOCKLEY: Just coming back to the evidence gap, there's missing evidence that you would like under optimal circumstances to have, and there's evidence that will change your mind. And I frankly cannot think of anything that we could generate with a short-term study, a long-term study, a super long-term study that’s going to change my mind here. I mean, short of saying that the technology we're going to use to screen is going to identify babies who will be mistreated and have adverse clinical effects that would make us outweigh the ability to identify these kids who unequivocally are going to either die or having catastrophic effects, that the evidence gap that we have is one

that affects implementation and not the decision to recommend.

CHAIRMAN HOWELL: Fred?

DR. CHEN: My issue with this is just it is one of those questions about why aren't we doing it already.

But my question actually is about the authority of this committee. I think it's appropriate, but this is not a genetic disorder. It's not a metabolic disorder. It's not a State public health lab issue. And this committee didn't act on the universal newborn hearing screening. That was an NIH consensus panel. We do have primary care organizations here. We do set clinical guidelines and clinical policies. I just wonder sort of as we think about implementation, it's a different animal than another newborn screening heel stick test. And so we should think a little bit about what it means for us to make a recommendation and how to partner with it in terms of implementation.

CHAIRMAN HOWELL: One slight correction.

This committee did review the recommendation from the ACMG about hearing screening and formally adopted that resolution. And we recommended that to the Secretary who approved it. And hypothyroidism is in the same boat. So this would not be novel to have conditions that we don't have a specific gene for at this point in time. So I don't think that's an issue.

Jane?

DR. GETCHELL: Kind of along that same line, the question in my mind is, does this rightfully belong under a newborn screening State-operated program? So would we, in fact, be recommending its addition to the standard panel? I'm not sure that it isn't a hospital physician responsibility, not a State responsibility.

CHAIRMAN HOWELL: Well, I think that we would be recommending -- anything we recommend is for the benefit of children broadly. Most of those are, indeed, operated at this point in time by the State, et cetera, hearing and so forth. It's most analogous to hearing screening, as far as the way it

will operate. It would be a point-of-care service, and that, of course, is a new area.

DR. GETCHELL: The difference to me here is there's greater urgency than with hearing screening.

CHAIRMAN HOWELL: Oh, yes.

DR. GETCHELL: And the treatment, if you will, is the hospital. So I'm not sure what the value is of having it part of the State program.

DR. LLOYD-PURYEAR: Actually I would like Dr. Strickland to make some comments since she's the one that implemented hearing screening way back when.

DR. STRICKLAND: I'm not really prepared to talk about the question that you're asking, but I think what Michele is alluding to is when we started with hearing screening, it was more an issue of a systemic responsibility for early and continuous identification. I can't speak to whether this is a condition that ought to be acted on by this committee, but I do think that any opportunity that we can take to either this committee act on it or

make sure that it is taken up by the appropriate venue -- as Rod said, we're about improving early identification of all children regardless of what the condition may or may not be. And for us, there's a broader issue and it has to do with the responsibility of the system with multiple parts to make sure we do the right thing for every child.

So in my opinion -- and I'm not a part of this committee -- but if this committee chooses not to act on this, I think you still have a responsibility to decide where this has to be considered and what would be put in place via a different entity.

Michele, is that what you're asking?

DR. LLOYD-PURYEAR: Part of it. But this committee has the authority to make a recommendation on this condition, so I'm not questioning that. It's getting to what Jane said, and there's the public health building, but then there's public health. And we think broadly of public health and a public health approach to any kind of screening, and that is what Bonnie was talking about in terms of a

systems approach to screening, whether or not that specific newborn screening program will have ultimate responsibility of following it up the same way it does with hearing screening. And some newborn screening programs have chosen to -- or States have chosen to keep these as silos, which has been disastrous for hearing screening in terms of follow-up -- will be the choice of the State. But I think having a public -- I wanted Bonnie to talk about that systems approach or public health approach to implementation.

CHAIRMAN HOWELL: Mike, do you have another comment?

DR. WATSON: Yes, I have actually a question for Alan. Does the availability of this well established network at the State level make this different than with hearing screening, if you're going to argue that you can place this as a practice standard instead of as a public health program that has oversight to make sure everything happens when someone is identified because that network has a significant difference in comparison?

DR. FLEISCHMAN: Well, I'll give you a personal opinion about that. If we want every child in America to be screened, then we ought to have come accountability at the public health level. And how we do that in each State may be different, but I think that is in our obligation as leaders an important goal. We can't leave it to the proclivities of decision-making around rural hospitals or other sites. We need to have accountability. There are about 3,000 birthing hospitals in the United States. Over a third of them have less than 500 deliveries. So we don't want every hospital to make this choice. We'd like it to be, I would think, a public health imperative, and then there's accountability.

It will be easy to get the outcome data because we can, through the cardiologists and the academic centers, get the data on the outcomes and answer some of the questions about outcome. But I thought that the comment about the imperative to screen and then collect the implementation data was extremely important because I don't think that

anything we would learn would stop us from making that recommendation to screen.

CHAIRMAN HOWELL: Further comments? We're going to stick with the table for a while, Annamarie.

MS. SAARINEN: I just want to add that with the State Department of Health in Minnesota -- Minnesota is one of the few States that connected hearing screening with the metabolic screening. So it's considered a full newborn screening package. And the intent of the State Department of Health in Minnesota would be to do the same with this type of screening. I just wanted to offer that.

CHAIRMAN HOWELL: Well, certainly the States that have connected their hearing screening to the newborn screening program have been vastly more successful.

Tracy, do you have any comments? We're looking to the practicing pediatrician, the primary care person for how this would work in the world.

Let me make a general comment. I sense that there is a clear imperative to do this

screening, and the issue that we're talking about is some of the implementation issues that are currently, I think, fuzzy about how that might work. And we don’t want to do something that’s going to be non-helpful.

Tracy, would you have some thoughts? Maybe you disagree with me.

DR. TROTTER: I do.

First, much like Freddie’s is why isn’t this already being done? It certainly is in one of the hospitals that I happen to see newborns in as a hospital department of pediatrics mandate, if you will.

When looking at the studies, these are quite different than cutoffs for a metabolite in that the false positives that we have chosen to label as false positives that Alex’s group needed to do to define this critical cyanotic congenital heart disease are in fact very few false positives in terms of no disease. These are children we need to identify. I don't think there's anybody with a pulse ox under 90 that doesn’t need to be cared for

some way, somehow, right now. So don't let that data part fool you.

And I think comparing this with the many, many obstacles of newborn screening versus what I think are fairly small implementation obstacles, they're there, but relatively speaking, it makes it somewhat of a no-brainer. I think this is practical. It makes sense. It saves lives just like the act said we're supposed to do and it's doable.

CHAIRMAN HOWELL: Rebecca?

DR. BUCKLEY: When this first came before the Nomination Review Committee, I was charged with leading the discussion. The thing that I was most impressed with was the fact that congenital heart disease is a leading cause of death in the first year of life, and 25 percent of these were missed at birth. That to me I think is the most compelling argument going forward with this.

The other thing that everybody has touched on is the fact that this is like the hearing screening, but it's better than having to deal with

the technology because you don’t need a trained audiologist or a trained person for the pulse ox. A nurse can do this. You don’t need to train somebody on how to do the procedures. So it should be very cost effective as well.

And I agree with Gerry that I think the how-to is something that we can work out later. I think this is clearly something that we should support.

CHAIRMAN HOWELL: Could you comment about your thoughts about how the how-to might be -- for example, the evidence that this can be beneficial is compelling, and the issue of how do we weave the how-to into our plans.

DR. BUCKLEY: Well, I don't think that’s our charge, is it? I think that our charge really is to determine whether this is beneficial, cost effective, and life-saving. We already know from the literature that’s been presented here that there are relatively easy ways to implement this. So I think the ultimate details of how you would lay this out for everyone I think can be worked out.

CHAIRMAN HOWELL: We certainly are not charged with making all the things work, but we certainly need to be informed about how that's going to work.

DR. LLOYD-PURYEAR: May I read the charter? Because it's not just recommending what to screen for, it's actually providing advice about aspects of newborn and child screening and technical information for the development of policies and priorities that will enhance the ability of the State and local health agencies to provide for newborn and child screening, counseling, and health care services in newborns and children. So it does address implementation issues.

CHAIRMAN HOWELL: Gerry?

DR. VOCKLEY: I think we've seen that data, though. This is much easier to implement than tandem mass spec was, and we've seen data that -- sure, there were a handful of studies that we've heard about some technical difficulties that weren't so good, but there were many more that showed virtually 100 percent pick-up of these conditions

with technology that is regularly available in every newborn nursery. So I just don't see that there are huge technical or implementation issues here.

I agree. I like the reference back to the neonatology referral patterns because there isn't a hospital in Pennsylvania that doesn't have a referral line to another larger hospital.

So I see very, very little standing in the way of this getting up and running relatively easily and with much less difficulty than tandem mass spec and with equally positive results in saving huge gains in both morbidity and mortality. I'm just not seeing anything that is at all a detriment to moving forward on this.

CHAIRMAN HOWELL: Chris?

DR. KUS: Yes, I would strongly go with that. The regional system for neonatology -- when you identify a neonate that has a heart problem, we have a system in place. We need to strengthen that, for sure. But this is identifying them earlier. So there is this system to build on.

And I guess the other part that is strong

for me is the idea that I've heard a couple times, why aren't we already doing this? And I think that speaks to a public health role and accountability role. That is what emphasizes the accountability, making sure that all children get this, and it's not happening.

CHAIRMAN HOWELL: Right.

We have Jeff and then Tim.

DR. BOTKIN: I guess I'm maybe a step behind many of my colleagues here. It certainly sounds eminently reasonable that this is the way to go with screening based on a pattern of information here, but we also have an evidence report that's quite explicit that says we don't have evidence that early intervention leads to improved clinical outcomes. So I guess what's the role of the evidence process here in making this determination? And it may well be that we don't want to hold up what is potentially a life-saving intervention to wait for those data, but it doesn't sound to me like we've got the data to feel fully confident that this is clearly the best step to take at this point. I'd

be interested in the data if they're out there.

One of the things we've heard about is the phenomenon of sudden death which obviously is undetected in kids. What do we know about that phenomenon? Obviously kids with critical heart disease died even when they've been detected early. So what's the marginal improvement of early detection and preventing early death from this population? Are there autopsy reports? Are there data sets out there that could give us a stronger sense of how well early intervention might be effective in that catastrophic outcome?

So I guess one question I would have at this point is that if the committee goes forward with a positive recommendation on this, can this be linked with an imperative to actually collect the data that's going to be necessary to convince everybody 3 years hence that this was the right decision because if we simply say on the basis of an absence of data on the critical measures here, let's go for it, then we may never collect the data on this item. So is there a way to strongly encourage

pilot implementation here or data collection through the implementation processes that are going to allow us to make that a requirement?

CHAIRMAN HOWELL: Jeff is going where my mind has been going.

Alex, and then we have --

DR. KEMPER: Certainly from the evidence, we don’t know whether or not early pre-symptomatic identification makes a difference beyond when children are detected clinically simply because data have not been collected.

But I think that in terms of collecting the data, if screening is recommended, there are other related things that need to be evaluated, including what's the appropriate threshold, what's the appropriate device, where should the probes be made. So I certainly don’t want to leave the impression that all the other data answers are done, and I think that that just goes back to highlighting the point that Dr. Puryear and Dr. Howell were making about the public health role as well in terms of data monitoring.

CHAIRMAN HOWELL: Tim?

DR. GELESKE: I would contend that clinically we already are screening every baby, and the evidence does suggest that the use of pulse ox improves our clinical acumen to pick up those kids better. So whether it's improving outcomes, we may not know that, but it does help us do our job a little bit better.

And then also as we talk about these point-of-care tests, you know, how we go about implementing this is going to come up again when we review hyperbilirubinemia and whatnot. So this will be a recurring theme on how we address this.

CHAIRMAN HOWELL: Denise?

DR. DOUGHERTY: Well, my concern was getting some sort of estimate of how many children, given false positive rates and the recommendation -- the scientific studies of the American Heart Association and AAP that has different numbers -- of course, it's more global than what you looked at.

But a concern about how much surgery would be done if there were false positives, unnecessary

surgeries.

CHAIRMAN HOWELL: Zero. There would be none. That is not a possibility.

DR. CALONGE: I think it's always an important question to ask. Pointing out that the positive should lead to a diagnostic test which should be echo and then surgery would be based on a definitive test is an important issue. So rather than taking steps for the question, I think thinking through it for every condition --

DR. KEMPER: And there was one small, little bit of data -- from talking to the experts who are running these screening programs, the only thing kind of in that vein that we were able to find was one child who was inappropriately put on prostaglandins and then transferred before it was realized that there was no underlying heart defect. So I think that that's probably kind of the biggest risk.

DR. DOUGHERTY: Can I tell you what the recommendation by the AAP and American Heart Association was? It says routine pulse oximetry

after 24 hours in hospitals that have on-site pediatric cardiovascular services incurs very little cost and risk of harm. Future studies in larger populations and across a broad range of newborn delivery systems are needed to determine whether this practice should become standard of care and routine assessment.

CHAIRMAN HOWELL: Thank you. I think most of us have seen that.

Let me tell what I sense around the table. A great enthusiasm for moving forward with this, but at the same time having tied to that recommendation an effort to examine, for want of a better word, the infrastructure requirements to see how the public health approach to the point-of-care thing, following up, getting data about what the outcomes are, et cetera. Is that what I hear around the table? I think that's what Jeff was talking about.

DR. DOUGHERTY: I think the language is a bit stronger that this only be recommended with pilot testing.

DR. GUTTMACHER: That's I think the point that Jeff was making. I would certainly agree with that, that we should see this as a pilot including putting ourselves responsible then to look at those data when they become available because otherwise we're going to set something in motion that will just keep going unless we really say that this is a pilot and that we are going to revisit those data once they're available and come to some firmer, more longstanding conclusions.

DR. VOCKLEY: I think that's too strongly negative. The evidence gap here is not that early intervention helps or saves lives. It does. And we're not implementing a new screening program. Every baby gets a physical exam. So they're being screened. What we're doing is saying we're going to take a much more sensitive screening test and we're going to recommend it.

The evidence gap that I see is the connection of a broader screen and identifying it -- potentially there are immediate forms that may not be quite so urgent in identifying other disease

besides critical congenital heart disease, but I don't see an evidence gap, that there is clear and convincing evidence that screening for these disorders now is practical and reasonable.

CHAIRMAN HOWELL: Kof had his hand up. We have Ned and we have Jana and then we have Coleen.

DR. CALONGE: I just want to talk right to Gerry's point. The cases are different. They are clearly different because they aren't picked up clinically and you can't show me evidence that the ones that will be picked up nonclinically are exactly the same as the ones that would be picked up with the increased detection rate. Increased detection does not always translate to improvements in health outcomes. And that's at least true in the adult world. So there's still a leap of faith that the additional cases, the additional detected cases, are also going to enjoy the same benefits of early detection and treatment. That's a critical evidence gap. It may not be important enough to not recommend the condition, but it is an evidence gap.

And I'm being strong about it, Gerry,

because this will be important for other conditions that we look at and other technologies that we look at, that the difference between what is clinically evident and what is only picked up with additional specificity -- I'm sorry -- additional sensitivity because they don't present clinically, that is a different case. Those are screen-detected versus clinically detected cases. So I think it is just an important evidence issue to continue to bring up.

You said, well, what would make you not do this? Well, I will tell you if after 4 years we saw no change in the mortality associated with congenital heart disease, wouldn't that be a compelling argument that we shouldn't be doing it? So I can imagine -- and it's what Jeff has talked about and Alan has talked about -- making sure we're making the difference that we believe we're making with the intervention.

CHAIRMAN HOWELL: Jana?

MS. MONACO: I understand what you're saying, Ned. I look at various disorders, kind of going through my mind of ones that could not

clinically be detected. My son was not clinically detected at birth but presented at age 3 and a half. So we can kind of say that for various disorders, even newborn hearing -- that's shaky area too as far as whether you can say if a newborn is hearing or not. But the fact that we have 4,000 babies dying a year before their first birthday is clearly evidence that we should be doing something. And it's all there.

I think it raises the standard of care for hospitals because I've heard that it's easy for hospitals to say we're doing the right thing for the standard of care for a small community hospital, but if you raise the bar and hold them accountable, I also think it would help them because I would argue -- or maybe somebody would -- that I think there are a lot of cardiologists that would love to who aren't doing this for all babies, but they have the cost effectiveness issue looking down. You know, everybody is dealing with budgets. But if this were recommended and it became standard, it would really help these hospitals do what they would like to do

and not have to address the financial accountability, even though it is very small.

CHAIRMAN HOWELL: Coleen, you had a comment?

DR. BOYLE: Yes, a couple of comments.

Just a comment to Ned. So some of the good news and similar to what Alan pointed out -- we do have birth defects surveillance programs in most States. So we would be able to, at least over time, track whether or not there are changes, and we link them to vital records information. So we have a mechanism in place to be able to answer that, which I think is good news for that.

My question kind of relates back to a couple conversations ago, and this is sort of getting into the weeds a little bit on the evidence review, which would help me feel more comfortable particularly around the issue, that figure on screening. And I heard from two cardiologists who questioned some of the studies that went into that, the studies that you highlighted there. So I was wondering if you had done a table or a graph, a

chart that was similar to your sensitivity chart, taking some of the other attributes, recency of studies and the technology that was available, all of the other things that we heard about in terms of potential deficiencies.

DR. KEMPER: We have in the big table that's in the report -- I can pull it up -- where we list out each of the individual studies and it has those characteristics. You kind of like have to do visual manipulation.

DR. BOYLE: Yes, I know that you did within the context of the evidence review.

DR. KEMPER: Right. But I'd be more than happy to redo it by taking out those figures.

DR. BOYLE: I was trying to do it roughly here, but I just didn't --

DR. KEMPER: I could come back to you later with that.

DR. BOYLE: I guess the bottom line question, did that sort it out for you in any way?

DR. KEMPER: I wish I had inserted it, so I could show you. But I do think that accounts for

a lot of it. I think that these variations in sensitivity are probably due to either older studies or different equipment. So I feel comfortable with that.

The other point that I wanted to make that I think may feed into some of this -- and this is, again, not directly related to the screening tests, but one lesion that seemed to keep coming up, especially when we talked to the experts, was total anomalous pulmonary venous return. So this is a condition that would be missed on prenatal ultrasounds, is difficult to find clinically, and is one of the critical congenital cyanotic heart lesions. It seems like, from talking to people who run the program -- and again, this is heavily anecdotal. It seemed to be that was the particular lesion that was driving a lot of the benefit of pulse oximetry screening.

So getting back to your question, I don't know from the data whether or not pre-symptomatic identification would make a difference compared to when they clinically develop, but with that

particular lesion, often the presentation is cardiovascular collapse. There is no way to work that in because I don't have scientific evidence that I can present, but I think that that's something that the committee should be aware of.

In terms of the other data manipulation, if we take a break, I can reorganize the table, if that would help you.

DR. BOYLE: Well, maybe this is just a thought for future evidence reviews and thinking through some of this. I mean, we see the data in total and en bloc, and I thought we almost level out some of the good, as well as maybe --

DR. KEMPER: Right. It is hard to tease out where the wheat is versus the chaff.

CHAIRMAN HOWELL: Kellie, you had a comment?

DR. KELM: While we were talking, I sort of looked to see how FDA reviews pulse ox in terms of if there's a special review for data from units, and there is. And although it's a draft guidance, it looks like when they're evaluating pulse ox, they

actually do submit clinical data for accuracy in an anemic population that received that in their clearance, that they are used in adults, pediatric units because there is a special separation of the data when they look at neonates versus pediatric.

And I took a quick look at some of the recent studies that were done, for example, the one in Sweden and the one in Germany and looked at the technology they used. The Swedish study of close to 40,000 babies was actually using one of the FDA -- what has received FDA clearance for. The one in the large Germany study -- actually they did not restrict which pulse ox the sites used. They wanted them to use any pulse ox they had to actually incorporate all essential accuracies. So we could consider whether or not we would want to limit it to these pulse oxes where they have actually collected clinical data in neonates and show that they're accurate and precise.

CHAIRMAN HOWELL: Mike had a comment, and I think Jeff had another comment.

DR. SKEELS: Just real quickly. I really

appreciate what Ned had to say. It's sort of about what's the value added for identifying additional cases that would not have been recognized.

Alex was only able to find one economic analysis of this. But I just want to point out that the cost per case identified is really quite a bit less than the cost per case identified for some of the other things that we're already screening for. A lot less. So in purely financial terms, this pencils out.

CHAIRMAN HOWELL: I think that's clear.

Jeff?

DR. BOTKIN: I'm not sure where the committee is going, but I wonder if we could visit -- the committee, I think, has a set of graded categories -- right -- for recommendations. Am I correct about that?

It might be timely to look at those at some point, but by way of saying at this point if we can come to some intermediate conclusion at this point that is encouraging of this approach but short of saying it's standard of care at this point, which

I would have a hard time personally saying as justified based on the evidence, but do we have a category of recommendation that's encouraging of development, encouraging of additional research because that's part of our committee process?

CHAIRMAN HOWELL: In our categories that we use, we only have one category when we recommend that it be added to the core panel. That's a recommendation. Then if you decide not to add it, there are a variety of descriptors you can add to that, et cetera.

I think that we must wrap up this discussion or else we have got an increasing problem with the time issue. Now we're way behind our time, but this is obviously a very important discussion.

I sense that in spite of the fact there are some variations on the theme, there's still a considerable enthusiasm for moving this forward, but at the same time, gather information that would inform us as we go along, for want a better word. Would someone like to make a recommendation?

We're not going to really go to the

audience. Thank you. I know your feet are completely worn out.

Can we have a recommendation so that we can get this thing moving along one way or the other?

DR. VOCKLEY: I move addition to the core panel.

CHAIRMAN HOWELL: Would you have any descriptors that would add to that? For instance, let me go back to SCID. As you recall, when we approved to add SCID to the core panel, we had in that recommendation a specific descriptor of what this committee wanted to see about SCID in the first year that will be reported back.

DR. VOCKLEY: I would be happy to have any of those kinds of additions to the motion. I don't feel like I want to make them.

DR. DOUGHERTY: Can we see that language, the SCID language? Somebody else would have to make that motion.

DR. SKEELS: I think we do need to see the categories again.

CHAIRMAN HOWELL: Does someone have that on his or her computer?

DR. LLOYD-PURYEAR: For the SCID? Yes.

CHAIRMAN HOWELL: No. They want to see the categories.

DR. BOYLE: Chairperson, can I ask a question?

CHAIRMAN HOWELL: Yes.

DR. BOYLE: A procedural question. Don’t we usually have a decision of the committee that puts together our thoughts around moving this forward? I guess I’m not quite sure where we're going with this.

CHAIRMAN HOWELL: Do you have any comments on that?

We have historically had groups that have made specific recommendations. We did not anticipate we would be at this point, so we did not do that.

DR. BOYLE: If you want, we could do it this afternoon, but I feel like we need to take a break.

CHAIRMAN HOWELL: What's the sense of the committee? Perhaps a motion. Gerry, your motion has not been seconded.

MS. MONACO: I'll second the motion.

CHAIRMAN HOWELL: Jana seconded.

If it would be agreeable with you, we could work on expanding that motion that would include the things during the lunchtime and come back after lunch and consider a motion that would include the addition of the required information that we need and how we might do that. Would that make sense to you? Chris?

DR. KUS: I guess the trouble I have is I've heard "core panel," which to me means clinical practice, and I've heard "pilot studies." I think anything that's recommended to the core panel has to have long-term follow-up information for any of these things. What I'm hearing is are we talking some limited in between. That's what I don't know.

DR. VOCKLEY: My motion was to add it to the core panel. And we haven't had any amendments to it yet, which I think will get through Rod's

process.

CHAIRMAN HOWELL: We have technically never recommended a “pilot study.” However, with regard to SCID, that’s basically what is happening. In other words, it’s being implemented, and those early implementations are being carefully followed and monitoring is going to report back to us.

DR. SKEELS: Rod, I think it would be very helpful for us to see what the options are in the four categories. I asked for that a minute ago. I know somebody is looking for it. But it’s going to be hard for me to vote unless I know what my options are.

DR. LLOYD-PURYEAR: The four categories? I have it.

DR. SKEELS: Could we project those?

CHAIRMAN HOWELL: After the break. We are going to end this discussion. We are going to come back after lunch with a recommendation that would have some of these contingencies built into it and see if that’s approved by the committee.

But the other thing is that, Ned, how long

will it take you and Jim to do your program that was supposed to start an hour ago?

DR. CALONGE: If you don't want any discussion, it will be real short.

(Laughter.)

CHAIRMAN HOWELL: In view of the fact that lunch is upon us, the discussion might be short. Can you all go right now?

DR. CALONGE: Yes.

CHAIRMAN HOWELL: Good. So we have Ned and Dr. Perrin.

DR. CALONGE: Could we just take a biology break?

CHAIRMAN HOWELL: Five minutes.

(Recess.)