Report from the SACGHS Task Force on the Oversight of Genetic Testing
Marc Williams, M.D.

DR. TUCKSON: Now, let me turn then to the report on the Oversight Task Force. This task force is chaired by Andrea Gonzalez. Unfortunately, Andrea did have a medical emergency late last week and so she couldn't be with us for the meeting yesterday or for today.

I do want to note, though, that Andrea has been working tirelessly on behalf of the committee, and I don't know whether she's tuning in on web cast or not, but if you're out there, Andrea, we really do appreciate all that you're doing and hope that your recovery will be very quick and you'll be right back to us.

Marc Williams is standing in for Andrea today and did a terrific job yesterday of chairing a full-day meeting of the task force. So, Marc, thank you not only for your work on the committee but for filling in, and please, if you would, let us know what happened.

DR. WILLIAMS: Very good. To preface my remarks as one of the newer members of the SACGHS, I do want to let Reed know that I was not given full disclosure of everything that was involved or the fact that this is actually the Hotel California. So, nonetheless, here I am.

Also, just to clarify a comment that Reed made at the outset, the recovery that Andrea is experiencing -- I think I can say this without violating any HIPAA PHI -- is not directly related to the creation of this draft report. It was completely unrelated, as best as we can determine.

So at any rate, I want to start by just thanking all of the task force that has been working on this report. The amount of effort that's been put in has been incredible. As someone who has had the opportunity to chair a lot of meetings, it was really gratifying to have everybody on board and working hard and really working for the good of the entire group. So it was a fun meeting, although tiring.

So one thing you may notice is we've already kind of changed the title of this. I was gratified to hear Reed refer to this as oversight of genetic testing because actually it had kind of started as oversight of genetic tests. One of the themes, as you're going to see as we talk about the report, is that it's difficult to contain this just around the laboratory and the tests themselves. Really laboratory testing in general is a process, and it's not limited to just what the laboratory does. So as we looked at this, we took a bit of a broader view, and I'll expand on that as we go through.

We have several members of SACGHS that are on this task force, and the people here have all been involved in chapter development and in many cases are facilitating chapters. We have a number of ad hoc members, federal experts and consultants that were brought in for specific content areas that we felt needed their input. And thank you to all of them.

So I wanted to begin with the Secretary's charge. So this is from the letter that we received in March. "Undertake the development of a comprehensive map of the steps needed for evidence development and oversight" -- and this is a critical issue in terms of what we focused on -- "for genetic and genomic tests, with improvement of health quality as the primary goal." So the things that I think are the key here are the evidence development, oversight, and improvement of health quality.

"Looking for evidence of harm attributable analytic validity, clinical validity, or clinical utility; distinctions between genetic tests and other laboratory tests; existing pathways that examine the

analytic validity, clinical validity, or clinical utility; roles and responsibilities of involved agencies and private sector organizations; information provided by and resources needed for proficiency testing." And italics here, we ended up expanding this perhaps beyond what people might think was the actual specific request here to look at adequacy and transparency of proficiency testing processes. This has actually turned out to be one of the major areas of discussion that we've been having.

"Potential communication pathways to guide test use; new approaches or models for private and public/private sector engagement in demonstrating clinical validity and developing clinical utility (effectiveness measures); and added value of revisions/enhancements to government oversight." So it's a pretty broad charge, I think you'll agree.

I wanted to put this in a little bit of a historical perspective. Reed had mentioned earlier about the 12 years it's taken to get GINA along the road. Well, we're not quite to 12 years, but we're pretty darned close when it comes to oversight of genetic testing because it was in 1997 that the NIH/DOE task force issued a report assuring safe and effective genetic testing. They recommended consideration of a genetics testing specialty under CLIA, recommended that proficiency testing be mandated for all laboratories conducting genetic testing, and ultimately this report led to the formation of our predecessor committee, the SACGT.

In 2000, SACGT recommended that the FDA should be responsible for the review, approval, and labeling of all new genetic tests that have moved beyond the basic research phase using a novel, streamlined process. CLIA should be augmented with specific provisions to ensure the quality of laboratories conducting genetic tests, and data collection efforts should continue after genetic tests reach the market, and CDC should coordinate public/private sector collaboration. So you can see that a lot of things in the Secretary's request have been represented previously in reports that have been developed.

We received the response from Health and Human Services in January 2001. They accepted the recommendations and indicated that they would be implemented over time as resources allowed. FDA's oversight of genetic tests to include laboratory-developed tests and genetic test kits; post-market data collection to be performed by CDC and might be required of the test developer and other payers; and CMS to develop new CLIA regulations for expanded oversight of genetic testing laboratories.

Now, between 2001 and 2007, a few things occurred that affected that response. Questions were raised about the FDA's authority to actually regulate laboratory-developed tests. So these are what some people refer to as the home brews where the laboratory develops their own test, but it really is not put out for commercial marketing. FDA issues guidance and they clarified that they do have a regulatory authority over analyte-specific reagents which are sometimes used in the development of laboratory-developed tests, and that they also then had review requirements for laboratory-developed IVDMIAs under their oversight for these devices.

And CMS' plans for augmentation significantly changed in 2006, and in a response I believe that was copied to this committee, they indicated that CLIA already certifies genetic testing laboratories, that if they were to develop new standards, they would be outdated before publication because of the rapidity with which this specialty is moving. Developing a genetic specialty will not solve the gap in clinical validation of laboratory-developed tests. A genetic specialty will not address concerns about the lack of proficiency testing, and the lack of data and unique problems with genetic testing laboratories and other regulations had a higher priority than these.

So the CMS plan, in lieu of developing a genetic specialty, was to provide CMS surveyors with expert guidance to assess genetic testing laboratories; develop alternative proficiency testing mechanisms, for instance, inter-laboratory comparisons; develop educational materials; maximize expertise of accreditation organizations, so those organizations that are deemed by CMS to be able to provide this information; FDA and CDC to provide guidance for review of complex and analytical test validations; and collecting data on genetic testing laboratory performance.

So that leads to March of this year where we had the request from the Secretary to take a look at this issue, and so we created the task force as I had previously noted. We have had six meetings of the full task force by teleconference, developing an outline for the report, discussing the report's scope, and then use of key terms within the report. We've had periodic meetings of the Steering Committee and the Steering Committee consisted of the five SACGHS members that are on this task force. And then we've facilitated chapter meetings, which are teams assigned to develop each chapter. They received writing assignments and virtually met as needed to refine their drafts.

And we did have a working document, this, which was clean as of Saturday, but as you can now see, has grown a bit of fuzz for our meeting yesterday. So a tremendous amount of work in a very short period of time.

The focus of the activity has been to identify gaps in knowledge of which there are many. The Secretary's letter specifically requested that we look at harms, and so we have been focusing to some degree on harms, although I'll talk a little bit about how we're trying to balance that. We also have come up with what we would consider to be real harms, meaning there's actually documentation in the literature somewhere that says that this has really happened as the result of a deficiency or a gap, and potential harms, which are the things that we can all kind of dream up to say, well, geez, if it works this way, then that could potentially cause harm but where there's really been no documentation. We think it's important to really understand what is really happening versus what we think might happen but really don't have evidence for. And then ultimately we're going to want to be developing recommendations.

So the report outline. There will be six chapters. Chapter 1 will consist of background, define the scope of the report, spectrum of harms, and overview of each chapter. Chapter 2 is going to be devoted to laboratory technologies. Three will focus on analytic validity, proficiency testing, and clinical validity. Four, clinical utility and evidence development. Five, effective communication and clinical decision support, and 6, summary of recommendations. And I want to go through each of these in a little bit more detail just to kind of give you a flavor.

So Chapter 1 is addressing an important question which is, what is oversight for the purposes of this report? We have come to the conclusion that we're using a very inclusive use of this term rather than looking at oversight from a strict regulatory perspective because, as you'll see as we go through the rest of the report, a lot of what we're talking about that's probably going to have the largest impact on improving the quality of genetic testing are things that are traditionally not under regulatory oversight. So when you hear me use the term oversight, don't think of it in a very proscriptive, regulatory perspective because that's not our intent.

We are going to acknowledge genetic exceptionalism as a social and policy reality. GINA is, in fact, being considered by the Congress, meaning that whether or not you believe in genetic exceptionalism, there is a certain social and policy reality to that. But it is not going to necessarily drive the content or be held up as something unique or special.

The text is to be written on broad ethical issues/spectrums of harms and benefits. This is, I think, a real key issue. There was a lot of angst, if you will, among the task force members when we started talking about the Secretary's charge where there was so much focus on the harms, and we said if there wasn't benefit to these tests, we wouldn't be talking about this in the first place. It's not just harmful. So we wanted to try and present the report in such a way as to balance out benefits and harms because in some sense they're really two sides of the same coin.

As I indicate here, if we, for instance, overestimate a potential harm -- in other words, we'd say, my gosh, we're really worried about this. It's never really happened, but we're really worried about it, so we should do that -- then we may interfere with the realization of a benefit because of a perceived harm. And I think there are certainly people in this room that have argued, relating to genetic discrimination, that we have actually incurred harm in the population by having people choose not to undergo testing because of the perception that this information may be used in a discriminatory fashion. So we wanted to try and make sure that we balanced this out as best as we can.

It also will address harm due to biologic reductionism. In other words, the genome is the be all and end all, and once we know this, we'll know everything, and it will determine what will happen to people as they age. And we all know that that's fallacious, but in some cases, that is tended to be held up as the new biologic paradigm.

We are going to make an attempt to explicitly tie this report in with the Secretary's Personalized Health Care Initiative. We recognize that there's a relatively short period of time. The Secretary has a very busy agenda for those of us that not only sit on this but also sit on the AHIC and other things. There's a lot going on, and so we think that the best way to be able to accomplish things is to look for opportunities to partner with other Secretary initiatives. So we'll be looking at that.

The roles of different entities will be explicitly discussed, and I've just given you a list here that's certainly not exhaustive but gives you an idea, again, of the scope.

We are going to explicitly identify issues that are mentioned in the context of genetic testing but we believe are peripheral to the focus of the specific report. We will mention them and then state that they will not be addressed in this report so that people won't look at the report and say, well, you didn't include this, didn't include that. We'll say we didn't include it and we'll say why we didn't include it.

The status of Chapter 1 is that we have a draft outline, but the content here is really going to evolve based on the content of the other chapters since a lot of what Chapter 1 is going to do is to set the stage for each of the subsequent chapters. So that is really a very appropriate status for this particular chapter.

Chapter 2. I was hesitant. We had a little debate yesterday as to whether or not we should actually talk about the definition of genetic tests, and I elected to quote Supreme Court Justice Potter Stewart. "I shall not today attempt to further define the kinds of material I understand to be embraced, but I know it when I see it." I think that's the best definition of a genetic test. We won't specifically state that in -- and, of course, he wasn't talking about genetic testing at the time.

But be that as it may, I think the important thing that I want the committee to know today is that we are going to define genetic test for the purposes of the report. We are using definitions that are currently in use in other settings. So we're not inventing yet another definition. But I think

very importantly we're going to include intended use of the test, and we're going to provide examples of this.

One of the examples, for example, is in amino acid analysis. If you do amino acid analysis for the identification of phenylketonuria, it's clearly a genetic test because we're identifying a heritable condition. If you're doing an amino acid analysis to look at general nutritional status, that's not a genetic test. It's the same test but the intended use is entirely different. So to separate the intended use from the test methodology is really inherently important in defining genetic testing. So you'll get a chance to argue with us about that as we develop this a little bit more.

We will have a comprehensive list of the methodologies that are currently being used and considered. We're going to attempt to gaze into the crystal ball to say what's likely to appear on the horizon in the next few years that may perhaps have some differences about it that we would need to address. And the status of this is that it is near complete. And thanks to our newest staff member Cathy for really taking this bull by the horns and doing an excellent job.

Chapter 3. This is the most extensive content area and has really been quite a challenge to bring together because we've lumped together the analytic validity, proficiency testing, and clinical validity all under this one roof. So in some sense, we perhaps look at Chapter 3 and say it maybe is not quite as far along as some of the other chapters, but they clearly have the biggest task ahead of them.

So the status of Chapter 3 is that we have identified a very large number of gaps in all of these areas. We're now in the process of consolidating them, and in our meeting yesterday, we identified a couple of other content areas that we thought would be important to kind of frame Chapter 3. So we are rapidly soliciting additional input on those topics so that we can incorporate that. We're beginning the characterization of the harms and benefits and are going to use these to develop recommendations. And we believe that we're really on target to meet the time line that I'm going to be presenting in a bit.

Chapter 4. The major conclusion here is that at present there's really no regulatory oversight for clinical utility. In fact, it may not be appropriate for there to be regulatory oversight for clinical utility because this really constitutes the practice of medicine which, at the present time, is regulated at the state level. So this is where we really begin to expand the concept of what does oversight really mean.

And there are a lot of challenges relating to clinical utility. There's no existing infrastructure at the present time to look at this in a comprehensive way. It is the largest gap in realization of the benefit or value of testing. If you really don't understand the utility of testing or which tests have utility and which tests don't, then you can't allocate resources to drive the best value for the health care system. It's the biggest opportunity, though, to build processes for improvement. And notice, we're using language that was specifically in the Secretary's charge relating to health care improvement.

This group has chosen to take a very broad approach for the identification of actionable items. Again, we think this is consistent not only with the Secretary's call but with the direction for health care in the United States because we're clearly moving away from each provider is an island to the idea that we have to take a systematic approach to how we deliver things. So we're looking at quality improvement, which has made huge inroads in the areas where it's been able to be implemented in terms of improving care; evidence-based best practice; pay for performance. And I could have generated a much longer bulleted list here of the systematic approaches to

improving health care. So we think, as we look at utility, that again, rather than taking a very narrow focus as has been done in the past, this really reflects what is currently happening in the health care system and this report should reflect that.

Status. We've been trying to view utility from many different perspectives, including that of patients, providers, payers, public health, quality improvement organizations, guideline developers, et cetera. We've been exploring, as charged, governmental, quasi-governmental, private, public/private partnerships for the generation, synthesis, and management of new evidence.

And the draft is written but, based on our conversations yesterday, is under rather significant revision based on the input from the meeting and the breakout session that they had. So they really had a fairly complete chapter which I think was good, but there was clearly some change in direction that is going to be reflected in the next revision. But really I think most of the things are there and will proceed rather quickly.

Chapter 5, which was my personal favorite, not because I led it or anything. We're focusing on two things. One is on effective communication. And you might say, well, what does communication have to do in an oversight document? If you think about testing and genetic testing in particular, there really has to be relatively effective communication in both the pre- and post-analytic phases. In other words, the practitioner may have to provide information to the genetic testing laboratory around issues of ethnicity or underlying medical conditions or other things for the laboratory to really be able to appropriately interpret the test.

The example we use in the chapter is if you were to do a Jewish disease panel on me, the validity and the utility of that test on myself as a non-Ashkenazi Jewish person is very different than if you were to do that Jewish disease panel on somebody of Jewish descent. So the laboratory needs to know that in order to be able to really interpret the result appropriately.

And then in the post-analytic phase, the recognition that giving the report to the practitioner and if the practitioner is unable to interpret that report in an effective way, that's going to decrease -- even in a test that has proven utility, if the practitioner doesn't understand what the report is trying to tell him, then it's going to impact and lessen the utility of that test. So communication is really a critical issue.

There are roles for the laboratory, for the provider, and increasingly there are roles for the patient. And I know we're going to hear a little bit from CDC today about some of the direct-to-consumer issues, and we will be addressing those in Chapter 5, as noted here.

And then we're looking at it from the perspective of those with genetic specialty training and those with non-genetic specialty training, both from the provider side but also from the laboratory side because, as more and more of these tests come out, particularly kits, there are going to be laboratories that do not have a specific genetic focus that are going to be getting into these tests, and they may not have some of the expertise within their system that genetics referral laboratories are currently developing. So these are all issues that will impact communication.

Then we also have been focusing on clinical decision support. There's a strong feeling among our group that really, as with other areas of medicine, providing clinical decision support to the patient or provider is going to be critically important to maximize the utility of these tests. Again, this can occur in the pre- and post-analytic phase.

Again, to use the example of the Jewish disease panel, if somebody went online and used a computerized order entry to say I want to order this, then a pop-up could come up and say is this person of Ashkenazi Jewish background. So they would be prompted to fill in the right information. In the post-analytic phase, you could embed information relating to interpretation that would be clarifying, sort of that help button that you can click on the screen and find out more information if you're not understanding.

Now, it could be passive or active. The example that I use, which is a nongenetic example, is that reference ranges that come back with laboratory reports are a passive clinical decision support. You look at the number of the result, let's say, a carbon dioxide level and it's 40, and you say, well, the reference range is 35 to 45. So that is within the normal range.

However, there are limitations to passive systems because if I have a patient who is undergoing an acute asthmatic attack, has a respiratory rate of 40, and has significant retractions and wheezing, a CO2 of 40 in that individual is not normal. That person is actually in incipient respiratory failure even though the value falls within the normal range.

So in an active decision support mode, that system would be able to pull other relevant information and would be able to generate a message to say this is not a normal value for this individual, given the clinical parameters, high risk for incipient respiratory failure, and could perhaps even generate recommendations. So both of these systems may operate. We think there are more possibilities around active, but again, it's also more complex.

Decision support has to incorporate evidence-based clinical guidelines, and of course, if we don't have evidence-based clinical guidelines, then it's difficult to build decision support.

There's an opportunity to achieve greater impact based on experience in other sectors of health care. If you really look at the literature, if you look at some of the biggest impacts on individuals with diabetes and these sorts of things, a lot of it has to do with embedding clinical decision support in care delivery.

One of the things that's going to be critically important is really to clarify how clinical decision support is actually going to be regulated because there have been some initial instances where the FDA has looked at some of these clinical decision support algorithms as devices and has chosen to provide some regulation there. But it's not exactly clear what the scope of that will be, and it's going to be critical for us to understand how that would impact. So we're trying to get clarification on that.

Chapter 5 is written and referenced. We've delineated gaps and harms and recommendations have been developed, but we do have revisions. Based on the meeting at breakout, that will be completed.

So the development of recommendations will follow the meeting that we had yesterday. We're going to be synthesizing recommendations based on the gaps and harms and benefits. The recommendations will initially be developed within each chapter and then the Steering Committee members will review, consolidate, and prioritize those recommendations so that we don't have a list of 512 recommendations that will no go anywhere.

Here's our time line. Here's today and we're almost through this progress report. So give thanks.

From July to September, we're going to be working on developing the second draft. We will have a second face-to-face meeting of the task force on September 5th.

In September and October, task force members will be consulting with key stakeholders and gathering feedback on the report. We're going to revise that again based on the stakeholder input, and then a draft report will be sent to the SACGHS members for consideration at the November 19th to 20th meeting.

Now, you'll notice a relatively short turnaround time of 12 or perhaps 13 days, depending on which day we end up considering this. So for those of you who are sitting around the table, my colleagues and friends, at least to this point, our expectation of you is that we're going to need you to really get up to speed on this pretty quickly because we're operating on a very, very short time line, as Kevin had already mentioned.

Now, while this may be unseemly and perhaps to some degree unrealistic, I'll just point out that those of us that have actually been writing this report under a very tight time line have been putting in a tremendous amount of effort. So I think at least reading and commenting is reasonable from my perspective. So you can throw things at me later.

The 21st to the 30th, we're going to incorporate modifications to reflect the comments and prepare the report for public comment. The public comment period will be from December 3rd to January 7th, again somewhat shorter than the typical public comment period. It is within the rules in terms of what is necessary at a minimum. The timing is unfortunate, although people have a lot of free time over the Christmas holidays and I'm sure they'll want to be spending looking at this. But in January then we're going to be analyzing public comments.

Approximately February the 15th, because we don't have the exact dates for the first meeting of SACGHS next year, we're going to meet to discuss public comments, propose revisions to the draft report, and then we're going to approve the penultimate draft for submission to the Office of the Secretary. Now, this is also a little bit of a departure from the norm, but advice that we have gotten from the Secretary's office essentially says if things don't get in by February, nothing is going to happen for the course of this administration, given the limited amount of time that they have. So thank God it's a leap year is all I can say.

(Laughter.)

DR. WILLIAMS: So we will be doing final edits and then get this penultimate draft submitted to the Office of the Secretary. So we hope that this will be very, very close to the final, but we will work in March to develop the final report and then the final review by SACGHS via email on April the 16th, with a formal submission of the final report to the Secretary on April the 30th. So hopefully this will be able to get some of the key recommendations that we have initiated with enough time to be able to accomplish something.

So that's where we're at. Since we are working at the pleasure of this committee, we wanted to reflect back some issues that had come up for your input. You don't have to feel obligated to give us input. One of the rules we operated under yesterday was silence equals agreement, which is not a bad rule, although one I have difficulty following.

So the first question is, does the report structure -- and by this, I mean the chapter organization and that sort of thing. We tried to reflect the direction that we received from the committee in

March, and I just wanted to ask the question, does this report structure reflect the advice that you gave us about how to organize the report?

I see a lot of positive nods. I don't see anybody negative. So we'll assume that that's a go. That was the easy question.

One of the biggest issues, as you've no doubt perceived, is the scope of the report. Now, again, just to reflect a little bit of history here, the SACGT report addressed regulatory oversight, CLIA, FDA, but they also brought in the need for postmarket data collection. So that really, again, is beyond the scope of what would traditionally be considered oversight although they did look at a federal agency -- that is, CDC -- to do that data collection.

Outside of the context of that report, the SACGT did develop a very large focus on education. They broadly interpreted the charter that they were given and recognized that one of the barriers to effective implementation of genetic testing was the fact that the provider and patient communities were relatively poorly educated about genetics and that would limit utility of testing.

So we've chosen, as I said, to address broader issues, including communication, education, process improvement, clinical decision support, and other things. Again, we think from our perspective that this reflects the request from the Secretary in that he references specifically health care improvement, the regulatory issues, but also the communication issues.

So we think that we're on task, but we really want to get the input from the committee, which is, does this broad approach appropriately reflect the Secretary's charge to us, or have we grasped more than we're capable of reaching?

DR. TUCKSON: Responses?

I, for one, think that you've made some very strategic and important decisions, and I think that the way you've set it up, in terms of the logic, makes all the sense in the world. I don't think you've gone too far. I think that your presentation made it pretty clear, at least to me -- but I'll be curious if others think so -- that the report wouldn't be functionally relevant in today's real world if you didn't go where you went. Otherwise, it would be a pretty report on a shelf that didn't have diddly-squat to do with actual real-life issues. So I think you set it up pretty nicely for me. But I only said that because I was waiting for somebody else to speak up.

DR. LICINIO: I think it's a wonderful plan and I think that it's very comprehensive without overreaching.

The question that I had is that because of the timing of what you said at the end with the course of the administration, that penultimate report that you're going to give to the Office of the Secretary in February -- do you think that that has an impact, or do they really have to wait for the final one?

DR. WILLIAMS: The way we have set it up -- and that's an excellent question. We think that the penultimate report is going to be substantially the same. In other words, there will not be huge differences in content between the penultimate report and the final report. The final report will probably have some editorial revisions, but there won't be major content revisions, given that all of the comments will have been received from public and from SACGHS. So at least as we envision this process moving forward, we think that the penultimate report will be sufficient for consideration, at least on an initial level.

Now, again, remember we're going to have a number of recommendations which will be prioritized. So I think it will be incumbent on us as a group to make sure that we're really solid around the top priority recommendations in that penultimate report, and if we need to tweak some of the recommendations a little bit farther down the road, that might be appropriate to consider in that two-month period between the penultimate and final report. But those are issues that we're going to have to pay very careful attention to because we cannot send a report in February that is completely different from the report that they get in April.

DR. TUCKSON: Before I get to Barbara's question, let me just follow up on that as well. One of the things I think that was encouraging from your report is that you've connected this already, the work of the committee with the personalized health work group of AHIC.

It would seem to me that the other way to make sure that even as the report gets developed and shaped, that it takes life and reality, in terms of the Secretary's time table, is to connect to the Certification Commission for Health Information Technology part of AHIC, especially as you talk about the issues of integrating effective clinical decision support and integrating evidence-based guidance. I think that's the other opportunity with that same America's Health Information Community activity where if you're plugging in now and letting them know what you are doing, you might have a better chance.

DR. WILLIAMS: Right, and I think that's a very salient comment and just from that perspective, I actually sit on the AHIC Personalized Health Care Work Group and am going to be participating -- there are three subgroups of that work group. One is on family history. One is on genetic and genomic testing and one is on clinical decision support. We have recommendations coming from the first two of those, family history and genetic testing, that are going to be presented to the AHIC as a whole at the end of this month. Clinical decision support has lagged a bit behind, but we're in the process of getting up and running.

So I'll be able to liaise between this report and what's happening there. And we also have other representatives that are working as content experts within that chapter who are also represented on that committee. So I think we've got good communication lines.

DR. TUCKSON: No, I think you do, but I just want to make sure if you can find a way maybe with some staff support, Sarah, I think we need to visit quickly with CCHIT, which is separate from the Personalized.

Again, just to make sure everybody follows all this alphabet soup, the Certification Commission for Health Information Technology is another one of the America's Health Information Community groups like the Personalized Health group. CCHIT's job is to try to get the electronic medical record certified. It's already started to certify records and it's got a time table of new elements it's going to evaluate. But one of the clear things is this whole notion of evidence-based decision support. So to try to get your ideas in, because if you don't get it into their discussion -- they're already like two years out in terms of what things will fall due. So we might want to try to at least visit with them now.

DR. WILLIAMS: I don't want to put Michael on the spot here, but you had talked a little bit yesterday in our meeting about the NISTB efforts and that sort of thing. So I don't know if you want to speak specifically to the point that Reed has mentioned from your perspective as being more involved in that infrastructure.

DR. AMOS: Sure.

DR. TUCKSON: And Barbara, you are in the queue. I haven't forgotten you.

DR. AMOS: Actually yes, NIST and the AHIC are working quite closely together to develop the standards for interoperability and intercommunication between all these electronic health record systems. There's a major effort. NIST is a small part of that, though.

DR. WILLIAMS: Okay.

DR. TUCKSON: Barbara?

DR. McGRATH: Thanks. I'm going to go back to your question whether the vision is broad enough. It seems like it's gotten broader over the last time we've seen it, and I like that.

I particularly like the part of looking to the future and potential issues because I think the charge of this committee is to look at things broadly, not just what's happening today but project into the future. So I'd like to encourage you to keep looking to this theoretical, the abstract, the over-the-horizon things that aren't there yet but we may foresee.

DR. WILLIAMS: Yes, thank you. As Niels Bohr said, "Prediction is difficult, particularly when it involves the future," but we'll do our best.

I did want to ask a more specific question than this broad question, which is, is there anything that you've seen that we've included that you really strongly believe is out of scope?

One of the areas that we discussed yesterday and I can say that we don't necessarily have a consensus around is whether provider and patient education is really within the scope of a document on oversight of genetic testing. We're still debating this. In some sense, some of the things that we've talked about relating to clinical decision support relate to educational resources that are placed in a clinical context or, if you will, a just-in-time situation. So some of us really feel that it's in some sense inextricable.

By the same token, I don't think we necessarily want to say, well, we're going to have a recommendation at AAMC to say, hey, you guys have got to do a better job of educating your docs or something of that nature.

So, again, without prejudicing the group about specifically provider education, are there things that you've seen me present that you think really shouldn't be considered in this report?

DR. TUCKSON: Committee?

I don't see how it's possible, again, in functional terms, to have an oversight process that does not inform everybody that it exists. I mean, otherwise, again, it's, gee, that's a nice report on the shelf. It's nice to know that there are people thinking about oversight. By the way, nobody knows that people are thinking about oversight, nor is there any mechanism to let people participate in the process effectively. So to me, I'm hard-pressed to take issue with the decisions the committee made, but again, I'm deliberately trying to be provocative to stimulate discussion.

It looks like you've got a consensus.

DR. WILLIAMS: Okay. The last question is -- and, again, this may be more inconceivable given how broad our scope is. Did we miss anything?

(Laughter.)

DR. WILLIAMS: Please say no, from those of us that are actually writing it.

DR. TUCKSON: Scott?

DR. McLEAN: I had a question. The focused activity includes discussion of real harms and potential harms. Which one of the chapters really focuses on real harms and potential harms? I was looking for the --

DR. WILLIAMS: The way we've actually done it, Scott, is that we've tried to embed this concept throughout all of the chapters. In fact, when we were writing our chapter -- and several other chapters have been doing this as well -- as we're writing the prose, if we make a statement and we say, well, that represents a gap, we're flagging that right there as a gap. And if we say, well, this leads to a harm, we're flagging that as a harm and we're trying to say, well, is there literature around that harm? It's a real harm. Is there not literature? It's an artificial harm.

So each of the chapters is going to be developing a list of gaps, benefits, harms, and recommendations. So it's going to be the overall job of the Steering Committee to try and consolidate those.

So I didn't talk about Chapter 6 because Chapter 6 right now is nonexistent, but that is actually going to be the summary where we try and pull it all together and say, okay, here's what we really think, here's where the summary of recommendations takes place, and try and put that into a context.

So you can imagine that while we have relatively artificially divided this report up and if you think about analytic validity and clinical validity and utility, you can't necessarily just say, well, here's where analytic validity stops and here's where clinical validity begins. They're inextricably linked. But we have to begin to carve it down in some way, shape, or form to get off the ground, and then ultimately we'll try and stitch it back together in such a way that it reads as a continuity of a process as opposed to these individual parts.

So I think, to answer your question, we're going to embed those all the way through the report, at least in its initial draft phases for the purposes of our review and then we'll begin to pull that together and make it more coherent. Does that answer your question?

DR. McLEAN: Yes, I think that answers the question. Having those concrete examples sprinkled liberally throughout, I think brings it home and makes it --

DR. WILLIAMS: I didn't put on the Secretary's charge, but one of the charges was that they wanted tangible examples. So we've been making a real concerted effort to bring real-life examples in these arenas that illustrate the various issues into the report, which I think in the long run is going to make it much more readable for a broad audience.

DR. TUCKSON: Great. Next question?

DR. WILLIAMS: That is it. Thank you very much.

DR. TUCKSON: Before you run away, let me just ask Debra. I think Debra wanted to just ask a question.

DR. LEONARD: Can I make two comments? One is in the clinical decision support. You're talking about how you get the information to the provider and how the provider knows how to use that information, but I think there's a broader health care system that has to be approached for genetic information since a hematology physician may order a Factor V Leiden, but the surgeon may not be aware of that information and it may have implications for postsurgical DVTs or whatever is going on with the patient.

So I think that there's the broader health system aspect of the communication and use of genetic information. For pharmacogenomics or pharmacogenetics, it has broad implications for other drugs that may be affected when the testing is done for one. So I didn't see that addressed anywhere, and I don't know if that's broadening the scope too much.

DR. WILLIAMS: It's in the report. I just didn't specifically present it. Again, there is the issue there -- you know, what you're really touching on is the fact that right now we do not have -- well, first of all, we have very low implementation of electronic health records to begin with. But even those electronic health records that exist don't talk to each other.

So the issue that you're talking about is you only need to do a Factor V Leiden test once. We have some internal data that I referenced from my institution that shows that these tests are being ordered repeatedly, and there's no one around this table that would deny that that is a harm. It's wasting resources because we're repeating a test that doesn't need to be repeated.

Now, obviously, in oversight of genetic testing, that is a huge outside scope issue of how do we make interoperable electronic health records. Fortunately, AHIC exists and that is the sole reason that they exist, to create a truly interoperable United States electronic health record by 2014.

So what we have established in our recommendations is connectivity to make sure that as they address those issues of interoperability, that genetic and genomic testing doesn't get lost in the shuffle because right now there are very poor systems for actually encoding genetic and genomic results in the electronic record and communicating those between electronic health systems. So those are things we're trying to bring to the attention of the AHIC so that they can create those standards so that when we get to the point of interoperability, genetic and genomic tests will basically be treated like everything else.

DR. TUCKSON: Good.

DR. LEONARD: May I make one other point?

DR. TUCKSON: Please.

DR. LEONARD: Which may sound picky. But throughout this, you've referred to the laboratory, the provider, and the patient. But the laboratory is people, and I don't know what you want to use for the term other than laboratory, but I'm not a laboratory but I practice as a physician in a laboratory. So you may want to think about the people aspect of the laboratory in the communication.

DR. WILLIAMS: I'd have to go back and look specifically at the language that's being used, but I'm pretty sure we don't treat you as a building --

(Laughter.)

DR. WILLIAMS: -- in terms of our verbiage. But I think that's a good sensitivity comment and we will make sure that we -- we have a lot of input from the pathology community, and I think what we're trying to do is to use terminology to reflect that there are a lot of people involved in that, not just the pathologists and the technicians, but also genetics professionals that are embedded within laboratories. So we are trying to represent that in a fair way, but we'll make sure that we don't take an entity approach to that.

Again, I had a limited amount of time and wanted to try and make things as distinct as I possibly could. So I apologize for any problems from that perspective.

DR. TUCKSON: Well, Marc, you've done a terrific job. The committee has done a terrific job. Again, he held it up. Let me just remind you this is like where this report is now. People wrote this, weekends, nighttime, extra-hours effort to get us to this point. The references for some of these chapters are extraordinary. This is a textbook in many ways, and one of the things we need to do is to get it, when this is ultimately done, into the hands of the Academy so that they can use it. I mean, there are multiple utilities for this. But this is a tour de force of effort and I think the entire committee needs to be commended.

I want to also specifically note that I think you had a lot of choices to make in this report. I'm particularly gratified by the choice of emphasis of benefits in addition to harms. That was a key element of prior discussions. Emily and Debra, I remember your comments specifically on on this, but the committee as well. So I'm glad to see that you have reflected that.

I am very pleased about the intended use decision. I think that was a very important definitional one, as well as your identification of future uses. I think that's a key decision, and I hope that the committee is attentive to that.

I can imagine how tough Chapter 3 will be, the analytic validity and proficiency testing and clinical validity one. I don't envy the effort that's going to go into that.

DR. WILLIAMS: There was no blood shed yesterday. So we consider that as being positive.

DR. TUCKSON: The regulatory oversight absence for clinical utility and connecting this to quality improvement, evidence-based medicine practice, and pay for performance I think is a key decision that I commend you for.

And then, as we've already discussed, the effective communication infrastructure I think is important.

Now, if the committee is going to be able to approve, between November 7th and November 19th, the report, I think we're going to need some way of sort of providing us with a little update here and there informally of how some of your big future decisions are going so that people will be aware of them.

The reason why I wanted to go back and highlight the points I made is because I think those are the big issues, quite frankly, going forward, but I think that if we could have staff support in giving us an informal running dialogue of your dialogue, so it says, okay, we had a big argument on the last committee meeting about turn left 33 degrees versus turn right 12 degrees. This is how we resolved it. I think it is important that we know that. Then when it comes time when you get the thing, you'll say, okay, I understand what this is all about as opposed to, well, wait a minute, I got a problem with turning left 33 degrees. Deal with it sort of on time. I think then

you can get this thing out and approved as opposed to going back from the very beginning. So I would urge that be considered.

Other than that, I am concerned when the people who are reporting this out on such a modern and technologically complex area are wearing a slide rule tie clasp.

(Laughter.)

DR. TUCKSON: I don't know whether that bodes poorly for vision in the future or not.

DR. WILLIAMS: What does it say about the chair that recognized it was actually a slide rule?

(Laughter.)

DR. EVANS: It just says he's old.