Questions for Panel Two

We're going to open it up now again to the committee members to ask our health care provider panel any questions they may have.

Brad?

MR. MARGUS: It's astounding how people's behavior didn't change in that last story, even after they have their genotype and they know their risk. So along those lines of changing behavior, did any of you ask those participants who were wary of sharing information, participating in a study or being tested, if they would in fact do so if there was a law that protected them? I mean, is it clear to you that if tomorrow we announce there's a very solid law that says you can't discriminate, that these people would suddenly then all tip and all be willing to participate and take the risk, or would there still be quite a bit of paranoia?

MR. HADLEY: I think there are going to be people who won't participate for other reasons. It's not going to be 100 percent of those people who don't participate that have insurance concerns as their major focus. So some will still be out there not participating, not getting information, not considering testing. But it's clear that from a qualitative perspective from talking with these people in the clinic, as well as a quantitative perspective that this is a pervasive fear. If we could simply say there are federal laws that prevent discrimination by insurance companies, by employers, that that would be removed, that concern would be taken off the table, and then we would have better opportunities to focus our efforts towards helping them take better care of themselves through screening, through diet, whatever modifications exist.

So I'm quite convinced that if we could simply say there's federal protection that prevents that type of discrimination, we'd have much better cooperation and be able to attack the problems that really exist with some of these disorders.

MR. SHAW: I would second that. Our problem in Colorado, we actually do have a state law that says you cannot deny health insurance or adjust rates based on genetic information. The problem with our population is that they're highly mobile, so these individuals don't know if they're going to be in Colorado a year from now. So I believe if we could say to those patients that their biggest concern is that they could move and be in a place where they're not covered, if we had federal legislation, that would take care of a lot of that worry.

MS. FUNK: I know I'm from the patient panel, but I have something to add to this. Arkansas has a state law that protects me, and that was part of the decision process that made me decide to go ahead and pursue genetic testing. Without that state law, I do not think that I would have pursued it. But there are holes in it. It doesn't help with individual insurance, and there is always the possibility that I could move. So although the law is incomplete, I'm still thankful for that law and it did really influence how I chose to pursue my health.

DR. BRANTLY: This is Mark Brantly. I think that laws will definitely help, but I think that there also needs to be a societal change, too. That is, we have to recognize that disability shouldn't be a scarlet letter, or the possibility of disability. I think until we eliminate those possibilities, we're not going to be able to remove fear from these individuals because trust has to be out there. It's not just a law, it's about trusting the system to do right by you. People won't stand up until they can see that other individuals have been able to go through this and did not have problems with it, because these things individually affect them, and not only do they affect themselves personally but also their families.

You don't want to take chances with your kids no matter what. You'd rather die than take chances with your kids being able to be employed properly, to be able to basically fulfill their potential. So I think that until we develop a track record of protecting individuals, I don't think we're going to see as much enthusiasm for genetic testing.

MS. MASNY: Dr. McCabe?

DR. McCABE: I just wanted to follow up on the comment that Dr. Brantly made in the closing part of his statement. I think it's important and I want to emphasize this, that we all have genetic predispositions to disorders. Those who have come to speak to us today recognize what their problems are, what their potential problems are, and I think that this is very important for all of us to recognize. It is discrimination because it is arbitrary and capricious. Simply because we can identify something about individuals because they are either fortunate or unfortunate to have their genes identified early in the genomic revolution, we discriminate against those individuals when we should be discriminating against all of us. Once we discriminate against all of us, hopefully then we would discriminate against none of us. So it is discriminatory because it is completely arbitrary.

The other thing we've been told is that the ADA, Paul Miller came and said the argument has been made, former commissioner for the EEOC -- Paul would come and say that one of the arguments is that all of this is covered under the ADA. Once we cover all of us under the ADA, we again cover no one under the ADA, and the ADA was put in place to protect vulnerable individuals in our population. So I am concerned if the ADA was extended. I don't think it would be. I think that happens to be just smoke. But should it be, then it would protect no one and it would not protect the vulnerable.

The other thing, Reed, I just want to point out is that we've been charged as a committee with identifying topics of importance within the agencies of the Department of Health and Human Services, and I think what we've heard today is not only genetic discrimination a problem, and we've had responses from the Secretary saying they understand this and they're supportive of that legislation, but what we've heard is perhaps even more troubling, and I apologize to our panelists, but I heard the passion that you had for your children.

What we've heard is that this is a barrier to research. If it's a barrier to research, that certainly, since it's health research, falls within the purview of the Secretary. If it's a barrier to research, that means that we are not going to move forward to protect the children of our panelists, to protect our children and grandchildren into the future. In fact, that is even more troubling to me than the immediacy of the discrimination that we've heard about today. We are discriminating in ways that we can't even understand for our children and our grandchildren.

MS. MASNY: Any further questions?

MR. MARGUS: On a different subject, the thing about discrimination is that it sometimes allows people to discriminate without having any kind of standards for the information. So one thing that struck me that I wanted to ask you about is even if you have a genetic mutation or polymorphism that's been associated with some risk, is there really always a consensus about what that risk is?

I'll tell you my quick personal story. As many of you know, I'm a carrier for a mutation that completely wipes out a protein that plays a role in cell cycle control. When you marry someone,

as I did, with another mutation like that, we've had two kids with a really serious disease. But along the lines of talking about people like me who are carriers who are supposed to have a three- to four-fold higher risk of cancer, there are actually a couple of New England Journal of Medicine articles that say that's true, and then subsequently there have been numerous other papers done where people challenge that, and there isn't a consensus out there yet.

We always dread the couple of times in our past when we've had insurance companies learn that we're carriers for this disease, are they going to pull out what we think are spurious New England Journal of Medicine articles, or are they going to pull out one of the more recent ones where it looks like the risk is not quite as great? So I'm just wondering, that's another serious downside to genetic discrimination, or even genetic testing where decisions like insurance are going to be made. It's bad enough if they're going to discriminate against you for something that's real, but what if they don't know what they're talking about?

So I don't know if my case is rare or if you run into that, too, but I think it's an important point that the epidemiological data -- I mean, you know how epidemiologists are. They disagree all the time. But in this case it's really important. Do you see that across a lot of your other situations?

DR. BRANTLY: Yes. We see it pretty often in our clinics. Again, the risk is very hard -- I mean, when you speak about risk in general in genetic diseases, is it really spread evenly across the whole population, for instance, of MZ individuals, or is there a small population of MZ individuals who have very, very high risk because of a second genetic hit? All these epidemiology studies have those types of risks. So the risk is X, with caveats. I think that again plays an important role in setting aside what is the risk.

The risk should have nothing to do with your interest, because we can't precisely fix risk for any of these genetic diseases. They're pretty broad confidence intervals, and they clearly are because of either other genes or environment, or both.

MR. HADLEY: I think in that regard we have the same situation in families with hereditary non-polyposis colorectal cancer, where the initial studies said that the lifetime risk for colon cancer may be as high as 80 percent, but that may not be true for each and every family that we encounter. In fact, some may have significantly less risk than that, but still significantly elevated over the general population. So it is hard to use those numbers at this point in time when we're not exactly sure for the person who is sitting in front of us. But yet still, that information may be pulled and used to discriminate or set insurance rates.

MS. SHAW: I think in the genetics community our crystal ball is about as good as any other medical field. When you're talking with individuals about statistics and trying to apply them to an individual, it's very difficult. There are always variables that can come into play, especially with hereditary cancer predispositions. These are not 100 percent penetrant for the bulk of them. Therefore, when you meet with someone, you say you have an increased risk, but I can't guarantee you will ever get cancer. There are certainly many people that won't, and therefore it makes the genetic discrimination even more troubling because many of these people will not develop what they're at an increased risk for.

MS. MASNY: One more question, Muin.

DR. KHOURY: Actually, I wasn't going to have a question but more of a comment here, because I've been following the discussion and thinking about genetic information at the population level. We always seem to be stumbling as the difference between a genetic disease and the rest of the

diseases. As basically the panel showed us this morning, even when you start with a genetic disease where you have, let's say, a mutation that has an abnormal protein product with a high penetrance for disease, it's really never a straightforward risk estimate, except in a few rare instances, whereas in most situations you have an interaction with other genes, and I come in is sort of at the environment at large.

I mean, we've seen it with hemochromatosis, we've seen it with alpha-1 antitrypsin, and we also see it with the carriers, people with various autosomal recessive diseases. But beyond that, to me what's the most troubling, and I guess we all have learned about sort of our lethal variance, that we carry between five and ten, and it's really much more than that because we all have genetic variants of different kinds, like our HLA and our blood groups and our ability to metabolize different things, like carcinogens. So we're all carriers of genetic information, and that information that produces different gene products doesn't have to be abnormal gene products but a variant of a gene product, like a variant HLA system.

I mean, when you think about it, we're all at increased risk of different diseases, even outside the scope of the lethal equivalence that we have learned in traditional genetics for genetic diseases. So I think if we kind of accept the fact that there is genetic variations that are going to put us at risk for various diseases, I think we can solve the puzzle a bit more. As long as we keep talking about genetic diseases, we seem to always come at it from the genetic exceptionalism angle.

Now, I'm not trying to negate or minimize the pain and suffering of people who have the labels of genetic diseases, but I'm trying to elevate that to suggest that we all have genetically driven information that puts us at a different set of diseases, and it's only a subset of those diseases which may be 5 percent of all human ailments, we arrive at the conclusion that this is a genetic disease. It doesn't mean that the 95 percent of all other diseases are not genetic diseases.

So it's a plea towards expanding the scope of genetics beyond the traditional purview of genetic diseases and having to deal with probabilistic information that hopefully will get us beyond discrimination.

DR. COLLINS: Well, very briefly, I can't help but point out that's a very nice connection with the topic that's going to come up tomorrow afternoon, which is the need to have a prospective population-based cohort study that would enable you to get a better fix on what the statistical risks are for particular variants and how they interact with the environment. Case/control studies have been our workhorse for making these various discoveries, but they're not necessarily good at giving you an unbiased assessment of risk, nor of identifying the environmental factors that may serve as important triggers.

If we really are going to get beyond this major barrier of genetic discrimination by passing effective legislation, and I sincerely hope that that will happen, the next step will be to try to implement this sort of individualized risk prediction, and I think we're going to need databases that contain unbiased information of the sort that are difficult to come by from case/control studies but which would derive quite nicely from a large-scale prospective population-based study that also does a very thorough job of collecting environmental exposure data.

MS. MASNY: Thank you. Thank you very much.

We do have to move on to our third panel. Now we're going to hear from this last panel that will be presenting more additional stakeholder perspectives. We'll be hearing from Kathy Hudson, who comes to us from the Center for Genetics and Public Policy here in Washington, D.C. As I

mentioned earlier, it is her organization that has held town meetings across the country to discuss genetic issues. We'll hear then from Jane Massey Licata, who is an attorney and professor of law in New Jersey, who will help us to understand some of the gaps of the current legislation and policy that we currently have in the country.

We'll hear from Joanne Armstrong, a physician with Aetna, who will be representing America's Health Insurance Plans. We did invite the United States Chamber of Commerce to participate in the panel. However, they referred us to the Society for Human Resource Management, and we're pleased to have Michael Aitken, the director of government affairs, who is with us today.