THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

convenes the

TOWN HALL MEETING

NORA

NATIONAL OCCUPATIONAL

RESEARCH AGENDA

The verbatim transcript of the Town Hall Meeting of the National Occupational Research Agenda held in Piqua, Ohio, on March 6, 2006.

C O N T E N T S

March 6, 2006

TRANSCRIPT LEGEND

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In the following transcript: a dash (--) indicates an unintentional or purposeful interruption of a sentence. An ellipsis (. . .) indicates halting speech or an unfinished sentence in dialogue or omission(s) of word(s) when reading written material.

-- (sic) denotes an incorrect usage or pronunciation of a word which is transcribed in its original form as reported.

-- (phonetically) indicates a phonetic spelling of the word if no confirmation of the correct spelling is available.

-- "uh-huh" represents an affirmative response, and "uh-uh" represents a negative response.

-- "*" denotes a spelling based on phonetics, without reference available.

-- (inaudible)/ (unintelligible) signifies speaker failure, usually failure to use a microphone.

TOWN HALL ORGANIZERS

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NIOSH

MARY LYNN WOEBKENBERG, PhD
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MIKE GRESSEL, PhD
NIOSH

P R O C E E D I N G S

(9:00 a.m.)

OPENING REMARKS

DR. MAX LUM, NIOSH

DR. LUM: Good morning. Let me welcome you. I think welcome is the first thing we should say to come out on this beautiful day here in downtown Piqua. We are in downtown Piqua, right? Thank you for being with us today. I'm Max Lum. I'm the communication lead for NIOSH in Washington, D.C.

NIOSH is the National Institute of Occupational Safety and Health. We're part of the Centers for Disease Control and Prevention. And although the office and the Director is in Washington, our laboratories are really sprinkled around the United States. And a big one right here in Cincinnati, our Cincinnati laboratory.

About ten years ago almost to the day, 1996, I think it was pretty clear that the Institute needed a better way to kind of focus its occupational safety and health research. It needed, I think, a better guidance philosophy in putting together its research agenda. Not that our surveillance activities didn't provide us a clue about what our research should be, but we

thought we needed more of a partnership effort. So ten years ago the concept, the National Occupational Research Agenda, the NORA concept was conceived as a kind of a guiding philosophy to put partners in the research process really early on. And that's what's happened over the last ten years. Pretty much, we've put together partnership groups. They've helped us guide our research. We think they've been very successful. And it's not just -- The NORA process is not just a guidance philosophy for NIOSH, it's the National Occupational Research Agenda. It's for the nation. It's a guidance philosophy, a way to look at setting research agendas for occupational safety and health for the nation. And I say that not tongue-and-cheek really. The NIOSH is a very small institute; especially when we look at our friends at the National Institutes of Health in Bethesda, Maryland. We have small resources, but through the NORA process over the last ten years we've been able to take what resources we've been able to capture and go out and leverage these funds with business, with government, with other partners to do research. So it's been a very effective tool in terms of leveraging our

resources to do safety and health research. It's also been an effective tool, and probably our most useful tool in collecting more resources from the U.S. Congress. Because they see it as a national agenda, not so much as one institute's agenda.

So ten years ago we embarked on this activity, and we conducted around the country, I think, four town hall meetings similar to this. And I think Boston, New York, Seattle, Washington at that point. So here we are ten years later, and we've evaluated NIOSH, we've looked across this whole NORA concept and to try to figure out, well, where do we go from here, what's new, we need a blueprint for the next ten years of NORA. And as part of that process we are going around the country, really a road show, if you would, and talking to folks about the agenda process, your concerns, your issues, your interests. That's what we really want to hear from you today. And that's the way the program is structured. Not so much to hear from us, but to hear from you about your issues and your concerns. We'll tell you a little bit about what we feel will be the structure of the new NORA in the next ten years.

But really the primary focus is to hear from you. And the town hall meetings are a very important process. What you're going to be talking about today we're capturing on tape. We have a transcriber that is with us. The verbatim testimony actually will be placed on our website. It's a totally transparent process. And then the information that we do glean goes to the research councils that will be working on setting our research agenda and Sid Soderholm, our NORA Coordinator, will be telling you a little bit more about that as we move forward.

And just a personal note, and having just come to NIOSH ten years ago, and really it does seem like a quick ten years, a quick decade, I was involved in the town hall meetings. And I remember, just as if it was yesterday really, a group of nurses coming down to the Washington, D.C. town hall meeting from Philadelphia from one of the hospitals, and they brought a patient with them. And they came up to the podium, brought the patient up to the podium, and they talked about an issue of latex allergy as a really debilitating issue that they were facing at their particular hospital, and they were talking about really

hospitals across the country. They had some interesting statistics about, you know, nurses wearing latex gloves all day, and the chronic conditions that were developed, really debilitating injuries that put people out of the workplace in terms of a life-long job. It was very moving. And I think immediately NIOSH moved to affect a research program that addressed that. And I think in a relatively short amount of time we probably alerted every hospital in the United States to this issue. And, really, it was our research and combining the research of others that we were able to do that. But the issue was really raised at that town hall meeting.

And we were in Salt Lake City last Monday and we heard from one of the presenters there about how significant the meeting that he had attended ten years ago that really had motivated him and had motivated the Institute in terms of musculoskeletal disease, and the fact that we didn’t have any really firm studies, we had not certainly pulled them together at that point. And, again, the Institute was able to motivate its own researchers to move in that direction, and we heard the benefits of that.

So, again, what we are hearing from you today we are listening intently. And if I can make a plea at this point, I know this is our ninth town hall meeting, we're doing 12 of these, and I hope to get home by the spring if I'm lucky, but I know there are people in the audience, you're thinking to yourself, well, you know, I'm not going to testify, but I have this issue in my mind and maybe I should say something. I want you to think about that. And, really, we want to hear from you. If you haven't signed up, we have a full program, but we would really like you to come up. You know, this is not a 60 Minutes format. We're not going to blow smoke in your face. We're not going to twist your arm. We really want to hear really what is on your mind.

And with that I'd just like to, in conclusion, thank our hosts, not only the University for hosting it, the Vice President of the University is here, Phil Lootens, is here to talk with us briefly, also, special guest Ann Baird, the County Commissioner for Miami County is here, is going to say a few words, and the folks who really are on the ground here that helped us put this together, not only our staff in Cincinnati, who are

extraordinarily helpful, but Tom Bean from Ohio State University, the Ag. Center there, and Scott Clark in our ERC, our Educational Research Center in Cincinnati.

These take a lot of work, as you can imagine, and without the folks really on the ground to do some of the work that is required to put these together we just couldn't do this. So, again, thank you for coming. And we do want to hear from you.

And if I could ask Scott to come up and take the podium. Thank you all.

DR. SCOTT CLARK, UNIVERSITY OF CINCINNATI:

DR. CLARK: I thank you very much, and welcome. Our buses just arrived from the University, I see, so I think we have a full group here. This is, we think, a good location for this meeting, and I think the audience reflects that; people from Michigan, Toledo, Dayton, and so forth. It is more central than it would have been to have it in our backyard, which would have been more convenient, but I'm glad we have it here to get acquainted with this wonderful community college at Edison.

As Max said, we have a NIOSH supported education and research center. The University of

Cincinnati. And there's both outside, so I won't take much time on it. But it's a full center with four major economic disciplines; occupational medicine, safety, nursing and hygiene, where we do graduate education and research and continuing education and outreach.

So we serve a big region. Probably about half of our graduates stay in Ohio. And there are a number of them in this room in Ohio, but we also serve other states, obviously, and other countries. We have for a number of years had pretty strong international connections. So we're a resource that NIOSH helps support. And we are pleased to be here.

I want to thank the Edison Community College for their fine hospitality. We've been coming up here since December and looking at the facility and so forth, and making arrangements for the transcriber and coffee. And lunch will be available through the regular cafeteria down the hall to the left. And I guess we can have food in here too, apparently, right? So they're very accommodating. In our University we have one room and there's no food at all. So it's nice to have a little relaxation. Of course, we want to be careful.

Also, I'd like people to turn off their cell phones or put them on vibrate. It just can be disruptive, obviously. And I know you have to be in touch with many things, but try to do that, and then leave discretely. The restroom is outside to the left in the first hallway down there.

I want to urge what Max said for those of you who didn't sign up. I think 25 have signed up to make comments. That others who want to, just go to the front desk and say you want to make comments, even if it's three sentences. It doesn't have to be a long thing. Just an idea, well, what about something. And that's fine. This is meant to get input from people who are working wherever, either as a worker, supervisor, parent of a worker, a friend of a worker, whatever, whatever type of a situation you have. You may not know what we know about that situation. That's not a problem. If you are concerned about, is it a problem with my son working in this garage doing welding, you know, if we know enough about how to protect them and how they know he's being protected. So even that kind of a thing. It's information, and NIOSH has a huge information sharing network. And so that's -- but ideas you might have for things that

you come across when you think it may not be well addressed so far. So we do have flexibility in the schedule.

We'll have the program run so the speakers in the first section, second section, will sit here at the table here while the other people speak to minimize the time between speakers. And we want to avoid walking off the stage that way. There are some cables, plus it's a drop. And I don't know if Dr. Rice has the emergency squad lined up here to take care of us. So we do have Dr. Carol Rice here who heads up the hygiene program, and Judy Jarrell, Dr. Jarrell with the Continuing Education Program, Donna Gates, Dr. Gates is here from the College of Nursing, Dr. Genardy from Safety Engineering. Is Dr. Sue Davis -- And Dr. Sue Ross make it yet? So we have pretty much our full group here, so they're available for any kind of questions you might have about things.

So we also have a second co-host, our friend Tom Bean from Ohio State, he's from the Agricultural Center for Health and Safety. So Tom will have a few comments.

TOM BEAN, OHIO STATE UNIVERSITY:

MR. BEAN: Well, first of all I'd like to welcome

everybody today. It's not too bad of a day for Ohio this time of the year. And I'm glad to see that we have such crowd today. My name is Tom Bean, as Scott indicated. I'm on my second week as Chair of the Department of Food, Agricultural and Biological Engineering at the Ohio State University. They kind of made me an offer I couldn't refuse, so I had to accept that position. And I'm also the Director of the Great Lakes Center for Agricultural Safety and Health. And we, of course, have a full compliment of programs that we do; basically research, outreach, prevention, intervention programs, research to practice. All of the things that a center is expected to do.

But I really want to make this short today and get on with our program, so I'm going to introduce Phil Lootens who is the Vice President for Education of the Edison Community College. So if Phil would come up. And I can tell you this is a great facility to have this meeting. The acoustics seem to be very good, and it's very comfortable.

PHIL LOOTENS, EDISON COMMUNITY COLLEGE

MR. LOOTENS: Thank you. On behalf of Edison

Community College, I welcome all of you to this very important town hall meeting. We have a fairly robust program of economic development, work force development for our community and business industry. And I can think of nothing more important than occupational safety and health. So with that, I welcome you, and I hope your visit here today is worthwhile.

I have the privilege of introducing the next speaker, Ann Baird, who has been a member of Miami County Commission for a number of years, and has also been a member of our board of trustees for a number of years. She's a great community servant, has given greatly of herself and of her time. And with that, Ann, I'd like to welcome you.

ANN BAIRD, MIAMI COUNTY COMMISSION

MS. BAIRD: Thanks Phil. As Miami County Commissioner it's my pleasure to get to welcome you to Miami County today. As I told the gentleman earlier, I'm very interested in hearing some of the comments from the meeting today. I won't get to stay long because we had to juggle our schedule around a little. I'm actually Vice Chair of the Commission this year, and our Chair was busy doing something else this morning,

chairing another meeting. So I got to come. And it's probably more beneficial to me because my former life, 12 years ago, I was Director of Community Wellness for the local hospital, and in that I did a lot of occupational health and other things, so I'm interested in the safety issues that might be heard out today.

So I know you're going to have a good program. I see a lot of things on the agenda that I'm interested in listening to. So we'll look forward to hearing those comments. And anything we can do for you here at Edison today, we'll be happy to do. We try to run a very good show here and it's a very convenient place for you to have a meeting. And Sid, I'm going to turn it over to you now if you want to take over.

INTRODUCTION TO RESEARCH AGENDA PROCESS

SID SODERHOLM, NIOSH

DR. SODERHOLM: Well, thank you, Ann. I came up from the set of stairs over there to help remind me to mention that that's really the set that is probably OSHA approved for us to be using today. We have some wires and so on over here. So we'll encourage people to use that side as much as possible.

Well, I'm Sid Soderholm. I'm the NORA Coordinator at NIOSH. And one message today is, if you have any questions or issues about NORA, please give me a call, contact me. I have a number of business cards out on the registration table in case you're still into that low-tech way of keeping track of people feel free to pick one up. And my name is in the list that came in the packet, too. So please contact me if you have anything that you'd like to talk over about NORA. So I want to talk a little bit about NORA and what we're doing here today. And then as the transition really as to the real reason we're here, which is to hear what you have to say, not what the rest of us has to say.

So the vision of NORA hasn't changed. The vision ten years and the vision now is a national partnership effort to define and conduct priority research. The major component of this is that we seek stakeholder input. That's what we're here doing today. We identify research priorities for the nation. So researchers love to do -- they know what's most important to do. But here we are, we're listening and we have a process to say, okay, these are the priorities for the nation.

And the researchers pay attention to that because that's where the funding is frankly. And we work together to address these priorities. It's a partnership effort. There are many things that you can do in laboratory research and field research, but almost everything we do is greatly improved, and much of it is impossible, in fact, without partners, without labor industry, professional associations, all kinds of different partners who can lend pieces to the multi-disciplinary, multi-researcher efforts to really get the kinds of questions asked answered that we need to be dealing with.

And as Max mentioned, one of the aspects of NORA is to leverage funds. NIOSH has a budget that's generously funded by congress and yet there's so much more we can do when we at least have a way of going to other federal agencies and saying see, your mission and our mission is very similar here, can we work together and, for example, put out a grant announcement for research in an area, say, skin disease, which is an occupational issue and it's a community issue. And we can use some NIH funds with NIOSH funds to help fund something like that.

So that's one of the ways in which -- the main way in which funds were leveraged over the last ten years. And, yet, we think that there's a lot more that can be done. We think with, you know, professional associations and corporations that through in kind and money transfers there are many ways in which a lot more good research can be done by attracting funds from a number of places, attracting resources including funds.

Again, the importance of having come to listen -- and in just a few minutes we'll stop talking, we'll start listening -- it can't be over estimated. The fact that you have told the researchers what the issues are, maybe you know what kind of research needs to be done, maybe that's not your end of the spectrum of where you live, but if you can tell us what the problems are then we can much more confidently allocate resources where they're needed.

So what's different about the second decade of NORA compared to the first? Well, this can be summed up by saying we're going to move research to practice in work places even better through sector-based partnerships. So it's still partnerships.

What are we talking about in this sector-based approach? Well, the idea of the sector-based approach is we're addressing the most important problems in each sector. And we'll talk about it a little more later. But the problems could be discussed in terms of risks, or exposures, or injuries, or diseases, or failures of the occupational safety and health system, or other ways; however the issue can be formulated. We're trying to address the most important ones by focusing on sectors.

We're talking about having a research strategy for each sector, and it may be more than one. Some of these sector groups, I'll introduce them a little bit in a minute, some of them are so broad that they really break down into some sub-sectors that fit together even more closely. So we plan to have -- we will have a research strategy for these sectors, or sub-sectors. So this involves identifying the major problems, knowing what the kinds of research is needed, knowing how that research will lead to making progress in reducing the burden of that problem on the American workforce and American economy. So then finally having a plan, having a way to gather the

resources, to gather the researchers together to get the work done. But the sector-based approach doesn't leave out the fact that many issues go across sectors. There are many cross-sector needs that have been identified. That was the focus of the research priorities in the first ten years. And those problems still exist, and they still cross sectors. And that's not being lost. Some of those problems are traumatic injuries, almost in every sector, muscular-skeletal diseases. Many issues are coming up in health disparities among particular populations across sectors. And so hearing loss, there are just many issues that come up that cross many sectors. And by going to the sector approach we're not losing the cross-sector issue. What we're doing is we're focusing on them through the sector approach to principally to gain more partners who can help us do the research better.

So why? Well, the workplaces are organized by sector, people tend to identify with the industry or the sector that they're in, many research needs differ by sector. The priorities tend to be different across sectors, but many of the priorities are the same across many sectors, as

I've mentioned. Working at it sector by sector really helps us focus on the goals for that group of workers and for those companies, the types of research that is going to help us make a difference in the goals and what we're going to do with those results.

The thing that excites me most is by having sector partners involved in defining the research, conducting the research. They are already familiar with it, and they have the channels of communication when it comes time to say you know, we've tried this and it works. More workplaces in the sector ought to aware of this way, of this intervention, this way of reducing this occupational safety and health problem.

So I think it's the handing off the results is going to be the big payoff to this approach. It certainly facilitates partner activities, and we think it's going to be an efficient approach.

So keep talking about the sectors. Here are, at least in an abbreviated form, are the sectors in little ovals. What we've done is we've taken the 20 or so sectors as defined as industrial groupings as defined by the North American Industrial Classification System. The NAICS codes

are actually used by Canada, the United States, and Mexico in their economic analyses and so on. So these sectors are defined by the Census Bureau in the United States. So we've grouped some of those in fairly natural groupings. And you can see the indication of what the eight sectors are. And the services sector over there on the right (indicating) is actually a very large sector of maybe close to 50 percent of workers in the United States now work in the servicing sector.

Today, this afternoon, we're focusing on a sector that's always been very important in the United States, I guess at least since the industrial revolution, I guess I'm not enough of a historian to say it was before that, the manufacturing sector will be the focus of the afternoon. This morning we're inviting comments on any sector on any issue. And certainly this afternoon I think we'll have time if people want to come up and talk about anything later in the afternoon there will be opportunities to do that.

So we will have research councils. We'll have basically committees requiring research councils, one per sector, and they will be taking the input from you all and I will be talking about that a

little more in a minute, but they'll be taking the input from you and their own information to put together a draft research strategy for their sector. And that draft will be put on the Internet. We'll be asking for comments, and we'll start working on that. So it's a very open process. But these research councils will really be the group that's going to be processing the information that we receive in these town hall meetings.

The cross-sector research council is essentially the executive committee. Each research council is headed by someone within NIOSH and someone outside of NIOSH. And the membership of the council will be probably no more than one-third of people within NIOSH, mostly people outside of NIOSH. The two leaders of each of the cross-sector councils, those 16 people will make up the cross-sector research council, which is really the executive board in order to kind of keep things coordinated, keep things moving where one group has come upon a good idea of how to accomplish something, we can pass that along to others, where one group is struggling with an issue, a cross-sector issue, there may be solutions that have been found in

other research councils as to how to deal with that issue. So that will be a coordination point. The NIOSH rule is one of stewardship and infrastructure. We know the NORA process isn't going to go forward without NIOSH really taking a leadership role. On the other hand, it's not just the NIOSH process. We're not here finding out just what NIOSH ought to be doing. There are many good ideas about problems that need to be solved where the best people to do the research are to help solve that problem are really outside of NIOSH.

So NIOSH is a steward, we provide some of the infrastructure, but the O in the National Occupational Research Agenda could also stand for ownership, or broad ownership, and we hope that other groups will provide resources to help this process move forward.

So to talk a little bit more about the research councils, diverse input will lead to robust research strategies. And I had gotten ahead of myself and really started talking about this slide. The initial work of the NORA research councils will be to take, you know, front and center of this stakeholder input that's been

received in the NORA docket through this process and others that I'll mention, plus the expertise of the members assembled, plus the surveillance data, which is always a great source of information about some of the issues, it tends to have more data about injuries than it does about health effects. But to put all of this together and through a decision-making process come up with this draft for research strategy. It will be put on the web for further discussion and to start working on it.

So, audience, we're here today, what are the ways in which you can participate? Well, certainly proved input, that's one of the reasons you're here today, and we also encourage you to volunteer. There are many ways we can use your help in the future.

So for those who choose to come up and speak today, we're asking people to plan on around five minutes. Sometimes we've had even fuller schedules, so our moderators may allow people to slip a little more than five minute today, but that will be up to them. We're asking people to basically boil your comments down to five minutes and to give us the highlights. You certainly have

more information that you can provide than can be provided in five minutes in many cases. So if you have more comments, please feel free to leave a copy with the people at the front desk or here on our transcriptionist's desk. Shane Cox is our transcriptionist providing a very important function for us today. I mean, I guess we're all at work, but he's really at work today. Between tape recording and repeating what we're saying into another channel of the tape recorder, he will give us a verbatim transcript of everything that is said today and that we will use. Christy Forrester, here in the front row, will be taking the transcript and parsing it up and actually loading it into our website, which puts it in the docket.

So if you go to the NORA website, which is listed here, you will find an opportunity where you can type in comments or cut and paste in text into one of ten boxes on the website. You can talk about comments in any of the eight sectors, or provide comments on our cross-sector issue, or multiple issues, or you can talk about the process.

So whether you put the information in or whether Christy is taking the transcript and putting it in

from the docket, or from the transcript, that information will go into the NORA docket. So this is a set of files in Cincinnati that can actually be visited. But most of the information, all the text-based information is also available on the Internet. It turns out that if you go to that input page on this NORA website, and you'll see to the left of those input boxes, a little unassuming length that says view comments by others, and that's getting to be a very rich source of information now. We put this out -- I think we first opened the website last June, and if you start looking through the comments by others you'll see a lot of the information that's been provided. Now, we're a little -- we hope within a few weeks to have a transcript of this meeting there, and Christy's already entered the transcript of a couple of the early town hall meetings and more of the transcripts are arriving and we're entering those all the time.

So the input you provide will be put into the NORA docket and it will be provided to the NORA sector research councils. Now, every word that you say will be given to the research councils, but in order to help them find what they want when

they're looking for things, we're going to be indexing, basically, the comments. We're going to be providing them in categories also.

So the NORA sector research councils, the people on the council will be seeing exactly what you've said today. And even if you have written comments and you come up and you read them, whether you get all the way through them or not, we'd love to have a copy. We'll put the written copy in also.

The comments will also be outlined in the NORA symposium. The NORA symposium is in Washington, April 18 through 20 of this year. And it's going to be a celebration of the first ten years of NORA, it's going to be a celebration of the research that's been done. There will be a dinner. And we'll also be celebrating the 35th anniversary of the Occupational Safety and Health Act that formed NIOSH and NORA. And we'll also be saying thank you to those NORA teams that worked for the first ten years and really moved the priorities that were set ten years ago forward significantly. And on the last day of the workshop -- or excuse me, on the last day of this symposium we will have workshops that really kick off the sector-based approach in a major way.

We'll be summarizing the comments, we will have discussion, we will have some initial multi-voting of those there in each of the eight sector workshops to give us an idea of what that group feels the priorities are in that sector. And you can find out more about this symposium at the website listed at the bottom of the slide. And I'll actually show these to you again.

So, again, I went through this a little bit earlier, but what kinds of information do we think we'd like to hear? We always hear a lot more rich information than we thought we were going to hear, than we ever could have imagined when we organized this. So we appreciate everything that's said. But the types of information -- we came to these town hall meetings thinking we'd like to hear or asking for is, what are the top of problems, what are the diseases, the injuries that are causing problems, what are the exposures, what populations are at risk, where is the system failing. If you know, who are the key partners to make progress in this, if you have ideas, what's the research, the kinds of research that's going to make a difference. As I mentioned, brief presentations, just the highlights. We'd love to receive as much

written material, or material submitted through the website. Don't worry about submitting the same thing two or three times in different forms. We'd rather have that than miss some important thought in some of your input.

And the final point is we're here to listen. And when we later ask people to come up, even if they haven't registered to speak, we're interested not in criticism of what someone else has said. If someone said something you agree with, and you're moved to, come up and say you agree, offer a similar opinion. If someone said something you disagree with, feel free to come up and say well, this is how I see it, this is my opinion, this is my comment on this subject. So we're here to listen and reflect. So we appreciate everyone's input and we want to hear everyone's input.

So finally, thank you for being here. Pretty soon here I'll sit down and we can turn it over to our moderator for the morning and we'll start listening to you, which is why we're here.

But a few take-home messages. To follow what's happening in NORA and in fact what's happening in NIOSH, I encourage you, if you haven't already, to sign up for the NIOSH eNews. This is an e-mail

news letter. It comes to your mailbox, your inbox once a month. If you're too busy you can just ignore it. But if you have a few minutes, it's really one and 200-word summaries of what's going on in NIOSH. We have something about what's going on in NORA every month. And if you don't have time to visit our website often, at least pick up eNews, sign up for it, and find out what's going on in NORA. The signing up is very simple. You go to this website and just type in your e-mail address. That's all there is. And to unsubscribe at any time you can do that.

Please do provide additional input. The NORA website; that input page is there. If your input can be provided as text that's a great way to do it, if you have pictures and graphs and other things then there's a way to submit that electronically through e-mail. And if you'd like to exercise the U.S. postal system, you have a stack of reports or something you want to give us, then there's also an address on the website where you can send it in.

And finally, as I started, if you have any questions feel free to contact me. There's a direct address on my business card out on the

front table. And also it's fairly easy to remember noracoordinator@cdc.gov, either one of those works, and I'd love to hear from you. So with that I think we'll turn it over to, I think, Tom is going to moderate our first session. I think the way we're going to -- I'll let them explain how they're going to do this.

REGIONAL AND LOCAL STAKEHOLDER PRESENTATIONS

MODERATORS: TOM BEAN AND SCOTT CLARK

MR. BEAN: I think this is working this morning. How we're going to proceed; Scott and I are going to be doing a team approach to moderation today. So we'll going to be handling the morning session. What we're actually going to do is be calling up panels, four people at a time, and they'll take seats over here at this particular table. And what we would like you to do when you get to the table is the first one, there should be a list, pick up a list, the first person that is going to actually be speaking just take a position at the podium, tell us your name, your organization, and start right in on your five minutes. When you're finished with that the next person will be coming up repeating that process; name, organization, and start in with your comments. When the panel is

completely finished we will be calling then another panel of four and repeating the process. So with that, I think we'll go ahead and call our first panel, and that will be Wayne Dellinger, Sam Steel, Mary Fleming and Michael Ely.

For the panel, and all panels, we do have a timekeeper. It's Amanda sitting in the front. Amanda, raise your arm for us. Amanda is our timekeeper. So she'll be giving you appropriate signs so that you know one minute, 30 seconds, stop. And let me tell you that if we don't stop I will be standing up and saying stop, stop. Clark will be doing the same, so...

MS. JARRELL: Tell them I will be taking pictures.

MR. BEAN: Oh, yes, pictures. We will have a photographer, Judy. Judy, the one with the camera here in the front row, will be taking pictures of each speaker. So as you get up there pause a few minutes, Judy will take your picture, and then you can go ahead and introduce yourself. So thank you very much. Go ahead after your picture, Wayne.

MR. DELLINGER: Thank you, Tom. I'm Wayne Dellinger. Currently a Program Coordinator from Ohio State University Extensions Agricultural Safety Office. Just a little bit on my

background. I've worked four years on a university research farm, three managing dairy operations, three years working as a field research technician for an OSU extension specialist and more recently, eight years employed in agricultural safety, while remaining a part-time employee on a large cash grain operation.

I chose special operations for special populations to address in this NORA town hall meeting because agriculture consists of many groups that could be considered in this category. These populations also typically operate the more dangerous equipment. Amish, youth, and what I'll call hobby farmers are three I wish to focus on for consideration in continued or future funding.

In 2004, Ohio had an estimated Amish population of over 52,000. While many of these Amish are turning to alternative employment, there is still a large number involved in agriculture. These Amish are difficult to reach and tend to use older horse drawn equipment, as well as younger and older workers than what we normally consider a typical agriculture operation. These factors create more risk for incidents, more difficulty in

injury surveillance, and greater challenges in educational research and programming.

Youth involved in agriculture has been a tradition for family operations for years. In Ohio, if youth are working on their parent's farm, equipment operation may start at any age. In modern day, this is of greater concern for multiple reasons. Youth may only be permitted to operate the older equipment that may not meet current safety standards. However, if the youth are allowed to operate the newer equipment, this also creates certain risks. Today's equipment includes tractors and implements that are much larger than in the past. Some of today's tractors are also designed to operate at speeds of up to 45 miles per hour or faster. In Ohio, this creates the potential for a ten year old or younger child to operate a tractor on the road at 45 miles per hour if working for their parent.

Hobby farmers present a unique challenge. These are farmers with just a few acres or just a few animals to manage outside of an off-farm full-time job. They typically use older equipment bought at farm sales possibly without safety features or an owner's manual. Or, they may borrow a neighbor's

equipment without proper training. These factors, along with an audience that is not reachable in the channels traditionally used for agricultural safety demonstrate the need for more focus, better injury surveillance, and additional educational programming.

With all of these groups and agriculture in general, roadway safety is a growing concern. Urban sprawl into rural areas, along with larger equipment sharing the same narrow roadways creates a scenario for more incidents. Even though there are fewer farmers, they are typically working on larger farms, traveling greater distances on the roads. The recent adoption of the Agricultural Safety -- American Society of Agricultural and Biological Engineer Standard 5-84, the Speed Identification Symbol, and revisions to Standards 2-79-13, Lighting and Marking of Ag. Equipment on Highways, and 2-76.6, the Slow Moving Vehicle Identification Emblem, resulted in recommended lighting and marking for high-speed tractors. Educational programming and research should be a priority aimed at state legislators as well as producers to form laws that allow these tractors to safely operate on public roads. Continued or

increased funding for all of these special populations in agriculture will assist Ohio and all states in meeting the changing needs of an ever-changing clientele. Thank you.

MR. STEEL: Good morning. My name is Sam Steel. I'm with the National Safety Council in Chicago, and I'm their Agricultural Safety and Health Specialist. The National Safety Council, just in case you're not aware of the organization, is a not-for-profit, non-governmental agency, safety and health organization with a federal charter. Our background in the field of agriculture goes back to 1944 when the President of the United States, President Roosevelt, the Secretary of Agriculture and the American Farm Bureau all got together, and actually the President signed the first proclamation for National Farm Safety and Health Week. So it's one of the longest, if not the longest, weekly commemoration in the United States.

The title of my presentation today, this brief presentation, I originally -- my official title is The Challenges of Developing, Delivering and Evaluating Effective Agricultural Safety and Health Programs in the United States. My

unofficial title is I've actually left out the challenges and frustrations of developing, delivering and evaluating effective agricultural safety and health programs.

There are actually -- and all of us who have been associated with the safety and health field for a long time are aware of the three Es, engineering, enforcement and education. However, with my experience, and I actually began work in 1961, that's the reason why I have all this gray hair, so I'm as old as I look, I started at Belksville at the USDA in 1961 working my way through the University of Maryland. And since becoming a high school agriculture teacher in the State of Maryland in 1967, I've been involved in agriculture safety and health programs. It's been very frustrating trying to make a difference as some of the audiences I'm going to talk about cross over into those that Wayne's already talked about today. But I'm suggesting that there's actually three different Es that involve agricultural safety and health.

Number one is the economics of it. This is what our clientele considers first and foremost. Because, number one, if they have a farm tractor

on their farm and it doesn't have a roll-over protective structure or ROBS with seatbelt, they're first going to want to know how much it costs to put one on there. They're going to also ask how much it costs, and they often do. Tom Bean and his staff and the work we do at the National Safety Council, a lot of agricultural safety and health people, they want to know how much the PPE is going to cost. So that's number one.

The second part, and I run into this a lot because the ag. industry, as broad as it is, includes the U.S. green industry, horticulture. And if you've been watching the statistics and the data from the horticulture industry, it's not good. It's the reason why OSHA has targeted the horticulture and landscape services industry for increased enforcement over the next five-year strategic plan that they put out January of '05. But what people ask me is, especially in the green industry, well, how efficient is it? How quickly can we get the training done of the workers that need to be trained? Five minutes a week. Yeah, I can probably carve out five minutes a week for training. Well, believe me, that doesn't make it

in terms of the green industry; a huge population of workers, especially workers from Mexico who can't read or write English and their having a difficult time understanding safety and health in the work place.

And the other one -- the other part of it is, is it effective. That's a distant third in most agricultural safety and health areas. How effective is the program in getting the important safety and health message across to the workers.

As far as the audiences and the clientele are concerned we find that agriculture is the young and the very old. Farmers don't necessarily retire at age 65. And if you look at the data and the statistics that we have, and that's another frustration, I'll get to that in just a minute -- that's all I have, is that the elderly individuals who are showing up, the numbers of the elderly and seniors who are showing up in the data, a lot of them are in their 80's or early 90's and are still turning tractors over and running over themselves with tractors.

What I want to finish up with is in the area of data and statistics. It's very difficult to get good, reliable data today. When I first came to

the Safety Council in 1992 we had 23 agricultural states submitting good, reliable annual statistics to us on injuries and fatalities in their ag. industry in their state. Today, it's just several. It's no more than nine. In 1992 it was 23. So it's very, very difficult for us to get good, solid statistics. Those are the finds of frustrations and challenges we see at the National Safety Council and others are seeing in the agricultural industry. Thank you very much.

I do have an abstract of what I had to say, and I'll put it down here on the front table if you'd like a copy of it.

MS. FLEMING: Good morning. My name is Mary Fleming. Grady Memorial Hospital has paid me to serve as the agricultural health nurse there since July of 1991. Many years ago Daniel Webster recognized the critical nature of agriculture as a basic industry for a society. However, in America today we see thousands who suffer disabling injuries on a daily basis; hundreds annually are killed on American farms. In addition, a myriad of diseases such as ODTS, hypersensitivity pneumonitis, asthma, skin cancer, hearing loss, mental health issues and many more affect this

hard working population. Dr. Kelly Dunham, Iowa State University, recognized the need for 8,000 nurses who understand the needs of agricultural health and safety, while we currently have about 200 in America today.

The Ag. Health and Safety Program at Grady has demonstrated the value of an ag. health nurse who understands both agriculture and health care. As a farmer, I've experienced the risk and learned to walk again after a fractured hip as a child. As a nurse, I have cared for thousands of farmers.

Using a case-based surveillance system, we start with identifying the cases, then carry out with investigation, individual interventions, community interventions, prevention programs and research projects. The ag. health model derives principles from public health, community health, occupational health, agriculture and research. The intersect of these circles captures the essence of an agriculture health model.

Our past success have occurred because the agricultural opinion leaders were actively engaged in setting direction as members of the Regional Ag. Safety and Health Advisory Council. They worked to create a comprehensive approaches to the

problems so a new culture of safety could emerge. A singular program or research focus is not going to yield the essential changes in behavior to build this new culture.

The multi-media, multi-disciplinary tetanus campaign we conducted resulted in a 51 percent increase of adults receiving tetanus vaccinations in the first 12 months of our campaign. We also designed first-aid kits for on-farm use. In a follow-up survey, 56 percent of the responders identified this was the first time they had first-aid supplies in the most dangerous work site.

In a feasibility study funded by the Great Lakes Center, our preliminary data suggests that farmers are poised for a dramatic turnaround in their risk of cardiac disease. Perhaps the substantial shifts in mechanization, specialization, and regionalization are contributing factors. But we must remember the stress levels are climbing with the globalization of the marketplace, shifting federal policy, erratic weather patterns, land pressure from developments, and the lack of opportunity for youngsters who are interested in agriculture.

Agriculture also faces risks not seen in other occupations in the same degree, such as zoonotic diseases, lyme disease, brucellosis, and the Avian influenza that we're all concerned about will probably affect our agriculture producers first. The overlap of the home site with the worksite increases the risk not only to children, but spouses, extended family, friends, and even visitors, like the one year old who nearly drowned in a manure pit on a family farm here in Ohio. Funding needs to cover direct reimbursement for nursing care, a balanced approach to support beginning researchers, technical experts, and experienced individuals. Funding also needs to deal with the reality of traumatic injury and death, which is our number one problem. There needs to be continued efforts to disseminate the North American guidelines for children's agriculture work. Our children continue to learn some good work ethics and responsibility on the family farms. We can provide more safety through appropriate training and experience for the family in decision making.

New collaborations are required as farmers continue to be businessman or businesswoman first,

while adapting to significant changes that occur on shorter and shorter time lines. Partnerships with healthcare providers, schools of medicine and nursing, financial institutions, public agencies, like the cancer society, need to be built where they do not exist in world communities, and strengthened where they do. Rural access to broadband technology is essential for maximum productivity of the farmers and our rural healthcare providers. Geometric improvements are possible with the right combination of funding and collaborative practices where our producers help drive the programming.

Rural practitioners and care givers who treat the agricultural populations need to understand that ODTS, hypersensitivity pneumonitis, viral bronchitis and occupational asthma do not require antibiotics, but the essential first step is to recognize these are agricultural exposures and make the proper diagnosis. This requires taking a complete patient history, including the list of occupations. In Ohio, 61 percent of our farmers depend on off-farm income to support their family. The interactions from multiple risks, from second occupations, combinations of chemical exposures

must also be understood. Physicians and nurses in rural communities become occupational providers by default, so they must be trained.

We need a new culture of safety where Craig, a young farmer from Delaware, Ohio, will not be afraid to be pictured wearing his personal protective equipment when he's doing his daily job. Thank you.

MR. ELY: Good morning. My name is Mike Ely. I'm the safety tech for the Ohio Bureau of Workers' Compensation Division of Safety and Hygiene. I'm a certified safety professional. I'm also going to be presenting the comments of Mr. Chris Hamrick, (ph) who could not be here today. He's our ergonomic technical advisor and certified professional ergonomist.

These folks have already talked about at-risk populations, and there are two of them that I wanted to touch on briefly. And that is the aging work force. On my way here this morning there was a doctor talking on the radio that estimated in 20 years the average life expectancy in the United States will exceed 100 years of age. People are going to continuing working much longer into their life than they currently are. And statistics are

showing us that the severity of injuries to the aging population is creeping up higher and higher. We need to take a look at this population before this problem gets out of hand completely.

Our interests, obviously, at the Bureau of Workers' Compensation is due to the cost of these injuries, but that doesn't exclude the human suffering that goes into it.

Another population that's at risk is our immigrant population. These are the people that are coming into our country both legally and illegally working at high-risk jobs particularly in agriculture and construction. And we're seeing an excessive number of injuries involving those people. Many of them can not speak English, can not read English, yet their supervisors often are not bilingual and able to communicate effectively with them, with their rights, the knowledge they need to do their job safely, and their ability to protect themselves. We need to take a very much closer look at what we're doing with that.

Some of my comments tie in with Mr. Hammer's here, so I'm going to be going with his. Back injuries account for 40 percent of our cost. Back injuries drive workers' compensation here in Ohio, and

they’re driving it across the country. Research directed toward the reduction of back injuries would be extremely useful. Many of the ergonomic interventions currently eliminate or reduce lifting, but they transform the task into one that requires pushing and pulling. However, pushing and pulling creates sheer forces in the spine. Little is known about how these forces affect back injury rates. Further more, very few guidelines exist for pushing and pulling capabilities. The only guidelines out there currently are Liberty Mutual tables, which are based on 12 subjects, and are psycho-physical, not bio-mechanical. Particularly as our workforce ages this becomes more and more of an issue. Ergonomics is how were going to be protecting a lot of these workers that are put into positions where they may not be able to physically handle the job they’re being assigned.

Research on the effectiveness of safety, ergonomic, and industrial hygiene interventions would also be very useful. Given the complexity, scope, and expense of such research, NIOSH is uniquely qualified to conduct these projects. The economic impact, or return on investment or cost

benefit analysis of safety, ergonomic, and industrial hygiene intervention and programs will allow health and safety professionals, as well as those who direct public policy, to promote and implement sound, cost-effective safety programs and policies.

Every day we talk to employers across the state who question us about the same thing that she was bringing up earlier, what's in it for me, I'm going to spend this money, where am I going to see the return on my investment. And this is a common question that we all as safety health professionals have to answer is, how do we prove a negative, how do we prove that our efforts actually prevented something from happening? And manufacturers have this question across the board, you want me to spend money, how are you intending on me to see a return on that investment? We need to have better data out there. Not only for safety and health professionals to use, but being taught in our business schools and our management schools and in all of our business associations across the country.

The Bureau of Workers' Compensation Division of Safety and Hygiene has cooperated for years with

NIOSH and we will continue to cooperate with NIOSH providing data, research, and information as much as we can to support their activities. Thank you very much.

MR. BEAN: Okay. We've gained a little time with this panel. This panel can be dismissed. Go ahead. And I think what we're going to do is move ahead on the agenda with Kermit Davis. And also we have someone that needs to speak this morning, Ray Jones. Ray, if you'll also take your seat up at the table. And then based upon that we think about two more and we'll be ready for a break. So we're not going to call anyone else at this time other than these two.

MR. DAVIS: Hi, my name is Kermit Davis. I'm from the University of Cincinnati. I'm an assistant professor there. And what I'm going to talk about is the impact of musculoskeletal disorders in the industry and two special populations. Musculoskeletal disorders are the leading cause of lost days and disability in many industries, particularly in manufacturing. Department of Labor Statistics reports more than 500,000 individuals suffer from musculoskeletal disorders each year. Manufacturing represents about 30

percent of these. Conservative estimates for musculoskeletal disorders are estimated to be around 50 billion per year, 50 billion dollars per year. And I think there are two issues that are facing these industries that will increase these prevalence rates in the near future and these costs.

First, industry workers are becoming overweight and obese. Recent studies have indicated that more than 65 percent of the United States population has excessive weight, with about 44 million being overweight at any given time. We have recently done studies that have indicated this prevalence of overweight individuals in manufacturing facilities are actually higher, approaching 80 percent. The problem with excessive weight is that it adds additional stress on the body. Individuals not only have to perform the task, you also have to move the excessive weight, and thus increasing the stress on the bones and the body and joints.

We need to research into several aspects of overweight and obesity in the industry relating to musculoskeletal disorders. First, we need to better understand how excessive weight relates to

musculoskeletal injuries. At this point we don't know clearly what that link is. Second, we need to know how to design the workplace for individuals with excessive weight, how do we compensate for these individuals in the work place. Third, we need to know how to successfully reduce the prevalence of obesity in the workplace and how that links to the other health and safety initiatives. Fourth, we need to develop intervention strategies to integrate weight loss into safety and health industries that are already occurring.

The second major issue that relates to increased musculoskeletal disorder rates in the future is the aging workforce; touched on by the previous speaker. With the shift in demographics that is expected to happen in the next decade or two, the workforce will have an increasing number of individuals that are above 55 years old. Some facilities are already seeing the average age of above 55 years old.

Since many capacities decrease with age, an older workforce may be susceptible to additional stress and ultimately musculoskeletal disorders, which leads to higher rates of lost days in this

population. Some of the capacities that are known to be impacted are muscle strength and stamina, hostro-balance (ph), cognitive processing, joint and tissue mobility to recovery from injury. All of these deficits can lead to longer, more serious, and more debilitating type of injuries with this population.

Thus, there are several needs for research and initiatives relating to the aging workforce. First, we need to understand the adaptations that occur for these older workers in the workplace. Given that they are exposed to the same type of stresses and strains as the younger workforce, we need to understand how we can adapt as older workers age and work longer.

Second, we need to understand the role of cumulative trauma and developing of debilitating disorders. We need to know how the previous exposures impact their longevity in the workplace.

Third, we need to understand the impact of physical workplace stresses on the older worker and how these age-related changes impact responses to these demands.

In conclusion, I think we need to make sure that the industrial sectors and what they concentrate

on are focused on not only musculoskeletal disorders, but specifically how these special populations, the overweight and obese individuals, as well as the older worker, need to adapt to. That concludes my remarks. Thank you.

MR. JONES: I'm Ray Jones. I'm probably the least educated in the bunch here. I'm an old retired factory worker. But I'd like to talk about my wife, and the injury that she suffered to her back, which deals with musculoskeletal problems and such. And in this case I'm calling it, falling through the cracks.

She had a soft-tissue injury to her back, which does not show up on a CT or an X-ray, and so on and so forth. The original diagnosis was a sprain to her lower lumbar, and that diagnosis stuck. It went through a legal process and lawyers flipped through all their papers and say it's a sprain. So in the following weeks she went through six to eight weeks of rehab, she did not heal from this, but she went back to work under severe restrictions. And being a nurse, she was told to take care of 30 or 40 patients, some of them weighing 200, 250 pounds, and she's only 100 pounds. And the supervisor decided that she

wasn’t performing her work as she should, so they wrote her up with intentions of dismissing her at some future date, is what we would assume.

In the next year or so she made 24 visits to the emergency room for pain medication, and this to relieve the soreness in her back so she could move. Then after this period of time then the doctors decided that she was becoming a pain addict, if she wants medication then she’s becoming addicted to the pain medication, so now they cut her off from that.

But this is a workers’ comp process where now the workers’ comp people decide that they don’t have to pay any longer. So now she is basically without assistance in paying the medical bill.

Senior health insurance doesn’t pay for accidents, and this was signed in as workers comp and it was an accident. So your health insurance no longer applies to you. And you try to pay a doctor cash to get some treatment and he doesn’t want to do anything about it because it’s workers comp, and he doesn’t want to get into the mix of the workers comp.

Well, she goes to additional doctors for diagnosis as to what her problem is to submit papers into

workers comp for additional evaluation. Well, some of the doctors don't speak English very well. So they transcribe their material onto a tape and they send it off to get transcribed again. Well, you can't tell the difference between should and shouldn't, or would and wouldn't, and could and couldn't; so some of the doctor's transcriptions come back with serious errors in them. They say she didn't walk with a cane, well, she did. And some of the evaluations that were done were done with her clothes on. They never put her in a gown. In fact, the doctor's office was a hole in the wall and was not an actual what you would call a practicing doctor. He had a cot in one of the rooms and he brought in a little bag of protractors to check her movement. In 15 minutes he's got a diagnosis that he sends off to the lawyer. And, again, this sticks.

So now we have gone nearly -- well, this was an accident in 1999. And our lawyer has asked the workers' comp rep for a settlement. Well, they just simply don't call back. And this has been three years. And her overall medical expenses now have come to the point that they exceed what she ever earned in her life. And she is now on Social

Security Disability. Well, she has other factors too, like migraines and asthma, which helped her get the Social Security Disability. But when he represents 56 percent of the people as being at weight or below weight, and younger people -- younger people need the conditioning to handle their job. And if you're under weight you're just as bad as if you're overweight. And I thank you.

MR. BEAN: Well, I think at this time we're going to take about a ten-minute break. I want to encourage you to go back and have some coffee or a little fruit, take a look at the displays, and so forth during the break and lunch. But go ahead and break.

(Whereupon, a recess was taken from 10:05 a.m. to 10:25 a.m.)

DR. CLARK: Depending upon on how the time goes he may be a part of this second panel. But others who have general comments, cross-sector comments, it would be best to make them in the morning. That's the time we have on the program for it. But they could do it other times too, but it's best in the morning. So we're ready for a speaker.

MR. HAGER: Good morning. My name is Lee and I'm

a PowerPoint addict.

DR. CLARK: Yeah, I should make a comment on this. We originally had plans of no PowerPoint, but there was one exception made. So if somebody else wants an exception, they can see Max or Tom or Sid; so only these special circumstances.

MR. HAGER: I deeply appreciate your consideration here. My name is Lee Hager. I am employed by a company called Sonomax Hearing Healthcare, Incorporated. I am also here with multiple hats today to share some time with Tim Rink to discuss the National Hearing Conservation Association. People who are focused on one of the exposures issues that is critical to us.

Just a little bit of information on NHCA, just for your information, it’s the only group that focuses on hazards of noise and the effects of noise on hearing on a cross-functional basis; engineers, audiologists, industrial hygienists, safety professionals, the whole nine yards. And Tim will give you more information about that.

Thirty-five years into federal regulation on noise in the workplace and what do we know? We know that about one in five people in the U.S. goes to work every day and noise levels pose a risk to

their hearing. We know that about -- excuse me, I added a digit, about 25 to 28,000 people in the U.S. suffered recordable hearing loss in the year 2004. We know that work-related noise-induced hearing loss is implicit in about a third of the total hearing loss cases in the State of Michigan. Noise continues to be a hazard, a hazard that may be well understood, but not well controlled. To give you a sense of the scope of this, about ten percent of the total illness cases reported by the Bureau of Labor Statistics for the year 2004 were hearing loss, about ten percent for a hazard that we know, that we understand, that we know what do to about.

The reason that we're here today is that because of that group of hearing loss cases, about 85 percent were recorded from manufacturing sector. So noise continues to be a significant issue.

A couple of reasons for this, number one, we rely on personal protective equipment nearly exclusively as defense against noise in the workplace. In many cases, the first, last, and only line of defense against noise in the workplace is the hearing protector. But hearing protectors are not easily quantified as to

performance. We don't know how well they work. Laboratory evaluations, even the best laboratory evaluations, do not give us a reliable estimate of how well people are protected from noise in the workplace. As a result, we wind up with poor-usage rates. People don't like to use hearing protectors in the workplace. They're communication barriers, they're comfort barriers. Significant barriers to use of this PPE that we know can be effective, but that is still resulting in significant hearing loss of the noise that's in the workforce.

There are a couple of areas of research where we would like to kind of direct the NORA efforts down stream here on a cross-sectional basis, if possible. Individual fit testing hearing protectors, much like we test respirators today, would be appropriate. There are things that we can do, and new technologies that are emerging that would permit us to determine how well individual pieces of protective equipment are working for individual people. We need to prove analysis of why people resist the use of hearing protectors. We need to find a way to quantify the comfort issues that are involved in the use of

hearing protectors, so that we can get effective personal protective equipment into people's ears and prevent hearing loss.

We'd also like to talk a little bit about exposure criteria. NIOSH clearly identified and communicated to OSHA in 1998 in the criteria document that the current OSHA noise exposure criteria is insufficiently protective. NIOSH drew a line that is significantly more protective than the current law that's in place. What we need to do is find a way on a research basis to move this finding, to move this research finding into practical application. Find a way for industry to accept a more protective exposure limit than is currently in the law under OSHA. Does that mean changing the OSHA regulation? I don't know. But at some point we need to convince industry of the requirements to reduce exposure limits.

Additionally, we need to look at some specific types of noise hazards that are potentially more hazardous to steady-state noise. Impact and impulse noise, things like weapons fire, things like explosions, things like repeated impacts, pile drivers, those kinds of pieces of equipment could pose a greater risk than might be

anticipated based on their average sum level over time. A great deal of study is required here. We also need to look into -- closely need to look into more effective noise controls. We know what we need to know about noise, what we don't know is how to move people to action on noise. So a more detailed dissemination, improved dissemination of controlled strategies, proven control strategies would be very useful. Move research to practice in its essence.

More research into the indirect effects of noise, the association of hypertension with noise exposure, the relatively new association of -- potential association of acoustic neuroma with noise exposure, strong correlation between workplace noise and industrial accidents. There are many, many things that we can look at that would let us fine tune our efforts in noise to be more effective.

In addition, the combined effects of noise. The combination of noise to toxic chemical exposure. New indications that may indicate that whole-body or hand/arm vibration may sensitize an individual to hearing loss. So noise is still on the agenda, and we think it's important that NIOSH and their

new NORA considerations take this into account. Thank you.

MR. RUBEL: Good afternoon, ladies and gentlemen. Thank you very much for your interest in safety. My name is Darrell Rubel, and I work for the Ohio Farm Bureau where I wear two hats. I'm Director of Safety Activities and also Youth Activities. I want to tell you a little bit about Ohio Farm Bureau. We're a grass-roots organization, which means that all of our ideas come from our members and from those folks who grow our food and fiber. So I have some ideas from those folks about the types of safety concerns that they have that I wanted to share with you today.

The first topic is farm rescue. What do you do when something goes wrong on the farm? One type of accidental death that we have seen happen on farms in Ohio is grain bin suffocation. Folks get caught in the grain, they get sucked down, they can't breath. Several different things. We would be interested in having research done on the types of things that can be done to prevent such suffocation from occurring. I know that Mary Fleming back there has been working with some folks on grain safety rescue tubes that could be

used. How can we get those types of tools into the hands of emergency responders, also for fire departments?

Another concern we have is providing additional training for those folks who are emergency responders when they get out to the farm. These folks are very smart and they know how to deal with medical situations. One thing that does occur though on a lot of farm accidents is there may be farm machinery involved.

Sometimes folks may not be aware with what the type of machinery that it may be, or with the different models, whether it's a different model of hay bailer, or combiner, or whatever, how to get people extracted quickly and safely from those types of things. Research about how we can spread the word and get information out to the emergency responders on how to get folks safely extracted would be very helpful. Also research concerning tractor maintenance versus tractor accidents. What types of maintenance do farmers need to make on their equipment and on their tractors that can help prevent accidents down the future?

The second thing that I would like to mention is road safety, or as Kentucky Farm Bureau coined it,

please be patient and kind, stay behind. We all have to share our roadways in the country, and our farmers need our roadways in order to get their farming done, especially during the busy times, planting season and harvest season. One of the challenges that we have as farmers in sharing the road is people that want to go around the tractors and the equipment when we're out there. Either that means crossing double-yellow lines, crossing on hills or blind curves. It leads to accidents. Also some people want to hurry around farmers. They may be trying to make a left-hand turn into a driveway, they're signaling, but people think that they're moving over a little bit to the right and allowing them to pass. That's not the case. They need the extra room to make that wide-hand turn. They'll try to go around that farmer and end up causing a collision. So research on those types of things could help.

Also as Wayne Dellinger mentioned this morning, safety concerns with tractors that can now exceed 25 miles an hour. How does that affect our folks and our fellow motorists with safety on the road? Another program that I would like to briefly bring up to you is featuring our most valuable

resources, and that is our youth. What extra kinds of safety training can we do and provide to keep our youngest workers safe, especially as they're entering those crucial first years in training and joining our workforce? I'm very pleased to announce that we have seen some wonderful cooperation from the folks at OSU Extension and from our friends at the Bureau of Workers' Compensation. This year we're having our very first Ohio Youth Safety Conference where we're bringing youth from around the state to be trained about farm safety and in the fast-food industry, the two industries that have the highest rates of incidents.

We're doing that, and I'm very proud and happy that we're doing that, but we need more. Are there additional ways that we can go out there and reach those young folks in those first crucial years? They are our most valuable resource. They're our next generation. And how can we present that safety is not just what you do, but it's who you are? Ladies and gentlemen thank you for your time, and I appreciate it.

DR. RINK: Good morning. My name is Dr. Tim Rink. I am CEO of HTI, Incorporated at Worthington,

Ohio, a company I founded 30 years ago to provide audiometric testing, record keeping, and recording services to clients throughout North America.

Today I am representing the National Hearing Conservation Association, the NHCA. One of our prior speakers, Lee Hager, in fact, was president of the organization just a few years ago.

On behalf of the NHCA, thank you for the opportunity to comment on the Institute of Medicine Committee's review of the NIOSH Hearing Loss Research Program. In preparing these comments, it became evident that the mission of the NHCA is very much inline with the NIOSH HLR agenda. As a testimony to how important the NIOSH HLR program is to hearing loss professionals, such as NHCA, our comments are structured around the NHCA goals. Clearly the NIOSH HLR supports our mission to reduce noise and reduce hearing loss in all sectors of society.

It is a NHCA goal to provide professional development by improving the skills, practices, and services of members of the association. NIOSH has advanced in this goal by developing a research agenda which addresses questions encountered by members during their daily hearing loss prevention

practices. Research findings are directly applicable and can be implemented into hearing loss prevention efforts. Some examples of the practical tools used by our members are the interactive noise, sound level meter, hearing loss simulators, frequently asked questions, and the hearing protection device contending.

Publication, such as the noise and hearing loss fact sheets and hearing protection device education, free of commercial endorsements, are used in training courses with employees and employers, and they provide NHCA members with tools to facilitate the prevention of hearing loss above mere OSHA compliance.

Presentations in journal publications by NIOSH investigators continue to push our understanding of what it takes to prevent noise-induced hearing loss and provide significant content in NHCA national conferences. Conferences from 2003 through 2005 also included NIOSH presentations on impulsive noise, hearing conservation in the construction industry, hearing conservation for small businesses, hearing impaired employees, evaluation of level-dependant hearing protectors, chemical exposures, and noise-induced hearing

loss, the evaluation of hearing conservation program effectiveness, and early indicators of noise-induced hearing loss. NIOSH has been strongly represented in poster presentations and a NIOSH poster earned the outstanding poster awards in both 2004 and 2005.

NIOSH employs leaders in hearing loss prevention who willingly share their knowledge and encourage professional growth and development. In 2003, Dr. John Franks was awarded the NHCA Prestigious Award, the outstanding hearing conservationist, given to an individual whose work is exemplary in the field of hearing loss prevention. In 2006, our meeting just this February of this year, we proudly honored Randy Tubbs with the Michael Beall ThreadGill Award, presented to the individual who has significantly contributed his time and effort to NHCA. In 2004, Dr. Mark Stevenson was awarded the NHCA Media Award for drawing public attention to the cause and prevention of noise-induced hearing loss.

The NHCA is greatly anticipating the formal signing to expand our alliance with OSHA to include NIOSH. The OSHA, NIOSH, NHCA alliance will be a strong foundation for us to continue our

partnerships and develop tools and services. It is an NHCA goal to provide education and encourage research in noise and hearing conservation. NIOSH best practice workshops and seminars are cutting edge research, and cutting edge research is a vital part of our continuing education as we work to prevent noise-induced hearing loss.

As highlighted above, NIOSH researchers are always an integral part of our annual conference sharing their latest information and highlighting progress in the on-going efforts that we share. The upcoming conference, noise-induced hearing loss in children at work in play, which is co-sponsored by NHCA, NIOSH, and other organizations will explore and discuss the most recent theoretical and experimental work to expand the knowledge of preventing hearing loss in children and adolescence. This innovated conference will bring together a diverse group of basic and applied researchers with expertise and hearing loss prevention.

It is a NHCA goal to stimulate the exchange of information among those involved with hearing conversation, disseminate information to professionals and others, and to provide a

resource center for those inquiring about the prevention of hearing loss due to noise and other environmental concerns.

As we try to provide information and serve as a resource center regarding prevention of hearing loss, NIOSH researchers provide much of the content that is of critical value to everyone involved in hearing conservation. The NIOSH hearing protector compendium puts up-to-date information at the fingertips of researchers, product developers, hearing conservation program managers, professionals, purchasers and users. NIOSH best practice workshops focus multi-disciplinary groups toward consensus-based science and data.

Journal publications and conference presentations not only provide an insight into the excellent work of NIOSH researchers, but stimulate exchange of information among our members and beyond. The alliance is another way we can continue to exchange information and share it with those who need it to help prevent noise-induced hearing loss. The NIOSH website is an important accessible tool which has dramatically improved the dissemination of information and ability to

put excellent knowledge into the hands of employers, employees and hearing loss prevention professionals; again, with a focus on practical hands-on tools. NIOSH research has helped us develop language appropriate literature, all of which helps us achieve our tangible outcomes. It is a NHCA goal to promote the development of improved and more effective occupational hearing conservation programs. One of NIOSH's research topics is studying the effectiveness of hearing conservation programs. This topic alone has the potential to change hearing loss prevention programs by recognizing where efforts toward hearing loss prevention should be focused, addressing practical questions, like how to recognize a noise notch, assessing which test frequency should be monitored in audiometric testing programs, defining when a decrease in hearing should trigger follow up, and how best to conduct training programs are all valuable in approving hearing loss prevention efforts. It is a NHCA goal to develop guidelines and monitor and participate in standards, regulatory and legislative activities. The NIOSH criteria document is the seminal document reflecting the

best available science, and should be viewed as the blueprint for future regulatory and legislative activity. Research gives science credibility to the recommendations. Current OSHA regulations based on the best data available when the current regulation was promulgated in the late 1970's. But on-going NIOSH research in support of the 2000 MSHA regulation and other activity allow new regulation to incorporate new understandings resulting in more protective hearing conservation programs. NIOSH research points the way to better hearing loss prevention practices.

Similarly --

DR. CLARK: Wrap it.

MR. RINK: Okay. I'm presenting the papers as they were given to me. I'll wrap by this, future research areas that the NHCA is hopefully going to see come under development include mechanisms of hair cell death, evaluating the most appropriate audiometric test frequencies for monitoring noise-induced hearing loss, evidence-based input for regulatory requirements, relationship between hearing protective devices, hearing loss and occupational injuries, effective applications of augmented hearing protective devices, testing

needs for electronic hearing protective devices, effective methods of motivating workers to wear hearing protection, best practices in hearing prevention training, noise-induced hearing loss in musicians, effects of personal-listening devices on hearing, hearing loss acceptability in children and methods for separating age and other contributing factors to hearing loss. Thank you.

MR. MUIANGA: Thank you very much. My name is Custodio Muianga, assistant research at Eduardo Mondlane University, Maputo, Mozambique. And I'm a graduate student at University of Cincinnati, Department of Environmental Health. My contribution to NORA is based on my involvement in occupational environment health in southern Africa, particularly in Mozambique.

And I would focus on three main ideas. First, the use of comprehensive and holistic approach on the practice of occupational health and safety. Second, the experience to gain from big corporations versus small companies, or small businesses. Third is, there is such training problems existing on training programs.

Because of the difficulties and high burden of other problems like healthcare associated with HIV

and other things. In developing countries you can't do occupational hygiene just because of occupational hygiene. So you need to focus on a qualitative and semi-qualitative approaches. These started from elsewhere in developing countries also have shown very good successes. I think that the United States also has small or very small business, which most of the time they're not covered and they would have very good input using this kind of approach. Now it's called risk management toolboxes, which will develop into the qualitative risk management. The bigger corporations, they also work in U.S. and outside of U.S., and they interact with small companies, which are the companies that existed in developing countries. So if NORA can explore their experience starting from here and there. There is such training programs consisting on training programs between academic institutions and research institutions also who will give a double win to NIOSH or to NORA. Because these researchers, they will be involved it, and they will see problems which they're similar. If we see the occupational health and safety problems, they are all the same, wherever you are. The only

difference is the dimension of the problem and the other factors.

So what I'm saying is NORA should also focus on the use of holistic and comprehensive approach and the practice of occupational health and safety.

Thank you.

DR. CLARK: Thank you. I'm Scott Clark, University of Cincinnati. NIOSH has a strategic plan for the year 2004-2009. It contains three goals, and my comments will address the goal three, which is to enhance global workplace safety and health for international collaborations, and follows up the previous one, and there's three parts to that one.

The third part is to build global professional capacity to address workplace hazards through training, information sharing, and research experience. I will provide some comments which hopefully will augment the previous speakers so that the NORA 2 can include some efforts in international collaboration of meeting these goals that NIOSH has.

And we will -- I'll give an example of what our university has done in this area with the country of India. I'll do this just as an example as a

possible model for other ones, there are many other ones around, but this is one that we have been involved with. And you know India is a pretty large country. It may be the largest on the earth. India and China are debating that, population-wise, and certainly the largest democracy and are very important to the U.S. in many ways.

I'll first talk about how we got involved with this. A little over ten years ago one of our alumni, Maharshi Mata (*), some of you may know, was a graduate in the early 80's. He came to one of our faculty hygiene meetings and said he was moving back to India in a few months and wanted to start the master's program there in industrial hygiene. We said well, fine, probably there are 30 other ones there, ten other ones. There are no other ones. There was no safety program, mostly shorter term, a few months. And the Factories Act recognized safety engineers, social workers actually too, occupational social workers, and physicians and nurses, but nothing in the hygiene area. So he pieced together many different groups that could help, a medical school, they have toxicology and physiology. At the university they

would have the epidemiology and bio-staff and regulatory group in the nuclear area. And also they have a NIOH, it's National Institute of Occupational Health, and their main branch is located about and hour-and-a-half from this campus.

So here just to help, we thought he would maybe get a long-term plan, first maybe have one course as an elective and then in five years admit their first student. No, he was going to begin that next year. So he stopped by with an MOU joint university in May of 1997, and these papers, you know, are kind of all good intentions, but it depends on who's behind them. But this one, I'd say, has had a lot of impact. It's been viable for ten years.

And we began by soliciting reference books and journals. For many people, probably some people in the audience were contacted. NIOSH was, ACGH, some of the military services. We have a retired department director. And Jim Ferguson, some of you know, was retiring from his practice and he gave us his core reference section. So we got those shipped over there for the first class. And we've gone -- Dr. Carol Rice and I have gone

pushing every year since that time for periods up to two months. Dr. Glenn Talaska (*) went this fall also. So a lot of interaction with it. And there's a picture out in the hall showing the students getting their first certificate. They get their degree from India, but we give them a certificate of congratulations basically. And our role is to help them with it.

So this is an example. We've done similar things in Poland. It's been a benefit to them obviously, but also our students. We've had two doctoral students went there for a period of time and did some training and helped them tremendously. And they're both now university teachers in occupational health. Another student went there for a pilot project. They got best poster award in two divisions, epidemiology, another one, and it helped her get a very prestigious EIS officer position for two years and recent publications.

It's estimated that India needs 5,000 master's-level hygienists. They probably had five when we started, and one was the person who started the program. Now we've graduated about 50 people, and they're in the process of becoming certified. But obviously one program isn't

enough, but it's a lot more than zero. And hopefully there will be some way to support these sorts of activities. There's also INDO U.S. working agreement that facilitates NIOSH and other groups getting involved with India signed by HHS director and CDC as the coordinator here. We've had one private on silica dust control that involved some NIOSH investigators. So that's been a positive thing.

Under the ERCs there is an item called the NORA research support, which is a pretty big item on the ERC budget now, the same size as an economic program. And this is one possible mechanism to get the nod that it could use the limited number of funds there for that. There are other countries; obviously, this was just an example from India. Thank you. We could have some extra time in this session, and one gentleman has already offered to speak. His name is down there.

MR. BEAN: Sure. We're going to go ahead and call our next panel. That would be Carol Rice, Chris Speelman, Susan Kotowski, James Wirth, and we'll also have a Richard Klein.

DR. CLARK: Then at the end of this, if others want to present this morning, I know at least one

person does, we'll have time before the lunch break.

MS. RICE: My name is Carol Rice. I'm on the staff at the University of Cincinnati. And I want to talk with you, now having heard the morning presentations I know that I'm know that I'm preaching to the choir about worker training. Under sections 21 of the Occupational Safety and Health Act it states that NIOSH shall provide for the establishment and supervision of programs for the education and training of employers and employees in the recognition, avoidance, and prevention of unsafe and unhealthful working conditions.

These are very specific phrases in the matter. Phrases that characterize outcome of training and education, recognition, avoidance and prevention. This comprehensive description to NIOSH extends the responsibility well beyond the creation and dissemination of information. Information understood and retained is essential to any increase in knowledge. And that is the foundation for activities that leads to recognition, avoidance, and prevention.

However, knowledge alone can not provide the vital

skills, ability, and attitudes to fully recognize the hazards or to design and implement successfully actions and programs to avoid and prevent unsafe and unhealthful conditions. In the current climate of smaller regulations and even smaller enforcement it’s increasingly incumbent on employees to take improvement of safety and health into their own hands. Increasingly, a union or active joint labor management committee that might provide effective health and safety training resources are absent, and they’ve never been there in small business. NIOSH can, and is, in fact, mandated to address this need. Certainly the crafters of section 21 intended that the change would be successful, a result that can only emerge from research and then research to practice. Currently the need is enormous. In dimensions, personally, I believe that it exceeds that of improving science literacy, which the President has addressed as a national priority. And the easy approach of providing information is fundamentally a failed system, as illustrated by the situation, at least those of us with gray hair, approach routinely of the struggle when given written information on directions to operate

a wide variety of electronic devices, and you need somebody who is about ten who can help you get through the system.

While the task is light, it has to be recognized that the benefits are also huge. Workers participating in training design through research in one sector and targeted to increase knowledge, skills, and abilities and to develop attitudes to support continued diligence and improvement have been documented to be able to make substantial changes. For example, antidotes of, we now use cameras in confined spaces. Cameras go in, people remain out. We have not had an ammonia release in our facility for many years. Because of the skills my team members had, we were able to isolate and abate the ammonia leak efficiently and effectively, and were able to keep anyone from getting hurt. That’s the true measure of effective public safety training.

We also have reports that training has changed our work behavior. Training has been extended to recognizing hazards outside of work. The true transfer of knowledge and information to recognizing the effect, the potential for hazards in the home.

Economists can and truly must, as many have said here today, put dollar figures on these examples in order to sell them to the constituency. They're essential to documenting value to both employers and insurance companies. But to the workers and the families of workers that benefit from this research to application, the training dollar is really not relevant. They're much more guided by the expectation that each day their family members will return home from work with no diminution of health. Most importantly, these benefits of avoided exposure are meaningful on an individual level, and that is clearly the foremost priority, the individual level, for occupational safety and health.

So I would suggest that NIOSH begin in developing a research agenda for effective worker health and safety training by updating and supplementing the NIOSH review by Cohen and Colligan (*), identify targets for improvement, such as design and the design of research to identify why and where current approaches have failed, to conduct research and to identify effective methods. I believe NIOSH has a unique opportunity with a redevelopment of NIOSH to put workers at the

forefront. Thank you.

MR. SPEELMAN: Good morning. I would like to thank the academy for bestowing this honor upon me today. Moving on, my name is Chris Speelman. I happen to be a certified hazardous material manager employed by Sheakley UniService, Inc. in its Cincinnati office. For those of you who aren't familiar with Skeakley, it is a provider -- basically a provider of workers' compensation services to public and private employers in the State of Ohio.

In my position as a safety control I'm expected to work with employers in all types of industries in an effort to help them reduce the injuries and illnesses experienced by their employees. Even though I do work with a range of industries, there is one constant that I typically encounter, nearly all the companies I work with are small businesses; companies that employee 100 people or less. It is these small businesses that I am here to speak with you today.

NIOSH appears to recognize the importance of small businesses to the national economy. In researching my comments for today, I performed a quick search at the NIOSH website by entering the

word small business into the search line. This search pulled up the Small Business Assistance and Outreach page, one lonely paragraph of text. This text told me that 98 percent of all businesses in the United States employ less than 100 people, and 87 percent of all those businesses employ fewer than 20 people.

In the publication identifying high-risk small business industries, I am told that more than half of the U.S. workforce is employed by these same small businesses. This document also suggests that, at least in some industries, the occupational injury and illness rates are typically much higher in small businesses, especially when compared to the larger businesses. In some cases it can be up to ten times the fatality rate in small businesses compared to the larger businesses.

More over, this same search also revealed that there are only two NIOSH publications that deal specifically with health and safety in small business establishments. For specific health and safety implementation assistance I was routed to the OSHA small business website.

Just to pose a quick question. If these small

businesses are so important to America and they typically have much higher injury and fatality rates, then why have we only two small business-specific documents on NIOSH's website? Now, granted, I realize that NIOSH is a research-based organization. Its purpose is not to help with small business compliance. However, the beneficial research conducted by NIOSH effects all businesses across all industries. Unfortunately, based on my personal experiences with small employers here in Ohio, it seems that small business, especially small manufacturers, are unable to obtain the same benefit as larger employers from these technological advances. This is due to several reasons. Perhaps most noticeably, the lack of financial resources available for health and safety technologies. Again, -- excuse me, additionally, the men and women who run these businesses are often ignorant as to what health and safety information and assistance may be available to them. I am here today to urge NORA to address these last two points.

First, NORA should examine ways to disseminate information to those people who run America's

small businesses in order to close this information gap. If these people understand what resources are available to them, then they are more likely to take the steps necessary to protect those whom they employ.

Secondly, while the advancement of worker protection is dependant upon the discovery of cutting-edge evaluation and control technologies, the price of these technologies is generally cost prohibitive for small employers. As a result, more than half of America's workers are often protected, if they're protected at all, by sub-standard technologies. I encourage NIOSH, through NORA, to conduct research towards making both new and existing technologies affordable for implementation by small business.

In closing, it's been my experience that most small business owners have the desire to do the right thing when it comes to protecting the workers. However, they are often limited by not knowing what resources are available to them, or they are unable to afford the technologies that are available. I encourage NIOSH to address these two issues in an effort to fully protect all employees, not just those fortunate enough to work

for large corporations. Thank you for your time.

MS. KOTOWSKI: Well, I am Susan Kotowski. I'm a PhD candidate in Occupational Ergonomics and Safety in the Department of Environmental Health at the University of Cincinnati. I wanted to talk about the economics of injury, which has only been briefly touched on today, although it's been acknowledged a number of times as an important subject.

Of the research that has been done, they're really now just starting to understand the impact of injuries and musculoskeletal disorders on the companies' bottom line. For example, we know that the annual cost of musculoskeletal disorders exceed those of cancer and only trail those of cardiovascular disease and acute injuries. Current estimates for the direct costs only of musculoskeletal disorders are about 50 billion dollars yearly. However, these are only real crude estimates.

To date, most of the costs have tended to focus on only the direct costs associated with the injuries. Direct costs consist of medical treatment, workers' compensation, and rehabilitation. However, estimates of indirect

costs are much more difficult, and often more times controversial to obtain, although they comprise a large portion of the cost associated with the injury. Indirect costs include costs associated with an injury, such as lost productivity, overtime, hiring and training of assistant workers, absenteeism, presenteeism, accident investigation, any product damage, and possibly increased insurance premiums. It is estimated that for every dollar of direct cost there are typically two to five dollars in indirect costs. However, so little is known about indirect costs and this might be a drastic underestimation of these costs.

Recent trends have indicated that there’s a yearly significant increase in the direct and indirect costs associated with injuries, and this cost is growing every year. For example, in 1985 the total cost associated with injuries was 158 billion dollars. In 1988 the cost increased to 180 billion dollars, or a 14 percent increase. In 2002 the cost increased to 240 billion, or a 33 percent increase.

Another wellness issue to consider, although not an injury, is obesity. Obese and overweight

individuals now comprise 65 percent of the population, or nearly 45 million people. Obesity attributed medical expenditures in the U.S. were estimated to be 75 million dollars in 2003, over half of the cost financed by Medicare or Medicaid. Others have estimated these costs associated with excessive weight to be between two and eight percent of total health care expenditures in the U.S.

We are really just beginning to scratch the surface of understanding the costs of injuries, musculoskeletal disorders, and obesity. A major research void exists in the thorough documentation of costs associated, or including both direct and indirect cost for the duration of the injury. There’s also a need to document the interaction between one injury and a secondary injury and the costs associated with the co-morbidity. It’s also crucial to extinguish between what fraction of the cost is associated with the initial injury and a subsequent injury.

There’s also a need to document how other health issues, such as obesity, affect the risk of developing an injury or musculoskeletal disorder. This is very much lacking, although very critical.

In addition, there's a need to document the costs associated with other factors, such as impact of quality of life, impact on family life, the impact of pain, as well as functional abilities.

Finally, more research is also needed in the area of cost reduction and the benefits of intervention to reduce injuries. Understanding the impact of wellness programs, weight-loss programs, ergonomic interventions, and other safety and health-related programs on the cost of injuries and the companies' bottom line is critical. Thank you.

MR. WIRTH: Morning. My name is Jim Wirth, and I'm the Safety Manger for GatesMcDonald in Columbus, Ohio. Although we're competitive of Chris, we're going to talk on some similar ideas this morning. I'm here to speak on behalf of NFIB Ohio, National Federation of Independent Business. NFIB Ohio is the state's largest small business advocacy organization with 600,000 members nationally, 36,000 members in Ohio, dedicated exclusively to representing the interests of independent business owners.

Our membership spans the spectrum of the business community ranging from sole proprietorships to substantial independently held enterprises. The

typical NFIB member employs fewer than ten workers and grosses less than $450,000 in annual sales. In aggregate, our organization's members employ near 440,000 Ohio workers. I and my team work closely with NFIB members across the state to assist them in providing a safe and productive work place. NFIB members are owners of businesses in all the sectors that you saw shown on the screen this morning. If you look in the Yellow Pages, they do it.

We're currently involved in a study with NIOSH encompassing nearly 300 NFIB Ohio members to develop more effective safety training materials for small business. It's been quite a journey. I looked at some of my earlier e-mails and it's been about five years. But you know how it goes with getting the funding and getting all the people together. But it's been a real pleasure. These participants received these materials consisting of sample safety training modules, and are using them to keep their employees safe.

We went to a whole process of working with the NIOSH folks, people coming out and attending our seminars and being focused with us. NIOSH will collect information on what worked, what didn't,

and what business owners would like to see. Additionally, the Ohio Bureau of Workers' Compensation Division of Safety and Hygiene is a partner in this study as well. And they'll be able to take the information collected and developed by NIOSH in this study and create training materials and classes to educate all of our employers. We're also currently participating in a national alliance with OSHA, and we have a state alliance as well.

I'm here today to comment on the opportunity of continuing this research, albeit on a slightly different tact. Many small independent business owners involved in the day-to-day operations of the business find it difficult to fully understand safety requirements and how they pertain to their operations.

We believe that by breaking down the requirements and highlighting the points of the program of process, along with examples of good practices, they will then be able to understand how it relates to what they do and why they must implement these safe-work practices in order to provide a safe workplace.

Since we are involved in the current study to find

the best ways to educate employees, we feel as equally important to develop the method or methods of providing small business owners the safety or other regulatory information in a form they can easily understand and that is directly related to the rules and safe-work practices that they're required to implement.

Too often I meet employers who truly want to provide a safe workplace, but they're not able to understand the highly technical nature of the safety regulations. We feel it would be very helpful to provide some type of best practice, basic inclination, or even a sample program of process for the small business owner so they are able to decipher the rule or regulation, understand how it applies to them, and how to train their employees. For instance, this best practice or sample program would illustrate how a program would be implemented and suggestions on how to train employees. The hazard communication standard, for example. Material safety data sheets best practices give examples of how they are kept and shared. Labeling seems simple, but what kind of label should be used and what must it say? Training must be done so employees

understand the hazards, but form should it take and what should it include?

As a safety professional, I'm keenly aware that some employers simply take safety programs and processes, add their own names, and call it their program. I do not feel that that should keep us from trying to develop more user-friendly processes to meet safety regulations and standards for those employers who the majority, I believe, truly want to implement these rules in an effective manner.

Finally, one last issue of concern is NIOSH's recommendation that OSHA take action to deal with silica exposure in the workplace, despite the continued doubt or trend silica-related deaths nationwide. If it weren't enough, then scientific studies are showing that the risks of harm from silica exposure are much less than originally thought. Three separate panels of the SBA have concluded that the recommended policy actions would place crippling demands on America's smallest businesses. NFIB recommends that NIOSH reconsider it's prioritization to abatement of crystalline silica exposure in the workplace.

NFIB appreciates this opportunity to address this

panel, and remains committed to continual partnership and participation to promote safe work places. We also really appreciate the good work that NIOSH does. And it's been an enjoyable five years, and look forward to more. Thank you.

MR. KLEIN: Hi, I'm Ronald Klein. I'm the Medical Director of (inaudible) Workers Care, which provides occupational medical services throughout the Dayton area at various sites. I do not have a script to talk. Obviously, I couldn't keep my mouth shut.

I've heard lots of good material here. We've skipped around the ergonomics and the low-back issue. And I'm surprised at how many -- I thought I would see many more of my medical providers here who are working in day-to-day providing ongoing frontline services. I'm a little dismayed that we're not here, and I'm going to apologize for it, because we should be.

One of my concerns is, obviously, we've touched on some of the low-back issues that obviously comprises probably the single largest percentage of patients that we see, and it is a very difficult group to deal with. There is currently not really good research of how we are dealing

with these low back and their ongoing treatment. One of the things that we have instituted is what we call a back decompression device. And, unfortunately, it is not reimbursed. There is no particular code for it.

While retrospective studies would indicate that you have 85 to 86 percent success rate in reducing herniated or ruptured disks successfully without surgery, there is no prospective studies being done. And I think that we would like to see NIOSH and OSHA get involved in funding some of that research to try and see if we can't do a better job at treating low-back issues.

The only other thing that I wanted to bring up is carpal tunnel syndrome. That has been an ongoing problem here in the United States. It is -- the United States and Canada are the only two holdout countries still recognizing carpal tunnel as being work related. There is no evidence that this is a work-related problem, statistically, at any population that you look at. And I wish we'd come out with a statement of paper that finally calls it what it is, so we can clarify that to our providers that are having to deal with it on a daily basis, as this continues to be a very muddle

ground. That's all I have to say.

DR. CLARK: We have time for some additional speakers, and Farhang Akbar is going to make some additional comments. If anybody else would like to proceed up there, you know the routine now; unless you're already scheduled for the afternoon.

MR. AKBAR: Good morning. My name is Farhang Akbar with the Medical University of Ohio. And, again, I couldn't keep my mouth shut. I didn't have anything for presentation, but I thought I would make a couple of comments from my own personal experience.

In fact, we have employers, we have workers, and then we have other bodies, like government and industrial hygienists and all of that. What we are trying all to do is eventually control the exposure. Unfortunately, our recognition, our applications of hazards, or monitoring, they are going very well. Everything is electronics. We can cut various spawn amounts of pollutions and so on. But, unfortunately, when it comes to control we are so weak. I'm talking about the (inaudible) expense, I'm not talking about (inaudible).

I'm a researcher. I spend my time hands-on. I tell my students that I collect dirt and notes.

This is what we do. One of the things that is very, very popular now a days is using in lieu of very good control methods is personal protective devices. And I have very, very long experience personally with PPEs. And we have published two papers. And in both of them you will be very, very surprised that people don't like PPE. And either they don't understand that why, or we do ignore it.

In my experience that conducted a research in about five, 600 people, 50-something people, they didn't like the respirator. Still, we insist that people use respirators. The same with hearing protectors. They don't like it. They don't like the collar, they don't like the size, they don't like how they're made, they don't like the way they're designed on the face. They're all issues. And we do not have any research. As I said, the only research we have, very, very short, and in a short time, was a couple of things that we published.

And I'm going to ask we put in our agenda a more elaborate, a more intensive way of looking at personal protective devices. Not walk there as an industrial hygienists or health and safety

professional and throw a hearing protector or something in front of the worker and say, go and use it. Why I'm saying that is because I see them all over the factories, shops. They're not using them, they're not cleaning them, they're not maintaining them well. There is no way to check in and out. So that's a major problem. That's number one.

Number two comments I wanted to make, again, comes from my personal experience. Last year I tried numerous employers and unions to let me do a simple pilot research in this state. I couldn't. They didn't let me to do that. And I'm sharing that until we do -- if you're not providing the research, and Leggs is one of the employers for us, if you're not going to cooperate with us and let us do our work, how are we going to do the research?

So my second suggestion is, we put in NORA how we approach employers. It's not a matter of educating them to do health and safety, like educate them and let us do research. And then don't have any good communication on that either. I probably share this through frustration, as the first presenter said here with you, and ask for

help. And thank you very much for the opportunity to let me speak.

MR. GENARDY: I want to actually comment on what Chris mentioned, the small business. Now, we have been kidded about the small businesses from our industry collaborators. Now, my question -- I had a particular question which amplified on the previous speaker, and that's targeting NIOSH and targeting our friends from industry and partnerships and so on.

Now, when we go and approach a small business to conduct research, it would help them out -- there are very few companies that are very proactive and come forward that speak with us. However, based on our limited experience, the grand majority are kind of reactive. So my question to people like this and others, what would you do to overcome those obstacles, particularly one who approves them with research. I'm not going to call it research we're going to call it smart solutions. Because whenever you talk to people they say, oh, these people are in high ivory towers. Well, we are engineers. We have learned to do things on the shop floor. So how do we overcome the obstacles whenever you go and talk to those small

manufactures, which is like 80 percent of the U.S. manufacturing, or maybe even more into the future, especially when we get into nanomanufacturing. The major player will not be the P and G, GE, it's going to be predominately this one manufacturer. So that's what we'd like to know. We'd like to know how can we help these people, how to break the ice and get to them. Thank you.

MR. HOCHSTRASSER: My name is John Hochstrasser. I'm a graduate at the University of Cincinnati, PhD, and I also graduated from their Engineering Department with a degree in -- Master's degree in Civil and Environmental Engineering. I've been practicing in industrial hygiene for well over 30 years now. And in 1993 I ran into a situation where I had two employees in the workplace that had obstructive airway -- lower airway disease, obstructive lower airway disease. Over four-and-a-half years of pursuing it, we pretty well discovered what we thought was the cause. And, of course, you can always get rid of an occupational disease if you engineer it out of your workplace, but you seldom find out what the causative agent it or the interactions are. It was gone.

And around the year 2000, 2001 popcorn workers came up with the disease. It's one of those things that just doesn't go away. One of the problems we found, we thought that there was an implication of viruses or bacteria and pre-infection of employees from those diseases. And as infectious diseases spread globally, I think what we're going to see, and we may already be seeing it, but not finding it for some reasons I'll mention, is diseases that predispose employees from a viral disease or influenza and go into the workplace and the levels to which the ACGHTLVs, or the OSHA PELs state are insufficient to protect those workers that are predisposed. Now, one of the problems that we have today is there is no one in the workplace to recognize the disease. Unless you're doing a respirator program with a very good pulmonary function program associated with it you may not find the disease. And you won't find it unless you're monitoring by the year, every year doing pulmonary function tests.

So I believe as we go through these research possibilities, one of the things you need to look for and keep an open mind to is the possibility of

natural occurring diseases. If you go to the CDC website you'll find a publication called -- let's see -- infectious diseases, emerging infectious diseases. The publication started in the late 1980's as a quarterly publication, and now it's every month, 200 pages long every month. And I think as globally we expand in the workplace we're going to see these diseases start to spread, and it's bound to have an effect in the workplace. And one of the reasons we don't find as much today is because we don't have occupational physicians and occupational nurses actually working in the workplace to find these diseases and head them off. So that's my comments.

DR. CLARK: Are there any more people who want to make a few comments in the morning session? If not, Carol Rice -- Judy? Great.

DR. JARRELL: My name is Dr. Judy Jarrell, and I'm at the University of Cincinnati, Director of Continuing Medical Education and Director of Continuing Education in our Education and Research Center for NIOSH. I just wanted to come and say a couple of comments, and reiterate what Dr. Carol Rice was speaking about earlier.

As an educator, as a trainer, I run into

frustration a lot. I do a lot safety training, a lot of health and safety hygiene training. And the thing that's come up in my research and the thing that comes up repeatedly in our training is that, okay, we understand. So there's not a problem with getting our workers to master the material that we're teaching them. And, yes, we feel it's beneficial. So they're maybe not widely motivated, but they're motivated to change behaviors on the job. The problem comes in when they get back to the job. And, as you know, training is of little utility unless it changes behavior on the job, and safety.

So my concern is that we get some more funding, some more support for doing the after-the-training type of research that we need to do into what can we do best on the job to be sure that behaviors are changed and that there is a culture of safety that is built within our companies, especially when the bottom line means so much to them and they see safety as detrimental to them. Thank you.

DR. CLARK: Now Carol Rice will have some summary comments, and then Sid will close.

MS. RICE: Thanks. I know everyone is getting

hungry and ready for a break, but I think a couple of things that came through this morning might be worth reiterating. One is -- you know, it was really a focus by several people on looking at some special populations at risk within a sector. It may turn out in doing that evaluation within a sector that those are cross-sector issues as well. But aging, language, religion, and aging at both ends of the spectrum, the young and the older worker were brought up by several speakers. Several people alluded to the need for good economic arguments and illustrations.

I think that's something that perhaps NIOSH can help us with in terms of getting the economists more into the occupational safety and health field. We all feel in our gut that what we do is cost effective and will help with the bottom line, and we certainly all hope that. There are a number of industries that do maintain these kinds of data in-house, but they don't publish them, so those kinds of case studies and examples aren't available to industries at large. So that kind of information will help us all sell changes to both small and large companies.

There is a continuing interest in musculoskeletal

diseases, in injuries and in diseases, large companies, small companies. I think most of the studies now point very nicely to the multi-factorial nature of those kinds of injuries, and that needs to be brought into the research agenda. There was -- and that's another place where aging and other issues come up.

We heard a very poignant case study from a gentleman whose wife was injured on the job. It does, you know, indicate that the physicians within, you know -- all of the treating physicians need occupational safety and health information, that there may be problems in transcription errors. We deal with this, you know, as everything becomes more electronic, it's not isolated to the medical profession at all, but that was the illustration that we saw. We can certainly think about the follow-up that's needed and the ways that we can help the compensation system really think about the broad scope of occupational safety and health. It's always frustrating to any of us who try, you know, who hear examples where things don't fit neatly into the coding system boxes that workers' compensation and the insurance industry in general needs to

deal with.

The continuing use of personal protective equipment for a number of hazards in the workplace is important. We know that economic feasibility is always -- in terms of OSHA as well as industry considered, and often the economics of long-term use of personal protective equipment isn't really factored in the first-time cost. And the effectiveness of that kind of approach was brought up, and the need to document or find alternatives to improve the effectiveness of personal protective equipment was mentioned by a number of people.

International issues came up in, perhaps, you know, both in terms of training as well as implementation of safety and health programs. Perhaps we can learn a good bit from what's going on in other countries, especially in terms of small business and getting some non-quantitative approaches to replace health and safety as well as the holistic approach, which really is the key in multi-cultural occupational injuries and illnesses.

Training came up repeatedly, and the need for effective training, and the need for thinking

outside the box in terms of training, too. That specialized training is needed in farm communities, for example, in terms of making sure that the emergency responders need to know how to, and having equipment to extricate someone from a piece of farm machinery. They may have a lot of training in getting people out of cars, but that may or may not be directly applicable to the farm injury scenario.

NIOSH got high marks for a number of things they're doing. In terms of documents and programs and research that is ongoing. And, hopefully, I know this is a very short summary, but, hopefully, as the tapes are reviewed, information in this morning will be used in NIOSH expanding their research agenda. Are there things that people particularly want to add that I missed?

UNIDENTIFIED SPEAKER: I guess I was disappointed not to hear any content or anything related to the psychological issues in the workplace, of the mental health of the workers, as well as the psycho-social environments in the workplace and how that affects the bottom line.

DR. SODERHOLM: Can you repeat that?

MS. RICE: Yeah. The point is that psycho-social

and social factors have a big impact on workplace health and safety and that was not brought up in summary. And it was touched on by a couple speakers, so I apologize for that. But it really, again, the multi-factorial nature of workplace health and safety is going to require some interesting research approaches in the future for NIOSH to grapple with, as well as training approaches. Yes?

UNIDENTIFIED SPEAKER: Emphasis on small manufacturers?

MS. RICE: Small manufacturing has been alluded to the whole morning, you know, it needs to be brought up. And hopefully NIOSH will be able to find some ways to better address it. Thank you.

DR. SODERHOLM: I'll just take a second to say that I hope people will be able to stay for the afternoon session. And if can't, thank you for coming. And if you can, have a safe and good lunch. There is a cafeteria down the hall, and as big of a variety of fast food and other restaurants near a freeway exit as you'll find anywhere. We have a few extra minutes. You might have a chance to go off campus and come back on. And be safe and see you later.

DR. CLARK: What time? What time do you want?

DR. SODERHOLM: 1:15.

(Whereupon, a recess was taken from 11:50 a.m. until 1:00 p.m.)

INTRODUCTION TO THE SECTOR APPROACH
MARY LYNN WOEBKENBERG, NIOSH

DR. WOEBKENBERG: Let's take our seats, please, and we'll get our afternoon session under way. Find a seat and relax, but don't relax too much because I know you're all going to be in a food coma. My name is Mary Lynn Woebkenberg. I'm the Manager for the Manufacturing Sector for NIOSH. And I'd like to take a few minutes this afternoon to talk about the sector. I'm not an enamored of being tethered to the podium here, but I'll try as best I can to not stray too much since we have a recorder down here.

But we are going to talk about NORA. We are going to talk about the Managing Sector. And these are some of the points that I hope to cover, I won't belabor many of them that you've already heard about, but I do want to touch base on some of them in the event that some of you weren't here for the morning session. So we're going to do just a little bit on NORA, a little bit on the second decade, the research councils, we'll discuss your

potential participation, and then we'll made some remarks about the manufacturing sector in general. Sid showed you this slide this morning, but it bears repeating. NORA has always been, and is now, it's about partnership. It's about people bringing to the table their skills, their knowledge, the data, the information that they have, their research capabilities, and, of course, their dollars. It's important to bring all of those things to the table. And I know that both Sid and Max this morning talked about collaboration. And one point that I think that really brings out the importance of folks bringing research dollars to the table. Do you know in your federal budget in the United States we don't have one dollar a year for every man and woman who works in the United States? So that means we can't spend in an entire year one dollar on you, on your worker, on your sister, on your brother, on your folks, on your kids, whoever happens to hold a job, we don't a dollar to spend on you for a year. So, obviously, we need to bring all of our resources to the research table. And, of course, because NORA is all about partnership, we are seeking stakeholder input, we are looking to

identify research priorities, and to work together to leverage our resources.

In the second decade we're going to move research to practice in the workplaces through partnerships. And these partnerships now will be organized by the industry sector. In NORA 1 we had, NORA was organized around disease outcomes, and now we are moving to sectors for the reasons that Sid gave you this morning.

And, again, NIOSH is very, very aware that industry stakeholders are key to solving the occupational safety and health problems. Not only solving them, but in many cases, identifying them. The people in industry who actually do the jobs, they have a lot of information on how to make things better.

Again, Sid spoke to you this morning about the industry sector-based approach. And the research councils that we've put together that will be composed of NIOSH staff, plus external stakeholders and partners, our job will be to identify the low-hanging fruit, will be to identify the most important occupational safety and health problem within a given sector. And so these are the things that we will be relying upon;

the stakeholders and the partners, the folks who work with us to help us do. And we will be responsible for developing research strategies for each of the eight industry sector groupings and some research needs. And you have seen this this morning, they cross multi-sector, injuries, musculoskeletal disorders, special population, work organization, stress, which somebody brought up this morning. So there are a number of areas that the Institute recognizes are cross sectors, and these will not be forgotten as we move forward and develop these research strategies.

Again, on the NORA sector research councils we are looking for diverse membership, and these are some of the types of individuals that we are looking to bring to the table to help us solve the most important occupational safety and health problems in a given research sector. Hopefully, you fall under one of these categories because in the next couple of months most of the sectors will be dedicating their work to actually establishing the research councils and we'll be collecting CVs, we'll be collecting information about those, and sending out invitations to people to participate and partner on the research councils.

These are some of the activities that will take place once the research councils are established, and they're pretty straight forward in terms of establishing any kind of a research strategy analysis. We'll set up intermediate goals and outcome measures. And one step that we hope to take that's a little further, in the past where we have established a strategic plan, where we have established research strategies, this time we want to publish and make public the research strategies that we developed fairly early on, so that we can actually set about the business of partnering to actually accomplish some of the goals and to making some strides to taking care of the problems identified in research strategies.

The NIOSH role, we need to promote the process, we need to keep it organized, we need to ride herd on it, obviously, we need to support all of the needs of these sector research councils, bring the right people to the table, and do all of those things to help -- you know, it's our job to get the research councils what they need to do their job. And so that's the sort of the over-arching role that NIOSH will play.

How can you participate? Provide input. Not just

today, but once we have research councils established, volunteer for a sector research council. There are eight of them, and I'm sure one of them will peak your curiosity or fit in with your area of expertise. Encourage your organization to be involved because, obviously, if you serve on a research council your organization is going to have to give you the time to do this and support you in this effort. So it is good to encourage your organization to be involved as well.

In the manufacturing sector, I want to spend now a few minutes talking about just what is in the manufacturing sector and what are of the major illnesses and injuries that are problematic in this particular sector. Well, the manufacturing sector is one of the eight industry groupings, and Sid showed you a slide this morning of all eight. And we encompass the NAICS codes from numbers 31 through 33. And I'm sure that everybody immediately has in the front of their minds what those NAICS codes refer to.

So here's NAICS code 31; food manufacturing, beverages, textile mills, textiles product mills, apparel manufacturing, leather and applied product

manufacturing. Within code 31 there are an estimated 4.1 million workers at least there were. Most of the statistics that I'm showing this afternoon are from the Bureau of Labor Statistics, and most of them are from 2005. They have data mostly up through June of 2005. So, as you know, there are some estimate to these numbers.

The NAICS code 32; wood, paper, petroleum, chemical manufacturing. And you can see the industries that are involved here; an estimated four million workers in 2005. In NAICS code 33, you can see what kind we're doing; metal, machinery, electrical equipment, transportation equipment manufacturing, furniture, and then miscellaneous manufacturing; 7.9 million workers in 2005.

This slide, which shows the distribution of industry injuries, again, this is from 2005. Manufacturing was responsible for 21 percent of the injuries. Manufacturing is only comprised of 14 percent of the workers in the United States. So in a bad sense the manufacturers are over-achievers; exactly where you don't want them to be. And this is one of the things that the research council has to address.

Workplace injuries and illness per 100 -- those are FTEs, or full-time equivalents, but it's a full-time worker. Now, one good thing here that you'll see is that from 2003 to 2004 it actually decreased in the manufacturing sector. So in 2004 there were only 6.6 workplace illnesses and injuries per 100 full-time workers in the manufacturing sector.

The leading causes of work-related deaths in the manufacturing sector, the first was contact with objects and equipment, the next is transportation industries, the next is fires and explosions, harmful substances, this is obviously my short-hand way of talking about exposure to harmful substances and also harmful environmental substances, assaults and violence, and then falls. And you can see that they run from a high of about 125 down to about 35.

The leading causes of non-fatal injuries and illnesses in 2004 for manufacturing, being struck by an object, lifting, and how many times this morning did we hear discussions about musculoskeletal disorders, being caught in or compressed by an object, bodily reaction. Now, that's kind of interesting because that runs the

gambit from everything from if somebody walks up behind you and surprises you and you're startled, down to just normal bodily reaction, to working on the job. Falls on the same level and repetitive motion industries. And, again, -- oh, I'm sorry. Repetitive motion injuries. And, again, this harkens back to the musculoskeletal disorders that we have heard discussed this morning.

So what are we doing? In most of these areas, and as we hope to continue working, NIOSH is doing a lot of research and we're making a large emphasis, we're putting a large emphasis on research to practice, actually getting the research in place in the workplace. There's work being done by our internal scientists at NIOSH. We also have an office of extramural programs where we fund grants. External scientists and academic researchers, their support for a wide variety of projects cutting across manufacturing occupational safety and health issues.

And one thing that I should point out, I think it was Sid this morning who talked about in really broad sectors, such as manufacturing is, we're also looking at significant sub-sectors. And one of the sub-sectors that by definition has been

assigned to manufacturing is nanotechnology. And so that's one of the areas that's almost taken on a life of itself, and the Institute will continue to support and be active in some of those sub-sector areas like nanotechnology.

We're working with other government agencies. And, again, as I mentioned, there's a new emphasis on research to practice. If you're looking for information or you would like to provide input, one of the things that you may do is to go online and provide input to the docket. If you made comments this morning, you are not limited to that by any means, and we invite you -- Sid, do you know how much longer the docket will be open? Surely it will be for a couple of months probably.

DR. SODERHOLM: At least. Yes.

DR. WOEBKENBERG: So please feel free to go online. You can sign up to receive the NIOSH eNews at the first website given there. And that is a monthly update of all the information, it's all of the good work that NIOSH is doing, you can find there.

You can also input or volunteer through the NORA web page. Many of you may have visited that page when you signed up for this town hall meeting.

Once again, I put down Sid's -- you can reach Sid at NORA Coordinator. And you are invited to attend the NORA symposium, which will be held in Washington, D.C.

I put also up here several useful resources. Now, these pertain -- not all of them -- but most of them pertain maybe a little bit more to the manufacturing sector, everything from the NIOSH home page. We have a NIOSH nanotechnology topic page, which is full of information, and it also has kind of a unique concept to it in that we are looking for folks that work in the nanotechnology arena. And we have this set up so we can dialog with folks and so everyone can share their experiences, their best practices. And it's a fast, convenient, effective way for us to not only to gather information, but to get information out to other folks. So, please, if that is your area, look at that.

We had some other topic pages, but I just pulled out some examples that might be of interest. Respirator usage. And, again, we heard some discussion this morning about personal protective equipment. Semi-conductor manufacturing, emergency preparedness, noise, and we heard a

discussion this morning about hearing loss and ergonomics and, again, MSDs. And, actually, I put this together before this morning. I didn't pull these out after I heard the topics.

If you have questions, feel free to call me. That's my telephone number or else you can try to type out my name at cdc.gov. Another easy to do it is just mlw, which are my initials, the numeral 2, at cdc.gov, if you don't want to try to remember how to spell Woebkenberg. I often joke, my mother's maiden name was Fulsenlogan (*). I've always been grateful that when I was a child it wasn't fashionable to hyphenate your child's sir name. I was 12 before I could spell Woebkenberg. I'd still be trying on Fulsenlogan-Woebkenberg. So feel free to contact me if you would like more information about this. We'd love to hear from you.

And I think with that I think we'll go to the sector presenters this afternoon. And I think we're going to follow the format similar to that which they followed this morning. We're going to call up three or four folks and let them come to the table here and then take their turns and go through making their presentations. We have, once

again, the photographer who will take advantage of these wonderful Kodak moments. And we also have a timer down here who if you talk too long I think they come up and they hit your knees with a microphone or something.

So with that, the one other thing that I want to do is introduce Mike Gressel. Mike is the Coordinator for the manufacturing sector, which means that I'm the manager, but Mike is the one that really does all the work and really has all the knowledge. And he will be guiding the manufacturing sector for the Institute as well. He will also be presenting the wrap-up this afternoon, and so he's going to feverishly sit here and take notes while you speak, and then he'll make the wrap-up presentation at the end. So with that, Mike, to save same time, why don't you call the first four folks? And I'll come down the not-OSHA-approved stairs.

DR. GRESSEL: Okay, the first four speakers will be Jay Jones, Tim McDaniel, Diane Mundt, and Gordon Reeve.

MR. JONES: I'm Jay Jones, and contrary to what it says on your agenda, I'm not representing the University of Missouri-Rolla. I'm not sure how

that got on there; maybe because I'm an alumni at that university and have an alumni e-mail address. I think they must have pulled it off the e-mail address. Anyway, I'm a self-employed industrial hygiene consultant, also an adjunct faculty member at the University of Cincinnati, Industrial Hygiene. The comments I've got to make really go across -- really relate to some of the stuff this morning about small business.

First, I guess I will offer a little bit of defense of some of the NIOSH work. There is quite a bit of work that NIOSH has done in small business. A lot of it you have to find under individual industries. And so the main point of the comment this morning that they weren't finding stuff I think is true. It is there though, a lot of stuff, but it's not very easily identified. And that kind of relates to my concern about this. I think small business is an important topic for almost all of these sectors, certainly it is in manufacturing and across the board. But I'm afraid that if there isn't specifically mentioned in the charter for these groups that small business stuff needs to be the emphasis since 40 percent of the workers are smaller businesses.

But it ends up and gets forgotten, especially down the road as we progress on with these.

Also, I think the other thing, if it isn't specifically spelled out that small business issues need to be taken care of, that as universities begin to -- or other people apply for research money, unless something's in there that talks about small business, it becomes much more difficult for them to put in projects that relate to small business. And I think, concerned with that, one of the big areas that needs to be looked at is the delivery; how do you get information to small businesses. I think they're -- also, in each of these sectors we need to be cognizant as we're developing strategies, that the same things that work in the big companies may not work in the small companies.

So those are two issues that I think are important to keep in mind to cross these, but also I think there really needs to be something spelled out fairly specifically about small business in there. Thank you.

MR. MCDANIEL: I'm Tim McDaniel, and I'm the Environmental and Safety Manager at the International Truck and Engine over in

Springfield, Ohio; manufacturer of medium-duty trucks. And a few of areas that we've been seeing our area of interest that we think are worthy of considering for research might include the relationship between illness injuries and the fitness of employees, as our company's been getting more and more involved into wellness programs and in fitness programs.

We think we're seeing some -- maybe some benefit there, but would like to see some research to confirm that. Right now at our location we have about 280 people going through a fitness program that includes diet and exercise and things like that. We're just into it right now about six weeks into the program. But longer term we think things like this should have an impact, particularly in the area of ergonomic-type issues out in the plant, but would like to see some research in that area.

So we're wondering -- or questions that we would have are, are better fit employees less likely to have straining injuries or carpal tunnel or other repetitive motion-type injuries, associated things. What effect does pre-conditioning have an preventing injuries and such?

The second area of interest, and one that our company did a little bit of work in a couple of years ago was in the area of medications. And they worked a little bit with one of the pharmaceutical companies and looked allergies, and seeing if there was -- based on an employee survey, to see if there was any relationship between employees that were taking allergy medications and whether they were reporting injuries, and there seemed to be a little bit of a correlation there. The people who were taking allergy medications tended to have a higher incidence of reporting injuries according to this survey. So I think that could be an area of interest. And not necessarily just limiting it to allergy medications, but it could be other over-the-counter medications or prescription medications that are commonly out there. But are those things that are causing employees to come to work that shouldn't be at work, or are they things that are some how distracting employees if it's injuries, or if it's -- again, more ergonomic-type things. Are they things that are causing them to be more prone to building up stress in their joints or their muscles or just -- I think there

could be a variety of things you could look at there for questions.

Best practices in returning injured employees to work, or particularly those with repetitive motions and strains. In our union environment, the employee -- the way the process works is you try to get the employee back to their particular jobs. The same one that they were complaining of having problems with is the job that they're going to move right back into. So what are some best practices to try and deal with that sort of environment?

And the last one is, just as we see more and more business trying to move away from the traditional five days a week, eight-hour workdays, what are some of the implications of that? Our company has looked -- has a couple of operations in other states that work four days a week, ten hours a day. I know other companies have other modifications of the 40-hour work schedule, but just trying to understand how that -- again, ergonomics being one of the areas, how it might impact that.

Also, the similar facts on respiratory issues and just tiredness towards the end of the day. Does

there tend to be more injuries if you extend the days and things like that? So that's all I have. Thank you.

DR. MUNDT: Good afternoon. My name is Dr. Diane Mundt. I'm an epidemiologist based in Amherst, Massachusetts office by ENVIRON International. We're an environmental and health consultancy. Now, I'm not representing a particular company today, but I'm here to speak in support of a research agenda for occupational health and safety in nanotechnology, that some have called the next industrial revolution.

We've recently worked with some companies that are looking for guidance and best practices in nanotechnology. And we looked to NIOSH, which has provided an important lead in providing access to the limited research findings that are available, as Mary mentioned, through their website, as well as through conferences and meetings in occupational health and safety. They've also been active in supporting research in occupational health and safety, but more is needed.

The population at risk is currently somewhat different from what you would consider a traditional occupational work environment. That

is, it's primarily consisting of those in university labs, start-ups, RNDs and small RND sectors in small and large businesses. This will change over time as research and development moves from the development stages to the large-scale manufacturing. It includes those who are using nanomaterials and what they're doing, as well as those who are actually manufacturing nanomaterials.

Risks and diseases associated with nanotechnology are currently unknown, and efforts are needed to develop surveillance tools, as well as to define what is needed for monitoring. Nanomaterials are highly diverse, and exposures are not low characterized. Additional research is needed in how and what to monitor, as well as how to interpret the findings of that monitoring, including whether, in fact, the monitoring results indicate that some risk is apparent for the health of those working in the industry.

Associated with understanding the exposures is the need for continuing research on fast and effective engineering control strategies and PPE for those who are in real world settings using and developing nanotechnology. NIOSH will need to

find creative ways to encourage participation in research by the small and large companies, as well as the research labs, which currently represent the frontline of occupationally exposed workers. This is all particularly challenging where a proprietary nature of the work may in fact be a disincentive for participation.

Nanotechnology research will require intra-disciplinary expertise, including health scientists and engineers, individuals who are generally not seeking collaborative research agendas. We would encourage any nanotechnology research agenda to be industry relevant. That is, involving exposures and materials and methods that are, in fact, currently in use for those doing nanotechnology.

Finally, we would encourage NIOSH to advise and update any planned research agenda, as we can only begin to imagine what new challenges to occupational health the next ten years of nanotechnology will bring. Thank you.

MR. REEVE: Good afternoon. I'm Gordon Reeve. I'm the Manager of Epidemiology at Ford Motor Company in Dearborn, Michigan. And what I'd like to do first is congratulate NIOSH on the process

of continuing their work with NORA, and also offering our strong support for the process.

I'd also like to say that we're very pleased with how NORA 2 is being organized. As a charter member of the NORA 1 group in traumatic injury research, we had certain problems in looking at just traumatic injuries because as we went along it was not only people that had traumatic injuries in the manufacturing sector, there's people that have traumatic injuries in 7-11 stores, people have traumatic injuries in taxicabs, and people who had traumatic injuries while working as lumber jacks. And so you try to put that diverse group of people together to try to develop a unified agenda for research, it was next to impossible. But we managed to do that with first stepping away from the fatalities and getting to the injuries, because if you said, what industry has the greatest fatalities, then it skewed everything in one direction, but then you said which industry has the greatest number of people injured and the greatest amount of disability, it pushed you in a much different direction. So I think we still need to do that.

But the step that you've taken forward now as

looking at these things in terms of manufacturing sectors and other segments of industry alleviate a lot of these problems. It also lets you cover acute injuries, ergonomic issues, and cost of injuries across each of these manufacturing sectors and other things that you're looking at. I would, however, with the manufacturing sector suggest that we probably start off with a manufacturing sector split into two parts. One part would be the labor-intensive manufacturing. And I would haphazardly guess that even though Ford is very labor intensive, we're also very cost intensive for equipment in engineering, which is very different then running a chemical plant or a chemical manufacturing facility like a Dow Chemical or an Amoco BP you've set up where the cost of the equipment is very expensive but you might have acres and acres and acres of equipment, but only 50 to 80 people running the whole thing. Again, very different sets of issues, but I would suggest that we start off with those separately and then try to merge them as we go along. Finally, I would like to conclude with three suggestions for the research agenda in manufacturing. But before I do that I wanted to

-- need to give you a little bit of a perspective of where we're coming from at Ford Motor Company. One of the things at Ford Motor Company is that with our 140,000 U.S. workers we have a very good data system to monitor the injury and illness experience of our employees.

If I was allowed, and I remembered to bring my secure ID with me, I could show you with less than two minutes what our injury rate is for fractures of the fingers and hands in any given plant over the last ten years, and it would take less than three minutes. And, actually, I have to tell you that of that three minutes, two minutes would be consumed by Microsoft boot-up time from my computer.

But with that, we've been struggling with this, not only having the injury information about who was hurt, what the injury was, what the body part was that was hurt or effected, or what the illness was. We also have the ability to look at the hours worked for each particular individual. So we can do very, very tightly clustered rates throughout our plant. So we don't focus all of our attention on the big departments and ignore the lower-manned departments that actually perhaps

had higher injury rates.
Also in looking at this we look at measures that cover the whole company. We look at plant by plant statistics and analyses and we also go down to work teams of 20 people and follow their trends to see what's going on with them as we need to.
So if you think, well, these things are just for something like a big company like Ford or a General Electric or something like that, it cascades through because when you really make a difference you don't make a difference 100,000 people at a time, you make a difference of a couple hundred at the time or maybe a thousand at a time. But the smaller group is the better place to have your interaction.
So with that background, the things that we've learned from having all of this data to look at is that, one, we need to do a much better job on incident investigations in terms of coding them, in terms of underlying cause or root cause, and the safety terminology, instead of looking at the immediate cause.
The other thing would be we need to do a much better process of assigning a risk score so we can prioritize them. No matter how good of a year

Ford has, we will never have enough money to tackle every injury problem that comes along and just say fix them all. And even if you could fix them all, you have to fix something first and something second and something third.

So what we are looking at, and we have a model running this in our operations in Australia, where we look at the frequency of the injury, the clinical severity of the injuries, and that targets you on getting a number. And, actually, our managers in those plants, they say, well, you know, I know we've got a problem, we had X number of people hurt and I've got this and this to do, show me the number and if the number is above a certain score, there's no question they fix it. And we're trying to pull that into the U.S. operations and also the European operations. So we don't have the argument, well, gee, it was only this guy, it was only that guy, and it only happens once in a while. It puts severity and frequency into a whole issue of risk.

The final one is looking at some quantitative effort to look at the cost of injury interventions and the effectiveness of those interventions. We have a lot of cost information about work comp,

days away and those types of things, but we have very little cost about the impact, the economic impact to the cause to the worker that doesn't get reimbursed from any recognizable source other than that worker's own pocket. We also wanted to make sure we could look at the intervention in terms of the injuries before the intervention, after the invention, and look at the cost savings.

So those are the three things that we would like to make sure that we can push into the agenda based on our experience of having a lot of information and data. And it's not just for a large company like Ford, it could be for small companies and down to the small business of the workplace. Thank you very much.

DR. WOEBKENBERG: Thank you very much to panel number one. After panel number two we'll go ahead and take a 15 minute break. The next panel is David Deubner, Manuel Gomez, John Morawetz, and Chris Henderson.

MR. DEUBNER: I'm David Deubner, Medical Director for Brush Wellman, Incorporated. Brush Wellman is headquartered in Cleveland, Ohio, its largest manufacturing facility is just outside of Toledo. Brush Wellman is the largest world-wide supplier

of beryllium materials.

So what's beryllium? Beryllium is a light-weight grade metal. It and its alloys and compounds are used in a variety of important products. From medical lasers and X-ray machines to telecommunication satellites, to building fire sprinkler systems, as we have here, to bushings and bearings in commercial and military aircraft. The reason I'm here today is to report on and thank NIOSH for the research on which we have collaborated for the past eight years. This collaboration is a model for government industry interaction to further the health and safety of workers in the manufacturing sector.

In 1997, with the backing of company management, I wrote to NIOSH requesting help in better understanding how beryllium could affect health so we could improve protection of workers engaged in the manufacture of beryllium materials and products. We received a very enthusiastic response from NIOSH. In 1998, we signed a formal agreement to work together. With NIOSH we have conducted intensive studies in seven of our manufacturing facilities. The outcome of this has been the development of the enhanced beryllium

safety model, which we have implemented in our facilities. With NIOSH, we are in the final stage of preparing for scientific publication a report that documents the effectiveness of our enhanced safety plan. Our workers are healthier thanks to the efforts of NIOSH.

In addition to converting research to practice in our own facilities, we are currently beginning a process with NIOSH in a project of how to best communicate this enhanced safety model throughout the downstream beryllium manufacturing industries. We are also working together to better understand the broader implications of some of the lessons learned with beryllium. As an aside, I have personally consulted to portions of the diisocyanate chemical industry and the cobalt industry on how the NIOSH industry collaboration can be mutually beneficial.

NIOSH and Brush Wellman are collaborating -- just beginning collaboration on the case study of the business case for improved industrial safety. We are exploring the potential applications of some of the technical aspects of beryllium safety to emerging technologies, such as you just heard, nanotechnology, as well as other occupational

hazards that involve either very low levels of exposure or allergic mechanisms of disease causation.

The NIOSH/Brush Wellman work-together has required mutual respect for the missions and the practical realities of the respective institutions, as well as the continuous support of management in both Brush Wellman and NIOSH. It has also required ongoing work on both sides to identify potential misunderstandings and to surface and resolve potentially divisive issues.

One of the greatest benefits to Brush Wellman has been the enthusiastic support of workers for the NIOSH relationship and the research. Brush Wellman workers have developed improved trust in the company’s commitment to their safety as a result of receiving the company’s openness and inviting NIOSH into its plants, and as a result of the consistent communications of research results and safety coming directly from both parties to them. We hold an annual conference in Morgan Town to which we bring a group of production and maintenance workers and supervisors. And these workers have also taken great pride in showing to NIOSH at this conference their dedicated work in

implementing a variety of the aspects of the enhanced beryllium safety plan.

In conclusion, both objectively and subjectively, the NIOSH relationship has been a win for Brush Wellman, for which we are thankful. Thank you.

MR. GOMEZ: Good afternoon. I'm Manuel Gomez, the Director of Recommendations and Outreach for the Chemical Safety and Hazard Investigation Board. And before I tell you what I'm here to talk about on behalf of the Board, I wanted to tell you a little bit of a story.

We have at our office a chemical incident reporting system because we investigate chemical accidents, and I carry with me the name on everybody's existence, one of these little gadgets. So I looked at sometime around noon this morning, and it turned out that two workers were killed in a Texas incident in a hazardous material treatment facility. And 15 were injured, some of them apparently seriously, in an electronics manufacturing facility, I think a semi-conductor one, somewhere in California.

I don't have the details, but I'm saying that at the out set to put in perspective what I am going to try to share with NIOSH today. In any case,

the Chemical Safety Board, the CSB for short, is an independent federal agency that investigates chemical accidents in fixed facilities. We're modeled after the National Transportation Safety Board, but we've been around for about a decade only.

We look at root causes, as the gentleman from the Ford Motor Company pointed out, and try to look at not only equipment failures, but also inadequacies in safety management systems, in regulations, industry standards, volunteering and internal industry standards, in any case, anything that might be the root cause of an accident.

Our investigations result in recommendations that may go to regulatory agencies or even research agencies. We, in fact, have one to NIOSH from an earlier investigation. They can go to the plants themselves, to corporations, through labor unions, to extend their develop organizations in short to any number of different institutions.

I can cite two examples from the region in the event that there are still some of our guests here from this area in Ohio. In 2003 we investigated an incident of nitric oxide explosion in Miami Township, which is not far from here.

Fortunately, there was only one injured worker there. Fortunately in the context of what I said earlier, but, of course, not certainly fortunately for him. But there was also damage to several nearby homes.

The second one that I can mention, which is somewhat related to the area, is that we have a 2005 urgent safety recommendation to BP out of a Texas city incident in which 15 people died in March of last year. That recommendation is to conduct a very major study about safety culture in the entire company. And one of the facilities which they will be looking at, or perhaps has already looked at in a panel that was formed as a result of our recommendation, is a facility near here in Toledo, Ohio, one of their refineries.

I brought with me, by the way, and I have outside copies of some of the paperwork reiterating or talking about what I'm saying, a FAQ sheet about the CSB, and two CDs that have, one of them has all of our investigations, the reports, and the other one has several short videos that we've begun to create to do outreach with regard to the lessons that we draw from our investigations.

We're led by a Presidential-appointed board, and

I'm here on their behalf. Our Chair, Carolyn Merit (*), considers of NORA, and I'm actually quoting, it's a defining frame work for the nation's occupational safety and health research goals in the past decade. And so we're very happy as the CSB to be here, and we're pleased to collaborate with NIOSH in their efforts to revamp the NORA agenda.

They recently -- the Board recently voted -- unanimously voted for a statement suggesting that NIOSH incorporate into NORA research in the future topics that focus on chemical process safety and the prevention of accidental releases of chemical substances through explosions, fires, and similar incidents. We think that NIOSH can accomplish this by a combination of in-house and extramural research, and by being a catalyst for such research and partnerships with other stakeholders, which hopes to speak at this manufacturing sector. But I should point out that we could probably just as well have gone to a cross-sectional meeting if it had occurred because many of the incidents that we investigate, in fact, many chemical incidents occur not only in the manufacturing sector, either the producers of chemicals or the users of

chemicals, but they occur in practically every one of the other sectors that you saw on the slide. Research in this area of chemical process safety we think will address very serious hazards that effect large numbers of workers. The available data don't permit us to make really good estimates, but at least in 1992 when OSHA promulgated their process safety management standard they estimated the population at risk was approximately three million workers.

I think it's probably safe to say that certainly the population at risk remains at least at that level, but I would dare say much higher because the process safety management standard for which those were made encompasses only a limited number of substances after they go past a certain threshold, amounts of the substances present in the workplace. But chemicals exist in many quantities and they're processed in many, many different ways that are not necessarily covered by the PSM standard. So the estimate of three million effected workers by the risk of catastrophic chemical incidents is probably very conservative.

Not only that, but I think that we can -- we would

probably all agree that the growing concern with chemical security, which is a related but closely, closely related topic, it's very, very much, very much touches on the question of chemical process safety. Because to make chemical manufacturing use transportation and handling safer, inherently safer, it's also to make it less susceptible to criminal intentional activity, such as terrorism. We also think that research in the chemical process safety area can bring important benefits in other areas of health and safety. Because management systems and I would dare say that many of us here have been hearing that word a great deal, play a central role in the prevention of catastrophic incidents, as they do in any health and safety programs and practices. In fact, the use of management systems across a safety introduces principals and procedures into the workplace that can improve health and safety far beyond just the prevention of incidents, chemical incidents, or chemical release incidents. The requirements of the OSHA PSM standard, in fact, one could argue, were the forerunner of ideas that are now contained in the more recent and more comprehensive management system

approaches that we see in ANSI Z-10, the National Voluntary Consensus National Standard for Occupational Health and Safety Management Systems in the vital guideline on the same topic, and in the commercially available technical specifications called 18,000. It's got a long name, but I probably won't -- can't even remember it.

For example, OSHA PSM requirements require, and that's of course for that narrow, relatively narrow group of substances and therefore companies that are covered by that standard, but it required the systematic collection of safety and health information about the chemicals, processes, and equipment, as well as process hazard analysis of that information. It requires a lot of other things, but I'm giving that as an example. These two steps in PSM are called process safety information, PSI, and process hazard analysis is called PHA.

Well, if you leave the jargon aside -- in fact, if you take the word process out, you're really talking about the more traditional approach, risk-assessment approach, which applies to all health and safety; what have we got here, how

hazardous is it, what is the size of the risk, and then you go on to what do I do about it and how do I prioritize it. That's what management systems do.

So I would argue that this kind of proactive management systems approach, which is inherent PSM, in the process safety arena it's applicable to prevention of chronic health and safety -- health hazards and safety hazards and other kinds. NORA has not explicitly included work on this area of process safety in the past. And, in fact, researching this area has been relatively scarce. And as a result, there are many gaps in knowledge that that kind of research could address.

In our statement we list a few as examples. We're not trying to point them out in any particular order of priority. But to give you a feel, we can research how to measure and improve the effectiveness of emergency-preparedness programs for releases of toxic chemicals. We need to improve the information regarding catastrophic chemical hazard potential that is contained material safety data sheets. We run across that all the time in our investigations, the absence of that information.

We need to better understand the possible safety impacts of a large contractor workforce in the chemical industry, and especially the petrochemical industry where we think that the percentage of contractors runs to 15 to 20 percent, a very large proportion who are not working directly for the employers. We need to learn how to better and more objectively define what people call these days safety culture, perhaps by combining the ways we're trying to measure the effectiveness of occupational health and safety management systems.

It would be useful to develop and implement methods. Guess what? To reach small and medium-size businesses, although I won't belabor that one; I think we hit on it real hard before during in this event. But particularly learn how to get -- learn better ways of getting the lessons out to them. We're all tried, but none of us know how to do it very well at all. So we've got a lot of learning there, and I think research could help a great deal.

And, finally, we need to improve the data that are now available to measure trends in accidental chemical releases and their impacts. You know,

there's a phrase out in the business world that says if you can't measure it, you can't manage it. And we can't and don't measure very well lots of things in health and safety, but certainly one of them is how many accidental chemical releases we have.

So to conclude, I guess I may have run out of time already, but I think we're flexible, and to reiterate, the CSB believes that NIOSH is in a unique position to stimulate research in the area of process safety and that this research can have beneficial ripple effects in areas that are much broader.

And as the new NORA takes shape we also would like to emphasis that the CSB is very willing to support, participate, collaborate, whether it's with the research council on the cross-sector, research council in what ever way is possible to help better define what the most important areas of research should be, to prioritize them, whether they are the ones that I've listed or others that we have identified. And on behalf of the CSB I thank you for the opportunity to speak to you. Thank you.

MR. MORAWETZ: Good afternoon. My name is John

Morawetz. I'm speaking today on behalf of the International Chemical Workers Union Council of the United Food and Commercial Workers Union. I currently work for the chemical workers, both as the Director of a national HAZMAT training program for a consortium of seven unions and as the (inaudible) Director of Health and Safety. First, NIOSH has a proud history of service to America's workforce. From health hazard evaluations, industry-wide studies, (inaudible) technology, to hazard alerts, library services, respirator approvals and NIOSH pocket guide to name a few areas. NIOSH is the primary national research organization to protect workers. For chemical industry, for peoples of companies both large and small, NIOSH is an important source of assistance in what is all too often a difficult situation. (Inaudible) health and safety activists, there is no other place for them to turn to for all of these services and follow-up. NIOSH provides essential services, and although not all activities results in a scientific article, they are invaluable. We have often called NIOSH and you have rapidly responded both walking us through technical subjects and meeting

our needs.

NIOSH conducts research in a tripartite format, which involves both management and labor at each stage. Workers all too often perceive themselves as, at best, subjects and, at worst, guinea pigs for research. Worker and union involvement helps to minimize this, produce better and more useful research, and is a practice to be consistently implemented in all research efforts.

Second, occupational health and safety research is not done for its own sake. It's done to identify areas to intervene, to lower exposures, to help assist in injury rates, to give workers and their employers information to ask the right questions and to get answers that will improve people's working lives. All NORA projects, therefore, should include evaluation on how the research is utilized.

Third, NIOSH should continue their efforts to investigate hazards, such as nanotechnology, mixed exposures, and special populations. Industries, hazards, and demographics change, and NIOSH must have the necessary resources on hand to launch investigations. Some may be industry specific, while others will cut across various sectors.

Similar to the original NORA priority research areas, and will therefore be an issue, I presume, for the cross-sector research council.

Fourth, we all need to review the overall NORA process and accomplishments to date and what are realistic short and long-term goals. NIOSH has continued to openly discuss what they're accomplishments were at the first decade, what was learned, and what questions remain in these priority areas. I've tried to find current information on the NORA website; however, it does not look like some of these web pages are being updated regularly.

Fifth, for all research documents needs to be issued timely for our members and any recipient to make full use of them. Clear recommendations and brief synopsis, as well as the full document, need to be available for NIOSH's hard work to be useful to the communities it serves.

Sixth, the use of significant NIOSH resources in recent natural disasters clearly will delay or reduce most other efforts. Although we firmly support securing all additional funding, the political reality might be that NIOSH will have to use existing resources. Rather than trying to

accomplish everything with finite resources, NIOSH must have a plan to adjust its normal agenda when responding to another anthrax incident, hurricane, or public health disaster.

Seventh, we have serious concerns on the possibility of contracting out NIOSH's workforce. We do not believe that this is in the best interest of either quality research, NIOSH's workforce, many whom are members of the American Federation of Government Employees, NIOSH as an Institution, the companies and workers who are NIOSH stakeholders, or our national interests. Chasing the allusive rhetorical goal of cheaper work all too usually only serves the lucky contractor and few else.

Eighth, and related, is the need to preserve and strengthen your highly qualified and dedicated workforce. While there are many excellent professionals outside of NIOSH, many of whom are here today, a strategic view should balance the contracting out of research projects with the need to preserve your internal professional resources. Specific priorities will change, but ensuring your strong professional staff and Institution is crucial. From the national perspective, NIOSH

adds a valuable public health approach. NIOSH needs to remain institutionally separate within the nation's public health structure to ensure continuing and appropriate emphasis upon protecting our workforce.

A recent example of NIOSH's contribution was a collection of anthrax exposure data when a musician was infected in New York City. The rapid use of antibiotics to his friends and fellow musicians, one might say fellow workers, is a protective measure that we learned after the failure to take these steps for Washington, D.C. postal workers in 2001. Tragically, occupational health research all too often reaches conclusions at the expense of the health of workers as in the -- I'm repeating myself, in the death of postal workers in 2001.

NIOSH and its NORA agenda is a vital institution in investigating and disseminating information to decrease this national burden. Thank you for your time.

MR. HENDERSON: Good afternoon. My name is Chris Henderson. I've been in the food business for 17 years in the safety and health systems. I actually graduated from the Rocky Mountain

Research Center. And I'm actually here today representing the Poultry Industry Safety and Health Committee. That is a committee whose member companies employ 250,000 workers in the United States. But based on my experience in the food and pharmaceutical business, I can tell you that the concerns that that committee asked me to bring to you are concerns that the entire food industry share, and I have no idea what they employ.

I actually on the agenda I put down for two subjects. The first one is impact of cold on musculoskeletal illnesses. I will not address that, because we're fortunate that a local employer in the area is able to attend, Mr. Kevin Reed, and he's going to address you following me, and he's going to talk on that. But I am going to talk a little bit about chloramine exposures and the concern that is in our industry. And, actually, we had a safety committee meeting in February and we were discussing the subjects that we voted on to bring to this meeting, and I was shocked that this was such an issue within our industry, having been in the industry for 17 years. I've only had two experiences, both of

these in my personal work were just in the past few years with chloramines.

So I need to give you some quick background to let you understand how insidious these are in the food business. We use chlorinated water a lot in the food business. Usually it's to rinse equipment at the end of the day, but it can be used during the processing also. For example, returns on conveyers or a conveyer loop going back on the bottom. If it's bringing a product on that conveyer, it will be rinsed with a spray of chlorinated water. When chlorine in water, a solution is combined with ammonia it produces a gas, a various gas of chloramines. These are very obnoxious or irritating to employees. We have no means to monitor chloramine in the workplace at this point.

My first experience was I got a call from a plant that employees were extremely upset and complaining and complaining month after month about the irritating chlorine. But yet the safety health people at the plant were monitoring the chlorine levels, and there was no significant exposure taking place. I hated to do this because it was in the middle of the night that I had to go

out there to the plant and I took my meters to verify and sure enough the level of chlorine in the air was quite acceptable. But yet you could look at the workers and all of them had bloodshot eyes. So either they were having a real good time and I didn't know about it, or something was going on. There was a very faint smell of chlorine. And this was my first exposure. It took me about a month to figure out what was happening there. And this is usually the way it is with chloramine exposures.

I took did a little research coming down here today. It just so happens there is a local facility, a food company in this area, that has had a suspect of chloramine exposure in which six workers were sent to the hospital just a couple of weeks ago. Now OSHA and EPA are trying to determine how those chloramines formed, and they have a couple potential solutions or a couple of reasons that they're investigating.

But really we don't have any idea what kind of exposure is out there, how many workers are having these problems. I think it is being missed. As an example, at our meeting we were having this discussion and I asked for a raise of hands of all

the members there with our committee, how many have had a suspect chloramine issue. About half of those raised their arms, which shocked me. I thought there would be two or three. Which then makes me wonder if maybe the other half that didn't raise their arms probably have also had issues, they just don't know it.

And what we would need from NIOSH is some sort of estimate about what exposures are occurring in the workplace, what their causes are, and most importantly, what can we do about it.

Particularly, there would need to be some effort put into how can we monitor it and determine when we have an exposure. I think that's all I have. Any questions?

DR. WOEBKENBERG: After the break we have three speakers listed. Two of them are not on your sheet. Kevin Reed, George Shaw, and Ralph Froehilich. I invite you, if you would like to speak also. We'll take a 15 minute break, but please come up and let me have your name and we'll put your name on the list as well. So we'll convene about 20 minutes up. Thank you.

(Whereupon, a recess was taken from 2:15 p.m. to 2:30 p.m.)

DR. WOEBKENBERG: So our next panel, we have Kevin Reed, George Shaw, and Ralph Froehilich. Kevin, you may start.

MR. REED: Good afternoon. My name is Kevin Reed. I'm the Safety Manager for Cooper Farms Processing in Saint Henry, Ohio. I'm here as part of the Poultry Industry Worker Safety and Health Committee. My subject is the impact of cold work environments on musculoskeletal injury rates. Although cold environment is generally accepted as contributing to musculoskeletal injuries within the meat industry, the significance has not been described. Anecdotally, highly repetitive work in warm environments, such as hatcheries and evisceration departments, does not result in the level of symptoms that are reported in refrigerated environments.

For example, at one federal OSHA program location the incident rate for the evisceration department where the average room temperature is 50 to 52 degrees and meat temperature is over 100, the incident rate was 4.1. Yet, at the same location in the de-boning department where the average temperature is 44 to 47 degrees and meat temperature is 45, the incident rate was 7.3 to

8.5.

Epidemiological studies could provide some quantification of the impact of cold on repetitive work. This would benefit both industry management and regulatory concerns in accessing efforts in ergonomics. A more formal understanding of this relationship, if it proves to be significant, could also lead to industry-wide changes in work practices. And that's it. Thank you.

MR. SHAW: Good afternoon. My name is George Shaw. I'm with NK Parts. We are a Honda supplier in Sidney, Ohio. We provide logistic and manufacturing for Honda facilities.

Two issues that I would like to address for NIOSH and NORA agenda. First of all, ergonomic modeling. That is our primary concern at NK Parts is improving the ergonomic risk factors in our job processes for both the warehousing and the manufacturing. Currently we have seven models that we have been using; the NIOSH lifting equation, the University of Michigan 3DSSP, the rapid upper limb assessment in job streaming. These all provided useful information in modeling and assessing risk to form a (inaudible). However, each of those has some significant

limitations. First of all in terms of (inaudible) that it covers. The shoulder (inaudible) aren't addressed in any of these models, some of them address the back, some of them address the upper extremities. We've had some significant cost associated with the shoulder.

Also, secondly, this does not address the aging workforce. In none of these models is the age range of the associates doing the job in a variable that is input into this model. So we feel this is also a shortcoming that can be addressed during ergonomic modeling over the next decade.

Second of all tying into that is cost analysis. After we've identified the jobs and we've prioritized for the next fiscal year, we have to do a cost-benefit analysis to justify the cost of the improvements we want to make. And currently we can do a good job of assessing the direct cost; looking at the workers comp history of these injuries, both of that we have had in our plants and through industry averages. However, we do not have a good handle on indirect costs, things like overtime, lost production, supervisor time, retraining. And so a good method in measuring

indirect costs will help justify some of the projects that we want to do in the upcoming. And that's all I have. Thank you.

MR. FROEHILICH: Good afternoon. My name is Ralph Froehilich. I'm a certified industrial hygienist and consultant with Helix Environmental in Dayton, Ohio. I'd just like to recommend three areas of additional consideration for the National Occupational Research Agenda.

First, and I think the most important, is additional research on the interactions between chemical air contaminants. You've heard about chloramines being a concern, that's the interaction between two chemical contaminants and the reaction products. But there are additional reactions that can occur inside of people to multiple chemical exposure venues. And while we've done a pretty good job of identifying direct chemical health effects for about 700 air contaminants, we've done a very poor job in looking for interactions and the health effects of multiple chemical exposures, and I think that it is time for that to be a major focus of the national agenda.

The second issue that I think requires a lot of

work in the manufacturing sector is the health effects associated with increasing use of promenaded organic materials that are used as drop-in substitutes for chloric-chlorinated insolvents.

There has been some evidence of reproductive health effects associated with these promenaded compounds. And because of those rather dire health consequences, I think a lot more research needs to be included in the national agenda; just looking at the direct health effects of those promenaded compounds, especially the reproductive health effects.

Finally, indoor air quality remains a concern in all sectors of the economy, and we are poorly equipped to define acceptable indoor air quality at this time. So that is a significant research need in my opinion. We also need to define the levels of biological and surface -- air and surface contaminants in indoor air quality complaint situations so that standards can be developed against which measurements can be compared, both for problem and non-problem indoor environment.

Finally, I strongly recommend that the research be

directed to define the best practices for indoor air quality communication and involvement. Often times we've been involved in indoor air quality complaint situations where we can't identify or even postulate any indoor contaminant being present that we haven't sampled for. Yet, the occupants still have significant concerns about indoor air quality. Either we haven't looked hard enough, or, more likely, we're having a horrible time communicating our results to the occupants in indoor air quality complaint situations. I see this as a major research need for the next ten year period. Thank you.

DR. WOEBKENBERG: I'd like to thank the last panel. Is there anybody who would like to make any comments before we go to summary remarks? Yes?

MR. AKBAR: Thank you very much. I want to add to something that the previous presenter was talking about combining effects of chemicals together. But I would like to add combined effects of chemical and physical agents, particularly noise and heat stress and ultraviolet radiation. And, unfortunately, even though we don't have any standards, OSHA doesn't have any direct standards

for UV and all of its physical agents.
I wonder if we can put that in our agenda to do more research on, say, UV radiation exposure by itself, and with the chemical. For instance, we know with tar and so on create cancer. What other chemicals? You don't know that. The same thing with heated stress. Heated stress is something that is just completely forgotten by us. Even we don't understand this. You have some recommendation from ACGIA. And any chemical exposure, or any physical exposure, heated stress is one of the contributing factors.
So there are some of the things that they could probably put in the agenda for the next ten years to work on is physical agents and non-ionizing radiation. Thank you very much.
DR. SODERHOLM: Say your name again, please.
MR. AKBAR: Farhang Akbar, Medical University of Ohio.
DR. SODERHOLM: Thank you very much.
DR. WOEBKENBERG: Anybody else? Going once, going twice, sold to the man in the blue uniform on the stage.
DR. GRESSEL: Okay, we're going to see how well I do here with technology. I get the task of trying

to wrap up everything that was discussed mainly in the afternoon session, but just wanted to give a little bit of a wrap up of everything that we've seen here today first.

The session that we had this morning, a very active session, a very full session, we had 20 speakers. It tended to pretty focused. I mean, we talked mainly about agriculture. A lot of manufacturing, actually, was interspersed with that and also a little bit of healthcare. But it really focused a lot on those three sectors. But then there were a lot of discussions as well on things that really cut across all of the sectors in terms of different things as far as the way the NORA 2 process will be set up and how things will be run.

In our session this afternoon we had eleven speakers, 12 counting our last gentleman. And it really covered a very wide range of topics. Just to reiterate a little bit and give you an idea of what we're facing in terms of the manufacturing sector, you know, as Mary Lynn had mentioned, it is one of the eight sectors. It is a very, very broad sector. We have over 14 million workers in the manufacturing sector. It includes 21

three-digit NAICS codes. If you break that down to the six-digit level, we have nearly 500 different six-digit NAICS codes. And as far as the different -- of the 21 NAICS codes, we specifically had representatives either discussing or representing seven of those here today.

And this just gives you a little bit of an idea of the -- these are the 21 three-digit codes, the sub-sectors, if you will, within the manufacturing sector. The ones that are in bold are the ones that individuals commented on with their comments this afternoon.

Now, what I did before I got here, one of the things that we did is we went to the NORA website and looked at the comments that we had received prior to this meeting, and we summarized those in a few slides. And I figured, well, okay, I'll take and add a few things to that and I'll have my talk for closing things out this afternoon.

Little did I know that we probably doubled the number of items that we had just in this meeting between this morning's session and this afternoon's. So what you're going to see here are about four or five slides that in some ways are a list, most of which actually were discussed here.

There were a couple of them that we did not really discuss in any great detail here, but I thought I would go ahead and present those to you as well. Worker training is one of the issues. At the previous meetings, town hall meetings, that I've attended, worker training is one of the issues that's come up time and time again. Small businesses are another concern. I haven't been to all of the town hall meetings, but small business concerns were probably were voiced more here than a lot of other town hall meetings that have been held.

MSDs and ergonomic issues, those are items that have come up frequently at other town hall meetings, that they were well represented at this one as well. Nanotechnology; that is something that is sort of unique to the manufacturing sector, and, again, was a focus by a couple of the different speakers that we had today.

Global occupational safety and health issues were discussed primarily this morning by Dr. Clark and a couple of other speakers, and then also chemical process safety that was highlighted by our speaker from the Chemical Safety Board.

Aging workforce is another issue that has come up

in a number of different town hall meetings and again was well represented here today as well. Then we also had some discussion about the chemical industry and chloramines in meat -- excuse me, chloramine exposures in meatpacking facilities, which that is a very specific type of an item. It's something that, you know, we need to hear about those types of concerns as well. Most of this list here are things that came from the website and weren't specifically discussed today, but I'll sort of throw them out so that people have a chance to think about them. Some of those items include control banding, infrastructure protection, health-effect research. One of the items that was brought up here was migrant -- or immigrant labor issues. There have been issues associated with wireless technology work stress, occupational asthma, contracting out of safety and health tasks, that was actually covered this afternoon, and some discussions about what NIOSH would be doing as far as the NORA 2 process.

Economics of injury and return on investment. We heard a number of things associated with economics and things associated with workers' comp costs and

how we might conduct some research in order to try to quantify the effectiveness of different strategies for addressing occupational safety and health issues.

We heard a couple of talks on obesity and its effects on worker health and safety. As well as some discussion this morning from the spouse of a worker who was injured and addressed the whole issue of injury diagnosis. We had a couple of different speakers who spoke about noise, hearing protection, exposure criteria, control issues. And that was covered fairly well.

The issue of silica was raised, predisposed workers, as well as engineering controls and fitness and wellness programs. Along with the predisposed workers, there were also issues associated with medications and their affects on injuries and illnesses. Alternative work schedules, that’s probably related in some ways to worker stress. And then we had a series of comments regarding the whole NORA process and how that was going to be handled as far as setting up the research council, and the various processes that we will be going through.

There were some discussions concerning

surveillance and incident investigation, as well as prioritizing actions, figuring out which actions to take recognizing that we can't address everything all at once. We heard someone discuss beryllium exposure research that's being currently conducted in a partnership with NIOSH, as well as a discussion about the business case for health and safety. The issue of culture of safety within an organization was raised, along with the need for indoor air quality research. And finally, we had some discussion about securing chemical facilities.

And then also a discussion about how NIOSH research may be used. Along with that we saw long and short-term goals for NORA, that there was a request that those be explicitly stated. And there was also a request for timely and also appropriate NIOSH documents to try to address the various hazards that we identify. There were some issues associated with emergency response efforts, as well as I mentioned before the contracting out of NIOSH workforce.

There was a discussion on the effects of cold and musculoskeletal disorders, along with the need for enhanced ergonomic models. And then, finally,

multiple chemical exposures and brominated compounds as far as research needed in order to address some of these issues that we may be encountering at this point.

Now that we've completed this town hall meeting, and we'll be wrapping a number of other town hall meetings in the next few weeks, where does that sort of leave us? One of the things that we need is NORA participation in the NORA sector research councils. Specifically, a lot of you are here today because you're interested in manufacturing, this being the manufacturing town hall meeting. We really need representatives from manufacturing across all of manufacturing. That would include a lot of you out there in order to help us to put together this research council so that we can help put together the research strategy that not only NIOSH, but also the nation should be adopting and following. And we need people from a wide variety of different disciplines and organizations. So if you're so inclined, I would strongly encourage you to volunteer and get involved.

This is a slide that was shown a little bit earlier for more information or to provide input, there are a number of different places where you

can go to try to get more information or to try to make contact. Probably the key one down there is the e-mail address. That's Sid's NORA Coordinator e-mail address. If you're interested in volunteering for the NORA sector research council, you can contact him through this e-mail address, or you can contact myself or Mary Lynn.

And just a reminder that the NORA symposium will be April 18th through 20th, coming up in just a little over a month. And here's contact information for Mary Lynn and for myself. Feel free to, you know, give me a call or e-mail, either one, if you have any questions or if you would like to volunteer. We would like to try to accommodate everybody, but we're really looking for input from everybody. Any questions at this point?

MR. BEAN: Sid, I think you're on to -- is Max going to do it?

DR. SODERHOLM: I think I'm going to cede my two minutes to the distinguished man from Maryland.

DR. WOEBKENBERG: Before Max gets to the microphone, on behalf of Mike and myself, I wanted to thank you all for attending this afternoon and for providing your input to the Institute. But

rest assured that it will be taken to heart and that the people who need to see it will in fact see it.

ADJOURN

DR. MAX LUM

DR. LUM: Just before we thank our post once more, you know, just some personal impressions of, I guess, ten years. I mean, we can pick out areas such as nanotechnology that we didn't have a clue about ten years ago, or immigrant workers, I mean, as far as the strength of what we're hearing across the town hall meetings. But I very much like the construct we heard from the National Safety Council this morning which talked about engineering, enforcement, and education, the three Es. They haven't gone away.

You know, we still have some issues that we've had for many years. And that construct of the three Es, engineering, enforcement, and education still seem to apply, but we've added some, clearly. And I guess looking out over these town hall meetings, the nine that we've done, only three more to go, we've added four Es. I think the safety council pointed, I think, three of those were economics, I think, efficiency, we're hearing that, is this useful, you know, can we work with the federation

of independent business and provide them useful information. Is it effective? That gets to our outcome, the R-to-P effort that we really are going to take a look at the information that we produce, does it lead to outcomes, and can we characterize those outcomes in a way that people can understand.

But I think I'd add a fourth E and that is enterprises, and that's small and medium enterprises. Certainly we're hearing more, and we heard here about the need for us to think about reaching, I think, small businesses, small and medium enterprises in a much better way.

So to me, again, I thought it was very useful. As I look out here I want to thank you again for coming, but I really want to thank you for staying. And if you look around I don't think incentive is really -- or motivation is a problem with the folks that work in this field. I mean, we're all trying to do the right thing from our perspective. And, certainly, we are trying to do that at NIOSH. And we cannot do that effectively and efficiently without public participation.

And that leads me to my final point. I'd just like to ask Tom Bean -- is Tom around? Tom, come

on up here. We have this plaque which is -- you can even use the OSHA non-approved stairway. May we get a picture of this? Just a memento of this work that you've done, it won't help you with your income taxes or anything, but it is a little bit of a plaque to remind us how important your work in getting this meeting together has been. If I could read it, take my glasses off, I can read it. For your leadership and organizing a town hall meeting for the National Occupational Research Agenda. We appreciate your dedication in advancing the safety and health of workers in your region and throughout the nation. Thank you very much.

MR. BEAN: Thank you. I would be remiss if I didn't mention my colleague Cynthia Brundage (*) right back here. Cynthia, would you just stand up for me?

DR. LUM: Thank you. Finally, if we could ask Scott to come up. Again, the unapproved stairway will be okay. And we say that, I mean, tongue and cheek, but there's a wire here and it's not taped down. So we're aware of what we should be doing, but we haven't done it. Again, the same University of Cincinnati Education and Research

Center, and, again, you know, for your leadership and organizing a town hall meeting for the National Occupational Research Agenda. To me, the key word in this is leadership. You really have led this effort. We appreciate all the folks here that have worked so hard. Thank you very much.

DR. CLARK: Thank you. I want to thank our whole audience also, plus team at U.C., and the Ohio State folks, particularly Amber Twitty. Also, the working with the NIOSH team on this from Washington, Cincinnati, and Atlanta. And it was enjoyable. I hope you can do it again some time. Thank you all.

(Whereupon, the meeting adjourned at 3:15 p.m.)

CERTIFICATE OF COURT REPORTER

STATE OF GEORGIA

COUNTY OF COBB

I, Shane Cox, Certified Court Reporter, do hereby certify that I reported the above and foregoing on the day of March 6, 2006; and it is a true and accurate transcript of the testimony captioned herein.

I further certify that I am neither kin nor counsel to any of the parties herein, nor have any interest in the cause named herein.

WITNESS my hand and official seal this the 4th day of April, 2006.

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SHANE COX, CCR

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