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 Lowell, Massachusetts, on March 20, 2006.

C O N T E N T S

March 20, 2006

OPENING REMARKS	5
WILLIAM T. HOGAN, UNIVERSITY OF MASSACHUSETTS LOWELL	5
SUSAN DUTY, HARVARD SCHOOL OF PUBLIC HEALTH	6
DR. MAX LUM, NIOSH	10
INTRODUCTION TO RESEARCH AGENDA PROCESS SID SODERHOLM, NIOSH	16
REGIONAL AND LOCAL STAKEHOLDER PRESENTATIONS MODERATOR: DAVID WEGMAN, UNIVERSITY OF MASSACHUSETTS LOWELL SUMMARY: EILEEN MCNEELY, HARVARD SCHOOL OF PUBLIC HEALTH	31
STAKEHOLDER PRESENTATIONS MODERATOR: ANN BACKUS, HARVARD SCHOOL OF PUBLIC HEALTH SUMMARY: DAVID WEGMAN	150
ADJOURN DR. MAX LUM	261
COURT REPORTER'S CERTIFICATE	265

TRANSCRIPT LEGEND

The following transcript contains quoted material. Such material is reproduced as read or spoken.

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

CRAIG SLATIN, ScD, MPH
University of Massachusetts Lowell

DAVID H. WEGMAN, MD, MSc
University of Massachusetts Lowell

DAVID CHRISTIANI, MD, MPH, MS
Harvard School of Public Health

MAX LUM, EdD, MPA
NIOSH

SIDNEY SODERHOLM, PhD
NIOSH

ANN BACKUS, MS
Harvard School of Public Health

P R O C E E D I N G S

(9:00 a.m.)

OPENING REMARKS

DAVID WEGMAN, UNIVERSITY OF MASSACHUSETTS LOWELL

DR. WEGMAN: It's exciting for us to be hosting Harvard and UMASS Lowell, this New England region NORA town meeting. These town meetings have been an important input to the NORA process. And a number of you here were present at the meeting, I guess, almost ten years ago when NORA 1 was being created, and still have memories of that meeting and the knowledge of its impact. So we're looking forward to these presentations today.

I'd like to begin by introducing Chancellor William Hogan who is the Chancellor of the University of Massachusetts Lowell to welcome us.

MR. HOGAN: Good morning. On behalf of the University of Massachusetts Lowell, I'd like to welcome all of you, wish you a thoroughly enjoyable and pleasant stay for the town meeting here in New England. We are pleased together with Harvard to be able to host it. We think it is a very productive process. The Lowell Campus of the University of

Massachusetts has for a quarter of a century a simple focus on regional, economic, and social development in a sustainable fashion. So you can imagine how close to our heart you people are. We have appreciated the funding over the years that we have received from the National Institute for Occupational Health and Safety, Safety and Health. We appreciate it, and it has helped enormously to carry out our own mission here at Lowell. And so we welcome you to the city and to the campus. And I hope it's a very pleasant and productive day.

DR. WEGMAN: And on behalf of the Harvard School of Public Health Educational Research Center, Susan Duty.

MS. DUTY: So first I'd like to thank NIOSH for providing such a personal venue for which we can share our hopes and desires for the next research agenda. And I hope that what we say today can be brought to the table as they do their considerations. I'm Susan Duty from Harvard School of Public Health, and I am the co-director of the Occupational Health Nursing Core between Simmons and Harvard.

As one of the nation's 16 ERCs we represent the

northeast region of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island. And the ERC provides very important infrastructure and funding source for the research that we need done, not only on the eight sectors of the new format, but also on issues that cross all sectors, like ergonomics and noise-induced hearing loss, as well as issues with vulnerable populations of the understudied workers.

So I'd like to talk a little bit about the Harvard ERC. Environmental health and specifically occupational health have been very important to Harvard since 1913. In fact, the first industrial hygiene, and toxicology, and industrial medicine work has originated at Harvard.

The research center also has an important and distinguished record in producing a lot of research that has been published in national and international journals, and has been used by regulatory bodies and advisory panels in making their decisions on recommendations. We also have a record of producing leaders in the field. Our graduates work in industry and

labor, in unions, in governments, in academia as a consultant, and in teaching.

We provide graduate education in occupational health nursing, industrial hygiene, industrial medicine, injury management, occupational health services and research, hazardous materials training, and we have a large outreach program, as well as a continuing professional education.

The school's role as a synthesizer of the efforts of scientists in many fields is perhaps our greatest strength. We work a lot with collaborations. We have a talented group of faculty and students who together make a lot of research happen. And our students -- The NIOSH funds that support the ERC also supports our students. And a lot of student research in on issues important to the NORA agenda.

An example of some of the work we've done in this sector is on the outreach program, which has worked with reducing entanglements in fisherman, and I hear they're here to talk to you today so I won't steal their thunder. We also -- Dr. Melissa Perry is working with the farm youth in Vermont, looking at their

prevalence of hearing loss and at their rates of exposure to ototoxic drugs and the possible synergy of the two. Dr. Jack Denolyn (*) works with looking to explore the forces involved in keyboarding and mouse use, trying to reduce the burden of musculoskeletal diseases in the service industry. We also work with asphalt workers exploring their polycyclic iromatic hydrocarbon exposures, trying to reduce their risks.

Another thrust is the under-served. Some of the under-served populations that we study in this case would be the bicycle messengers in Boston. They have a very high injury rate, about 15 times higher than the national average, and we're working at creative solutions for that. And with truckers, we're exploring how to reduce the hazards associated with combustion byproducts and their health.

So as you can see, the Harvard ERC has been very busy for the last ten years helping with the priorities set by NORA, and we look forward today to hearing your thoughts on what should be shaping the next NORA agenda. And I thank you on behalf of David Christiani and the rest

of the Harvard faculty for letting me speak.

DR. MAX LUM, NIOSH

DR. LUM: Good morning, and welcome to the New England town hall meeting. I'm Max Lum. I'm the communication lead for NIOSH. And we've been conducting, I guess, this is -- Let me get this straight, this is our eleventh town hall meeting. We have one more to go in Jackson, Mississippi, which we'll be doing on Friday, and then we'll be allowed to unpack, I think, at that point and get ready for the NORA symposium, which is our research symposium, which will happen in Washington D.C., the 18th, 19th, and 20th of April. I know we'll be seeing some of you at that meeting.

Ten years ago, I think, it became clear to NIOSH that we needed a framework, really, to think about how to organize research, and it wasn't just for the nation -- just for the Institute itself. Really, we took on the responsibility of trying to figure out a guidance mechanism that would look at what is needed in a national sense for occupational safety and health.

So NORA, actually, in its first ten years was a

national occupational research agenda. And that's important, it's a very important focus for us to remember, it's a very important focus for us not to lose because that national focus allows us to leverage our funds. Our funds are leveraged for program support for other federal agencies and for partnerships.

So NORA, really, is occupational safety and health research through partnerships. And that's going to preserve -- be preserved, I think, through this next decade of NORA. And as a part of that, I think the town hall process is extremely important for us as an Institute, particularly now in these times; not only in shrinking resources, but the commitment to occupational safety and health programs.

So we've been essentially traveling around the country, listening to folks tell us a little bit about their concerns, their problems, areas of interest that they think that the Institute should focus on, and we'll be hearing a lot about that here today, and it is an important process.

I can remember I had just started at NIOSH ten years ago, and Linda Rosenstock (*), our

director, said well, we're going to do these town hall meetings and, you know, figure it out, go do them. And, I think we did three or four of those, and we did one here in Boston. And I can recall, I think, to me it was the one at Washington D.C. that we did, that there was a group of nurses that came, and they presented a very moving testimony and brought a patient with them who was also a nurse, debilitated, and talked about latex allergy. And latex allergy was on NIOSH's screen, but it wasn't a priority. It certainly wasn't an area that we'd given a great deal of attention to at that point.

And that was one of the things we immediately -- even before I think we had the formal agenda set up that we took on. And in a very short time, as probably most of you know, we were able to alert just about every hospital in the country about this issue and it still goes on with us at NIOSH.

We were in Salt Lake City, a meeting really that we did with the Chamber of Commerce. It was focused mainly on business, but we had a speaker there, the director of the ERC, talk

about the importance of NORA in his own life in terms of his own research agenda, but also how important it was in musculoskeletal disease at that point to pull those studies together.

Again, we had a strong push at the town hall meetings we did ten years ago on that and to kind of work on that area.

And, I guess that's again, what we're hearing around the country, just as a summary kind of -- not able to do this at the beginning meetings, but I can just give you a little bit of a flavor.

You know, we're still hearing the three Es, essentially, the importance of engineering controls, the importance of education, really, and I think the -- and enforcement. We still hear about those three Es, but we're also hearing a lot more about economies, economies of scale taken to the other issues of efficiency, and evaluation; three more Es I think that we're hearing more of.

And one of the new factors of NORA, the second round of NORA, is the research-to-practice focus. It's to really take on some of these issues of efficiency, economy, and evaluation

that we've been alerted to and to tie it into our research to practice activity. So we'll talk -- Sid Soderholm, our NORA Coordinator is here to talk a little bit about what the second decade of NORA might look like in terms of our governance.

Again, I want to thank you very much for being here today. This is a meeting that we -- I say we didn't exactly plan a meeting in New England, but there was an outpouring of interest, let's put it that way, to have it here. And we're excited about being here. We want to hear your testimony, and again, thanks for coming today.

DR. WEGMAN: Thank you, Max. I just wanted to make one comment because I think, although I could be mistaken, that with regional pride it was the Massachusetts that the nurses made that presentation, and it was very compelling as I recall.

We want to go ahead and just before we begin the process, I'd like to ask Craig Slatin to do a little bit of housekeeping, letting you know some of the details of today's meeting.

DR. SLATIN: Anyway, thank you all for coming

and thank you all for everybody's participating in pulling this together. I just want to acknowledge that Petra Miesmaa worked with us from the very beginning -- thanks to NIOSH helping us get some funding to do this, to organize the whole thing. And I know she's been in touch with many of you by e-mail and she's been involved in many meetings to try and coordinate this. So Petra, thank you so much. If you haven't seen the signs, there are restrooms here, and they're out past the little lobby where you came into this area and to the right. And I think everybody knows, but we're going to have lunch served here at lunchtime and it's $8 because that's your contribution. And you have to get a lunch ticket from the registration desk if you haven't already. And Christy Boles, who was just making the announcement here, has worked really hard at NIOSH to pull all this together with Max. And she's been sending e-mails back and forth, and getting everything together, so... I don't see where Christy went, but thank you to Christy. Anybody have any other questions about details about the meeting? Okay, move on. Thanks.

DR. WEGMAN: So, we should begin. Sid?

INTRODUCTION TO RESEARCH AGENDA PROCESS

SID SODERHOLM, NIOSH

DR. SODERHOLM: Thank you, Dr. Wegman. I'm Sid Soderholm. I'm a NORA Coordinator at NIOSH, and I wanted to talk a little bit about what we're doing here today and then we'll get to the business of the day, when NIOSH will sit down and you get to speak.

So we are here as NORA. You'll see that it's not just NIOSH at the podium. NORA is a partnership effort, and we try to reflect that in the way the town hall meetings go.

So the NORA vision is a partnership effort to define and conduct priority research. Some of the main components of that vision are seeking stakeholder input. We did it ten years ago and we're doing it now. We take that input very seriously in the NORA process.

The idea is to identify research priorities for the nation, as has already been emphasized.

And then, not just to have a set of priorities out there, but to work together, NIOSH, other government partners, the university partners, labor, industry, to all work together to have

that research be done and then to have it adopted, have the solutions that are found adopted and used in the workplace to really make a difference.

One of the main parts of NORA is to not only feel that we have the funds that congress allocates to NIOSH, but that there are other agencies, there are other parts of the other partners in the country who have a mission that really meshes with ours, and to find those cross points, those points of common interest, and to be able to benefit from the resources of other partners in the country, and bring that to occupational safety and health research to be able to do even more for the worker. So that's what NORA has been and what it will be.

So what's changing in the second decade of NORA? The additional focus in the second decade of NORA is really to move research to practice through sector-based partnerships. So the sector-based approach is focused on addressing the most important problems in the sector. It's one of the criteria for helping to set something as a priority.

We're talking about one or more research

strategies for each sector. It may be -- I'll talk about what we've defined as the sectors; the eight sector groups here in a minute. But it could be that there are such different parts of a sector that there may need to be two or three research strategies in a sector. We're talking about a real strategy that has overall goals and intermediate goals, a plan for getting the research done, and a plan for that research to be adopted.

As the sector-based approach goes forward we're not losing the cross-sector issues as has already been mentioned. I mean, the cross-sector issues are the issues that the workers are facing. And many of them -- the basic science of those issues really goes across all sectors, certainly, and many other aspects do, too. So, we're not losing the fact that we need research in injuries and musculoskeletal disorders, and special populations, and hearing loss, and dust exposures, and all of those areas; that's not lost.

We're building on the success of the first decade of NORA that had the cross-sector focus

by trying to bring in additional partners who think of themselves in terms of the sectors, in terms of the workplaces; the industrial partners, the labor partners, who maybe weren't involved as much as they could've been in the first decade of NORA.

So the sector-based approach -- we went this way because workplaces are organized by sector, workers and industries, corporations identify with sectors. Many research needs differ by sector, especially in the application. If we have a general approach that will solve a problem, having that approach adopted successfully certainly involves getting the sector partners involve. The communication channels differ by sector, the way that people need to talk about things, the historical context in which the changes are made; these all differ by sector. So especially when we're talking about adoption, it's very important to have the sector focus.

And as we've learned, when you start the research, you need to have partners involved who are going to use the results of the research. If you don't do that you'll end up

going off in some interesting direction that doesn't necessarily serve the need of the worker in the end.

So we think the sector-based approach through the research strategies that, as I said, have the goals and the intermediate goals and focuses on getting the results addressed or the results used, is going to be a good way to go. It's going to facilitate new partners that need to be brought into this, to an even greater extent than in the past, and we think it's going to be an efficient approach.

The structure that we're setting up to do this, you may be familiar with the 20 NORA teams that handle the 21 priority areas in the first decade of NORA. This concept of having teams that have a co-leader from inside NIOSH and a co-leader from outside of NIOSH, team members, both from inside and outside, working together to work out the details of what these priorities are and how to address them and how to get the results adopted; this has been a good approach. And so we are now moving that into the sector approach by having eight sector research councils and you can see in some

abbreviated version we've actually taken the 20 or so North American Industrial Classification System sectors and we've grouped them into eight sector groups that seem to make sense in an occupational safety and health view of things.

So you see, you know, agriculture, forestry, and fishing, which is a census bureau, a NAICS sector; construction is a NAICS sector. And then services for example, are a group of a number of the NAICS sectors. So these eight councils will be the focus of developing these agendas, and I'll talk a little bit more about them in a moment.

The NIOSH role is one of stewardship and providing some of the infrastructure. We know NORA isn't going forward without NIOSH, and yet we don't own NIOSH -- excuse me, we don't own NORA, we don't manage the NORA teams. It's really a partnership effort, and we set some kind of broad boundaries as to where -- you know, what is NORA? And, what if somebody wants to do it? It's fine, but it's not part of NORA. And within those boundaries, these teams will do what needs to be done for their

sector.

The councils will have diverse input and we feel this will lead to robust and successful research strategies. So the initial work of the research councils will be to take a variety of input, and front and center is the stakeholder input received through the website. If you've visited the NIOSH website and gone to the NORA portion of it you'll see there's been an opportunity for several months now to either type or cut and paste in text and talk about what you feel is the most important issue, the problems that need to be solved in occupational safety and health, and the approaches that can make a difference.

So that stakeholder input has been captured, and that is added to the stakeholder input from the NORA town hall meeting. I'll talk a little bit more about that in a moment. And that will be delivered to the research councils. But of course, we're not starting from scratch, we have surveillance data, we have a lot of knowledge as to what the problems are. So the research councils, of course, will bring that to the table, we'll have that available, and

any time you get a group of individuals together they have their own expertise.

So with these inputs the research council will initially go through a priority-setting process and come up with a draft research agenda or draft research strategy for their sector. And following on the concepts of NORA, as being an open and an inclusive process, these individuals are really working for the sector. So this draft strategy will be put on the website.

And one of the things we're asking if people can volunteer to be on the research council, that's great. If they can't devote that amount of time, if they can just tell us that they would like to be notified when these draft strategies in a particular sector are available, we'll let you know. And then we'd like comments, the research council would like your comments to see whether they've really -- the directions of the research strategy are the directions it ought to have.

So this is the initial work of the research council, and then they'll be working to keep this research strategy up to date and to move

it along, to try to get the partners together who can actually conduct the research and use the results.

So let's get to -- move a little closer to today. How can you participate? Certainly, through volunteering to join the process and providing your input. So your input will be entered into the NORA docket. This, as I said, the material coming in through the website, you can also e-mail material. Shane Cox is over here, he's having a workday today as we all are. Shane is preparing -- will prepare a transcript of everything that's said today. And then Christy, who's doing the slides, will parse the transcript and actually put it in through the same website. So your comments will be entered into one of the ten boxes on the website; the eight sectors, plus there's a place to enter cross-sector comments and a place to comment on the process.

That information all goes together into the docket. The docket will be provided to the sector research councils and it'll be provided in context, every comment will be in context, and the verbatim comments will be available to

the research council. But, of course, just handing, you know, reams of paper to the research council isn't going to be very useful. So we are in the process of cataloguing or indexing the comments. So they're going -- We've got about 60 search terms that so far seem to be very successful in allowing us to talk about -- to pull out or show the research councils where comments are in a particular subject. Whether it's construction or hearing loss in construction, and the need for PPE for hearing loss in construction, you know, whatever kind of research, whatever kind of problem is being discussed, we can index that. So this is what's going to happen to your input today.

Christy already did a brief preliminary summary of the input we'd received by early March at the Washington, D.C. meeting. And as Max was alluding to, there are many issues of course that are similar to ten years ago, and there are certainly new things that are coming up; new approaches, new emphasis on the approaches of having successful interventions in the workplace, and new emphasis, even more emphasis

on work organization issues and some of those issues.

So in addition at the symposium, as Max mentioned, it's the end of April in Washington, D.C. The last day we're going to have a series of workshops. The symposium is to celebrate what's been accomplished the first ten years of NORA. It's to also celebrate the 35th anniversary of the Occupational Safety and Health Act that formed NIOSH and OSHA.

And as we're making the transition from celebration of the first ten years to the second ten years, the last day will be a series of workshops. We'll have two-hour workshops in the morning, concurrently, one on each sector. And then in the afternoon we picked out ten of the most popular cross-sector areas, and they will have a workshop in the afternoon.

So in the morning there'll be some initial -- actually multi-voting and priority setting of the group that's there; just a snapshot in time in that group of what they feel the priorities are. That will be additional input to the research councils and then in the afternoon the cross-sector areas of hearing loss, work

organization, will have heard which sectors feel their issues are very important. And they will then look at the research in that field, the comments, a summary of the comments that have come in in their area, and they will talk about what the next steps are in their cross-sector area in order to make progress, meet the priority needs of the sectors. So I think that's going to be a very exciting set of workshops at the symposium, and will be another place where your input will be summarized, made available, and worked on.

So let's get to today. What do we think we're here to hear about? What we're asking for is that you tell us about top problems. What are the issues? It might be formulated in terms of diseases, or injuries, or exposures, or populations at risk, or failures of the system. It may be the types -- the research methods that need to be improved. So there are a number of different ways that you may formulate the description of what you feel the top issues are that ought to be part of the priority in NORA.

But beyond that, if you have some ideas about

who are the key partners. Who can really work together to not only get the research done, but to have it adopted? We'd love to have that information in the docket so we can pass it on to the research councils.

And finally, what kinds of research are going to make a difference? There are all kinds of research that can be done. What's going to be the key -- What are going to be the key approaches that are going to get the information that's needed? So we're looking for brief presentations. Christy's going to change hats and become timekeeper here. And with a very full schedule, we'll be asking people to keep their presentations to five minutes. I think Christy will probably give you a one-minute warning, and then tell you your five minutes is up. I don't know what Christy's style is, one of the other people who does it, does the one minute, and then you're done. So people talk about, oops, I just got the fist. So we'll see what Christy's style is.

But, the idea of the brief presentation here is not that you can do justice to the issue, but

that you can hit the highlights and really boil it down to what's most important. And then please do go to the website and put in more details, more information. If you have more information written up or even the presentation you're making today, if you have it written up and are willing to share it, we'll give it to Shane to help him make sure he's got spellings right and so on. And then he'll give it to us and we'll enter the whole document into the website, into the NORA docket. So the five minutes is meant to share the highlights, and then please do give us the details. We really need that information for the research councils.

And then the final point is that we're all here to listen. It's a very full schedule, but I hope we'll have time to call -- to ask people to come up from the floor, even if they haven't signed up to have to share something they're thinking. And in general we ask that we all listen, that we avoid criticizing something else we've heard. But, if you want to offer, you know, the opposite opinion or a very different opinion, please do that. We're here

to hear everyone.

So with that let me wrap up here. My final take-home message is if you aren't already registered for NIOSH eNews, please do that. It's a monthly newsletter that comes to your inbox. And if you're too busy, you can delete it like all those others, but we hope you'll take time and read the 100 or 200-word summaries of what's happening in NIOSH, in different aspects of what's occurring. And particularly, there's a summary every month about the new developments in NORA.

So if you can afford to read a couple hundred words a month, you can keep up on at least the basic things that are happening in NORA, and we encourage you to do that.

Provide input through the website. And in case of any questions, my card's out on the front table, if you like the low-tech and reliable way of keeping in touch with people, and there's an e-mail address on there, or noracoordinator@cdc.gov works.

Please have a low threshold for contacting me with any questions, or issues, or thoughts that you want to share about the process and I'll

certainly try to respond. I think I'll actually be in my office occasionally now, although I haven't been much in the last three months. So I'd love to hear from you.

So with that I'll turn it over to Dr. Wegman and we can begin.

REGIONAL AND LOCAL STAKEHOLDER PRESENTATIONS

MODERATOR: DAVID WEGMAN

DR. WEGMAN: Great. Thank you very much, Sid. And he's kept us perfectly on schedule, so let's see if we can emulate him and move as quickly as we can through a series. I counted it as we were making these presentations and if we stick to the five minutes everybody will get to speak and we will be able to finish on time. But there is no slack in this schedule, so let me begin by asking Thomas St. Louis from the Connecticut Department of Public Health.

Okay, I'm going to hold that position and cycle it down to the bottom and have Christine Miara from Educational Development Corporation.

Come on up here, Chris. Everybody who's supposed to be in this first group come on up front.

MS. MIARA: Thank you. I really appreciate

this opportunity to speak with you today. I work at the nonprofit Education Development Center where I co-direct the National Young Worker Safety Resource Center, which is funded by OSHA to increase the state capacity to provide occupational safety and health training to high school students. And prior to that in collaboration with the Massachusetts Department of Public Health, I worked on several NIOSH funded projects. One, to work with community groups looking for ways that they could increase the safety and health of teen workers, and then another NIOSH project to work with state agencies to help them look for ideas for resources and activities that would better protect young workers.

So I'd like to speak today about the need for NIOSH to maintain a focus on the safety of young workers. Although I think teen safety can be considered within specific industry sectors, it's important that it remain an important cross-cutting issue.

Teen workers are a unique population and deserve special attention from NIOSH. Between 200,000 and 300,000 14 to 17 year olds seek

emergency department treatment every year for injuries they suffered at work. And teen workers have a higher rate of injury than adult workers, despite the fact that they're protected by child labor laws from working in the most dangerous occupations. And then tragically between 60 to 70 young people are killed on the job every year.

So having worked on this issue for over a decade it's clear that a lot of progress has been made, especially in our knowledge about the types and locations of injuries, about potential prevention strategies. And much of the credit for this project is really due to NIOSH for having conducted and sponsored research in this area. Nevertheless, it's also clear that a lot of progress needs to be made. So I'd like to suggest three general areas in which research is needed.

The first is the unique risk factors associated with adolescent growth and development. Some collaboration with experts in adolescent health and injury prevention, research should be conducted on the roles that size, strength, bone maturation, motor coordination, sleep

needs, judgment, and cognitive ability play in work injuries. Particularly concerned are the large numbers of back injuries suffered among teen workers, and this can result in long-term disability.

And also, NIOSH should complete the initiative it began in 2002 where they were doing research to recommend updates to the child labor laws by determining which tasks that are being done by teens that are prohibited by teens should continue to be prohibited and which needed to be added to the prohibited list.

The second main area of research that's needed is in training and health communication. Professionals in the field of substance abuse, injury prevention, health promotion for adolescence have made great strides in understanding how to best frame and deliver messages to teens and to those responsible for their health and safety.

This research may or may not translate to the field of occupational safety. So research is needed to answer questions such as what education and training methods are most effective with youth. What strategies are

being used now, especially by employers? What information to parents, healthcare providers, educators, and employers need to know about young worker safety and what's the best way to deliver that information to those groups?

The last general area of research that's needed is an intervention effectiveness. It's important to examine whether the kinds of prevention strategies being used in other disciplines are relevant to occupational health and safety. And programs that are already being implemented and those that are suggested in documents such as the Institutes of Medicines' Protecting Youth at Work report, need to be piloted and evaluated. Some of these interventions include teaching safety as part of job readiness programs, passing and enforcing stronger child labor laws, awarding safety certificates for youth who have received training, implementing worksite safety programs tailored to youth workers, and delivering occupational safety training to teachers and job placement professionals.

NIOSH has been a leader in fostering research to protect young workers. It's essential that

its emphasis on industry-sector research not diminish its focus on the vulnerable population of teen workers who need our protection today and our help in preparing them to become adult workers of tomorrow. Thank you.

DR. WEGMAN: Thank you, Chris. I'm going to substitute Bob Prezioso to speak because he's from the Massachusetts Department of Safety and we're going to get the Connecticut Department of Public Health to speak later. So Bob...

MR. PREZIOSO: Thank you, Dr. Wegman, and thank you for taking me out of turn. I'm here today to talk about non-friable asbestos. And the Massachusetts Division of Occupational Safety respectfully suggests that the NIOSH research agenda include an examination of asbestos hazards associated with commonly conducted renovation and demolition activities that disrupt non-friable asbestos-containing materials.

Assuming the asbestos exposure hazards are demonstrated by the studies, we'd further recommend that NIOSH develop model-safe work practices that can be broadly applied to control exposures in a manner that is both

effective and economically feasible.
Since the publication of landmark studies on asbestos exposure in human illness over 25 years ago, the federal government and virtually all state governments have instituted regulations aimed at limiting asbestos exposure for workers and the general public. Because friable asbestos materials pose a high risk of exposure due to their tendency to release fibers when crumbled, most regulations were initially focused on them.
Friable asbestos, of course, is commonly found in pipe coverings, boiler coverings, and spray-on insulation. In recent years, however, the use of more sophisticated analytical techniques has demonstrated the presence of asbestos in a wide array of so-called non-friable materials where the asbestos fibers are more or less encased in a hardened non-asbestos matrix. These materials include floor tile, joint compound, mastics, and window glazing compounds, just to name a few.
It’s been widely assumed that the tendency of these non-friable materials to release asbestos fibers is low as compared to friable materials.

Nevertheless, the requirements of state and federal asbestos regulations are increasingly being extended to work operations involving these non-friable materials. In many cases, particularly those involving renovation and demolition work, the asbestos content of non-friable materials is never tested and the work proceeds with a total absence of any asbestos controls. Such a scenario routinely occurs during painting operations, when window glazing compound, for instance, is disturbed during sash painting and during interior renovation and demolition work.

In other cases, non-friable materials are found to contain asbestos in advance of the work taking place and the owner or contractor is required to utilize an asbestos contractor to perform very expensive, but questionably cost-effective abatement. Because of these anomalous situations, there’s a need for research on asbestos exposure potential occasioned by renovation and demolition work involving these non-friable asbestos materials, and where risk has demonstrated the development of model work practices, which will adequately

control these risks.
DOS suggests that NIOSH focus on one or two of these materials, such as joint compound or window glazing. The current don't ask/don't tell approach toward the treatment of these materials is not acceptable, both from a public health and from a public polity perspective. Here in Massachusetts, over 138,000 workers are employed in the construction industry. Nationwide, this figure is over 6.9 million. These workers and many workers in other industries who conduct renovation work in structures where non-friable asbestos materials are present are potentially impacted by this issue. Property owners are also impacted if they own structures that potentially contain non-friable materials as well.
We feel this issue has broad implications, both in terms of cost containment and worker safety. We surmise that appropriately scaled controls for renovation and demolition work that disrupts non-friable asbestos-containing materials lie somewhere between the existing framework established for friable materials and the complete absence of controls found on most

projects.

The basis of our recommendation is that the measurement of the actual asbestos hazards involved with this work should form a foundation for the consideration of appropriate controls for the protection of workers, the public, and the environment. Thank you.

MS. LESSIN: We're going to do two small group activities in my five minutes. Thank you. My name is Nancy Lessin. I'm health and safety coordinator for the Massachusetts ALF-CIO, and a proud member of the Steel Workers' Union. I've worked in the field of health and safety for over 25 years. I've served on NACOSH, and I served for five years on the NIOSH NORA team on organization of work. I've worked with workers in unions in all sectors of the economy, both private and public sector, nationally and internationally.

Fifteen or 20 years ago when I asked workers and union representatives what's happening in your workplaces that's causing workers to be injured, made ill, or stressed on their jobs. The list they created included many traditional health and safety hazards.

In the last decade, the responses to this question have changed. The answers invariably begin with downsizing, under staffing, mandatory overtime, push for production, job combinations, multitasking, speed up, work overload. It doesn't matter the industry and it doesn't matter whether it's public or private sector.

Workplaces have been undergoing massive changes in the way in which work is organized, often made possible by innovations and information and communications technologies. New forms of work organization are being introduced with very little attention to their potential to hurt workers. However, we do know that these forms of work restructuring can increase workers' risk of injury, illness, stress, and death.

Work's being restructured by management to achieve the goals of standardization of work, which in turn is used by management to increase their control over the work. And in many workplaces undergoing changes, worker knowledge about the production and service process is gathered through employee involvement and

management then leans out and standardizes the process. This has resulted in job loss for some, while increasing the workload and work pace for others.

And I turn your attention to the first activity, which is called basic principles of continuous improvement. This is from a multi-national corporation. And you look at the job that's being documented here, the left hand isn't doing very much, the right hand is doing all the work.

If you turn the page over, you'll see the new improved job where the left hand and the right hand are working equally hard. This multi-national corporation says it's an ergonomic improvement because workload impact is spread across more body muscles instead of being isolated to only the right arm and hand. The first way of doing the job is a recipe for repetitive-strain injury. And the right hand, the second way, is a recipe for bilateral carpal tunnel syndrome or something like that. Workers are experiencing increased injury, illness, and stress from downsizing, mandatory overtime, 12-hour shifts, increased workload,

and increased work pace. And to hide this increase, employers are implementing blame-the-worker behavior-based safety approaches that discourage workers from reporting injuries, illnesses, and hazards. These programs and priority in policies and practices blame workers who have or report injuries for committing unsafe acts and engaging in unsafe behaviors. They include safety incentive programs that provide prizes to workers who don’t report injury discipline policies that provide discipline or threat of discipline to those who do report. Programs that focus on OSHA recordables and lost work days as key measures and milestones in attaining a safe workplace and full-blown behavioral observation programs that focus away from hazardous conditions and blame workers for being inattentive or working carelessly when they suffer injuries.

We’ve tracked the rise of behavior-based safety programs and linked them with the increase in employers’ work restructuring efforts. These blame-the-worker schemes are hazards in and of themselves. When workers are discouraged from

reporting their injuries, not only do they risk not getting the care they need, but the hazards causing those injuries don’t get identified and addressed. It’s hard enough to fix the problems we know about, it’s impossible to fix the problems we don’t.

I want to call your attention to the second small group activity. It’s an accident report form from another multi-national corporation. The injury in this case was a bee sting. The question on the form says what did the effected employee do or not do that contributed to the accident? Why do you feel their actions contributed to the accident? The response on the form is the employee should have been aware that a bee had landed on his shirt and taken the appropriate steps to remove the bee without being stung. There is no injury or illness that a worker can have at a workplace like this that is not their fault.

The letter I received from NIOSH about this meeting stated the meeting is a key part of a national effort to keep working people, business, and the U.S. economy strong and vital in the next decade by reducing worker injuries

and illnesses. Right now the perception is that workplaces are getting safer, except perhaps for nonunion mines, and that workplace injury and illness rates are down. Employers are working hard to create that perception as they discourage the reporting of work-related injuries and illnesses.

If NIOSH truly wants to meet the goal of reducing worker injuries and illnesses there will need to be concerted effort on the part of NIOSH, OSHA, and the Bureau of Labor Statistics to cut through the fairytale figures that too many employers are passing off as their OSHA recordables and find ways to understand and document what is really going on regarding injury and illness experience in this nation's workplace. Thank you very much.

DR. WEGMAN: Thank you. Craig Slatin from the University of Massachusetts Lowell.

DR. SLATIN: Thank you. Working conditions in the U.S. have changed greatly over the past several decades, as Nancy's been detailing. More people work in the service sectors and fewer in unionized manufacturing settings. Precarious employment is a more common

experience in the U.S. workforce than it was in the early decades of NIOSH's history. The U.S. now has more immigrant workers who often work under hazardous conditions for low wages and may be politically and legally insecure.

Work has changed and so our understanding of health and safety risks and prevention programs are probably out of date and not sufficient to address the needs of many U.S. workers.

NIOSH needs to support and promote new and creative research designs and approaches that will help us to discovery the occupational health and safety conditions and issues that have resulted from these changes in the U.S. economy.

I have a background in work environment policy, using qualitative and case study research approaches, worker health and safety training programs, and have been the PI for the past five years of a study of health disparities among healthcare workers that was funded by NIOSH. Early in that study, we learned that employers are fearful of employees knowing enough about health and safety issues to complain.

We also learned that workers were mistrustful that we were working in collusion with employers. Employees didn't have the time to participate in the research because they either had to work multiple jobs or were juggling shared work/family schedules with their spouses so that the kids were taken care of, the chores were done, and both parents got to work on time. The many single parents in these facilities had to manage all of that on their own.

Despite these challenges, our research has succeeded largely because of the integration of multiple qualitative and quantitative research designs; epidemiology, ergonomic exposure assessments, and political economic case studies. We also incorporated participatory research approaches midway through the study, successfully overcoming some of the barriers we were facing. In addition, we have had an interdisciplinary team that's broadened our scope and perspectives about the research.

We've been conducting case study research to understand the context of health and safety in these settings. We interviewed managers,

conducted focus groups with workers, examined years of employee newsletters, reviewed media reports about each facility. We've learned that through case study research we have a better sense of the questions that we need to ask in all our data collection efforts.

If research is to be put into practice then data collected must be valid and reliable. Increasingly we are going to need to use community-based participatory research approaches to attain good data. A more varied set of approaches and designs are needed to learn what hazards are presented in new work arrangements and how to prevent the risks, exposures, and the associated adverse health outcomes.

If we want our research to help advance the prevention of morbidity and mortality then our research has to start with the people who can make that happen; workers, unions, employers, and communities, and not simply give the results to them when we are done. That takes time and NIOSH will need to provide resources that support such relationship building.

When it comes to learning about the conditions

of low-wage and precarious work, and work in the so-called informal sector, we would rarely be able to conduct studies with the permission of employers. Study of the health and safety of minority and immigrant workers in these settings must carefully aim to protect them from jeopardizing their livelihoods.

These conditions are going to require new approaches. Hester Lipskum (*) and her colleagues wonderful study of poultry workers in North Carolina is an example of how excellent work can be done without gaining access to the workplace. Of course, neither researchers nor workers have the immediate ability to improve working conditions, but working together just might make us stronger than working apart.

Lastly, for bringing research to practice, NIOSH has supported intervention research. But I would like to suggest a different model. We could call this new strategies research. The idea would be to promote work environment improvements through research that doesn’t just address one issue or set of issues, but develops the capacity of workers, communities,

and employers to make continual workplace health and safety improvements.

Using community-based participatory approaches, the changes can be informed by the knowledge and experience of local actors. Their involvement at all stages of the research will establish a foundation for not just an intervention, but for the ability to learn about improving the work environment in ways that can be sustained over time and through whatever market and technology changes affect the production process.

NIOSH should look to the National Institute of Environmental Health Sciences success with funding community outreach and education programs as core components of research projects. Workplaces are different from community settings, but to put research into practice it’s going to require education and training, and change networks will help sustain local action.

The economy has changed, work is changing, and work environments are changing. NIOSH is needed to promote new research approaches for the prevention of workplace injuries,

illnesses, and deaths. Thank you.

DR. WEGMAN: Scott Patterson from Liberty Mutual Agency Markets.

MR. PATTERSON: Good morning. The mission of Liberty Mutual Agency Markets is the same as our parent group, which is to help people live safer more secure lives. We do that by providing insurance services to small and medium-sized enterprises.

We have approximately 125 consultants and industrial hygienists, the majority of which our customers have between ten and 50 employees. We're making around 25,000 visits a year to those customers.

The U.S. Small Business Administration estimates that 95 percent of all new businesses are small businesses. They may not end up that way, they certainly start that way. So we would request that NIOSH and NORA focus on occupational injuries and illnesses for small and medium-sized enterprises.

Certainly, we would also want to continue the focus on occupational injuries versus illness. Illness is important, but injuries are what we see in our market as the major problem.

Also research partnering. We have partnered with our industry association, the PCI, Property Casualty Insurers, as well as OSHA to provide small business training for safety and health. We welcome partnerships on the research end as well. Thank you very much.

DR. WEGMAN: Charles Levenstein for the Massachusetts Teachers Association.

MR. LEVENSTEIN: My name is Chuck Levenstein. I'm a professor emeritus here at the University of Massachusetts Lowell, but I am also the co-chair now of the MTA Health and Safety Committee. And unfortunately Cathy Boudreau, who's the head of the MTA was not able to be here, but she asked if I would present testimony for her.

So the Massachusetts Teachers Association represents 93,000 workers in Massachusetts, including faculty and staff in K-12 schools, as well as higher education. We are the largest union in the Commonwealth, and we are affiliated with the National Education Association.

Surveillance. We have joined with a coalition of public employees unions in this state to

petition the legislature for public employees OSHA, in order to ensure that the most basic protection that is guaranteed to employees in the private sector also apply to our members. Perhaps most important is that the absence of federal OSHA surveillance and reporting requirements; there is no systematic collection of data on the occupational injuries and illnesses of teachers. Our members have been exposed to hazardous work environments and building materials, including asbestos, but there's scant data available to inform policy and prevention.

Second, indoor air quality. We are supporting separate state legislation concerning indoor air quality in public buildings because we have innumerable complaints from our members, as well as data collected by the State Department of Public Health about mold and other air contaminants that threaten the respiratory health of teachers, staff, and students.

We understand the current OSHA standards do not deal adequately with such indoor air issues. We are deeply concerned about the health of children who spend their days in contaminated

schools, as well as the large number of staff who report one form or another of respiratory illness. We would welcome research that examined the relationship between respiratory health of teachers and the variety of indoor air contaminants in schools.

Third, construction and renovation hazards. At a recent meeting, the MTA Environmental Health and Safety Committee heard complaints from members about the difficulties of working in the midst of deteriorating physical plant renovation projects and new building construction. Noise and unidentified dusts were the principle hazards mentioned. We are concerned about these conditions which may pose serious threats to the health of educational personnel, but are considered mere nuisances by public officials. Investigation of such circumstances is warranted and would be very, very helpful.

Next, breast cancer. We would also welcome investigation of the already identified problem of excess breast cancer in teachers. We've been able to find only on paper that examines environmental hazards that may be related to

this problem. This is a serious issue that warrants attention from researchers.

Job stress and violence. Teachers report that job stress and violence in the schools are problems that warrant attention. In particular, we would like to know if there are identifiable health effects of the level of stress that teachers experience, and we would like to know about the efficacy of interventions to reduce stress and violence. These are issues that addressed by occupational health researchers concerned with the healthcare industry; there has been inadequate attention to the education sector.

Infectious disease. We know that the Centers for Disease Control recently recommended flu vaccination for children under seven years of age. As the New York Times commented in an editorial, it is important to make available vaccination for school-age children in order to protect them, their teachers, and the community.

A recent pilot study of faculty and school personnel by the Mass. Department of Public Health suggests that a third of these staff

suffer from respiratory disease. A larger study of school-age children in Massachusetts suggests that about 25 percent have asthma, not in infectious disease, but one which could be exacerbated by a flu epidemic.

We need NIOSH research to examine the school environment as a promoter, if not the sole cause of illness. And we need studies to establish effective intervention to prevent the spread of disease among staff and children.

School siting. We are concerned that localities are induced for economic reasons to site new schools on or near wetlands and landfills, which may then pose a variety of hazards for children and teachers. We believe that the mold problem in many schools, even new ones, is related to this unfortunate siting.

It would be desirable to study the long term health effects of schools sited on contaminated property, particularly those on or near landfills that leak. Some of the schools on landfills have monitoring systems, but we have no information on how frequently they are calibrated or otherwise monitored, or how often the bells go off. It would be useful to have

studies of the health effects of such environmental conditions since they have profound effects on children, as well as teachers and other school personnel.

And finally, the economics of health and safety. We believe that many of the occupational health problems experienced by teachers are the result of inadequate and inequitable funding of public schools. Maintenance of buildings and staffing levels are serious issues. Low-bid requirements for maintenance, renovation, and school construction are a threat to safety and health of teachers and children.

There is virtually no research on the cost effectiveness of interventions to protect school health and safety. NIOSH's previous interest in social and economic dimensions of health and safety could well be applied to the investigation of problems in the education sector. Thank you.

DR. WEGMAN: Youcheng Liu from Yale University School of Medicine.

MR. LIU: Good morning. Mine is not a formal presentation, rather a few questions. When I

read the NIOSH web pages, I thought about it and I had some questions and wanted to present it here.

I'm on the Harvard ERC Advisory Board or Committee. I wondered, you know, how NIOSH is going to support all the ERC, you know, develop new centers for research and training in the future?

Second one is, NIOSH research agenda for the next ten years; is that for research support for outside research, I mean, you know, contracted, et cetera, or also for their own research so that, you know, in the past we have so-called agreement, a cooperative agreement from schools or public health associations and associations of medical schools. I wonder if it's still the case to support this kind of research.

And the third one is the basic research areas, I think, some of them have been addressed by other presenters like indoor air research, exposure assessment methodologies, and also PPE affects this research. I think these are very important areas, but they don't really fall into the major industry sectors or categories.

And the last one is the small business addressed already by Scott. I think, you know, small businesses like auto body industries, they have less financial resources to support exposure control, but they also are less regulated by OSHA. So I think, you know, their concerns should be addressed as well. Thank you.

DR. WEGMAN: Noreen Hogan, from the Massachusetts Nurses Association.

MS. HOGAN: Good morning. I'm Noreen Hogan. I'm a Registered Nurse. I'm here representing the Massachusetts Nurses Association. The Mass Nurses Association represents over 22,000 nurses in the State of Massachusetts. We've also taken the leadership in looking at the issue of workplace violence. I am also on the Task Force for Workplace Violence and Abuse Prevention, and we have -- I'll talk a little more, I guess, as I go on about some of the things that we have done.

The issue that I want to address today is preventing and reporting workplace violence in healthcare settings. As we all know, violence has increased everywhere in our world, and

healthcare facilities previously known as caring places and once considered immune from this are now frequently the site of violence. In fact, violence in healthcare settings continues to rise.

The violence often is assault on the healthcare personnel, nurses in particular. Some of the Bureau of Labor Statistics show that nurses are being assaulted and hurt and victims of violence at a much higher rate than other healthcare professionals and at a much higher rate than workers in other industries.

From studies we know that there are multiple risk factors for this rise in the violence in healthcare settings. This includes the low nurse staffing levels, inadequate security in hospitals, unrestricted access to most hospital areas, and lack of staff training in recognizing and managing potentially violent situations.

And we believe on our task force, the Mass Nurses Association in total believes that workplace violence is not getting addressed because nurses and other healthcare providers fear being blamed and retaliated against, and

this is much of the feedback we get from our members of why assaults and other violent acts aren't being reported.

In fact, what happens in many settings, in many agencies, that the victim is the one that is blamed for the action and for the violence and is often retaliated against and they often end up leaving; either are forced to leave or leave because they feel that things are just so uncomfortable in the setting. Another reason for not getting reported and getting addressed is inadequate reporting systems and a lack of effective response and aftercare programs.

One of the things that the Mass Nurses Association Task Force has come out with is a position statement where we recommend that all healthcare employees implement a workplace violence prevention program that's consistent with OSHA guidelines for preventing workplace violence to healthcare and social service workers.

We also really felt strongly and have come out strongly in our position paper that each facility should develop a defined plan for the agency's response to any incident of violence,

including the right and protection to call the police and file criminal charges against assailants.

Part of the work we do on our task force in the Mass Nurses Association is a big piece of education. The position paper is just part of it. We've also come out with guidelines on how individual nurses can respond if they're assaulted in the workplace. We have addressed -- We've had speakers come to our conventions the last couple of years. We have also presented several day-long and sometimes half-day workshops on prevention and response to workplace violence. So again, as I said, we've taken the leadership in the State of Massachusetts.

What we would like NIOSH to look at for us is to research the effect of improved reporting systems because we feel one of the big, big issues, again, is the under-reporting that there's a much higher percentage of assaults that are occurring that never get reported. We'd like help in developing appropriate reporting tools and best practice formats so that the information can be readily utilized

and replicated in healthcare facilities and agencies across the country.

This information will be useful in helping to change the culture of the healthcare industry to embrace worker safety with the same commitment as they do patient safety. Thank you for this opportunity to share my concerns and those of the Mass Nurses Association.

DR. WEGMAN: And the last presentation we'll have in this section is from Jennie Belsanti, also for the Massachusetts Nurses Association.

MS. BELSANTI: I'm going to talk about environmental occupational asthma. Asthma is a serious chronic disease, which is a critical public health issue in the United States. Morbidity and mortality linked with asthma has markedly increased. Adult new-onset asthma that is work related has risen to between five and 29 percent of the workforce.

Mandatory reporting of occupational asthma became a requirement in Massachusetts on March 1st, 1992. This reporting requirement does not provide a complete account because it is known that many cases are not reported.

Cases are identified using doctor's reports of

workers they have treated. Hospital discharge data are also used by identifying those workers with asthma and participating on workmen's compensation.

The Massachusetts program distributes research information gathered for the SENSOR program. This surveillance system gathers information for healthcare providers about specific occupational diseases in the state.

One of the diseases of interest in this system is occupational asthma. In 1988, Massachusetts, New Jersey, and Michigan received funding to establish this surveillance system, and in 1992 California also received funding.

The concept of this model is that occupational asthma is a preventable disease and disability, or untimely death serves as a signal that prevention efforts have failed and others could be at risk. With surveillance data, work-related exposures are identified and marked for intervention.

All four states describe a rise in reported cases of occupational asthma and new agents are being discovered. Workers' compensation could

be obtained if pre-existing condition was exacerbated by workplace exposure.

Occupational asthma is caused by exposure to substances in the workplace. Many substances found in the healthcare industry fall in this category, and they are pharmaceuticals, animal dander, proteins, enzymes, and other low and high molecular weight molecules.

Over ten percent of the workforce is employed in the healthcare industry, which has been growing steadily since the 1990's. Most of the reported cases are new-onset asthma due to exposure to hazardous chemicals. A large percentage of occupational asthma occurs after exposure to sensitizing agents.

Another form of work-related asthma is reactive airways dysfunction syndrome, or RADS, which occurs after a single exposure to high levels of an irritating vapor, fume, or smoke.

Symptoms develop minutes to hours after exposure, and they can persist for more than a year. Clinical manifestations of this condition are obstructive symptoms and airway hyperactivity.

The onset of RADS can be usually specifically

timed and dated. These symptoms usually are evident after a dramatic event, such as an accident, such as a spill involving a vapor, gas, high level of smoke or dust exposure. This is why the worker is able to identify the substance by where exposed to and exactly when the exposure took place.

Causes of workplace or occupational asthma in the healthcare industry are triggered by many toxic chemicals; environmental cleansing agents contain bleach and/or ammonia. If these are accidentally mixed together they produce chloramine gas. The fumes from this mixture cause tearing, rhino rhea, cough, dyspnea, and it can also be deadly.

Cleaning agents contain chemicals that are known sensitizers and respiratory irritants. Disinfectants such as chloramines, chlorhexidine, formaldehyde, are known allergens and these products have safer alternatives and are available and are in use today.

This information will be helpful in helping to change the culture of the healthcare industry to embrace worker safety with the same

commitment as they do patient safety. Thank you.

DR. WEGMAN: Has Thomas St. Louis arrived? Okay. We have room in the schedule later. This completes the first section and we do have wonderfully timely presentations, therefore we have time for a break. So I think I will ask us to take a ten-minute break. Please, come back immediately after that.

And in the future units, to try to get some order here, why don't the first five come up and then when they're finished the next four come up so that we can work through this with some kind of efficiency in terms of seating? Everybody's being efficient in terms of presentations. Thank you very much.

(Whereupon, a recess was taken from 10:35 a.m. to 10:45 a.m.)

DR. WEGMAN: We should begin again, and I already know of one additional person. So I do want to move with continued efficiency. This is great, and I know the input is leading to good thoughts for NIOSH, but I think it's stimulating for those who have a chance to hear some of these ideas. Next presentation will be

from Susan Woskie of the University of Massachusetts Lowell.

MS. WOSKIE: Hello. Thank you for the opportunity to address the meeting and to see all of my colleagues out there. It's nice to see you all here. I'm at the University of Massachusetts Department of Work Environment here in Lowell. I was trained at an ERC. I'm in a training grant center now, and have been doing research in occupational health and safety for many years.

I'd written a bunch more extensive comments that I'm going to submit, so I'm just hoping to highlight a few things. And I want to focus on what was highlighted as one of the new Es, evaluation, by Max Lum in his introduction.

My first point in the topic of evaluation is to point out or to remind people that the TOSCA inventory contains about 80,000 chemicals currently, and of those about 2,800 are considered high-production volume chemicals. EPA has done a survey of those high-production chemicals and found that only 43 percent of them have toxicity information on them and only seven percent of them have any OSHA standards.

So I guess my first point is that I think that these -- at least these high production volume chemicals should be a focus for examination of human health effects. They're in use out in industry and we know very little about the human health effects of these chemicals. So epidemiologic studies and so on, I feel, are a high priority for this group of chemicals.

My second point is that over the past several years there seems to have been a move away from exposure surveillance and quantitative assessment and towards this concept called controlled banding. And although on the face of it, I think, controlled banding is a useful tool in the public health arsenal of prevention. I also want to point out that there's been very little work done to validate this approach across a range of industries, and jobs, and tasks. And so I would strongly encourage NIOSH to put some effort into an extensive validation of the controlled banding approach before it is -- before encouraging its wholesale acceptance.

And I guess the last area that I'd like to comment on is the role that NIOSH has played in

the development of exposure assessment methods. I personally have come to depend on the basic research that NIOSH does in analytical chemistry and aerosol science, clinical lab science and toxicology. Over the years, they have been the backbone of my research that I have used and applied; the applied research that I do.

And so I feel that it's vitally important that NIOSH continue to focus its resources in the area of exposure assessment, and some of the topics that I would like to see them focus on are the development of new analytical and exposure assessment methods to identify and characterize exposures to those chemicals that are currently in commerce, and especially those chemicals that are in new products and processes such as nanotechnology, as well as helping us identify some of the hazardous components of some of the older technologies like metal-working fluids.

A focus on methods development should also include a collaboration between toxicologists and analytical chemists, and together, hopefully, they can identify classes of

compounds with similar biological activity. And then the analytical chemists can work to develop methods to measure these classes of compounds, rather than having to develop methods for each individual compound, separately. A good example of this kind of development might be looking at isocyanates and measuring the active NCO group in isocyanates, rather than developing methods to measure each individual isocyanate separately. This kind of an approach to classes of chemicals would also help in validating the controlled banding idea, which focuses on the concept of risk groups for chemicals.

Also, I'd like to see development of new direct reading or portable and expedient measurement methods that could be used in the field. There are lots of situations where field personnel could use these instruments for a quick assessment to determine the level of control needed. And so I would like to see NIOSH focus on exposure assessment, the basic sciences, in the future. Thank you.

DR. WEGMAN: Marlene Freeley from Partners Healthcare.

MS. FREELEY: Thank you. Good morning, everybody. My name is Marlene Freeley and I'm an occupational health nurse practitioner, and I have worked in the healthcare industry for 20 years. Healthcare has been faced with increased costs, but more importantly the loss of knowledgeable technically-expert experienced nurses due to work-related injuries. Back injuries are the most common problem associated with nurses' injuries due to the type of work we do; the manual patient handling. And going forward, we expect to see that this trend will increase because we have issues with an aging workforce, but we also have issues where there's more obese patients in the hospital than ever before, and there's more dependent patients in the hospital with multi-system problems. And what this does is it puts more physical work on the nurse who's doing the care.

Let me give you a quick picture. If you were a construction worker and you were told by your boss to go and move a 200-pound block of cement, you would say certainly, and you would get your forklift and you would go and you

would move that block of cement.
If you are a nurse and you are told to go move a 200-pound patient, you would say certainly, and you would go into that room and try to move or reposition that patient by yourself or maybe with the help of another nurse, and that's the reality for nursing.
Job tasks that are associated with musculoskeletal injuries, mostly back injuries, are lifting, transferring, and repositioning patients; tasks that nurses do, not once a shift, but constantly every hour throughout their shift. The magnitude of this problem is absolutely huge. We have about eight million healthcare workers and we make up less than ten percent of the workforce, but nurses lead most other occupations in terms of injury rates.
And as other industries have tried to figure out ways to decrease their injuries, in the healthcare industry we've struggled with increasing injury rates. Between 1980 and 1990 there was a 40-percent increase in injury rates among nursing personnel. Right now, the rate for a nurse in a hospital -- the rate of injury is 9.8 per 100 FTE, which makes nursing the

fourth highest injury rate for all occupations. So the magnitude of injuries in nursing is well substantiated, both from research in this country as well as international research. The healthcare industry hasn't been sitting around, not trying to address this problem. First of all, there's been body-mechanic training that we focus on. And body-mechanic training has actually had its founding in people living vertically from the floor to the waist level. But as you know, nurses don't -- hopefully, we're not lifting a lot of people from the floor, we tend to lift horizontally. And so the body-mechanic training that we force on nurses has absolutely no application to nursing; it doesn't work, it cannot be applied to nursing.

And yet we make nurses feel guilty when they have a back injury, and we say did you use proper body mechanics? We also have had in some places nurses are told to wear back belts, which again we know is not effective at all. So traditional methods the healthcare industry has used; absolutely not effective at all. But, what's really exciting for me is that

there are some new technology that's emerging, some safe patient handling technology that looks really hopeful. And this new technology goes from the high-tech stuff, which are like ceiling lifts and portable patient lifts to low tech stuff, such as friction-reducing sheets. And we know from studies that are just coming out that this technology reduces the amount of work that nurses have to do. Studies are showing that this new safe patient handling technology decreases costs between 20 and 80 percent. And now we're also finding that it increases patient satisfaction because they have more dignity, being moved up in bed instead of being hoisted. And we're seeing better patient outcomes because instead of getting out of bed maybe once a day, nurses are able to get patients out of bed four or five times a day, which again leads to better outcomes.

So we need help. We need research to be done to study this new safe patient handling technology. We need to see what the cost benefit is so we can convince administrators that this is the way to go. We want to measure

the health outcomes of patients who are being transferred by this safe patient handling technology and also the satisfaction in healthcare workers. Thank you.

DR. WEGMAN: Evelyn Bain, of the Massachusetts Nurses Association.

MS. BAIN: Thank you. I appreciate this opportunity to bring the concern of the nurses and the Massachusetts Nurses Association. We're talking here about nurses' exposure to hazardous drugs.

The use of hazardous drugs as identified in the NIOSH publication "Alert: Preventing Occupational Exposure to Hazardous Antineoplastic and Other Hazardous Drugs in Healthcare Settings" is extensive. Today, many drugs have multiple uses, and while they may be recognized as anitneoplastic agents, thus hazardous in a chemotherapy unit, they are not recognized as such in other settings. Immuno-suppressive drugs, gonadotropins, estrogens, estrogen agonists and antagonists, and antiviral's are all classified as drugs considered hazardous according to NIOSH.

New drugs come to the market almost daily with

little or no recognition of the damage that can be done to the health and well being of nurses and others who work with these drugs on a daily basis. Since the healthcare industry is still recognized as the fastest growing industrial segment in this country, millions of workers have the potential for exposure and disease in the future.

The NIOSH publication classified many of these drugs in use today as actual or suspected cancer causing agents, others as contributing to adverse reproductive events, such as infertility and miscarriages. Many other drugs are known to have properties that cause or exacerbate asthma.

As nurses we could count off on our fingers the number of our friends and colleagues who have had cancers and who have had adverse reproductive events. Today, I know at the MNA we have three -- nurses in three hospitals who are concerned about clusters, either of breast cancer or brain cancer. And we really have no way to research or to look for research to find causative agents.

While the extent of the adverse health effects

of many drugs are recognized and have been known for years, in some cases the extent to which nurses are informed of the hazards is not well understood. As nurses, we learn the intended action of drugs on patients and diseases. We also learn to recognize adverse effects of drugs as they're administered to the patients and how to respond in the event of an adverse reaction to protect the patient from harm.

Historically, nurses have not been taught about the potential effect of these drugs on themselves or their coworkers. Nurses are seldom trained to select and utilize appropriate personal protective equipment other than gloves or to carry out appropriate disposal or spill clean-up methods. Protective equipment that is utilized is often for the protection of the patient.

While nurses in specialty practice or with advanced education may have been provided with this information, the majority of nurses at the bedside, in outpatient clinics, in home care, or office settings have not had this opportunity to learn why and how to protect

themselves.

OSHA requires that chemical hazard communication is the employers' responsibility, and there are very specific requirements for that training. Drugs and pharmaceuticals are exempted from hazard communication training, only if the drug is administered in a pill form. Once the pill is crushed or the drug is administered through a vein as a liquid or inhaled as a mist, the drug falls under the requirement of the OSHA Hazard Communication Standard. This standard also requires the employer to identify and provide engineering controls and appropriate personal protective equipment.

Also poorly understood is the type of protective equipment that is appropriate for protection against exposures, both to nurses and other workers. It would be valuable to have research that identifies nurses' knowledge related to the hazards of the drugs that they use and the personal protective measures that are necessary.

It would also be valuable to have research related to hazard communication programs that

are in use in hospitals today that provide training related to preventing exposure to hazardous drugs. We would like to see examples of hazard recognition, selection of personal protective equipment, engineering controls, recognition of exposures; that is spills, releases, contact with patients' blood or waste materials, post-exposure reporting, and follow-up protocols and medical surveillance. This information then could be transferred into fact sheets and information bulletins that are so useful in educating nurses and other healthcare workers, including doctors and hospital managers, and administrators. This information will be useful in helping to change the culture of the healthcare industry to embrace worker safety with the same commitment as they do patient safety. Thank you very much.

DR. WEGMAN: Margaret Quinn from the Department of Work Environment at the University, here.

MS. QUINN: Thank you for this opportunity to address this group today. I have had a number of years now in occupational safety and health, and have the privilege of engaging in NIOSH

funded research, including under the NIOSH NORA umbrella for a project we call the Sustainable Hospitals Project, and now a project on blood exposure and sharp injuries among home healthcare workers. And this latter project we're very excited about because it's located both here at the University of Massachusetts Lowell, together with our collaborators at the Massachusetts Department of Public Health, and we work with both labor partners through the Massachusetts Nurses Association, the SEIU Local 2020, and a number of private home healthcare agencies. So it's really a partnership that we're quite excited about. Many of the colleagues have already spoken about issues related to healthcare. And so what I would like to do is focus on a cross-sector strategy, a cross-cutting issue and apply it to two of the NORA sectors. The cross-cutting strategy is one that we've been working on here at the University of Massachusetts Lowell in many capacities, which is to develop and apply methods to substitute or eliminate hazards through the identification and design of safer and healthier products,

materials, and work practices.

At University of Mass. Lowell, we're calling this Alternatives Assessment and Design, or Redesign. And the alternative being to finding alternatives to conventional materials, products, and all the associated work processes and practices that go with them.

I'd like to talk about applying these to the healthcare sector and also to the sector of manufacturing, in particular the manufacturing of nanotechnologies. It's been a top priority of the occupational hygiene hierarchy of controls that we should substitute or eliminate hazards. But really, more of the focus over the past decade has been controlling hazards through engineering controls, administrative controls, and we hope as a last resort but often not, personal protective equipment.

Yet, many products, materials, and their associated processes are introduced into the workplace and then eventually communities, without any input from occupational health and safety researchers or professionals. That is, materials and products are produced as a given. Occupational health researchers, workers,

community members are not assumed to have any role in saying what those products should look like and how they should be made.

But, thanks to decades of important research in occupational safety and health, including much of it funded by NIOSH, we actually now know a great deal about many substances of their hazards of exposures. And I think it's time that we begin to develop methods to reduce those exposures or eliminate them, in addition to measuring and controlling those hazards.

And I know that's been a focus of our field, but I'm proposing that we try to actually become involved in the design and redesign of processes and materials, and even products.

And applied to the healthcare sector, that might look like something we engaged in in the Sustainable Hospitals Project to have occupational health and safety researchers, along with clinicians and administrators in hospitals identify hazardous products like needles and getting safe needle devices, as in new drug delivery systems, and seeing if we could identify alternatives to those and if those alternatives did not exist actually

suggesting ways to redesign them.
And one of the things that we became involved in is actually starting to work with manufacturers around their product design, especially when hospitals and other clinics decided that their purchasing power was enough to get them to influence how they might actually design their products in a healthier and safer way.
I just wanted to touch on this issue related to nanotechnologies because we're getting a whole new, very widely disbursed technology introduced here. And I think that occupational safety and health researchers and professionals could be on the design teams for these new products, not just waiting for them to come off the line and then the rest of the world saying well, how are you going to make these safe for us once they've already been produced?
We should ask do we need to take these hazards as a given or can we design them? This approach, I think, is cross-cutting and can be applied to other areas, especially these two sectors. And I think that it can help to expand the scope of occupational health and

safety research and also the role of professionals in their practice. And I hope that we can grow our field in addition to deepening the research in the field. In addition, I think that it's a way that we could lead to innovation. Occupational safety and health can be innovative in addition to measuring and controlling. Thank you.

DR. WEGMAN: Thank you. I believe Karen Hopcia is not here yet. So we'll move on to Christine Pontus, if she's here. Why don't we switch the group and the next group come on up? And while they're doing that, I will remind you because neither NIOSH, nor Harvard, nor UMASS Lowell can afford to give you lunch, you're responsible for buying your lunch, and unfortunately with this location, I'd advise you to buy the lunch we have to offer because getting a lunch by walking out's going to be a little bit time consuming. So that reminder being, buy your lunch tickets. They're at the front desk. Christine?

MS. PONTUS: My name's Chris Pontus, I'm from Mass Nurses Association. My topic and title of comments are mandatory overtime, safe patient

handling devices, workplace violence and the relationship to administrative policies and procedure. And my last question is is there a need for best practice model in each of these arenas?

My basic premise is that in the proper environment many accidents and injuries can be prevented. I will briefly discuss the issues and concerns of each category, and then suggest that each healthcare facility have policies, procedures, and most importantly the key personnel in place to work towards prevention and decreasing the amount of these injuries.

In the current healthcare system, health and safety professionals need to be empowered to create environments for healthcare personnel to deliver patient-care services. It has been my experience through various healthcare systems that there is a lack of consistent practices in place to ensure safe working conditions.

A disconnect exists from the health and safety policies in place to the actual implementation of getting the needed or anticipated result. When it comes to the health and safety of the worker, there are pockets or voids of

misunderstanding and department through most healthcare organizations. I find that some departments have a sense of what health and safety provisions are necessary and other departments do not. For example, some medical centers are not even equipped with the appropriate equipment or knowledge base to implement a basic safety action plan.

A recent actual example is an ICU nurse attends a seminar. She was interested in obtaining safe patient handling equipment and training for her unit. When she returned to work she was unable to communicate the lessons learned during the seminar. Her workload interfered with transferring the critical information to her associates. Consequently, the proper safe patient handling equipment was never acquired.

On the frontline is the lack of support from the immediate supervisor and director of nursing due to a misunderstanding or lack of understanding the problem when the nurse attempts to bring a solution to one of the nation’s leading causes of injury in healthcare. This lack of response from the working infrastructure to provide a pathway for

a dialogue to be initiated and reach someone within that facility who could and should understand the need to respond is an issue often not provided.

We as occupational health nurses know that repeated and overuse of the body without rest periods and/or the use of ergonomic equipment to help with certain tasks can lead to a breakdown of the body for many workers. Recent studies indicate that those working in jobs with overtime schedules experience a 61 percent higher injury rate in comparison to those working the same positions without overtime. Individuals working 12 hours per day are associated with an increase injury rate of 37 percent. Those working 60 hours per week experienced an increased injury rate of 23 percent.

Substantial efforts should be made to create an in-house pool of nurses employed part-time that understand they could be on call for a certain day of the week. There are many practical solutions that could be implemented before the use of mandatory overtime. Mandatory overtime should be a last choice of action.

Strategies to prevent workplace injuries should consider changes in scheduling, practices, job redesign, health protection programs for people working in jobs involving overtime or extended hours.

Last, the incidents of physical violence is increasing in America. Healthcare providers are exposed to violent incidents due to neighborhoods that city hospitals are often located in, the population served, such as mental health or forensics, meaning violent patients, a family member sometimes upset or out of control, an operational environment that is open to the public at all times.

We at MNA believe that there are procedures that can be taken to prevent violent incidents and proactive measures that can be implemented when an incident occurs that can lessen traumatic effects. We also believe that the incidents of workplace violence is under reported. Additionally, there are cultural and organizational acceptances of inappropriate behaviors that contribute towards violent incidents.

The researchable issues of the sectors just

spoken to are healthcare facilities that have established effective workplace prevention policies procedures need to be identified. Is there a best practice model in healthcare that we can follow? And that there is a breakdown of organizational communication interfering with health and safety issues and is perpetuating preventable occupational injuries in most facilities. Thank you.

DR. WEGMAN: Thomas Fuller from the Mass Nurses Association.

MR. FULLER: Hello. Thank you for the opportunity to speak here today. I have about 26 years of experience in nuclear power plant biotechnology healthcare and academia. But relevant to my proposal today I am a member of the Pandemic Flu Project Team of the American Industrial Hygiene Association, and I'm the Infection Control Team Leader of the AAHA newly created Healthcare Working Group. I'm representing the Massachusetts Nurses Association today.

During the 2002 SARS outbreak there were 8,450 reported cases in 33 countries on five continents. The eventual death rate was 9.6

percent; 774 people, worldwide. The elderly rate was over 40 percent. It was also noted that in Toronto, 42 percent of the cases were healthcare workers; in Vietnam, 57 percent. It's assumed that most of these were nosocomial or transferred within the hospital; work acquired. They were infected at work, and it's also a concern that the nurse to doctor ratio was ten to three, SARS death rate.

After the SARS outbreak, several shortcomings became evident in the healthcare incident response. These included the inability to identify and contain agents, inadequate worker protection and surveillance, misunderstanding of transmission. It was also determined that after the fact workers had inadequate understanding of personal protective equipment and there was a shortage of isolation equipment.

Information about the disease was unavailable or poorly integrated, and there were few monitoring capabilities to survey the agent in the environment or the workplace. Other hospital management and industrial hygiene shortcomings included the failure to track

patient contact history, the failure to track visitor contacts, and an overall lack of preparedness and an inability to prevent the spread of the disease.

Much of the system failures mentioned here were due to a general lack of consensus in infection control in healthcare. In the past, infection control emphasis has been on patient care. Infection control professionals tend to emphasize medical and administrative controls and are not thoroughly aware of industrial hygiene rubrics. Industrial hygiene and safety professionals have to deal with rapidly changing conditions for which the risks, the transmissions, the viability, and other issues are not well understood.

Lastly, there remains a general attitude that healthcare workers should continue to accept workplace risks that would be unacceptable in other industries. As an example, in a recent document published by the World Health Organization they showed this overwhelming acceptance of risk in healthcare workers by issuing the following statement with regards to when a respirator may be warranted instead of a

surgical mask, quote, serological surveys in close contacts of patients, communities where clusters of cases have occurred, or high risk populations, such as healthcare workers, will provide early alerts to changes in the behavior of the virus, unquote. With the future outbreak potential still looming, and the last I checked the World Health Organization has us in a Pandemic Alert Three, meaning human infections with a new subtype but no human to human spread are at most rare instances of spread to a close contact. If this virus mutates in such a way that the disease can be transmissible from human to human like SARS did a serious pandemic could become a reality, unquote. So that's the WHO.

So to summarize, the needs for increased industrial hygiene research in infection control are evident. The following topics should be prioritized. Determination of acceptable environmental levels for various agents, the development of air/surface monitoring capabilities and other evaluation techniques, better abilities for industrial hygienists to describe how agents may move

through or exist in the environment to expose workers, better ways for the medical community and industrial hygiene to communicate about diseases. And then, just naturally, development of better engineering controls, ventilation filtration disinfection, isolation, administrative controls, the needs for clear and concise programs and procedures, policies planning, techniques for tracking worker exposures and monitoring materials in the environment, job rotation access control, and when to administer a prophylactics.

And lastly, but not least, going back to the respiratory protection issue is clear and concise directions for personal protective equipment. Thank you.

DR. WEGMAN: Kathlene Sperrazza, from University of Massachusetts Lowell.

MS. SPERRAZZA: Hello. I'm going to speak today about hazardous drug exposure in the healthcare environment. I'm a registered nurse with more than 30 years of direct-care provider experience in major Boston teaching facilities, and I'm a member of the MNA, and in the Congress on Health and Safety. I'm here on

their behalf today, as well as UMASS Lowell, where I am a student in the work environment policy program and also research assistant in the PHASE healthcare study, which is Promoting Healthy and Safe Employment in Healthcare. I'm also an injured worker.

Currently, more than 5.5 million healthcare workers may handle hazardous drugs like chemotherapeutic agents, antibiotics, antivirals, hormones, bio-engineered drugs, and other miscellaneous drugs. Serious health effects have been reported in healthcare workers exposed to these hazardous agents, and Evie actually went through those effects.

Hospital staff, particularly nursing and pharmacy personnel may be exposed to hazardous drugs by breathing them, ingesting them, or having skin contact with these agents while preparing, which includes counting the pills, crushing them, breaking tablets, administering and/or disposing of the hazardous agents, the equipment that's used to administered them, and linens patients may come in contact with, or the patient's body fluids or feces.

The healthcare industry has been recognized as

one of the fastest growing segments in the economy. In the future, more and more workers will have the potential for work-related exposure to the myriad of hazardous drugs found in the complex healthcare environment.

A 2004 NIOSH conference was entitled Alert on Reducing Occupational Exposures to Hazardous Drugs in Healthcare, Converting Theory to Practice. Unfortunately, while we have made strides in recognizing these hazardous exposures and the potential health effects facing healthcare workers, we have not gone far enough. Converting theory to practice, even in large teaching facilities, has not been consistently accomplished.

We would like NIOSH to focus on prevention by conducting research in facilities that have successfully designed, implemented, and are practicing comprehensive hazardous drug exposures prevention programs or aspects of programs, which reach workers in all potential exposure areas.

Information on the types, frequency, and circumstances of exposure to hazardous drugs among healthcare workers will assist in

prevention efforts and also help occupational health professionals monitor exposure and resulting health effects, detect emerging problems related to hazardous drug exposure, for instance, the occupational health and safety implications of nanotechnology in hazardous drug administration, and monitor prevention program impact.

We have made progress in identifying and focusing on a wide variety of exposures found in the healthcare environment since the last NORA agenda was set. I am very proud to have been part of that last NORA meeting. This invaluable work should not only continue, but be expanded.

Additional focus should be placed on research and education that will provide support to the healthcare workforce directly, particularly for direct-care providers who are most at risk. Aspects of the work environment that serve as barriers to training and the ability to carry out what has been learned, like staffing, are also integral to effective preventive efforts. These barriers should be researched and solutions supported by the occupational health

community, as well as hospital administrators. We would like to have this research translated into fact sheets and best practice formats so the information can be readily replicated and utilized in healthcare facilities and agencies across the country. This information will be useful in helping to change the culture of the healthcare industry to embrace worker safety. Thank you for this opportunity to share my concerns and those of the MNA and the UMass Lowell community.

DR. WEGMAN: Elizabeth O'Conner from Mass Nurses Association.

MS. O'CONNER: Good morning, my name is Elizabeth O'Conner and I'm here on behalf of the Massachusetts Nurses Association. And I am the last nurse to speak to you this morning, but certainly not the least. I also am a member of the Congress on Health and Safety at our Mass Nurses Association, as is Kathy as she mentioned, and also Chris and Tom.

I am speaking to you today on the topic and the title of my comments is preventing needle-stick and sharps injuries. I'm a registered nurse and have been providing bedside care for 29

years now at a major teaching hospital in Boston. I'm also a member of the Needlestick Advisory Board of the Massachusetts Department of Public Health.

I appreciate this opportunity to bring forward to you the concern of continued exposure of nurses and other healthcare workers, including doctors, to blood and body fluid through needle-stick and sharps injuries. This blood and body fluid can transmit HIV, Hepatitis B, Hepatitis C Virus, as well as viruses that cause West Nile Fever. Many of these injuries occur because healthcare facilities and agencies purchase and provide workers, unknowingly in some cases, with unsafe devices, although there are safer alternatives on the market that may have not been researched by the facilities.

The healthcare industry continues to be recognized as the fastest growing segment in the U.S. economy. And for this reason, more and more workers will have the potential for exposure in the future. A few years ago, OSHA estimated close to one million needle-stick injuries in this country occur each year. We

quote the number as an estimate since it is recognized that probably 50 percent of these injuries go underreported, yearly.

The hospital I work in had a proactive approach to preventing needle-stick and sharps injuries. Prior to the changes in the OSHA Blood Borne Pathogens standard and the Massachusetts legislation which followed that requires reporting of needle-stick injuries and sharps injuries by healthcare agencies and facilities to the Department of Public Health. Before those -- Prior to these changes, a committee was formed at my hospital and monthly meetings were held to discuss the needs to research and test engineered safety devices that would be appropriate for specific departments in our facility.

These meetings included hospital management and were attended by representatives from nursing, pharmacy, surgery, radiology, anesthesia, and medicine. As safety devices appeared on the market they began to be utilized. Problems were identified with certain products, and alternatives were selected.

I feel that my hospital has been ahead of the

curve in working to prevent needle-stick and sharps injuries. As a member of the Needlestick Advisory Board at the Department of Public Health, I realize that not all nurses, such as myself and other workers are as protected and not all facilities and agencies are as proactive. Injuries continue because of a lack of commitment to assure that only engineered safety needles and other sharps are provided for their workers. I have learned that unsafe devices are still available due to several factors.

The first factor is backdoor purchasing, a term that describes how specific departments can order equipment outside of the regular purchasing channels. This allows them to bypass the system that would only purchase safety devices and lets them order whatever they choose, or whatever they have been used to using. That was the case at my facility in certain instances.

The second factor is procedural kits that include unsafe needles and/or sharps. These kits contain all the supplies and equipment in one sterile package to accomplish a medical

procedure. The suppliers who fill these kits are not held to the same requirement as that of the employer in relation to protecting workers from exposure. Thus, unsafe devices often costing less and in great supply from the manufacturers are placed in the kits, posing a hazard to the workers using these kits unless the safer alternatives are chosen and they are instructed to do so from their facilities. And thirdly, purchasing contracts. A hospital or agency may be included in a purchasing agreement with a supplier to allow lower costs for bulk purchasing of medical equipment and supplies. And I must be speaking very slowly. Just to summarize, those three factors are a major reason why we feel that there needs to be further research in this area so that we could develop fact sheets, as has been stated earlier this morning, and best practice formats to provide information to other healthcare providers in this country so that they will not be injured. And the information would be useful in helping to change the culture of the healthcare industry, as also was mentioned earlier today. Thank you very much for

allowing me to speak at this time.

DR. WEGMAN: Going to fill in a blank here because Cora Roelofs has asked to speak since she'll be teaching this afternoon. So Cora Roelofs from the University of Massachusetts Lowell.

MS. ROELOFS: Good morning. I'm research faculty here in the Department of Work Environment at the University of Massachusetts Lowell, which means that 100 percent of my time is spent on occupational health and safety research, most of it funded by NIOSH.

I was trained in occupational health and safety research at Hunter College and here in the Department of Work Environment, and most of that training was also supported by NIOSH.

I'm currently the principle investigator on a NIOSH-K or career development grant to investigate methods for evaluating nail salon hazards and health effects. And this work was motivated in part by interest in the apparent need for new ways of reaching immigrant workers, non-English speaking workers, and workers in very small businesses, all of which have generally been underserved by research

money in the past.
And there is good reasons for this lack of attention to these working populations. These workers are hard to reach, there are cultural and linguistic barriers between them and university researchers, and often times they are alienated from mainstream institutions, be that universities or unions, or professional associations, or government.
So I've worked hard over the past few years to form relationships with and to collaborate with my research partners in the Vietnamese community from which nail salon workers generally come. And this focus was inspired in part by NORA's focus on special populations, and I've gotten a lot of guidance from that committee on my approaches.
Together with the Vietnamese -- my partners in the Vietnamese community, we've conducted community-based occupational health and safety survey and designed a unique culturally and linguistically appropriate outreach tool; the Nail Salon Health and Safety Calendar.
I'm now co-investigator on a research application to continue our department's work

with Hispanic construction workers. This proposed project links many of the current -- the existing NORA's goals, especially the targeting of at-risk special populations and the prevention of falls; a leading cause of death for construction workers.

We believe that in order to be successful we have to work closely with the entire affected community, including more than the contractors and the workers, but also their families, local government, and even the religious community.

I urge NIOSH to recognize the challenges and the rewards of such research/community links and to support through the next NORA research with special populations and the methods required to work with them; qualitative inquiry, community-based participatory research, and time. Thank you.

DR. WEGMAN: Can we have the next group come up? Pamela Quinlan, Judy Sehnal, Laura Punnett, John Egan, and Raphael Moure?

MS. QUINLAN: I'm Pam Quinlan. I'm a senior occupational health nurse for Tyco Electronics M/A-COM division, here in Lowell. I'm here to talk about repetitive-motion injuries as they

relate to our worker population.
I manage the workers' compensation for M/A-COM facilities across the country and also the disability. What we are seeing is an injury that has probably been focused on quite a bit already. I'm sure lots of research has been done. We did have an ergonomic standard provided, but I don't think it was ever put in place. And, we really need more guidance in this area.
We're finding that workers, not only who are doing the manufacturing -- We have FABS across the country. We have workers who are doing project management working at computers for eight hours a day. We have people who are in the IT programs, SAP programs, entering data for eight hours a day. And what we need is more guidance to teach them about ergonomics, and also guide us in the rest periods; how many breaks they should take, what the exercises should be.
We've taught all this, we know. We've done the ergonomic evaluations. We have a very good safety record. Our environmental health and safety committee is very active. We're

proactive in educating our employees to set up their work stations so they do work in neutral positions.

We know the value of administrative controls, engineering controls, and changing jobs.

But in this economic environment, we can't really change jobs because if a person cannot do their job chances are they won't have one.

And especially now in the electronics field, much of our business is being transferred to China and other countries, actually where we also have many plants.

So I'm asking that NIOSH go back to this diagnosis, it's an old injury, you know, repetitive-motion injury has had a lot of work done, but I don't want to keep it on the back burner. I'd like to see it come to the front burner again and have a lot of research done on it, as to how we can prevent these injuries.

Because I not only manage the claims in dollars, and half of the dollars spent on all our claims are spent on repetitive-motion injuries. I also manage the case; the individual's healthcare from the time that they report the injury until they either return to

work full-duty or are totally disabled. Yes, some of our people are totally disabled across the country, whether it's California, Virginia, Maryland, here in Massachusetts, we have plants all over this country and it is causing a disability, even today.

So thank you very much. And I would just like to say that I'm on the Board of Directors for the Greater Boston Association of Occupational Health Nurses. So I am an employee advocate, and that's what I'm here for today. Thank you.

DR. WEGMAN: Judy Sehnal from The Hartford.

MS. SEHNAL: Thank you. I'm a certified professional agronomist, and I am also a registered occupational therapist licensed in the State of Connecticut. I've worked in ergonomics for the last 15 years for a large property casualty insurer in Connecticut in the loss control department. My role is to be a resource to our field staff and also to work directly with our insured on various aspects of ergonomics. Prior to that, I worked for many years in the healthcare industry as an occupational therapist.

I'd like to address three topics briefly. The

first, I'd like to support the trend toward addressing occupational safety and health by industry group. This approach is inline with trends in the business community, including the insurance industry, where aggressive efforts are currently underway to produce industry-specific insurance products and associated occupational safety and health programs and products, such as ergonomics and occupational safety and health programs and materials, including training programs. Such a coordinated approach would promote greater effectiveness in employee-based occupational safety and health programs and practices. Secondly, focused outcome-oriented research on the advocacy and cost effectiveness of ergonomic interventions would help those of us who work directly with employers in the field on various aspects of occupational safety and health, and would also help safety directors and risk managers in those companies who face the challenge of developing effective safety and health programs, selling those programs to senior management, and implementing those programs effectively.

The employers that I work with want to know -- They want to hear about practical solutions to ergonomic exposures. They want to know what those solutions will cost and what the return on investment will be. They're asking for training programs and materials, and in particular, time-efficient training programs; the time available for training in the workplace is just shrinking rapidly.

They want to know more about how effective training programs -- Excuse me. They want to know more about how effective those training programs are and what the most effective training approaches will be.

As a previous speaker stated, back injuries continue to be a major exposure in the workplace and certainly a major challenge in the healthcare industry. Material handling continues to be a challenge in other industries, as well. Recently, for example, I've received many requests from the retail industry. Employers want to address issues associated with loading and unloading trucks, stacking shelves, delivering products to customers down narrow flights of stairs and in

and out of various buildings.

In the spirit of the NORA research-to-practice agenda, can we identify and utilize those, who like me are in the position to pass research and best practices onto employers effectively? And lastly, the other issue I briefly want to address is older workers. Employers attempting to implement ergonomic programs are recognizing the aging of their employee populations. They want to know what they need to do, what they can do, to support the health and productivity of their workers. What's different with the older worker? What works with the older worker? Thank you.

DR. WEGMAN: Laura Punnett from the University of Massachusetts Lowell.

MS. PUNNETT: Good morning. I'm Laura Punnett on the faculty of the Department of Work Environment at UMass Lowell. Musculoskeletal disorders of the back, upper, and lower extremities represent a continuing major source of morbidity in all sectors of the U.S. economy; we've just been hearing about some of that. It's very important that NIOSH not permit political events, such as the

overturning of the OSHA rule to push musculoskeletal disorders off of the research agenda. We should also note that recent changes in the BLS record-keeping rules eliminated the repetitive trauma category of illness. And NIOSH also has a special responsibility to make sure that this -- the resulting artifact in reporting is not confused with a true decrease in the magnitude of these problems.

Unlike diseases that are eventually fatal or acute injuries that can be witnessed by others, medical surveillance of musculoskeletal disorders relies primarily upon monitoring the behaviors of individuals, such as when they seek medical attention or tell their employers about their problems. These behaviors, of course, are influenced by circumstances both within and outside the workplace. For example, if I don’t believe that my employer will or can take steps to help me recover, then I’ll be unlikely to report the problem.

Anecdotally, the availability of support systems and appropriate employer responses varies by socioeconomic status and possibly

also by gender, and race or ethnicity. NIOSH should support more research to examine the magnitude of reasons for and distribution of under reporting, as well as the extent of work-related morbidity that remains obscured in the general population for the same reasons. There's substantial epidemiologic evidence demonstrating the musculoskeletal effects of exposure to physical stressors at work. Recently with WHO researchers we estimated that over one third of back pain globally is explained by occupational demands. Of course, still there are gaps in knowledge. Musculoskeletal research could better inform preventive efforts if we had more longitudinal studies generating data on the natural history and the latency of effect for different exposure profiles, including combinations of physical and psychosocial exposures. There's been little examination of how occupational experience might affect disease risks or progression even after leaving work. We need outcomes research to examine the long term impact on health, as well as on employment and economic status, especially the vicious

cycle of worse outcomes in low-status workers who are injured.

We also need more laboratory studies on patho-mechanisms that are relevant to the forms of mechanical load that occur occupationally. Such research can inform the development of more etiologically relevant exposure indicators and of better diagnostic instruments. The available examination techniques do not adequately serve for many of the symptoms and syndromes that are commonly reported in workplace settings.

The challenge of analyzing non-routinized jobs has become more pressing as fewer people than ever work on traditional manufacturing assembly lines. Certified nursing assistant, hotel room cleaner, bus driver, legal secretary, construction laborer; these are only a few examples of jobs that are repetitive in their fundamental motion patterns, but are not routinized to the extent that they can be described completely by observation of only a few minutes of work time.

As ergonomic exposure assessment becomes more time consuming and more labor intensive, the

trade-off between the precision of direct measurement and the need to describe exposure variability over time also becomes more challenging to optimize.

Ergonomic exposure methods are almost as numerous as ergonomists. Worker self-report, investigator observation, direct measurement; they each have utility, but the lack of standardized exposure metrics severely limits our ability to compile findings across studies.

While the epidemiologic literature has consistently implicated a common set of physical exposures, the magnitude of specific exposure outcome associations often vary substantially. Besides differences in operational definitions of exposure, variation in quantitative findings may also result from differences in case definitions, exposure-dependent latency periods, correlations among risk factors or the ranges of exposure available for analysis.

Similar to the important role that NIOSH has played with respect to standardization of chemical exposure assessment methods, NIOSH could play a similar role here with regard to

ergonomic exposures. And it's badly needed in order to facilitate the meta-analytic tasks such as quantifying exposure/response relationships and defining permissible exposure levels.

There have been some highly counter-productive arguments in recent years about how to partition musculoskeletal disorder risks between physical and psychosocial exposures. It's important to appreciate that many of these job features have common upstream determinants rooted in the way that work is organized. More studies should utilize multi-level analysis to identify those work organization features that explain variability in both physical and psychosocial conditions.

And finally, I would urge that there be more research on the role that occupation plays in socioeconomic disparities in health. NIOSH could enter more fully into the mainstream public health conversation by stimulating and supporting more research that examines the way in which worse working conditions among lower status workers form part of the mechanism of socioeconomic disparities in health. Thank

you.

DR. WEGMAN: John Eagan with NStar Gas and Electric.

MR. EAGAN: Thank you for the opportunity to speak. My name is John Eagan. I'm an employee of NStar Gas and Electric. I am a member of the Local U, WUA-369 Joint Safety Committee. I represent the overhead line workers at NStar. My reason for being here today is I am the blue-collar worker that you hear about. I have 36 years of experience in line work. I on a daily basis rubber-glove 8,000 volts, which means I put on a pair of 20,000 volt gloves and go up and put my hands on the conductor.

I work with many individuals that have a tremendous need for training in this field. Unfortunately, as Nancy Lessin got your attention earlier today explaining the fairytale that is in the work environment today of training and lack of training. The company that I work for has a tremendous amount of paper that shows training, but the actual field training is very lacking.

I can give you an example of what the younger workforce, those with less experience than

myself, must deal with on a daily basis. They are exposed to the similar risks that I am. It's a very unforgiving commodity. You do not get a second opportunity if you make a mistake in the work that I do.

What happens, unfortunately, is individuals are sent out into the field under my guidance as an example, and I'm instructed to give them what they need. It's a very difficult task to monitor that and to do what needs to be done. What I'm requesting and what I would love to see is some kind of monitoring research so that some agency outside of the individual utilities is responsible for what goes on. These companies, not just the one that I work for, have the ability to hide many, many statistics. As has been mentioned earlier, those individuals that are injured do not come forward with injuries, even though there is a mechanism and a method to do such, they're afraid.

Also, I will tell you some of the circumstances that I've worked under recently, and this is just a brief example. There was a storm on Cape Cod on December 9th; it was termed a

wintercane or a bombogenesis. On December 9th, I reported to work at 7:30 a.m. I was instructed to work for the day in a storm. From that point, we were instructed to drive to Cape Cod. Under the direction of the state police, they closed Route 495 to allow us to assemble and continue to the Cape. Then continued to work all night, all day Saturday, and was given rest at 11:00 p.m. Saturday night. Without doing the math, I'm sure you people understand how long a time period that is. Under that time frame, we were rubber-gloving 8,000 volts, alive. Now continue that whole process to the point that I returned to my home on Tuesday afternoon. I was there Friday, Saturday, Sunday, Monday, and most of the day Tuesday. Now, would you like to be facing me coming down the road if I've worked under those conditions when I'm driving a huge bucket truck on the major highways of this state? I don't think so, but that's what's going on every day.

So on the premise that we could get training that would allow others to be in a great spot because we're going to be doing this regardless

of what happens, because of downsizing, because of economic issues with power companies now, deregulation, the DTE demanding reliability, we're going to be doing this. I request training and monitoring of that training which allows other individuals to be at the top of their game so when I'm not then they can take their own ownership of what they're doing. Thank you.

DR. WEGMAN: Raphael Moure, from the University of Massachusetts Lowell.

MR. MOURE: Thank you. My name is Raphael Moure-Araso. I am the chair of the Department of Work Environment of the School of Health and Environment of the University of Massachusetts Lowell. And I would like to give my remarks about NIOSH research to understand and prevent hazards arising from emerging technologies. NIOSH has been committed to understanding and preventing hazards arising from emerging technologies for very many years. For example, ergonomics issues on BDTs in the '70's, indoor air contamination in the '80's, and impacts of new drug manufacturing on the skin and respiratory systems in the '90's. In 1996,

NIOSH through NORA recognized emergency technology as one of the 21 priority research topics for the next decade.

The first nine years of NORA have demonstrated the importance of strategic research partnerships in providing safe and healthy workplaces. NORA now seeks to build on past successes while preparing for new challenges in designing research to address the 20th-century workplace. Framework to integrate emerging technologies research in each of the nine proposed sectors will provide guideposts for research directions and to develop partnerships in support of those pursuits.

The sectors that you heard from early this morning -- I recall mining, constructions, manufacturing, retail, transportation services, healthcare, and an additional one that is cross-sector research. I am aiming to that cross-sector research perhaps, but also to all the different sectors that definitely have emerging technologies.

The original approach to emerging technologies was the creation of a team that anticipated the elimination of occupational hazards associated

with new technologies. NIOSH convened a multi-disciplinary team and applied consensus and (inaudible) assessments techniques to identify research gaps. The challenge was to apply knowledge to emerging occupational hazards before they become ingrained in workplace technology. The vision was of a proactive design of emerging technologies that incorporated principles to eliminate hazards rather than just controlling them.

The team met from 1997 to 2002 and it identified four areas of research and development to address perspective emerging technologies. I will discuss three of those four areas, modify my own analysis -- As a matter of fact I don’t pretend to represent the team; I have this opportunity to tell you my piece of it. And I’m going to propose that this consideration of research be applied to the nine sectors of future NIOSH/NORA research work.

The first area is to identify and prioritize emerging technologies by sectors. The need to identify and prioritize the emerging technologies that must deserve attention with

regard to their potential positive or negative consequence of occupational health in these nine sectors was considered during the deliberations of the team. The suggestion was a two-tier approach to fill this identification and surveillance gap. The first tier will use existing sources of information to identify relevant emerging technologies, and the second tier will prioritize which applications of these technologies could potentially harm or benefit occupational health.

We discussed the specific needs of research, like to determine the minimum data needed to identify technologies and their hazards. We also need to periodically evaluate the emerging technology literature, specifically the NIOSH Health Hazard Evaluations Database for potential reported effects on workers health. We also talk about the need to conduct prospective analysis, specifically promoting the use of alternative analysis that will apply prospectively a framework for the search of optimal technology. And then, analyzing each alternative of emerging technologies by interactive risk assessment.

The third sector was apply the concept of inherently safety processes. We believe that the design of emerging technologies and their deployment is needed that will resort in safer workplaces. This new approach of inheriting safer process, considered (inaudible) and processes that are inherently safer for the workers. We make specific recommendation of where to look at the published literature in inherently safer process to apply in the development of new technologies.

Finally, it is important that we create an integrated process for adopting beneficial emerging technologies and avoiding potential safety and health problems with these technologies in all sectors. This process needs to integrate identification, and knowledge, and design of emerging technologies. It must also encourage collaboration between safety and health professionals and technology developers in all the sector areas identified by NORA. Thank you.

DR. WEGMAN: Can I have the last group from this morning come up? Steven Schrag, Angela San Philipo, Christopher Witkowski, Franklin

Dalembert, and Karen Hopcia. I'm sneaking one extra one in.

MR. SCHRAG: Good morning. My name is Steve Schrag, and I work for the Service Employees International Union in our HAZMAT training program. I want to thank NORA for the opportunity to give my input on the proposed research for the next ten years.

Since 1985, I've worked for SCIU and I've either facilitated or conducted workshops for over 20,000 workers in a variety of workplaces: hospitals, nursing homes, homecare workers, Department of Transportation both on the road and in their facilities, and for building maintenance workers. What I see is a lot of holes in training programs that most employers put together. I see workers who get a HAZCOM training that's 15 minutes, and it's a video, and go back to work.

What I see as operations-level training, or what's called operations-level training where people get little time to actually use the equipment they're supposed to use, whether it's confined space or whether it's decontaminating a patient. I see lots of situations where

workers are asked to sign a sign-in sheet before the class that says yes, I understood everything I learned in the class; a little bit presumptuous. And what I see is for most of those programs there's little impact on what happens to workers in terms of protecting themselves.

So I think that what NORA should look at is a couple of questions. One is what is the quality of training that is currently provided to workers, to fulfill OSHA mandates? Second is is the length of that training adequate for workers to assimilate the information that's provided? And third is the frequency of the training sufficient to ensure up-to-date information and skill development using necessary safety equipment and protocols? OSHA mandates dozens of kinds of training in their various standards. Some of them are compliance standards where they just have to check it off that they did the training. Some of them are performance standards where they actually measure what workers know. I find that the use of lecture and PowerPoint and now online training and use of experts dominates

many of these programs that employers do in order to fulfill their compliance requirements. What I've seen in the training that we've done is that participatory small groups and the use of pier educators offer the opportunity for greater performance success and that is people actually leave the workshop learning something. Other participatory methods such as using hands-on activities, such as dawning and actually doffing personal protective equipment, handling and practicing with specialized safety equipment can increase the retention of information provided and increase their understanding.

If you wanted to learn how to ride a bike, you wouldn't listen to an expert to teach you how to do it, you wouldn't watch a video on how to ride a bike, you wouldn't go on an online program to learn how to ride a bike, you'd get on the bike. You'd probably learn it from your older brother or sister or somebody else who's a bike rider. So if we want people to learn, and that's the goal of these mandates, that's the way it needs to play out.

And when we look at other people who take care

of the health and safety of others, like requirements for professionals, they spend years learning a body of information. Why do some employers think that an hour or two is enough for workers?

Emergency medical technician paramedics go to school for at least two years of training, epidemiologist's, four years, industrial hygienists, four years, physicians, eight years. To understand the information in occupational health and safety sufficiently, there needs to be enough time allocated so that students can absorb the information and be able to apply it to real-world situations.

It is common for many employers to use the new employee orientation as their basic health and safety training. Unfortunately, a new employee may not have a lot of practical questions on workplace hazards unless they already worked in that industry. So that's not the place for people to get the training.

Other kinds of programs require annual performance appraisals; people who get their performance appraisals in terms of their work, corporations in terms of their finances,

professionals in terms of continuing education training. If other training and measuring tools are conducted annually, why can't all OSHA mandated training have the same requirements?

Knowledge is the first step to help protect workers from occupational hazards. Without adequate knowledge, there is no motivation to change the behaviors of the working conditions. However, knowledge alone will not help reduce exposure to occupational hazards. Workers need to understand the information provided. Understanding comes from a combination of absorbing the information and practicing using it in a combination with their own practical work experience and hands-on activities. There needs to be a greater emphasis on determining the effectiveness of current training practices in order to assess how effective OSHA mandated training is working to help reduce injuries and illnesses on the job. OSHA can issue standards, NIOSH can do terrific research. However, if workers don't understand what needs to be done, then little will change on the worksite. Too many workers are

needlessly exposed to hazards every day, and every day that another worker gets sick or ill, we have failed.

I hope we stop failing in the future and NORA's research will help in that cause. Thank you.

DR. WEGMAN: Christopher Witkowski, from the Association of Flight Attendants.

MR. WITKOWSKI: My name is Chris Witkowski and I'm director of the Air Safety Health and Security Department for the Association of Flight Attendants Labor Union. We represent 46,000 flight attendants at 22 airlines, which is about 40 percent of the flight attendants in the United States. Don't forget that about a billion U.S. based passengers shared this workplace last year, alone; that's one person getting on one individual flight leg throughout 2005. I'm here today to raise awareness at NIOSH on three points. First, flight attendants have inadequate safety and health protections on the job, making them an at-risk population. Second, flight attendants sustain a significant burden of occupational illness and injury. And third, flight attendants are sorely understudied populations.

These three points serve to justify AFA's request to fund some specific and inexpensive air quality-related research that we described in detail at the December 1st NORA meeting in College Park, Maryland. I don't want to waste my time going over again what we presented then, but I want to take the time to put them and the urgency with which they need to be addressed in context.

For my first point, flight attendants are particularly at-risk population because no agency has bothered to issue and enforce necessary safety and health regulations for them. Crew members were stripped of their OSHA protections almost 31 years ago with no opportunity to submit comments, no fanfare, no opportunity to engage in discussion about this, just a simple federal registered notice by the Federal Aviation Administration in which they announced that they had exclusive responsibility for regulating the safety of civil aircraft in operation. And they went on to say that you can't take apart the occupational safety and health issues from the aviation safety issues so they have to remain

together under the FAA. So they made the announcement, but they did not exercise that jurisdiction. So they didn't issue the occupational safety and health protections in '75, and they haven't done so since.

Twenty-five years later, OSHA and FAA signed a memorandum of understanding, committing the agencies to jointly address the safety and health hazards in the aircraft cabin.

Unfortunately, all that the MOU has amounted to is that the agencies are inviting airlines to participate in voluntary safety health programs, effectively giving the air lines the message that we'd like you to please issue some protections, but if it's too burdensome or costly, then don't worry about it. Well, according to the Bureau of Labor statistics on occupational illness and injury data, the airlines have not worried.

This takes me to my second point, that flight attendants sustain a significant burden of occupational illness and injury. You might wonder how that can be so, after all how dangerous can it be to tell people to buckle their seatbelts and serve sodas and pretzels?

A survey of our AFA safety and health representatives reveals that injuries related to turbulence, poorly designed and maintained carts and galleys, handling or being struck by heavy carry-on baggage, opening and shutting doors on turbo-prop aircraft, falling on icy walkways and galley floors, and getting cuts and burns from oven racks and coffee pots, and in addition, getting their arms crushed by food service elevators from the lower deck to the main deck of wide-body aircraft continue. Flight attendants report poor air quality, aggressive and violent passengers, hearing loss, cold cabins, poor sanitation, malfunctioning equipment, and rigorous flight schedules with short ground times. They are concerned about radiation exposure at altitude and contact with blood, which is a common occurrence, by the way. They report that they routinely work when sick because they fear losing their shift or losing their jobs altogether. Our analysis of the Bureau of Labor statistics data from ‘98 to 2002 identified non-fatal recordable injury and illness rate for flight attendants were at

least twice as high as the rates for construction workers, and up to four times as high if you consider that flight attendants only work 20 hours per week. Also, the flight attendant data were three to four times as high as the rates recorded for all private industry, and double that again for hour by hour comparison.

For my last point about flight attendants being understudied, it must be said that last round of NORA research did dedicate significant time and money to testing data collection methods for flight attendant cohort studies, and we acknowledge the NIOSH work on contaminant monitoring under normal conditions. However, we since learned that NIOSH has apparently cut funding for their intramural program on aviation health. So we're concerned that the advances in data collection methodology will be left sitting on the shelf.

We have also been told that NIOSH has never solicited research specifically for this industry in their extramural requests for applications, despite the many health and safety threats to cabin crew and passengers.

So in closing, I want to remind NIOSH about the 115,000 U.S. based flight attendants who need research to address specific hazards in their workplace, and we thank NIOSH for providing these forums to identify at-risk populations, and our members are ready to assist to make any research that's proposed a reality. Thank you.

DR. WEGMAN: Angela San Philipo from Gloucester Fishermen's Wives.

MS. SAN PHILIPO: Good morning, everyone. My name is Angela San Philipo. I've been the president of the Gloucester Fishermen's Wife Association for the last 29 years. I'm here today to speak to you about the hazards and the health issues of the commercial fishermen of Massachusetts, New England, and our nation. In the past, I've also served as a U.S. Coastguard on Commercial Fishing Vessel Safety Advisory Board. I am the Founder of the Massachusetts Fishermen Health Plan. And I'm also -- I worked with Tufts University in translating medical booklets for the Italian population. Yes, the commercial fishermen in Massachusetts, especially, and around the country, they are immigrants. The Massachusetts Gloucester

primarily is Italian-speaking; in New Bedford they are Portuguese-speaking. This is an industry that today has been decreased very much because of fishing regulations and it posed many, many health hazards, not only physically, but also mentally to the fishermen themselves and their families, as well. In the last 20 years since fishing regulations have taken place, we've lost many people, but once the Coast Guard report is filled out, it's put on a shelf.

And the next thing is we're going to see enormous tragedy in the fishing industry. And this is why I'm here today because I really would encourage NIOSH to allow some funds to do some good research. Fishing days have been cut to 52 days a year, and on May 1st they will be cut to 25 days a year. There is not much income to keep our boats safe.

Fishermen don't have insurance. If you own a boat and you're the captain the insurance company will not insure you. So if you have a medical problem resulting from an accident in your boat, if you have personal insurance you can be treated, if you don't, you will just

receive the minimum benefit that you can get from a free-care hospital. And once this injury takes place nobody traces them and nobody knows what happens to them. This is why I repeat again, we need some serious research funding to see what happens to these people.

I want to give you two examples that just happened in the last four months in the fishing industry of Gloucester. On November 26th, my husband was fishing in his 47-foot boat alone, as he has done for the last three years, because the fishing regulation he cannot employ other fishermen to help him. On a 47-foot boat, normally would be three people on that boat, but he's fished alone.

It was a beautiful day when he saw smoking coming out from his galley. He was smart. He grabbed his survival suit, went to the stern of the boat, put his suit on and then tried to go forward to see what happened. As he did that, fire hit his face and he turned and realized that there was nothing that he could do but just to jump in the water if he wanted to survive.

Little did he know that a survival suit, at the

cost of $700, is not fireproof. Nobody knew that until then. He jumped in the water and 20 minutes later another fisherman picked him up. And it was after we looked at the survival suit, we saw that the back of his suit was burned. And thank God, not to the degree the water would've got in because if water were to get in he would've never survived. And there's nothing anybody can do about getting the manufacturers to make them fireproof, but the fishermen's wife will make sure that happens. But another incident -- Another incident happened about two weeks ago. A 36-year-old young fisherman -- and we don't have many of those because young people are not getting into fishing because fishing regulation doesn't give them a future. They were fishing on a day where they should not have been fishing because the weather conditions were not that great. But you know there are so many days and at the end of this month, if they don't use those days, they lose them, and they have families and they have boats to keep up.

Something came untangled from this wings the boats have so they're stable in the ocean.

This thing hit him in the stomach, and he weighs 300 pounds. He was knocked unconscious, airlifted by the Coast Guard, and brought to the hospital, operated, and most of his intestines were removed. That boat doesn't have insurance because he's an owner. Their bill is getting paid by his personal insurance that we created back ten years ago through the Massachusetts Fishermen Health Plan.

These are the stories that you don't read in the newspapers or read in magazines. What will happen to this young fisherman? Nobody knows. There is no support groups. They tell you to go to psychiatrists; they don't know nothing about fishing.

So these are the things that we need, and I really urge NIOSH that they will work with us so we can study these people who little by little by federal regulations are being wiped out. Remember, we always going to eat fish and we always going to need good and brave fishermen. Thank you.

DR. WEGMAN: Am I correct that Franklin Dalembert has not been able to arrive yet? So the last speaker this morning will be Karen

Hopcia from the Harvard School of Public Health.

MS. HOPCIA: Hi. My name is Karen Hopcia, and I'm a nurse and a doctoral student at the Harvard School of Public Health. My current research projects include injuries to nurses. Today, I would like to raise awareness of the special circumstances surrounding the work of nurses.

There are several points I would like to make. First, despite numerous articles examining nurses' work in organization health, or the impact of workload on patient outcomes, there are few studies that examine the association between nurses' work and their health. Second, nurses sustain significant occupational illnesses and injuries, and this may increase as the mean age of nurses' increases. Third, there are inadequate studies on nurses, despite the large number of practicing nurses in this country. These points justify a looking at increased expenditures on nurses' working conditions.

As mentioned, studies involving nurses usually revolve around how nurses impact the

organization or patient outcome, such as medical errors. But there are few studies on how nurses' work impact their health. Today's nurses face increased demands in the hospital environment. There is more intensity and a faster pace at work, as the rate of patient turnover continues to increase and patient acuity rises. There are also organizational changes that have increased the demands on nurses. These include enhanced monitoring and surveillance at work, increased sensitivity to reimbursement issues, evidence-based medicine, and an emphasis on improving patient safety. Furthermore, individual care has become more complex with sicker patients, increased technology, increased skill requirements at the bedside, and more multitasking. This change in work creates not only more physical demands, but psychological demands for the nurse.

My second point is related to nursing injuries and the increasing age of the workforce. Nursing work is hazardous. Nurses work 24 hours a day, seven days a week. Overall, nursing injury rates are substantial with a particularly high rate of sustained back

injures, third only to construction and transportation workers.

However, our knowledge of nurses' injuries is derived from BLS statistics that are reported per annum across industrial settings and occupations, but exclude organizational data such as staffing, the impact of shift work, and the variability of work in a given setting or in changing settings. It is therefore impossible to understand how the contribution of the organization of work and stress in nurses impacts occupational illnesses and injuries.

Additionally, nurses are aging. The average age of a nurse is between 44 and 47, depending on the state where they work. This increase in average age will continue if fewer nurses enter the field due to poor working conditions, the abundance of attractive alternative careers, and general wage suppression relative to the cost of living and inflation. Also, the continued shortage of qualified nurses in an aging population requiring increasing medical care will only continue to exacerbate these issues surrounding nurses' working conditions.

Yet, there is almost no data on how the aging nurse workforce responds to injuries, how injuries affect their health, and whether they continue to work or exit the workforce. Finally, the demands in today's work environment are significant and more stressful than ever for the more than 2.9 million nurses in the U.S. However, the relationship between stress, work, and health in nursing is seldom examined. Most studies segregate physical exposures sustained by work from the psychological exposures at work. Studies to date have focused on nurses' health without examining exposures, on work exposures or work-related outcomes without full appreciation of stress or the organization factors. When researchers try to examine the relationship between nurses' stress, their work, and their health, these studies are limited by small sample sizes, varying definitions of stress, or limitations in cross-sectional designs. Furthermore, measuring physical and psychological demands of the job does not take into consideration the interaction of total workload experienced by

the nurse or any outside demands experienced in the home.

In closing, aims of future research on nurses should include the exploration of the work of nurses, their stress and health outcomes, how reorganization impacts the health of nurses, how aging is impacting the nursing workforce, and the relationship between healthy nurses and the productivity of the healthcare system.

I would like to thank NIOSH for providing these forums to discuss this important issue. Thank you.

DR. WEGMAN: Thank you to everyone this morning. We're going to wrap up this morning's session with a brief summary by Eileen McNeely, from the Harvard School of Public Health, who will sort of recap what happened this morning for us all.

MS. MCNEELY: Hello and good morning. How do you put it all in a pencil box? I am going to take one opportunity to correct one mistake that was mentioned earlier today. I think Elizabeth had mentioned that the last nurse had spoken at about 11:00 o'clock. It is now about 12:30 and we've had two more nurses. From the

sounds of things it's the last live uninjured workers around.

I think the best way to sum this up is to talk about and acknowledge who the voices are here this morning. In two ways I want to talk about the people and the industries they represented. In particular we heard from industrial sectors and we heard from healthcare education, airline, utility, construction, and fishing. We heard from labor leaders, professional associations, academic researchers, insurers, professional educators and trainers, government and public health officials, healthcare providers, businesses in high-tech and utility, workers and the wives of workers.

We talked about -- We heard about five classes of needs for NIOSH to consider. Those needs being particular to exposures, needs to particular to outcomes, particular to methods, particular to special populations, and needs related to systems and supports for health and safety. And I just want to make note of some of the general areas under each of those categories.

In the area of need to study particular

exposures there was mention of the physical exposures in terms of material handling, infections, including emerging infections. In terms of substances or chemicals in the environment, and in particular in the indoor environment, in buildings, and in airline cabins. In terms of chemicals, we discussed cleaning agents, drugs, we also discussed asbestos. We highlighted psychosocial exposures coming from the way that work is organized in terms of work hours, in terms of violence, exposure to violence, job stress, staffing levels, restructuring.

And the second area of needs related to particular outcomes, it was discussed to consider musculoskeletal, breast cancer, stress, respiratory disease, and in particular asthma. And the third area of needs to explore the area of methods, particular methods, the things that were discussed were multilevel -- the need for multilevel studies, including consideration of the socioeconomic context to disease, and disease origin -- disease and injury origin and its consequences. The use of multiple approaches, including qualitative and

quantitative methods, the use of community-based participatory research to formulate better questions that come from workers and bring a comprehensive approach to promoting change and sustaining it.

Intervention studies and intervention effectiveness studies that include studies of training programs, cost-effectiveness studies, studies of analytical methods, particularly in relation to classes of compounds, musculoskeletal loading devices and a study of portable devices for direct measurements in the field, study of the design or redesign of products and processes, and emerging technologies, such as nanotechnology, evaluation of materials that affect service-to-air transmission of infection and longitudinal studies.

And the fourth area of need is the need to study particular special populations. The needs were discussed to understand literacy in subpopulations, the need to study the hazards for teens in their work, the needs for small enterprises in particular, the needs for training and training for electrical power

workers, immigrant workers, the need to study immigrant workers as a sub high-risk population, Vietnamese nail salons workers, Hispanic construction workers, and older workers.

And in the last area of need is the need to develop or augment systems to support health and safety. The things that were discussed were health and safety coverage for public entities and airlines in terms of regulation, standards for ergonomics, continued support for the industrial-sector approach to research, continued support for the ERC model to maintain the quality of research and training, the continued need for worker training programs, the need for validation of control banding policies, the need for better reporting systems that deal with underreporting, and the need to standardize methods of research approaches, and the need to disseminate best practices.

I'm sorry if I missed anything, but I'm sure we're hungry.

DR. WEGMAN: Thank you very much, Eileen. We're going to take a break now for lunch. Given our schedule and the number of people who

want to present this afternoon, I'd like to ask that we start again at 1:15 instead of 1:30. And lunch, as you can see for those of you who bought tickets, is sitting out there on the table. So thank you all for participation this morning.

(Whereupon, a recess was taken from 12:35 p.m. to 1:20 p.m.)

DR. LUM: Before we begin this afternoon's session -- Let me try to get everybody's attention and everybody seated. Could everybody over here, please get seated quickly? At every town hall meeting we've asked the following question and we've always gotten an answer so we want to keep this tradition up, okay. This is the question: Is there anyone in the audience who would like to come up and testify who has not signed up, but feels because of either what they heard this morning or that they found out we're not 60 Minutes, and you're among friends, that you want to come and say a few words about a topic or an interest that you have, you want to share with us briefly so we can get it on the docket? We'll ask you one more time after we finished

toward the end this afternoon. But if there's anybody right now who would like to come forward? Could I see a show of hands? We have to keep this tradition going. We could call on people, but we'll give you that benefit, here. We will ask you one more time later. Thank you. Thanks very much. Ann?

REGIONAL AND LOCAL STAKEHOLDER PRESENTATIONS

MODERATOR: ANN BACKUS, HARVARD SCHOOL OF PUBLIC HEALTH

MS. BACKUS: Good afternoon. My name's Ann Backus. I am the administrator for the Occupational and Environmental Medicine Residency at the Harvard NIOSH ERC, and also the director of outreach for the ERC.

So thank you NIOSH for convening us for these town meetings. I was in the Seattle meeting and I enjoyed it very much, and I'm happy to be here again in Lowell and moderating this afternoon's session. So pursuant to what David started this morning, could the first five people please come up? And I think we're missing the first two of them, so from Richard on down could five of you please come forward and sit here with us? So that should be Richard, Davida -- How many folks are here?

Davida, Elisa, Susan Connolly, Tom Ouimet, and I think that might take care. I think we're beginning with Richard Rabin from the Massachusetts Division of Occupational Safety. Thank you.

MR. RABIN: Just a slight correction, I am Richard Rabin, but I'm here as a board member of Massachusetts Coalition for Occupational Safety and Health. What I want to talk about is research that's needed regarding immigrants and other low-wage minority workers. Immigrants are in -- you name the high-hazard industry, and they're probably in it. Construction, services such as hotels, restaurants, beauty salons, healthcare; the list goes on and on. In the lead registries around the nation, Hispanics are found to be in disproportionate numbers in Massachusetts, in Texas, New Jersey, California, of course. And in the Boston area, in the last several years, Brazilians, Brazilian house painters have increased in tremendous numbers of getting very high blood-lead levels. And nationwide, Hispanics who are foreign born have roughly a third higher fatality rate than does the rest

of the workforce. So we have the problem. Now, what kinds of research questions do we have? Well, one is in specific industries, why is it that immigrants have these higher rates? Do they have more hazardous jobs within the industry than other people do? Do they lack training? Do they lack environmental controls? Are there language barriers? Fear of retaliation? Do they simply not know where to turn?

So what kinds of programs? We want to see research that tells us what kinds of programs and policies can help solve the problem. A more effective OSHA? Do we need bilingual inspectors, training, emphasis programs, local emphasis programs by OSHA where there are large numbers of immigrants in high-hazard industries? And English classes. Can there be programs directed specifically -- much more resources directed at training programs for English so that workers have literacy in hazards and understand what the health hazards and controls need to be? And these could be offered both by employers, because a number of employers have their own training programs in

English, and community groups.

And lastly, to what extent are immigrants denied benefits, such as workers' compensation? Why are they excluded? Is it simply that they lack the knowledge? Is it that they have a fear of retaliation? Or simply the inability -- even when they know what their rights are -- the inability to navigate the bureaucracy of workers' compensation?

And again, barriers, programs. What kinds of programs can address these barriers? Thanks.

MS. BACKUS: Davida? Davida Andelman from Bowdoin Street Health Center.

MS. ANDELMAN: I'm just going to give a little context to put my remarks in, and also I'll do that before I have five recommendations. My name is Davida Andelman. I'm the director of community health at the Bowdoin Street Health Center in Dorchester, which is a section of Boston. I've been at the Bowdoin Street Health Center for almost 15 years and have been interested in occupational health and safety issues for over 25. I'm also a member and co-chair of the Occupational Health Surveillance Advisory Committee at the Mass

DPH.

The Bowdoin Street Health Center is a community health center licensed by Beth Israel Deaconess Medical Center. The health center has played an important role in the delivery of medical care and public health programs in Dorchester since 1972. In addition to primary care, public health, and other services, the health center for almost 15 years has had an interest in ensuring that our patients, who are primarily members of immigrant and communities of color, have access to occupational medicine services.

The health center has 7,500 patients. There are approximately 40,000 patient visits per year. Our patient population is composed of 40 percent Cape Verde, 35 percent African-American and Caribbean Islander, 15 percent Latino, and five percent Vietnamese, and five percent Caucasian.

For fourteen years, the Bowdoin Street Health Center had on staff a primary care physician, who had a sub-specialty interest in occupational medicine. While this physician is no longer at Bowdoin Street Health Center, our

current medical director maintains a commitment to ensuring our patients receive appropriate occupational medicine services.

However, as a community health center, this commitment can be a challenge. In Boston alone there are 27 community health centers. Most have very little understanding of occupational health and medical issues. This is important to note since community health centers serve mostly lower-income and communities of color.

A few years ago, the Bowdoin Street Health Center was a part of a project carried out by Mass DPH Occupational Health Surveillance Program. This project was funded by NIOSH to prove the hypothesis that work-related injuries and illnesses are common and disproportionately affect racial and ethnic minorities and lower-income workers.

Understanding the occupational health experiences of low-income and minority immigrant workers will inform prevention, intervention, and policy strategies to protect the health of working people. One hundred and eighty-two Bowdoin Street Health Center patients participated in the anonymous survey.

Bowdoin Street Health Center was one of five community health centers involved in this project.

While there's not enough time to go into the results of the survey, here are some of the results, along with the experience of having been in charge. And here with my five recommendations is some of the experiences and some of the recommendations I have as a result of my involvement in occupational health.

One, immigrant workers do not obtain access to occupational medicine services as easily as other workers. Perhaps this might explain the severity of their injuries and illness by the time they have presented to an occupational medicine provider. This was a frequent occurrence at Bowdoin Street Health Center.

Two, there are disparities between immigrant workers and others when looking at awareness of OSHA and workers' compensation. There needs to be further analysis throughout the United States as to how information about both of these programs is presented to immigrant workers. Issues associated with language and literacy are barriers to people getting access

to this information and how to use the programs.

Three, safety training at work is less likely to happen in workplaces where there are immigrant workers, and what safety training there is is conducted often in English or in a language not understood by the immigrant worker. An example of this is training given in Spanish where there are Cape Verde and Creole-speaking workers.

Four, family medical leave. The intent of this law is not to undermine the workers' compensation system. However, in far too many instances this is exactly what has happened. When workers are not informed or do not have an understanding about this benefit they are taken advantage of and employers are successful in minimizing their workplace injury and illness experience. There needs to be a nationwide analysis on how FMLA is used when the situation involves work-related injuries and illnesses. What happens when an injured worker -- What happens to an injured worker who has maximized his or her FMLA benefits and then has a family member who becomes seriously ill and the worker

needs to spend time with that family member? Five, health insurance. Finally, there are also far too many instances of employers not informing the state workers' compensation departments of workplace injuries and illnesses, and then telling the injured worker to use their own health insurance or to have the bill sent directly to the employer. This also has the effect of undermining the system. Immigrant workers who are not informed and do not understand the system are most vulnerable. This practice has huge implications should the worker become injured or re-injured again. I hope NORA will take these recommendations under consideration. Thank you very much.

MS. BACKUS: And next we have Elisa Garibaldi from Lowell Community Health Center.

MS. GARIBALDI: Hi. Good afternoon. My name is Elisa Garibaldi. I work as outreach worker at Lowell Community Health Center in the COBWEB Project. The COBWEB Project means Collaboration for Better Work Environment for Brazilians, and I'm a health educator. I am also physician by training in Brazil. I'm

going to talk a little bit about Lowell, Lowell Community Health Center, and culture competency.

Today, Lowell has one of the largest Brazilian immigrant communities in Massachusetts. The 2000 United States Census Bureau data counted that the population of Lowell as 105,000 people making it the fourth largest city in Massachusetts. Residents in the city come from many parts of the world, including Southeast Asia, the Caribbean, South and Central America, and many countries in Africa.

While census data from 2000 does not reflect or clearly categorize the growing Brazilian population in the city, we do have some information that gives a sense of the numbers of Brazilians here in Lowell. Of the 11,000 students in the Lowell Public School -- I'm talking about pre-k to eighth grades population -- five percent identified themselves as Brazilians. There is only one high school here in Lowell with a population of 3,700 students; seven percent of these students identify themselves as Portuguese speakers with the vast majority of Brazilians.

Indication of the economic impact of the Brazilians in the community includes Brazilian stores through Lowell and other business, like hair dressers, computer stores, and restaurants. Brazilians, as well as other immigrants, clearly contribute to the new workforce and the economy in the Merrimack Valley and the rest of Massachusetts.

Based on the history of immigration in Lowell, we know that before this new wave of immigration Lowell welcomed other newcomers, including the Irish, Polish, Greek, and Canadians. The community has responded to the needs of new populations in many ways, as well as being enriched by the contributions of these new neighbors.

The Lowell Community Health Center is an agency that’s recognized the needs and assets within the community. Created 35 years ago, our mission is to provide caring, quality, and culturally-appropriate health services to the people of Greater Lowell, regardless of their financial status. We are devoted to enhancing the health of our community and to empowering each individual to maximize their overall

wellbeing.

As with any community health center, we work to identify and then eliminate access barriers. As an example, language and culture can be a barrier for some seeking healthcare. Lowell Community Health Center works to remove this type of obstacle by recruiting a staff reflective of the community we serve. Over 50 percent of our staff at Lowell Community Health Center is bilingual/bicultural with many speaking three or four languages.

Lowell Community Health Center works with community agencies, including the Brazilian Immigrant Center, Massachusetts Alliance of Portuguese Speakers, the Cambodian Mutual Assistance Association, and the African Assistance Center to help us to build a better relationship with our patients, increasing and improving our skills to meet their needs and strengthen our relationship, thus creating credibility and trust.

In 2002 and 2003, Lowell Community Health Center noticed an increase of the number of Brazilian patients. These new patients came not just looking for primary medical care and

place to refill medicines, they also came to ask questions about their lives and guidance in dealing with the different way of life and culture in United States. Their concerns included navigating the healthcare system for their children, as well as questions about symptoms and illness that may relate to their new work environment.

Prior to that, UMASS Lowell had been working with the Lowell Community Health Center in projects with new immigrants to the city. Eduardo Siqueira approached us with the idea of a partnership between academics, community health providers, health and safety based organizations, and community. This led to the birth of the Collaboration for Better Work Environment for Brazilians, the COBWEB Project, with focus on the Brazilian immigrant workers funded by the National Institute of Environmental Health Sciences.

Lowell Community Health Center’s previous experience and expertise in ethical and respectful community-based research was clearly an asset to this potential partnership. Our approach to the community research is

collaborative. When seeking information, our methods include the development of advisory boards comprised of stakeholders to inform any program development.

COBWEB staff at Lowell Community Health Center is often to see Brazilians concerned about or affected by hazards in the work environment. As important first step in the outreach work necessary to inform people of the resources within the Lowell Community Health Center and COBWEB Project. When more investigation of hazardous workplace is necessary, this mediation may be helpful or if it’s needed for legal assistance, we refer to the Brazilian Immigrant Center.

In summary, our staff became a bridge between Brazilians and providers at Lowell Community Health Center helping us to offer our services in a better way. The COBWEB provides a light in the tunnel for those immigrants who may be overwhelmed and sometimes blinded by the difficulties and complexities in their new lives in the United States. Without the support of agencies such as NIOSH and NIEHS, the fundamental work that combines community

research with services that assist communities, our work would not be possible. Thank you.

MS. BACKUS: Thomas Oiumet from the Yale University.

MR. OIUMET: Good afternoon. My name is Tom Oiumet, and I'm a certified industrial hygienist and certified safety professional employed by Yale University, and as an independent consultant. And although I work for an ivory tower, I really come from the trenches underneath that tower. I'm a practicing safety and health professional. And I'd like to bring to NIOSH's attention today two areas of research, which if supported could bear, I think, significant fruit for the industrial hygiene profession and worker safety.

The first involves the application of Video Exposure Monitoring or VEM. This is a technique that was pioneered by NIOSH and others in the mid to late 1980's. The technique involves a simultaneous display of a worker's activity with real-time exposure monitoring data. It's an extremely useful technique for pinpointing the workers'

activities that lead to exposures and the sources of those exposures. And as an industrial hygienist, I always feel that I understand exposure, but whenever I've used that technique, I've proved myself wrong. Armed with this information, very effective exposure controls can be devised.

The second very important use of this technique is as a training tool. The video and exposure overlay can be used in real-time in the workplace to demonstrate to workers and management the impact certain activities and controls have on worker exposure. I have found this to be an excellent way to change worker behavior and attain the resources from management necessary to implement effective exposure controls.

Despite its potential usefulness to the occupational health and safety profession, adoption of Video Exposure Monitoring has been very slow due to its high costs and the high technical hurdles that must be overcome to get non-standardized equipment to function together. The costs and technical hurdles have made Video Exposure Monitoring inaccessible to

most industrial hygiene practitioners and has failed to live up to its potential as an exposure assessment tool.

However, recent advantages in two technologies that support video exposure assessment monitoring, real-time sensor technology and digital videography are now making this technique less expensive, the equipment less bulky and wireless, and the data collected more compound or agent specific; all of which will further increase its potential value as an industrial hygiene tool.

I'd now like to identify two critical needs that would encourage its use and dissemination of this technique in the industrial hygiene profession. The first, software needs to be developed that can integrate the video signal with several channels of data in real-time on a laptop so that it can be shown and replayed to workers and management in the workplace, as well as studied later in detail. This software must be available to the industrial hygiene community at reasonable cost.

Two, suppliers of real-time sensors and instruments must be encouraged to produce

equipment with consistent data output so that their equipment can be easily integrated with the Video Exposure Monitoring system. A committee of interested parties should be established to recommend a standard for sensor or instrument output and integration. The community must also discourage a current trend by some real-time instrument manufacturers to produce sensors that only output proprietary digital signals that can not be integrated into Video Exposure Monitoring systems.

The VEM could be packaged so that the software and existing video and sensor technology were plug-and-play. It would provide the industrial hygiene profession a powerful new tool to assess and control worker exposures to a wide variety of agents, particularly those for which agent-specific sensors are being developed. It would also be an effective worker/management training tool.

In my few remaining moments, I'd also like to make a pitch for NIOSH to begin exploring how new training and communication technologies can be integrated with the existing approaches and used more effectively to train and communicate

hazards to workers. I, like many of the speakers this morning, am finding the traditional training methods are not adequate. That training is often not sufficiently assimilated by workers to be useful when it is needed, often months after the training is provided. However, traditional classroom or hands-on training, coupled with web-based tools and resources often referred to after forming support systems, an additional just-in-time e-learning can provide a worker the knowledge needed to perform a complex task or an infrequently performed hazardous task safely. However, no research has been conducted how to effectively integrate traditional training, just-in-time training, and performance support systems. As jobs and the hazards faced by workers get more complex and change quickly, new methods of training, coupled with performance support systems must be utilized in the workplace, and we do not know how to apply them today.

Also, the use and effectiveness of multimedia, audio, video, animation, graphics, and even virtual worlds, and training and communication

should also be researched and new uses explored. These tools appear to make information more readily understood and assimilated by workers, but today we don't know how to apply them. Thank you very much.

MS. BACKUS: Karla Armenti from the New Hampshire Division of Health and Human Resources.

MS. ARMENTI: Thank you. Good afternoon. I'm going to talk to you about occupational health surveillance. I am currently the chief of health statistics and data management for New Hampshire DHHS, Division of Public Health Services. I'm also adjunct professor in the Master of Public Health Program at the University of New Hampshire. Prior to taking the position with the state, I worked as a research consultant in the occupational and environmental health sciences, collaborating with such entities as UMASS Lowell, Rutgers University, New Hampshire COSH, and others on EPA and NIOSH funded research projects.

In my capacity as the head of health statistics for the state, and mind you I've only been there for six-and-a-half months so far, I have

learned about the importance of administrative public health data in forming occupational health surveillance. Health surveillance data are needed to determine the magnitude of work-related injuries and illnesses, identify workers at greatest risk, and establish prevention priorities. States must be able to measure baseline health of their populations and changes that take place over time. Occupational health surveillance systems would allow for this assessment and monitoring of overall health, and would lead to comprehensive policy development, service planning, and program evaluation. Successful interventions to reduce the burden of occupational injury and disease in any state have to start with good occupational health surveillance.

The current nationwide system for surveillance of occupational illnesses and non-fatal occupational injuries has substantial gaps. Many of the public health reporting systems are fragmented, having no consistent or standard system for collecting, analyzing, or interpreting data. Many do not have data compatible systems or systematic methods for

coding or linking data sets, and many do not even capture occupational information.

Increased funding for the national occupational health surveillance research agenda will help NIOSH reach its goals to identify these gaps and deficiencies and reduce fragmentation among current surveillance programs. It will also provide states and the nation as a whole with the ability to streamline resources, to identify and target high-risk industries, occupations, and worker populations for outreach and intervention, and to measure progress in preventing work-related diseases and injuries.

According to the first reports of injury to New Hampshire's Department of Labor, in fiscal year 2005, businesses reported over 47,000 work-related injuries and disease, involving 3,700 lost-time cases, and 1,200 permanent-impairment cases, which along total over $12 million.

New Hampshire's workers' compensation data is unique in that the law requires employers to report all work-related injuries and illnesses, regardless of whether or not lost time was

involved. Employers understand that reporting in this system has no bearing on acceptance or denial of a workers' compensation claim. As a result, there appears to be fairly complete capture within the occupational injury reporting system, and even some over-reporting as employers err on the side of reporting questionable cases. This is quite different from most other states, where reporting is required only for lost-time cases, or where the employer believes that the condition is definitely work-related.

Prior studies using New Hampshire DOL workers' compensation data demonstrated that older workers had significantly more pre-injury co-morbidities and had more severe injuries, requiring more medical care and surgery and chronic medications. Priority groups of older workers include those who are forced into early retirement by their work-related injury and older workers with significant pre-existing health problems. These subgroups are at particularly high risk for adverse post-injury consequences, and should be the focus of further studies using the New Hampshire

Department of Labor database.

In addition to workers' compensation data, New Hampshire has several administrative data sets that can be used for occupational health surveillance. These include hospital inpatient and discharge data, death data, insurance claims data, cancer data, and behavioral risk factor survey data. Under CDC bioterrorism funding, we are piloting a project to collect live emergency department data from our hospitals on certain syndromes that could be linked to acts of terrorism.

All of these data sets of information that can tell us so much about work-related injuries and illnesses; however, there is no systematic method of collecting this data for occupational surveillance purposes. We need better coding, additional fields to discern occupation, employer name, injury at work, and we need better ways to link databases to match exposure data with health outcomes.

New Hampshire has a high incidence of high-occupational blood-lead levels. We don't really know why. Is it better surveillance? Is it low numbers? Is it a record-keeping

artifact? Is it immigration of out of state workers with high blood-lead levels that get picked up at work in New Hampshire?

Asthma is also increasing in our state. Studies indicate that at least ten percent of new asthma cases are occupational asthmas. However, SENSOR data tell us these numbers are very low. There's a disconnect that needs to be explained.

In New Hampshire, we're equally constrained under the tightening budget belts of both our federal and state governments. Without NIOSH funding, however, the Division of Public Health Services in New Hampshire is unable to allocate any resources to hire dedicated personnel to do occupational health data collection and analysis. Our public health community relies on surveillance information to set research and prevention priorities.

Building capacity to design local occupational safety and health interventions and increasing their quality and effectiveness is an intentional product of an improved surveillance system. Research to enhance surveillance will identify occupational safety and health hazards

particularly to New Hampshire, assisting in prioritizing the numerous hazards and issues needing to be addressed and provide key targeting demographics in the design and execution of local interventions and programs. Finally, an improved and integrated occupational health surveillance system will provide information to policy makers who need to understand the magnitude of occupational injury and illness and their costs. The interrelationship of causal factors inside and outside the workplace, and the necessary data to build outcome measures for progress towards state and national goals. Thank you very much.

MS. BACKUS: Thank you to this panel, and next -- We have a few folks who are not here. Is Susan Connolly here at this point? Okay. So I would like to call Marian Flum, Dina Dickinson, Dora Tovar, and Jeff Champa for the next round in this section. And again, I'll remind you that if you have written testimony that you wish to leave with our stenographer, Shane, please do so as you leave the podium, and it will be on the website. First off is Marian Flum from the University of

Massachusetts Lowell.

MS. FLUM: Good afternoon. I'm going to be talking about negative impacts on worker health of environmental workplace practices. An emerging issue today is the growing risk that environmental decision and practices in the workplace can result in negative impacts on worker health and safety. In a number of cases, in a major manufacturing plant in Massachusetts, in an auto-assembly plant in the automotive repair industry, attempts to reduce or eliminate ozone-depleting chemicals have resulted new hazards for workers.

In one plant, CFCs were replaced by flammable chemicals resulting in fire hazards that did not previously exist. In another case, the CFC was replaced by a substance that caused severe dermatitis and did not work well in the process. In both of these cases workers, through their established health and safety committee structure, raised the concern and pushed to have it resolved. In the second case I mentioned, a solution was found using steam as a cleaning agent. This eliminated a toxic chemical and improved both the work and the

ambient environments. Workers, industrial hygienists, environmental managers, and process engineers worked together to develop this new solution.

In the State of California, automotive repair shops were urged by a state agency to replace methylene chloride, an ozone depletory, with hexane for brake and engine cleaning resulting in debilitating peripheral neuropathy for many workers. In chemical plants in New Jersey, similar instances were reported by workers and managers of unforeseen occupational health impacts resulting from environmentally motivated chemical substitutions.

In many cases, elimination of a chemical that is an environmental hazard may improve working conditions; the elimination of hexavalent chromium from a process, for example. But there is also a distinct risk of creating new or worse occupational hazards, including ergonomic hazards when health and safety issues are ignored and occupational health professionals and the workers closest to the operation are not included in the decision making.

Military and other government specifications may also be developed for environmental purposes without regard for the work environment. Such specifications affect large numbers of workplaces and workers. The Air Force, for example, provides a list of acceptable substitutes for high VOC products, even though some of these substitutes are toxic or flammable, creating new workplace hazards. Green construction is a growing trend with the laudable goal of creating safer more environmentally friendly and more comfortable buildings. However, many of the new materials are untested or are not examined from a worker health perspective. New types of flooring materials that are promoted as natural may contain significant concentrations of formaldehyde, for example, creating risks for the construction workers. What happens when bamboo or new composite materials are cut, drilled, or sanded? What is the occupational impact?

In research I conducted independently and with others, workers were often the first to recognize or to suffer the effects of these new

hazards. In one plant, an active joint-labor management health and safety committee has been expanded to include environmental issues, as well as a means of preventing unintended effects of environmental decisions.

It is unknown how widespread this problem of risk-shifting from the environment to the worker is because little research has been done. This is a new important area that needs to be explored in a number of ways. NORA needs to recognize the cross impacts of chemical substitution on the work and ambient environments. Research is needed to document the prevalence of this problem, as well as uncovering best practices in the area.

Intervention or other research is needed to explore decision-making structures that may prevent cross-over hazards, as well as developing systems which may enhance the wellbeing of workers and the ambient environments simultaneously.

A methodology for determining appropriate chemical substitutions and/or process change that take into account both occupational and environmental health concerns is needed. Thank

you very much.

MS. BACKUS: Is it correct that Dina is not in the room? Okay then, we have Dora Tovar from the University of Massachusetts Lowell.

MS. TOVAR: Good afternoon. I would like to thank NORA for letting me address the issue of health and safety and literacy. The morning sessions and some of the earlier ones prior to myself have spoken about the issue of health and safety training. I've been a trainer for two years and a health educator for three years. So I have seen first-experience what happens when you do training.

It's not enough to provide training in the language that the workers speak. I've come with my presentation, my big old folder, PowerPoint slides, translated, ready to do in Spanish or in English to find out 30 minutes later that the workers can't read, which means I have to switch my whole training session appropriately for the workers.

We've seen everybody asking for training, but we also have to make sure that the training that is provided to the workers takes into account the literacy level. I'll just give you

statistics. According to -- This is the old statistics, but the 1992 National Adult Literacy Survey showed that 40 to 44 million people of the 191 million adults in the United States could not read, could not understand written material that require very basic proficiency in reading. They could not read the instructions on a medication bottle, household cleaning solution, or directions on a map.

As some of you are trainers, you've seen what material safety data sheets look like. Those sheets require at least 15 to 17 years of education, which is a college degree. The hazard communications standard was a great move to allow workers to understand what they were being exposed to at work. The problem is is that hazard training can be anything from a material safety data sheet, a fact sheet of best practices guide, ten-hour OSHA training or one hour, and as somebody has explained, it can be part of your employer orientation training. So people have to understand that it takes more than just training in the language in a short time. You need to make sure that the workers

understand what you're trying to provide in the training for them.

So as I said, my experience -- I believe that more research is needed in the areas of how health and safety literacy affects illness and injuries, the effects of literacy in the workplace in regards to health and safety training, and effective training strategies for workers. What are the best practices? What training? How should training be conducted, so workers can understand and stay safe? Thank you.

MS. BACKUS: And next Jeff Champa from Aggregate Industries.

MR. CHAMPA: Good afternoon, and thank you for the opportunity to speak this afternoon.

I am a practicing safety manager. I've worked in a large number of industries; heavy industry, construction, and transportation.

And I'm here informally today to represent contractors and highway construction workers to advocate for further research into highway work-zone safety, specifically because this is an area that has been well researched over the years.

The specific area of emphasis is short-term highway work-zone activity; resurfacing, temporary repair, guardrail repair, activities where workers are exposed in very short-term durations to the work zone that they're operating in.

This is a unique problem. In addition to contractor activities and work-zone activities, and worker activities, it also very much depends on public transportation policy that sets the contractual guidelines that contractors and these workers will work under. And it also is very much related to the behavior of the public as they pass through these work zones, which is essential to a significant number of safety issues that occur in these work zones.

Short-term presence work-zone activity is very important to focus on. Unlike a lot of heavy highway construction activity where there are engineered barriers and a lot of work goes into isolate passing traffic from the presence of those workers, in short-term work-zone activities, typically, the workforce is isolated from passing traffic only by temporary

cones that are very easy for vehicles to come through.

Increasingly, this work is scheduled at night to provide a minimum inconvenience to the public that are passing traffic. This creates a significant number of problems in terms of the pressure of working at night, the increased hazards of working in darkness, and the increased speed that is typically encountered by traffic passing at night. And again, there's a very strong interrelationship between the public behavior as they pass through these work zones.

On paper and within the literature, this is a well-researched problem. NIOSH has done some great work in terms of the 2001 Building Safer Work Zone Studies, and there were extensive standards that are available, including the Federal Highway Administration's Manual of Uniform Traffic Control Devices.

However, there's a significant gap between that documented knowledge and the implementation of that knowledge when you're trying to occupy a roadway. And the research work that exists needs to work on the implementation of that

theory, of that documented knowledge.
Specifically, needs include practical methods of risk assessment before deployment on a roadway. Typically, there's a contracting document that will indicate from a construction perspective what type of work is supposed to happen and when and maybe set out a work schedule. But there remains to this day -- it's very difficult for an industrial safety manager, construction safety manager to assess the hazards that are presented by a particular roadway. The hazards that I speak of are accident frequency, the average speed of traffic, local hazards that may be unique to that particular roadway in terms of its configuration and its type of use.
There needs to be increased research into practical and effective methods that calm and control traffic, which is a huge problem. So many of these issues related to injuries to workers, collisions that occur from vehicles passing through work zones, and collisions that occur from vehicles and construction equipment as they mingle trying to get in and out of work zones is related to the speed of traffic. And

there needs to be much better research and practical methods to calm and control traffic. I know for the construction activity, which we're about to engage on in the upcoming season in the state of Massachusetts, by our own radar assessments, we're about to enter roadways where we know that the 85th speed percentile of traffic is frequently ten or 15 miles an hour above the posted speed limit. And we're just a few short weeks from having to put workers into this environment to try and restrict the roadway that's available.

We know in one unique example -- it's anecdotal, it's not scientific. In one unique example last year, in response to collisions of vehicles entering our work zone, we had speed observations by state police officers. In a single day of cars moving, there were more than 100 observations in a single shift of cars moving more than 80 miles an hour in speed within the controlled work-zone area.

The problem only gets worse the further you pave the road. Once the damaged roadway that people are used to driving very slowly on -- as you pave the road and your work zone is now at

the end of ten miles of pristine, immaculate, high-speed capable roadway, the situation gets worse as the progress goes on.

There needs to be much greater research in the management of safety, the practical application of it in terms of risk communication and safety management techniques that work, in terms of how you communicate risks and how you control risks presented by the public, specific contracting policies, which very definitely affect the safety of workers on the road, the management of safety work that contractors employ and the safe work training and preservation training to workers and police agencies that control the traffic. Thank you.

MS. BACKUS: And we do have Dina Dickinson, here. And she represents UNITE HERE, Local 26. Dina?

MS. DICKINSON: Good afternoon. My name is Dina Dickinson. I am originally from northern Italy. I don’t know how to do this, sorry. When I was in my early 20's, I fell in love with an American boy and follow him here to Boston. For the last 18 years, I am being a single parent. I raise five kids on my own by

working as a room attendant at the Logan Airport Hilton Hotel.

By working very hard, I was able to keep my family together and give my children a chance to better themselves. I am very proud of my family; all five of my kids went to college. One of my sons is in the Army Reserve and he was recently called for active duty.

I have been a room attendant for 18 years, and I am proud of my profession. Our hotel is successful because we don’t just clean rooms; we take care of our guests. Hotel management, no respect housekeeping work.

My job has always been very physical, active job, but the workload has gotten heavier and heavier. Twin beds have been replaced by queen and king luxury mattress, simple bedding by triple-sheeting, more pillows, duvet, and heavy bedspread. Bathroom and sleeping quarter have more supplies, amenities, and equipment.

Also the company expects a higher cleaning standard than they did years ago. This means that me and my sisters in housekeeping have been working with injuries and more and more pain in our bodies from the work.

Last year, my hotel introduced a new bed, which greatly increased our workload and strained our body to the limit. I saw a lot of my coworkers getting hurt because of the bed. The new bed has bigger, heavier linens, and much, much heavier mattress and mattress pad. We put three sheets on now, instead of two, and we now stuff up to eight pillows per room.

Because we have only about 20 minutes to clean the room, make the bed, and scrub the bathroom, we have to work faster than ever. Most of my coworkers are working with pain, and almost all of us take some sort of pain medication every day. This is not just the situation at my hotel. I have talked to attendants who work and the Sheraton and Westin, and all the major hotel chains. What I'm describing is what room attendants face everywhere, no matter what hotel company.

I'm fortunate that I have a union at my hotel. We have ability to fight against and limit the hotel push to increase work at the expense of our health and safety. After the 16-month long fight, we were able to get Hilton Corporation to reduce the number of rooms that we are

required to clean in a shift at our hotel. The concession that we won from the Hilton is a step in the right direction, but is not enough. We are just one hotel.

Ninety percent of hotel workers in this country don't have union. For most room attendants that means a hard choice. Do the work and ruin your body, health, and often your family life, or lose your job; that is a problem. It's a big problem. Thank you very much.

MS. BACKUS: At this point, we'll excuse this panel, and I think we are ready for our 15-minute break. So if you could reassemble here at about 2:25 that would be great.

(Whereupon, a recess was taken from 2:05 p.m. until 2:30 p.m.)

MS. BACKUS: I'll also mention that Greg provided us with a number of brochures and booklets from NIOSH. They are out on the table out there and along with a pedometer so that if you are anxious to do a little bit more exercising and keep your back strong, you can walk 10,000 steps a day, and you'll do about three miles according to my stride. So please help yourself to those materials which are

generously provided for us today.
The next group consists of Elise Pechter, Tish Davis, Tim Morse, Ivan Most, and Peter Doran. So leading off this session is Elise Pechter, and she's in the Occupational Health Surveillance Program of the Massachusetts Department of Public Health.
MS. PECHTER: Thank you for the opportunity to provide input to NORA. As an industrial hygienist, who's worked in this field for 20 years, I witness first hand the importance of uncovering hazards in the workplace, using surveillance data to identify problems, and implementing interventions. I would like to address three issues.
One, the importance of ongoing, state-based surveillance of work related injuries and illness, two, continuing surveillance of work-related asthma, and three, problems with disinfectants and cleaning products at work.
Over the past 19 years, the Occupational Health Surveillance Program in the Massachusetts Department of Public Health has established surveillance systems for several conditions, occupational injuries among teens, occupational

lead poisoning, sharps injuries among healthcare workers, traumatic workplace fatalities, and more. With support from NIOSH, we have been able to collect, analyze, and disseminate data that is crucial for prevention.

We've used surveillance systems to describe the burden and impact that dangerous workplaces pose for workers and their families. These projects have provided data and life stories that have been used for broad-based education, including a three-hour occupational health and safety curriculum for high school students, training for hospital staff on safe needle devices, and residential construction safety brochures in multiple languages.

We have used surveillance findings to promote technological change. For example, a series of burn injuries among teen bakery workers led to a design change in the coffee brewer. Now, these burns can be prevented.

We work on policy change. After three Vietnamese floor sanders died in two house fires, we worked with Vietnamese community groups, with MASCOSH, community health centers,

floor sanding companies and distributors to promote policy change that will prevent such tragedies in the future.

In addition, OHSP has worked to integrate occupational health into mainstream public health. We help bring attention to workplace stress, which is now part of the state plan to prevent cardiovascular disease. In particular, surveillance of work-related asthma has led to improvements in prevention. Our surveillance system was among the first to identify healthcare workers who were developing asthma from latex gloves. These findings were shared with NIOSH at the NORA 1 hearings and used to promote replacement of latex with safer substitutes in hospitals.

Another case, a cluster of cases in a chemical manufacturer uncovered a previously unknown asthma-causing chemical, AMT, and helped prevent any further worker exposure. OHSP has also shared data with the three other states that conduct surveillance of work-related asthma and taught others about the risks for healthcare workers from cleaning products. We also recently completed an analysis of the

impact of work-related asthma on healthcare utilization. Finding that people with work-related asthma are more likely than those with asthma unrelated to work to have asthma attacks and end up in the emergency room.

We need more research about the industries, occupations, and exposures associated with this disease so we can prevent it. We need continued support for state-based surveillance where the data is linked closely with the workplaces where we can make a difference.

As Nancy Lessin said earlier today, it's hard to correct health and safety problems. It's even harder to correct problems we don't know about.

In our surveillance of work-related asthma, we've seen a growing problem with disinfectants and cleaning products at work. The four states in their work-related asthma surveillance found that 12 percent of all work-related asthma cases were associated with cleaning products. Among healthcare workers, cleaning products were the leading exposure associated with their asthma, and they were the second most frequently reported exposure among people who

work in schools. In the survey last December in Miami of cleaning workers at Unico, 47 percent reported trouble breathing.

With fears about pandemic flu, more and more disinfectants and cleaning products are being used with doubtful success in preventing disease. Indiscriminate use of antibacterial products is being promoted, such as Clorox's anywhere hard-surface daily sanitizing spray, made with very pure water and pure refined bleach. It can be used on anything, from Fido's water bowl to baby's pacifier.

We have also heard antidotes that they are distributing disinfectant wipes for regular use on school computer keyboards. Some of these wipes contain quantinary ammonia compounds, which are known to cause asthma. Research is needed on the hazards of cleaning products, on improper promotion of their use, and effective infectious disease prevention.

Rather than improve the health of workers one work site at a time, the efforts to conduct surveillance for the purpose of broad-based prevention is crucial for our future. Please, sustain funding in surveillance research so we

can apply the lessons for the benefit of all. Thank you.

MS. BACKUS: Now, Tish Davis, from the Massachusetts Department of Public Health.

MS. DAVIS: My name is Tish Davis, and I'm Elise's boss. For over 20 years, with help from NIOSH in much support, I have directed the Occupational Health Surveillance Program at the Massachusetts Department of Public Health. And, you've heard about our program from Elise, and as you might predict I'm here today to underscore the importance of surveillance. And frankly, surveillance is historically or typically placed second fiddle to ideologic research in any kind of research or academic environment, and I've been really happy today to hear so many people, beyond my staff, underscore the importance of public health surveillance and really telling the story. We clearly need robust surveillance systems to establish the magnitude of the problem; information that we need to garner the research and intervention resources. We need surveillance to develop a research agenda that is relevant and addresses the most relevant,

the most pressing problems.

We also need surveillance to identify emerging concerns, and I just want to highlight several from Massachusetts. In the last several years, what we've seen is safety hazards in floor finishing, fatalities associated with the manufacture and installation of granite counter tops, asthma, associated not only the use, but the overuse of cleaning agents that you just heard about, young worker exposure to violence in retail settings and the failure of the workplace movement to address shoplifting. We have a spike in fishing-related deaths in Massachusetts. Massachusetts is second only to Alaska in the number of fishing-related deaths. And we've seen in recent years an increase in Brazilian worker fatalities.

Each NORA sector, I think, should be mandated to address surveillance. At the same time, I think it's crucial to establish a coordinated and comprehensive cross-sector surveillance plan with appropriate cross-sector funding mechanisms. This plan should include population-based activities, such as periodic suplets (*) to the National Health Interview

Survey, but it also needs our pace-based approach, such as SENSOR and FACE, that link to individual workplaces and provide the detailed information necessary to develop effective interventions. And we've seen a decrease in those programs in the last several years.

While I'm very pleased to see that the practice of surveillance is included in the NIOSH program portfolio, I want to emphasize the continuing and I see as distinct need for surveillance research. That is, research to document the biases in the existing surveillance systems and to explore new surveillance methods.

Occupational health policy and practice in this country relies heavily on the BLS annual survey of occupational illnesses and injuries. This system not only omits 20 percent of the workforce, including all public sector workers, but research has consistently demonstrated that the system substantially undercounts cases that should be captured by as much as 30 to 40 percent. These research findings are strikingly discordant with OSHA record-keeping audits, which suggests that there is relatively

little under reporting.

How do we explain this discrepancy? How do we explain last year's, one year's, 15 percent decline nationwide in lost-time repetitive-motion cases? There was a 30 percent decline in Michigan in repetitive-motion cases in one year. How do we explain that in this system on which we're basing so much policy?

I want to call on NIOSH to join with BLS, OSHA, and other research partners to collaborate in developing and implementing a dedicated research plan to document systematic biases in the BLS survey, and the factors, many of which you've heard about today, that lead to under reporting. We need to know which categories of workers establishing events that are being systematically undercounted. We need to understand how OSHA enforcement targeting, how behavioral safety programs, how management evaluation practices influence reporting, and then we need to test interventions to improve the system.

We also need to continue to explore innovative approaches to address chronic disease and

under-served worker populations, issues that we know will never be adequately addressed in the BLS survey. And I think we need to look at community-based models, some of which are being used in developing countries, that we need to bring back here for application at the community level.

I'd like to underscore the importance of NIOSH's state-based programs, and you've heard about that here today. States have access to unique data sources that can fill gaps in national surveillance. Surveillance by definition includes the use of data for action, and states have a very solid track record of linking surveillance to practice at the state and local levels. State health agencies, which historically focus on addressing the needs of under-served groups, can play a particularly important role in identifying and addressing the occupational health needs of under-served worker populations whose occupational health needs have clearly not been addressed.

This brings me to my final point, which is needed to document and address the occupational health disparities among population groups.

The sector research panels should be mandated to address these disparities. I want to weigh in with others you heard here today to particularly emphasize the need for research to address the needs of young workers and low-income immigrant and minority workers.

In Massachusetts in 2005, 37 percent of juniors and seniors in high school were employed, according to the current population survey. And 17 percent of our workforce is foreign-born; double the number or the proportion in 1980. We need research to identify the factors that place these workers at increased risk, and we need intervention research, including community-based participatory research, such as we've seen in the environmental justice partnerships to develop interventions that work.

In closing, let me say that for the last 20 years I've been involved in tracking every work-related death in Massachusetts and it's grueling. And I have never ceased to be moved by the fact that these workers died doing work that enable me and all of this in this room to lead the lives that we do every day. And I

look to Max and the communication folks at NIOSH because I think we also need to learn how to better tell this story. Thank you.

MS. BACKUS: Tim Morse from the University of Connecticut.

MR. MORSE: Good afternoon, and happy spring to all of you. Spring rolled in about an hour ago, I think, officially; so it should be about 40 degrees warmer out there now than it was this morning. I'm sure you'll be happy to know that.

I can use some extra time to talk like this because Tish and all these other speakers have already said all the things that I was planning on saying, so... I'm Tim Morse. I'm with the Ergonomics Center at University of Connecticut Health Center, and also participate in the Connecticut Occupational Disease Surveillance Program, along with Labor Department, Health Department, and Workers' Comp Commission.

We've also at UCON do a lot of research looking at under reporting, particularly of musculoskeletal disorders, and I'd like to focus on those issues in particular.

Complete accounting of occupational injury and

illness is important for several reasons, Tish and some others have pointed out some of those. But, it also goes along with if there's a lot of undercounting of occupational diseases, then it tends to also affect resource allocations. So that if you don't count all of what's going on out there, you don't get as much resources going to solving the problem. It also -- We need surveillance and accurate counting in order to target those resources accurately to make sure that we're addressing the right problems, the right industries, and the right occupations that are at the bulk of the problem.

And finally, accurate counting is important for assessing interventions so that, you know, as we move towards more emphasis on intervention research, then we need better counting so that, for example, in ergonomics and musculoskeletal, we find that when we do ergonomics intervention programs in industry, a lot of times the increased awareness leads to increases in reports because they've been so undercounted previously. You intervene and then rates go up and so you need better counting and better ways

of figuring out how much is not getting reported in order to understand how effective those interventions are.

It's now reasonably well-established that there's extensive undercounting, particularly for occupational disease in the BLS and OSHA surveys. You know, from research that we've done that's both population-based, random digit-dial phone interviews, from capture/recapture analysis of comparing physicians' reports to workers' comp reports, in Connecticut our estimates are only about ten to 20 percent of musculoskeletal disorders actually get reported to workers' comp or to BLS. We used to think that that was -- the situation was much better for acute traumatic injury, but some recent capture/recapture studies that are just starting now to get reported find that even for overall occupational injury and illness we're probably only getting somewhere between 50 to 80 percent of the cases are getting reported to BLS, even for lost-time pretty severe injuries, which you'd expect to be reported pretty well.

The Lanora Azerof (*), who's here somewhere has

mapped out some of these filters that we see in terms of where things don't get reported and where they don't get recognized. Part of that is physician non-recognition of occupational disease, part of it is workers not reporting to their employers, and part of it is employers not putting it on their records and getting it into the statistics.

Our studies have shown that there are characteristics that increase the reporting. For example, more severe conditions are more likely to get reported, more likely to get reported in unionized environments, in manufacturing, and among workers that have access to personal physicians.

We need to better understand these mechanisms associated with under-reporting, partly so that we can improve our reporting systems overall, and we also need to know what the extent of the magnitude of that under-reporting is so that we can adjust those known figures to try to compensate for that. And we also need to test interventions that would try to improve reporting characteristics, you know, looking at kind of the negative consequences of safety

bingo kinds of programs, looking at what are some positive reinforcers that we can use to get better reporting of those conditions, and therefore help in prevention.

For the most part current data's based almost exclusively on employer-based systems, and so those numbers can be impacted by workers not informing their employers, it can be impacted by employers not understanding reporting requirements and categorization, and also by negative incentives such as the employers' perceived -- perception by employers of what the impact is going to be on the OSHA inspections or workers' comp rates. For MSD in particular, current data's also made less available due to the dropping of repetitive-trauma category from the BLS system, which has caused a break in series and also made it more difficult to understand what are the longer term patterns for MSD.

Population-based studies, such as phone or mail surveys, web-based surveys, employer-based surveys are highly useful for broadening the scope of the information. We have -- These can be pretty expensive, but they're really the

only way that you can get at some of these under-reporting issues and try to understand what community burden is.

So I would advocate a few things. One is support for population-based surveys, support for NIOSH to do regular participation in things like National Occupational Exposure Survey, National Health Interview Survey so that we can get population-based systems. And then also link programs between -- funding programs between OSHA and NIOSH for funding intervention programs that are based on surveillance data. And I think the other stuff has been said by Tish, so thanks very much.

MS. BACKUS: And Ivan Most is here from the Maine Occupational Research Agenda.

MR. MOST: Thank you, Ann. And I want to thank NORA and NIOSH for giving us the opportunity this afternoon to talk about issues that are important to us. I'd like to bring you spring greetings from Maine, but we don't get spring in Maine. In about a month we'll get mud season, and then six weeks later we get black flies, so... I don't know if you want to be greeted that way, but that's the way it is.

I am a past chair of MORA, and have a consulting firm in Maine. I'm also on the faculty of the Masters in Public Health at the University of New England, and I've had some work at the NORA level as part of the Intervention Effectiveness Committee of NORA. What I'd like to talk to you about today is the tie that we can make between state programs like MORA -- and Ann and I were trying to decide how many there are in the country, and it probably is no number that you could count on one hand, and why we have a program like this. And I think one of the keys here are the fact that many of the problems we have are local, and in a state like Maine, which is very large geographically and very small in population, it's very difficult for like-minded individuals in the area of occupational health to find each other. And we've used MORA for the past six years to have a very useful dialogue among practitioners that's been very helpful to us.

I'm not going to go into the background of MORA and its startup. My colleague, Peter Doran, will cover that in detail, but we have worked

for six years. We've worked for six different areas, which Peter will mention. We've narrowed those areas down most recently to occupational asthma, cost-drivers associated with workers' comp, and better characterizing the incidence of pesticides-effected illnesses. We work well with regional partnerships, and I think this is an extremely important aspect of our program. The ERC has been very helpful to MORA, not only have they assisted us with conferences, which has been very important, but they've also had a pilot project recently and these pilot programs have funded some programs in Maine. They are small dollars, but they go a long way in a state like Maine, and we're able to do quite a bit with them.

We really feel that there are opportunities that exist at the local state level that NORA can really take advantage of. One of these is the diffusion of research. It's difficult to reach out into the hinterlands and make sure that you are reaching a lot of companies that exist out there. With a state program like MORA, you are able to reach some of the practitioners with the research and get it

defused from the ERCs and the universities into small companies that exist.

The other area is the access to small business. A state like Maine has over 90 percent of their businesses are small businesses. And in Maine we define small businesses as less than 100 employees, so it's really small. Getting into those small businesses is not easy; NIOSH has a lot of difficulty with that, and so state programs can really provide a way of doing that.

We also can leverage research dollars. In one of the pilot projects that we received funding through the ERC at Harvard, we were able to do some really initial-level work. That work has now been funded by the agency in particular that the work was done for as a second level, and it's a survey that was done using participatory methods, which will now go forward this year based on the fact that we had some pilot funding to start. So I think leveraging those small research dollars is an important aspect, and I emphasize small. Small-dollar grants in a state like Maine can go a long, long way.

Also, access to field studies. NIOSH has been in Maine studying the schools and asthma induced in schools, which have experienced high levels of mold. This kind of cooperation has been very helpful in solving some problems in Maine.

And last, advocacy. There have been many programs like MORA in other agencies in the federal government. And as we discovery with these programs, as you have more people involved at the state level and issues come up that the national level wants to have something done with we have people that can advocate, both with the senators and the congress people in our region.

So I think state programs can be helpful in a number of different areas, and I'd like to see NORA and NIOSH consider expanding and supporting those programs. Thank you.

MS. BACKUS: And Peter Doran, also speaking about MORA.

MR. DORAN: Thank you, Ann, and thanks for the opportunity to visit with you. And I can assure you that you can get to Maine from here. I want to follow a little bit from Ivan's

remarks, and tell you a little more about MORA; what it is and how it functions.

MORA promotes safety and health research in Maine. We were spawned in the year 2000 at an occupational health and safety research summit, which was called by the Maine Department of Labor, and we were honored with some guests from NORA at that time who acquainted us with what NORA's all about and how it works. As a result of that we developed a steering committee, that steering committee meets monthly and it maps a strategy with action steps. The Maine Bureau of Standards provides meeting space and staff support, for quite frankly, an entirely voluntary organization.

Tell you a little bit about our accomplishments during the last six years. We're data driven, so we assess data sources. We've supported legislation to improve data collection in the Workers' Compensation Medical Only First Reports. We found until we could get medical only reports available to us from all of the insurance companies, we really didn't have good insights into prevention. We recently reported in February to the legislature our

recommendations for data collection and injury prevention and that's making a substantial difference in the electronic reporting process. We've convened a symposium in 2003 and 2005 with NIOSH support. We received the State Government Team Work Award and we've established six major priority areas. Those priority areas, about which you've heard quite a bit today from other speakers; musculoskeletal disorders, occupational asthma, fatalities, toxic exposures at work, the aging workforce, and cost-drivers. And, with all of those priorities, what we do is to try to identify research partners and then collaborate with topic experts to identify the more specific research needs to locate funding sources and to encourage the conduct of the research specific to those.

Let me highlight just one of those areas for you, which is of particular interest to us and that's occupational asthma. We have an estimated ten to 20 percent of asthmatics who have work-related occupational asthma. We have one of the highest asthma rates in the United States in both adults and with children.

Asthma -- occupational asthma often goes unrecognized as work related. There are significant limitations in the data gathering. By understanding the magnitude of the problem, the prevalence, and the trending we can do a better job of identifying at-risk work environments and potential associations with other indoor air quality problems and then design and implement preventive interventions. This is a collaborative kind of process. MORA's currently promoting research on occupational asthma through collaboration with the American Lung Association of Maine, which incidentally is focusing with NIOSH research help from the respiratory disease section on school buildings as an occupational source, and also the Maine Asthma Council, and the Maine Environmental Public Health Tracking Project. And we feel that this is going to be an excellent model for us to use as we work with our other priority areas.

I think my final message today, one -- I wanted to share with you that I think that a state-level research agenda can be a very cost effective, a very stimulating and exciting kind

of enterprise. At the same time it would certainly be helpful to us if we could establish a federal/state program in occupational health research to provide support for state occupational safety and health agendas like MORA, and to link education and research centers regionally with the NIOSH, NORA, and state agendas. So thanks for the opportunity and don't hesitate to come back and see us during the warm months ahead.

MS. BACKUS: Thank you to this panel. The next folks are Joel Garrett, Peggy O'Malley talking for Susan Vickory, Paul Morse, and Dan DeMille. Here we go with Joel Garrett from Kluber Lubrication North America.

MR. GARRETT: I just want to thank everybody for the opportunity to speak here today. To give you a little bit of background about myself, my name's Joel Garrett, and I work for a company called Kluber. And for those of you who don't know what we do, we make specialty lubricants for 31 different market segments, which includes food, pharmaceutical processing, the aerospace industry, as well as the automotive industry. And I'm responsible for

all the day-to-day operations, which includes things like customer service, production, a laboratory, quality, facilities, on and on. With all these responsibilities, the one that's most important to me is the health and safety of our employees. And to protect the health and safety of our employees, we must continually improve our approach toward EHS, and therefore we're always looking for best practices.

Particularly, we've done some work with behavior-based safety. Prior to starting the program, we did some background work to see if this would be effective. And the challenge here was that most of the information that we were getting with this BBS was that it was coming with a sales pitch. It was really information that was associated with a product or a service, and therefore what I'd like to see is more research on safety systems, particularly behavioral-based safety from NIOSH funded researchers with an objective approach. And this would really give the business community the opportunity to evaluate the pros and cons of different types of systems without

the sales pitch. And I wish you all the best of luck, and that's all I have.

MS. BACKUS: Peggy O'Malley, speaking for Susan Vickory and representing the VA Boston Healthcare System.

MS. O'MALLEY: Good afternoon, everyone. The topic is workplace violence prevention, and I'm reading this for my nursing colleague Susan Vickory. I have been a registered nurse in an urban Veterans' Administration Medical Center for 24 years. One of the most effective tools now being used to decrease workplace violence is the prosecution of the individuals who assault.

Too often a blame-the-victim mentality and an embarrassed staff ignore the violent behavior that would be unacceptable in the community. Inside the hospital this disruptive, abusive behavior was tolerated because the individual may have a mental illness or under the influence of substances. In other words, quote, they were not responsible, unquote. It has been my experience that if violent behavior does not have consequences that behavior will escalate over time.

When prosecution becomes the usual response, it will have a deterrent effect. It can be beneficial to those who assault to be held accountable. Filing criminal charges sends a strong message to staff and to patients that the laws apply inside the hospital.

Most people know right from wrong. Some patients and clients are able to take out their anger on staff because there are no consequences, because they can with no fear of retribution.

It takes courage to face what others choose to avoid. I would like to see violence prevention programs include prosecution of perpetrators in their programs. I would like to see administrators, police, court officers, and other nursing staffs encourage the filing of criminal charges for those who threaten, abuse, and assault healthcare workers. Violence in healthcare should never be considered part of the job. Thank you for this opportunity.

MS. BACKUS: And Paul Morse from the New England Consortium.

MR. MORSE: My name’s Paul Morse and I’m the project director for the New England

Consortium, which I'll talk about a little bit more in a second. But I have to say that spending the entire day here has been a real privilege, and I want to thank NIOSH for the opportunity to be with so many inspiring people doing so much important work in our region, and I'm glad that you got to come and see it all and hear about it.

What I want to comment principally on today is to recommend that NIOSH conduct additional research into issues of effectiveness of worker health and safety training programs. Not only is it imperative and important to review the effectiveness of training, but critical to closely evaluate outcomes derived from different approaches to training.

The New England Consortium, TNEC, based here at the University of Massachusetts Lowell, is a unique regional partnership for the university and five grass-roots coalitions for occupational safety and health. The Consortium is committed to ongoing and dynamic training that regularly readjusts to reflect the ever-changing realities of workplace change and the risks associated with it.

TNEC is part of the National Institute of Environmental Health Sciences Worker Education Training Program, an extensive national network of nonprofit organizations, universities, and labor unions that are committed to protecting workers and their communities by delivering high quality safety and health training to hazardous waste workers and emergency responders.

Since 1987, the WETP has provided nearly 60,000 classroom and hands-on trainings to over one million workers in order that they are better prepared to safely and effectively respond to this nation’s hazardous material incidents and hazardous waste operations. These workers are engaged every day in handling hazardous materials, transporting them, cleaning up waste sites, restoring brown field properties, and responding to emergencies.

There are three critical issues, I think, that are related to health and safety training for workers in highly hazardous occupations that need to be addressed. While these training programs that are based -- The WTEP kinds of programs and many that you’ve heard about today

are based on principles of popular and adult education methodology. And while they have been extremely successful in ongoing workplace controls -- improving workplace controls and conditions and in reaching a diverse worker population, it's clear that the vast majority of people working in hazardous occupations receive limited, inadequate, or no training at all; point number one.

Point number two is that workers in the response, rescue, recovery, remediation, and medical care communities are now expected to handle consequences emerging from more severe environmental disasters, industrial accidents, potential acts of terrorism, and the growing threat of pandemic disease outbreaks.

And point number three, until we are able to reverse the current climate of reduced regulation and enforcement of environmental and occupational standards, workers who lack strong unions or effective labor management structures must take health and safety protection into their own hands. What I want to say to point three, and the optimistic point, is we are going to reverse the current climate of reduced

regulation and enforcement in this country. And I think it's the work of a lot of people here that is going to bring that about.

Our current experience is that reduced numbers of workers are making ever-greater sacrifices for the public good and the public protection. Often they must face these challenges with reduced resources and funding support. As we have seen from the tragedies of 9/11 and the Gulf Coast, these workers have done heroic service and far too many of them died and suffered greater injustices and illnesses than might have been necessary -- might otherwise have been necessary.

Similarly, the training arms and allied organizations for these workers have made heroic efforts to serve during these responses and recovery operations. The NIEHS WETP training programs have proved instrumental under adverse conditions to respond to these events. We know, however, that far more must be done to better prepare workers to prevent accidents, and to minimize the consequences and harm from unpreventable disasters.

Every worker injured or made ill on the job,

and every life lost, devastates families and the economic well-being of our society. Too often those with the real power -- with the most power I should say -- we have a lot of power ourselves to alter the adverse conditions for workers gamble that tragedies will not happen, or they choose to calculate the trade-offs of inaction against the cost of prevention and institution of stronger systems of safety.

Under Section 21 of the Occupational and Safety Health Act, NIOSH shall provide for the establishment and supervision of programs for the education and training of employers, employees in the recognition, avoidance, and prevention of unsafe and unhealthful working conditions in employment covered by this Act. NIOSH has been and continues to be a vital agency conducting important research that addresses the impact of work practices on the public health. Successful outcomes of effective training result in recognition, avoidance, and prevention. The difference between lesser and greater trending effectiveness is a factor of having strong

training infrastructure and training design that ensures that crucial information is understood and retained, and that workers can use it to transform workplace operations and design to prevent unsafe and unhealthful conditions.

Each year, in our annual report to the National Institute of Environmental Health Sciences, we are able to share numerous anecdotal information and examples that workers are bringing training lessons learned back to their workplaces. We know that the participatory design of our training and our program, and the investment we make each year in updating and developing new curriculum supports these outcomes.

MS. BACKUS: Are you almost done?

MR. MORSE: Yeah, I'm about to finish. It's a training model that empowers workers to take action and reflect on the outcomes of that action. I think a final point I want to make is that the programs that we work with also help promulgate the minimum criteria, Appendix E of the OSHA HAZWOPER Act, and it's continually worked on that minimum guidance

criteria to make it apply to ever-changing situations in the workplace.

So again, I just want to really highlight that this is an aspect that I think is worth a lot more time and research. Thank you.

MS. BACKUS: Dan DeMille from the Department of Industrial Accidents.

MR. DEMILLE: My name's Dan DeMille. I work for the Department of Industrial Accidents, more specifically the Office of Safety. I'm coming from a little bit of a different angle for you guys today, in that the Office of Safety can be a resource for you people for funding for injuries, safety training funding for injuries that you already have within your specific organizations, in that we have a grant program that gives out $800,000 a year in training money. It's capped at $25,000 per organization. Since our inception, we've given money to over 650 organizations and trained over 200,000 employees.

So I'll just kind of give you an overview of the grant program. Basically, to be eligible for it you need to have Massachusetts workers' comp coverage and be in compliance with it.

We've given training money to all kinds of organizations, labor, union, non-union, healthcare, government, private and public, it doesn't really matter.

Any topic can be used for the funding that would somehow improve safety in your workplace, you know, talked about needle-sticks and whatnot with nursing today, you know, something like that. Fall protection; we will give a lot of OSHA funding, so anything like that.

The process starts in October when we release our letter letting you know that the application's available. It's usually due back in March of the following year. And then approval usually takes place in April or May, and then the training would have to take place within our fiscal year, which starts July 1st and ends June 30th or June 31st of the next year.

The application process itself, basically it's a five-page narrative. You would describe the need for your training, you know, describe the injury, what type of training, how many people you're planning to train, where it's taking place, things of that nature. And then, we

would need a budget explanation in that you'd want to describe where all your dollars are going to be spent and then just a summary of that, and some required forms that come with it because it's the state and nothing can be done on an easy basis, of course.

That's basically about it. I've got pamphlets out back, if anybody is interested. It's got our contact information and where -- We'd be happy to help you guys out with problems that you guys already have established. Thanks.

MS. BACKUS: Thank you to this panel. And if you wish to leave your testimony with Shane, please feel free to drop it on the table over there. We'll continue now, and why don't you all stand in place and stand up for a second and just stretch while we take the next five people. This would be John Lindberg, Isabel Cruz-Lopez, Gladys Romero, Roberto Mauro, and Renan Pinto.

Final inning of our six-inning ball game here today, and you're in Red Sox country, you know. We have to talk about baseball. Now, we've made a small change in the order. So I'd like to call up Isabel Cruz-Lopez and Gladys Romero,

and Fausto da Rocha for the first panel, please. All right, and before we start with these speakers, Marcy would like to say a few words of introduction for this part of the program.

MS. GELB: Thank you, Ann. And thank you to NIOSH and to UMASS Lowell for organizing this forum, and to Harvard, as well. The reason I'm up here sort of as a pre-introduction to the next two panels is because what you'll be hearing is really a consortium of partners that are critical to reaching deeply into both the immigrant communities and to young people. And as you've heard through the course of the day, if you're truly going to try to find a way to address the very high rates of injury and fatalities among immigrants and as well with youth, it's critical to have community involvement, it's critical to have community health centers, to have organizations like MASCOSH, to have government agencies as well coming together as partners.

I want to say first of all that the Environmental Justice grants that NIOSH and NIEHS have funded have really been essential in

reaching deeply into three communities in particular, over the past couple of years. One is the Brazilian community, as you'll hear from Fausto and others later through COBWEB. The second is Dorchester, a program called the Dorchester Occupational Health Initiative. And the third, which is brand new, is the Somerville Occupational Health Initiative. And so I'm thrilled to have this group coming from different projects, presenting to you issues facing the immigrant community, and why this type of research is needed, followed by a panel of youth, as well as some immigrant components, again, to emphasize this need for this type of funding and this type of research. Thank you.

MS. BACKUS: Are you both going to speak together?

MS. LOPEZ-CRUZ: She's going to speak and I'm going to translate. Should we stand over there?

MS. BACKUS: So Isabel, come on over here. Who's going to speak? The speaker can come here. So this is Gladys Romero.

MS. ROMERO: (Through interpreter) The reason

why I’m here today is because my testimony hopefully will bring up awareness to you and to many who work with people like me. I had a work experience in my workplace. I got injured at my workplace. I fell, and as a result they took me with an ambulance to the hospital. When my employer find out about my accident that I report to him, he pretend that he did not understand what I was saying or what I was telling him about, you know, my injury. He did not support me at all. I did not know where to go for support or to look for help.

I talked to my friends, I talked to my coworkers, I asked for information about where I should go for help. That’s when I find out about myself, Isabel Lopez, that they can help me. I found the support so they can recommend me how to get workers’ comp through a lawyer, so they could give me workers’ comp, so I can be having all the doctors to see me and the medical treatment that I needed for my arm. The doctor sent me to the therapy. My doctor had prescribed me -- had given me a letter saying that I need to do light duty. They did not follow my doctor’s advice. The doctor that

I was seeing, I never saw him again -- the doctor that gave me that letter. He was the one who wrote me the letter saying that I either, you know, do light duties; that I couldn't lift the heavy lifting that I was doing before.

I just had a surgery -- from her right arm (indicating), she's lifting her right arm. And now the insurance company just suspended the payment for my therapy, so imagine what it is. I have never felt supported by either the company, nor, you know, anybody. There is no support at all for immigrant workers. They treat us very inhumane in different ways.

I hope that my testimony help you understand what we have to go through. And hopefully we will find some support in some of you here today.

Imagine the ways and what I've been through; there are so many different people that are going through the same things that I'm going through. There are so many people out there that are going through this same situation.

Thank you.

MS. BACKUS: And Isabel, are you ready to...

MS. CRUZ-LOPEZ: Yes.

MS. BACKUS: Okay. Isabel Cruz-Lopez from MassCOSH.

MS. CRUZ-LOPEZ: Hi. Thank you for the opportunity -- for giving me the opportunity to be here today. First of all, I want emphasize on Gladys' testimonies. Her testimony is one of the typical testimonies that I hear every day in MassCOSH. And our hotline, when workers call that -- Yeah, I was injured on my job and my employer told me that, you know, you don't report it because I'm going to send Immigration to your home or it was your fault.

I don't know how you say this, mamita, it's like you're not being a man doing the construction work. So you just crying over nothing; and that's what we hear from workers when they come to MassCOSH.

And Gladys' testimony is one, like I say, one of the typical testimonies that we hear at MassCOSH every day, not only from as a worker in MassCOSH, as a labor community coordinator at MassCOSH, but also my personal experience I have. My brother and my sister who worked through the temp agencies every day, and you

see -- And I see that the issues that our workers are going through, not knowing the language, not knowing what are the rights. And being the most vulnerable to the dangers, doing the dangerous job is a very big issue that you all need to know.

Injuries and fatalities are dramatically increasing among them. And we hoping that, you know, by listen to Gladys, our workers are not getting the benefits for workers' comp, for example, because they don't know where to go. They don't know what to do because they get intimidated on the work.

And people like Gladys are, you know -- If she didn't came to MassCOSH she will be one of the workers who are not reported because she reported, but the employer did not do anything to help her. In fact, the doctor wrote her the letter and two days later, you know, after the doctor wrote the letter saying that she had to go for light duties, Gladys went back to her workplace. And because she could not lift those 15 and 25 pounds of heavy lifting, she was fired. She was fired.

And, you know, we need to -- We need to do

something about this. We need to have better ways how to implement the health and safety for workers, letting them to know what are the rights, what are the equipments that they need, where to go. We're hoping that you all here today are going to put your resources to get to know -- We know that, you know, the immigrant workers are the most vulnerable, but we need to know why it's happening and what do we need to do about it. Thank you.

MS. BACKUS: Okay. Thank you. And, Fausto da Rocha from the Brazilian Immigrant Center.

MR. DA ROCHA: Good afternoon to all. My name is Fausto da Rocha. I am direct from Brazilian Immigrant Center. A large number for Brazilians immigrated to Massachusetts after the 1990's to work in residential construction, house cleaning, nursing homes, restaurants, and several other service-sector jobs. As the number for the Brazilians grew in Massachusetts, so did the number of cases of abuse and violation of labor laws.

The Brazilian Immigrant Center is an eleven-year-old community-based organization that was created to support and empower

Brazilian immigrant workers in the Greater Boston Area around issues of workplace and immigration rights. The Brazilian Immigrant Center has became a place where Brazilians can meet, search for advice, and organize themselves to fight for their rights The BIC mission is to unite Brazilian immigrants to organize against economic, social, and political marginalization in the United States. Many Brazilian and American researchers interested in social, cultural, educational, and economic issues faced by Brazilian immigrants in Massachusetts and United States have contacted the center over the years. The center helped them with information about Brazilian immigration, key informant contacts, and access to the Brazilian workers. Unfortunately, in most cases the end products of their research did not reach community leaders, and little information was disseminated to the community. The community was studied, but did not get much back from them.

In 2002, a few Brazilian researchers from the University of Massachusetts Lowell, proposed to

me that the BIC collaborate on a community-based environmental research projects focusing on the hazards faced by Brazilian immigrant workers in house cleaning, construction, and food and restaurant service. Workers in these industries are often invisible and ignored, although they are a large segment of the workforce exposed to hazardous conditions for low wages and with limited access to healthcare.

We welcomed the opportunity to build a partnership with the Brazilian researchers who understood the health and safety problems faced by Brazilian immigrant workers. The project name is Collaboration for Better Work Environment for Brazilians, COBWEB, in Massachusetts, funded by National Institute of Environmental Health Sciences, NIESH. From the beginning, we agreed that the community would be the center of the research efforts, not the researchers. I am happy to say that over the last three years this commitment became a reality. Let me highlight to you why this is true.

Project COBWEB has had a weekly radio program

on the university radio station, WUML, for over two years now. The project also has a weekly column in the Brazilian newspaper called A Noticia, for over six months now, after ten months of columns in another Brazilian newspaper. Project COBWEB hired Brazilians to collect the health and safety survey data on Brazilian immigrant workers in places and times that are only accessible to the people who really have a deep commitment to Brazilian immigrants. It is not easy to survey people who are quite often afraid to talk to strangers, have fear of being deported, or are too busy working many hours to earn enough money to help them build a new life here in the U.S. and support their families in Brazil. Yet, we have had great success to getting Brazilians to respond to the survey, despite the perceived threat of signing an informed consent form.

Over 200 house cleaners have been training in churches to understand the hazards of chemicals they use to clean kitchens and bathrooms. After the training, it became clear to us that eliminating their workplace exposures in homes

in Massachusetts residents -- we needed to eliminate or reduce the usage of hazardous chemicals.

We were fortunate to establish good linkage with Dr. David Gute, from Tufts University -- he's in the back -- who proposed to partner with the Brazilian Women's Group, another Brazilian community-based organization to create a green house-cleaner cooperative in Somerville. We hope that the project, funded by NIOSH, will allow us to contribute to the creating of health and sustainable jobs for Brazilian house cleaners in Massachusetts.

Project COBWEB was collaborated with OSHA in the investigation of fatalities for Brazilian workers in Massachusetts in the last three years. The BIC has learned the details of legal and bureaucratic process involved in those investigations. We now talk to OSHA inspectors and administrators quite often and will soon develop an alliance with OSHA. We are trying to make every death of a Brazilian worker a learning opportunity for the community.

Brazilian teenagers trained by the project

COBWEB and the Massachusetts Coalition of Occupational Safety and Health, MASSCOSH, another partner in our project, have actually developed and implemented a campaign against violence in retail workplaces after the murder of the Brazilian teenager in Boston, 2004. The peer-teens surveyed other teens that work in retail and found out that most of their employers do not provide adequate training on what to do in case of shoplifting, nor do they have policies in place to prevent shoplifting. All these examples, amongst many others that I could mention, show that community-based participatory research is a valuable approach to build partnerships between research institutions and community groups to identify the right questions and translate research findings into meaningful action. Only through such partnerships can communities get their fair share of the research effort, which includes financial resources, worker and community education, and feasible solutions to the problems measured and discovered.

It seems to me that BIC has learned a whole lot by participating in this project. We have

learned how to include health and safety issues in our agenda because we now clearly understand that the same worker who is abused by not being paid overtime or even his/her salary is also exposed to hazardous substances and machinery, usually without health and safety training. Since NIOSH is the major government agency that funds occupational safety an health research, I think that it should fund the research that studies how communities should or could be involved in what Dr. Sequeira, the Principle Investigator of Project COBWEB, calls community-based surveillance of workplace fatalities and injuries. NIOSH should also fund the research that assesses the effectiveness of non-traditional methods of worker education through mass media, as Project COBWEB has been successful doing. Thank you.

MS. BACKUS: We'll make room for everyone. So we'd like Roberta Mauro, Renan Pinto, Raquel Lamons, Carla Bourgos, Ricardo Bonhomme, and Franklin Dalembert, please. Starting this panel off is Franklin Dalembert, from the Haitian Coalition.

MR. DALEMBERT: Good afternoon. My name is

Franklin Dalembert, and I'm the director of the Haitian Coalition. Today, I represent a larger collaboration between the Haitian Coalition and I'm going to name them -- this is the collaboration that is lead by Tufts University. And Professor David Gute is the lead investigator, he's here among us, and we have MASSCOSH, Marcy is the link between us and MASSCOSH, the Immigrant Service Provider, an organization that serves or coordinates immigrant activity in Somerville, and Kim of Alliance, which is our health partner in the collaboration, the Brazilian Woman Group, the Community Action Agency of Somerville. Somerville, basically for those of you that know is a rainbow city. It is a very diverse city, comprised of immigrants from Brazil mostly, from the Latino, and then from Haitian. So 30 percent of the Somerville population is immigrant.

As you know, immigrants play a vital role in this country's economy and this contribution does not often appreciated and recognized. Talking from Haitian perspective, when I came here, the work that I've been doing and the

work that I've done, what I went through, it was an ordeal.

We know many immigrants living here and working here do not know their rights. They do not know where to go. There is some sort of a lack of information. Immigrants in this country, most of the time are misunderstood, unappreciated.

This program is aimed to educate immigrants and also to create awareness about issues that immigrants are facing in the workplace. This program chooses to walk with the young people because we understand that young people represent the future of our society, the future of our country. We have so many of the young people that are working, we train them, we prepare them to go out and work with the community, and then many of them are bicultural/bilingual, and then they are very well connected to the community.

We really appreciate the work that they've been doing. This project also allows us to create collaboration to develop capacity building and also to research problem that exists in our community because the problem that exists, most

of the time we do not recall them because of many issues that are facing the immigrant community, one of which is the immigration issues.

Many immigrants have fears. They have fears to report work-related incidents because again of fear of retaliation they're afraid to lose their job. Most of the time they have to make a choice between bringing food to the table, paying their rent, or report an incident, although they are sick, although they are hurt. Therefore, we have a lot of work-related incidents that are unreported.

With this collaboration, what will happen because of so many of the young people are coming from the community, it's easy for them to establish the choice that they have in the community. So we are really, really pleased with that collaboration.

We started in August; already the word's been spreading out in the community. We have so many young people that are committed to this project. I am going to give them the time to speak from their heart, to tell you what they've been doing. Thank you very much for

listening to me.

MS. BACKUS: Do you folks have an order or shall I just follow the program?

MR. DALEMBERT: You can follow the program.

MS. BACKUS: Follow the program? All right. So let's hear from Roberta Mauro.

MS. MAURO: Hi, my name is Roberta Mauro. I'm 14 years old. I'm a student at Somer's Edison Middle School in Brighton. I'm a COBWEB peer leader at the Brazilian Immigrant Center.

I have been part of this program since January of this year. This program began with the tragic death of Cristian Ribeiro, a Brazilian student at Boston Latin Academy, a loving son, and a good friend. He was murdered in 2004 after chasing a shoplifter who had stolen toothpaste at a CVS store located in the heart of the Longwood Medical area in Boston. He chased the shoplifter because he had no training in how to deal with this type of situation. If he did, maybe this incident would have never occurred.

In my work at the Brazilian Immigrant Center, we are learning about safety and health in the workplace. Many young people are hurt on the

job, some are even killed. How can we keep this from happening? It's not so simple, and that's why we want to educate other teenagers on their rights for protection against sexual harassment, stress, and violence at work.

We have joined with the MassCOSH teens to re-launch the workplace violence campaign. This campaign is basically about getting support from the community, and most importantly retail store owners to give their employees, especially teenagers, proper training.

The teens at MassCOSH and COBWEB wanted to have a better understanding of what really happens in the workplace in our community. They went to about 50 stores and collected 70 surveys from the teen employees, young supervisors, and store managers. Questions asked in the survey focused on health and safety training and how to deal with robbers, experience with robbers, and the existence of health and safety policies at work. Twenty-one percent of the survey respondents answered that they would not chase a shoplifter, while 54 percent said they would. Thirty percent of the respondents had

experienced shoplifting in the workplace, 62 percent responded that they were not aware of the existence of health and safety policies in the workplace.

This evidence proved that most working teens have no idea of how to deal with any type of emergencies at work. To learn what really works in protecting young people on the job, we need more research that brings the youth themselves working together with people who know about workplace health and safety. This is why we need and appreciate NIOSH's financial support in helping programs to make serious research that can make a difference in helping working teenagers. Thanks for your support.

MS. BACKUS: And Renan Pinto.

MR. PINTO: Hi, my name is Renan Pinto. I'm 15 years old, and I'm a student at East Boston High School. I'm a COBWEB peer leader in the Brazilian Immigrant Center, and I've been working with the COBWEB project since late October.

We have been trying to promote laws that would protect teenage workers, and we've been working with the teenagers as MassCOSH in Dorchester

since January 2006. Together, we have been trying to get more people to support our campaign to raise awareness about safety and health in the workplace.

Three weeks ago we presented three different skits on sexual assaults, stress, and armed robberies. We developed those skits to make people more aware of what teenagers can go through in their workplace, if they're not properly trained. I, myself, have learned a lot about safety and health, and want teenagers all over the U.S. to know that they have rights to protect them, if ever a situation similar to these happened to them.

Many young people are hurt on the job, some are even killed. This is a very important issue and should be taken very seriously. Yes, there is violence in our world, and we know that there is no chance of being totally safe in the workplace, but we can decrease the number of injuries or deaths in the workplace by making sure our employers train our employees on how to deal with these types of situations.

I also think it's important to educate our community about these laws because many

immigrants don’t know their rights and bad things do happen. For example, a Brazilian immigrant teenager, Cristian Ribeiro, died in 2004 in Boston as a result of lack of training. A shoplifter came in CVS and stole toothpaste. Cristian, who was oblivious to the situation and had no training on shoplifting, thought that it was the right thing to do to run after the criminal, not knowing if the shoplifter was armed or dangerous. That was the worst mistake he ever made in his life; it resulted in his death. He got stabbed in the neck, while his supervisor got stabbed in the stomach. While his supervisor survived, Cristian unfortunately was not that lucky.

Bad things happen every day, and MassCOSH and COBWEB united are trying to educate teens in our community so that teens would not have to face what Cristian did.

As you can see, we need to make a change. Too many teens are getting hurt or violated in their workplace. We hear about it a lot, but at the end, not a lot of things are done about it. We usually don’t do anything about it until something happens to someone close to us.

We should not allow that to happen; teens should feel safe and protected in their workplace. They need to know that they have laws that protect them. Most important, all teen employees should be trained on how to deal with theft situations.

To make all of these things possible, we not only need community support, but also financial support. We are very grateful for NIOSH's support in community-based participatory research that allows teenagers to become leaders in health and safety in the Brazilian community. With the help of our community and NIOSH, we are making sure our knowledge about rights and safety working are spread to the teens. Thank you for all of those who helped.

MS. BACKUS: Raquel Lamons from MASSCOSH.

MS. LAMONS: Hi, my name is Raquel Lamons. I'm 16 and attend Charlestown High School. I am a senior peer leader at MassCOSH Teens Lead at Work Peer Leadership Program. I decided to work at MassCOSH because I was interested in learning about occupational health and safety pertaining to teens.

In the past, I always heard about other teen

organizations working on common issues, and I felt that Teens Lead at Work was the only youth organization that worked on unique topics. I have been working here for three years. We are currently working on strengthening child labor laws, education and outreach, and community organization through the Dorchester Occupational Health Initiative.

A little over two years ago on February 16th, 2003, a teen named Cristian Giambrone, who worked as a store clerk at a popular retail store, was fatally stabbed while chasing a shoplifter. He was not trained on how to approach a shoplifter or how to handle a dangerous situation. What would you do in this situation?

Well, I know what the MassCOSH teens did, we collaborated with Cristian's mother, Taciana Sabb, and the Brazilian Teens peer leaders to form the Workplace Violence Campaign in which we are trying to implement a policy that will make sure all employees, especially teens, are adequately trained in workplace violence situations.

Teens are most vulnerable than adults and are

injured at a twice the rate of adults. The reason for this being is teens are intimidated by older supervisors who usually ask teens to perform dangerous tasks and often forced to stay late.

Teens need to work to help their families and for personal needs. Jobs are good for teens because it helps build character and teaches them responsibility. This is why teens need to work, but how can they work in unsafe conditions? For this reason, we need to protect teens in their workplace.

Situations like Cristian’s happen a lot. Just a couple of weeks ago there were several violent occurrences in which retail clerks were seriously injured. I think research should be geared towards teens because we could get the word out about health and safety quickly by organizing and researching out into the community.

We teens have fun and vibrant ways of spreading information and can recruit others to join us in our fight for workplace violence and health -- I mean, workplace health and safety. I believe that with the right research we can

receive the appropriate funding and build stronger communities with teen activists. We also need more research to make sure all teen occupational topics are properly studies. This will help the doors open to organizations like ours, MassCOSH Teens Lead at Work Peer Leadership Program. This will give other communities a chance to implement a similar teen occupational health and safety program in our neighborhoods.

Because of the work we are doing, other teen employees won't have to get injured or killed. Hopefully, everyone in this room is listening, because I'm really speaking through my heart. If you're down with me, then you're trying to help the teens. So thank you for listening, and please have a great evening.

MS. BACKUS: Thank you. Carla Bourgos from Community Action Agency of Somerville.

MS. BOURGOS: Like you said, my name's Carla Bourgos, I come from Somerville. I attend Somerville High School. I'm currently a ninth grader. I work as a peer leader in Community Action Agency of Somerville. We also involved with other youth programs, one being the

Haitian Coalition.

We are so happy we can be a part of this project as a bilingual teen educator. Well, this program is a very productive thing because we are learning skills, teaching other members about occupation health risks and how to avoid injuries, and also where to go if they get injured.

This program is very good because we have had the opportunity to go see where immigrants work and the environment they work in. All this training we are getting is giving us knowledge that we can teach and use for ourselves in the future. Thank you for the opportunity to speak.

MS. BACKUS: Thank you. Ricardo Bonhomme from Somerville Community Corporation.

MR. BONHOMME: Hi, my name is Ricardo Bonhomme. I'm a freshman at Somerville High School. I work for the Haitian Peer Leader Program in Somerville to educate Haitian and Latino youth on safety and health hazards.

The reason why I'm doing this project is because I want to reach out as a bilingual student to represent many other Haitian

community members who might not know about occupational health hazards. They also might not trust people who don't speak Creole, or who come from Haitian culture.

For all these reasons, having research into immigrant occupational health problems is important. And we thank you for your support and contribution for future years to come. Thank you again.

MS. BACKUS: Thank you very much for all the work you're doing in the cities around Boston, and keep up the good work. If you want to leave your papers with the stenographer, you may and they'll go into the record. John Lindberg, manufacturing telecommunications equipment. John?

MR. LINDBERG: Thank you. I just about lost my voice for the day, so I'll be brief. I come here representing myself, but I have been involved in the telecommunications equipment manufacturing industry for more than a dozen years. I don't represent the specific views of my employer, Lucent Technologies, but I think I have a fairly good perspective on the few things I'd like to mention.

I have certainly seen a lot of changes in that industry, most notably, recently things associated with outsourcing and that whole business. So my focus or the particular focus that I think would be of benefit would be to make sure that we maintain the good ability to have surveillance for introduction of new toxic materials throughout supply chains, and to be able to develop accurate means of assessing hazards and controlling those hazards. And then to develop, I guess, what you could call a global supply chain to epidemiology to look at the effects of spreading industries across many places and many different parts of the world, where there are different levels of capability for assessing the risks that might be involved with introducing new technologies and new materials. And to be able to incorporate those findings into economic models that would influence decision making on how supply chain sourcing is done. That's about all I have to say. Thanks.

MS. BACKUS: So we've had an interesting afternoon. And to recap for us, I think we have Dr. Wegman, who'll give us a nice overview

of what we've been hearing.

DR. WEGMAN: Thank you, Ann. It's impossible really to capture everything that we've heard today. Eileen did a marvelous job of organizing what we heard this morning. I'll try to capture some elements of this afternoon, but I think we'll all walk away from here both enthusiastic and a little bit humbled by the kind of work that's being done and the tasks that we have.

A couple of comments sort of are over-arching. One is that it's quite clear that the nature of occupational health and safety research has changed dramatically from the very simple individual toxic or simple acute risks and the consequences in illness or injury. We've gotten a more complicated, multidimensional and multilevel kinds of problems that need research to be understood better.

We've also heard time and again mention about the community-base and reference from time to time about community-based participatory research, and it's quite clear that for us to move ahead we can't simply see research as being a task to be done within a research

institute or an academic environment. It has got to be done in the community where the problems exist in the workplace, in the broad community, and in the different age groups and special populations that have been brought to our attention.

We've heard a lot about immigrant and temporary workers, about the problems with access, the problems with language and literacy, the problems with compensation, access to information about and application of rights, and even the basic physical demands of work, as was described to us in the hotel work experience at Logan Airport. We've heard about the needs for cultural competency in our research scientists, as well as in the study of cultural competency. And we've heard a tremendous amount about the influence of groups like COBWEB and the Somerville Alliance, and the Haitian Coalition where the cultural issues are being brought to our attention, and we need to engage and learn, and understand the research questions from a whole different perspective.

We learned something about issues, some more

about issues having to do with assessment and control from specific issues like using Video Exposure Monitoring. We learned about the problems of short-term construction exposure zone risks, things many of us drove by on Route 3 coming here today, and these issues live on in the risks of the workforce there. The numbers that were reported to us were shocking in terms of the problem, and it's a problem that won't go away, but really has not been studied at all.

We heard about the problem of violence in the healthcare environment and the issue of legal repercussions of that violence was raised. We don't have, to my knowledge, much if any research about the engagement of the legal system in dealing with occupational health and safety problems; the policy and systems approach that we need to understand.

We heard a great deal about training, about effectiveness evaluation, about the problems with and the need for an understanding of where is the place for behavioral-based research, if any? And if there is a place, what is the objective information we need to have for that?

We heard about popular education methods and the fact that these work, but they're not commonly used. We need to develop them and determine how to disseminate them more broadly. We learned about the importance of training for youths, immigrants, special populations, and also training by youths and immigrants, and how that can be made different and the research that is implied by that information.

We heard a tremendous amount about surveillance, and this is an issue that we need to put back on NIOSH's agenda. It's one close to my heart, so I'll mention it with a special emphasis. Methods for developing surveillance materials concerning with undercounting, methods that have to do with the hidden populations and their risks, and the fact that we've lost a lot of the information about risks as it appears in this population in this country because we believe the numbers that we are reading in the newspapers are not true, but we don't have alternative numbers.

We need the surveillance to understand better disparities, the roots of the disparities, and how to intervene on them. We need

community-based methods of surveillance as well as community-based methods of research. And we need to deal with specific issues. Cleaning products was one example that was used several times, it's a very complicated issue and very broad from the household into the most sophisticated industrial environments and everything in between.

And then we heard some interesting ideas about linkages between federal and state operations. The most specific one being the Maine Occupational Research Agenda and the efforts that they are trying to leverage at the state basis parallel to those at the federal-based level, and the possibility for greater collaboration between the federal and state level, as well as the state-based DIA grants in Massachusetts that opened the window to the possibilities for much more in the way of state/federal collaborations than goes on now, and where NIOSH could take leadership in a way that could have a great impact on using the scarce resources that we have.

I don't think that begins to tell the story of what we heard today. I'm delighted that there

will be a transcript for it, and I really appreciate and want to thank NIOSH for giving us the opportunity to bring this information to them.

The other thing I'd like to do before I leave this microphone is to thank in particular Petra Miesmaa and Craig Slatin, who really made this thing possible for us. And thank you everybody for attending, but I think that Max wants the last word.

ADJOURN

DR. MAX LUM

DR. LUM: We can do this from here. Listening to those students talk, you know, I couldn't even talk when I was 14 years old. It's incredible. I mean it's just absolutely incredible.

And I think I'd like to add another E word, and that's enlightenment. I think that's one of the things that really -- We've talked a lot about enforcement and engineering controls, and education, and economies, and efficiency, and evaluation, but I think the purpose of these meetings really is enlightenment. And a lot of that enlightenment has enlightened NIOSH, not you, but us, in setting our research agenda for

the next ten years. I mean, that is clear, and we sure got it in spades at this meeting, and we do appreciate it. It's absolutely great. I think Christy Boles from my staff is -- Also thank her for help in this activity. And she reminded me of an interesting statistic, I don't know if you know, and that is of the people that registered for this meeting we had the highest percentage of presenters. So a round of applause for you all for doing that. And just one thing, if I could ask Craig to come up and David. We have something to hang over your rearview mirror in your car, maybe, with the NORA logo. Everybody like these pins? We're getting a lot of heat about these pens; nostalgia for the Cold War, someone said. So my feeling is either you belong to the local Soviet, or you're a NORA supporter. I mean, that's an easy choice in most parts of the country, I think. So anyway, this is a plaque to you for all the help. I mean, you cannot do these meetings without terrific support on the ground. And the Harvard Education Research Center for Occupational -- Oh, that's not you guys, although you might as well claim it. You

live in the Cambridge -- This is a University of Massachusetts Lowell Department of Work Environment. And if I could just read this without my glasses on, for your leadership in organizing the town hall meeting for the National Occupational Research Agenda, we appreciate your dedication in advancing safety and health of workers in your region and throughout the nation. Thank you very much for all your help.

Finally Harvard, and this is actually their second town hall meeting, you helped us with the very first town hall meeting in College Park. I don't know how we ever convinced you to help us for that first one, but we do thank you again. And I won't read this again, but I think the key word in the language is leadership. And that's what we count on from our community folks, we count on it from you, and we hope we will continue with that for the next ten years; that's what really has made a difference in the NORA approach. Thank you. And just one final word, drive safely. You know that guy with the bucket truck might be coming along the highway. That's an image I've

got firmly in my mind. But, the most important is thank you very much for coming, and thank you for staying. And it means a lot for the speakers and for us and thank you for all your good work and we look forward to a dynamic next ten years. Thank you.

(Whereupon, the meeting adjourned at 4:30 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 20, 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 14th day of April, 2006.

_____

SHANE COX, CCR

CERTIFIED COURT REPORTER

CERTIFICATE NUMBER: B-2484