Second Cal/OSHA Advisory Meeting
Housekeepers in the Hotel and Hospitality Industry
Tuesday March 19, 2013
Los Angeles, CA

Meeting Chairs: Amalia Neidhardt, Steve Smith
Notes: Nancy Lopez, Grace Delizo

Attendees:

Name	Affiliation
Aleman, Cindy	
Alvarado, Shirley	SoCal COSH
Anaya Mena, Nelly	
Barrea, Isabel	
Bembo, Charito	Retired Hyatt Housekeeper
Blanco, Aurora	
Bland, Kevin	Ogletree, Deakins, Nash, Smoak & Stewart, P.C.
Brito, Julia	
Casazza, Teresa	
Davis, Dina	
Delp, Linda	UCLA - LOSH
Evelyn, Katylind	CSAOHN
Fellner, Baruch	CH&LA
Fisher, Marti	Cal Chamber
Gomez, Isaac	UNITE HERE
Graulich, Kevin	DOSH
Guia, Maria	
Hernandez, Maria	
Ibe, Nenita	Hyatt Housekeeper
Kennedy, Nola	CIHC/UCLA School of Public Health
Kernazitskas, David	OSHSB
Kochie, Mary	DOSH
Lopez, Nancy	DOSH
Martinez, Graciela	
Martinez, Jessica	National COSH
McLeod, Ben	Local 11
Mendoza, A.	
Mohrfeld, Lynn	CH&LA
Morales, Teresa	
Murphy, Joseph	UNITE HERE
Myers, Eric	Davis, Cowell & Bowe
Navarro, Cristina	

Negrete, Alejandro	
Nicholls, Andrea	AFL-CIO
Papanek, Paul	DOSH
Pineda, Ana	
Reyes, Martha	
Reyes, Milagro	
Rico, Argelia	
Robinson, John	CAPA
Roman, Manuel	UNITE HERE
Sanchez, Christina	Local 11
Sanchez, Sandra	
Sanchez, William	
Sarravia, Idalia	Holiday Inn Housekeeper
Tau Lee, Pam	
Thompson, Kevin	Cal-OSHA Reporter
Tor, Guadalupe	Housekeeper
Velasquez, Midred	UH L11
Velasquez, Priscila	
Vossenas, Pamela	UNITE HERE
Warner, Richard	
Weiss, Hal	Local 11
Westerbay, Mark	UNITE HERE
Widess, Ellen	DOSH
Wigmore, Dorothy	Worksafe
Wiker, Steven Dr.	

Amalia Neidhardt opened the meeting at 10:04 a.m., welcomed attendees, explained that translation was being provided, reviewed the handouts, described the agenda and requested that people sign in to ensure that they be kept apprised of meetings. She said that everyone was welcome to ask questions and provide input and asked to state their name and affiliation for the meeting notes. She added that the minutes from the previous meeting have been posted on the DOSH website and that copies of the presenters' slides will be posted on the DOSH website too.

Ellen Widess, Chief of DOSH, welcomed everyone to this second advisory meeting to discuss the injuries/health effects on hotel housekeepers to help determine if a standard is needed and if so, what it should contain. She explained that this advisory committee is part of DOSH's commitment to get input from all possible stakeholders.

Ms. Widess added that for the benefit of anyone who did not attend the first advisory committee meeting in October 2012, DOSH is responding to a request from the Cal/OSHA Standards

Board to convene an advisory meeting. This follows a petition from UNITE HERE requesting standards be adopted to prevent musculoskeletal injuries to hotel housekeepers.

At the first advisory meeting, there was a presentation from Dr. Niklas Krause, an epidemiologist at UCLA, who has done extensive research and summarized the body of literature on hotel housekeeping injuries, the scope and extent. DOSH has received a number of comments since that meeting.

Ms. Widess reiterated that there is no proposed regulation at this time. DOSH is trying to get as much information as possible to inform its decision-making. DOSH looks forward to hearing from the presenters who have requested time and which Ms. Widess feels can be learn from, as well as hearing from folks who have come far and have taken time to give the benefit of their experience. Ms. Widess appreciates everyone's participation.

Amalia Neidhardt reviewed the meeting agenda and informed attendees that after the afternoon presentations the floor would be open to anyone who would like to provide input or ask questions.

Ms. Neidhardt explained that DOSH does not have a rulemaking proposal and that these advisory meetings are considered preliminary activities. People who prefer to make comments in writing can do so at any time. Her e-mail can be found in the handout containing her slide presentation. If the Division develops a proposal and the Standards Board notices it for public comments, that will begin formal rulemaking. There would then be a 45-day window to provide written comments, as well as a formal public hearing. Once formal rulemaking is initiated, there is one year to complete that process. That's why DOSH is conducting these preliminary activities, since it provides time for full public input.

Ms. Neidhardt introduced the first speaker, Dr. Steve Wiker who is speaking on behalf the hotel and hospitality industry.

Dr. Steven Wiker stated that he is an industrial engineer, an ergonomist, a retired faculty from the University of Washington and from West Virginia University and noted that he is now doing some consulting and writing text books.

Dr. Wiker said that he was asked by industry to assess whether or not housekeepers are at risk for developing work induced musculoskeletal disorders. If not, why not. If yes, then make recommendation on how to mitigate that risk. He asked attendees to think of musculoskeletal disorders as an analog to the fire triangle, with three (3) legs: sufficient oxygen, fuel to burn, and heat source. He said that MSDs instead of having oxygen, heat and fuel, have a level of force greater than 20% of strength, postures that approach the range of motion limit for the body and duration or exposure that is four (4) hours per work shift or highly cyclic work. He gave the example of an automobile assembly line producing thousands of repetitive production movements and noted that there isn't a job that doesn't have a degree of exposure to these risk factors.

Dr. Wiker looked at housekeepers and at acute and cumulative musculoskeletal disorders. An acute injury occurs when the biomechanical stress on tissues exceeds the tissue tolerance, resulting in damage.

For cumulative disorders, he focuses on these threshold factors:

- exertion which is 20 – 25% of strength capability;
- awkward posture which is at range of motion limits, or joints at very non-neutral postures; and
- exposure durations over four (4) hours.

He said that usually, if there was an exposure that was two (2) hours with high force and awkward postures, it doesn't produce MSD's.

Dr. Wiker followed the NIOSH's Assessment Protocol which requires that you determine the thresholds for exposure duration, forces and postures. For his study, Dr. Wiker used the Michigan Biomechanical Model to assess the mechanical stresses and the body for acute risk of MSDs. This model uses anthropometric measurements of the workforce, primarily women, then measures and inputs the hand forces; then registers the mechanical stresses at the spine and at each of the joints. This model tries to reduce the stress inside the body; any compression force in here can cause the disc to herniate and either damage the spine or cause spine problems.

In Sweden, medical students volunteered to have transducers inserted into their intervertebral discs with cannulas. Then they did a series of work-efforts or activities. They had the model predict what the spinal stress would be and the .94 (referring to a plot on the presentation slide) means that it was a very good prediction.

Dr. Wiker used Kinematic Recording System and high definition video cameras at various angles of various housekeepers doing their work. When the housekeepers were recorded doing their work, they stood on force-plates. These force-plates register the forces acting from the feet on to the transducer. Per S. Wiker, when one has forces at the hand, those forces get passed through each length of the body and down the torso, through the legs and down at the feet. He said that when one pushes 50 pounds with the hands, at the bottom of ones feet there's a 50 pounds sheer force that represents the push force value. If one lifts 10 pounds, it's going to be registered on the force plate. Dr. Wiker said that if they put some kind of measuring devise in the housekeeper's hands, they would not get an accurate estimate and that the force-plates gives them the most accurate estimate of what the true hand forces are. He didn't just measure the static forces, he measured the dynamic forces. Dynamic forces are in addition to the static force. He said that he was over-predicting the hand forces.

Dr. Wiker explained that the NIOSH action limit for acute stress acting on the spines is about seven (7) times one's body weight above the lumbar spine. When there are dynamic exposures like ejecting pilots from their air craft, safe limits for spinal compression are 18 times their body weight above their spines. He said that the body has the capacity to adjust its tolerance to force based on the acceleration. Dr. Wiker said he was over-predicting the forces into the model by using the dynamic hand forces and using a low or static comparison level.

Dr. Wiker stated that they had 12 experienced female housekeepers, with no history of musculoskeletal disorders, which were paid normally during the test. The cart was a standard Forbs housekeeper cart and two conditions were tested, fully-loaded and empty. Dr. Wiker showed slides of the two portable force plates or Kisler plates and matching sub-floors that were created so they could walk and roll the carts across these plates without having to step up. These force plates were embedded into a working platform.

Dr. Wiker said that he looked at rice paddles that housekeepers use in San Francisco and wanted to see if there was a benefit to using these tools. He also looked at a commercially

available tuck tool with a set of four wedges. The wedges inserted between the mattress and the box spring raise the mattress a little bit off of the box spring and then the linen is tucked-in. He also looked at mop and bathroom scrubbing tools that had the ability to adjust their lengths.

Dr. Wiker provided a diagram of the path's that they looked at. This included:

- bed making, vertical and horizon wiping (i.e. bathroom counters or dusting surfaces, furniture in the room);
- moving furniture in the room (i.e. moving chairs);
- vacuuming the carpet and lifting the vacuum back into the cart;
- cart pushing – first with wheels straight, then turning the steering wheels on the cart 90 degrees to increase the pushing resistance, then pushing the cart along, then crossing transitions that represented ½ inch to ¼ inch through doors (i.e. they go through a supply room where there is an elevator transition and they have to push the cart over that);
- bathroom cleaning – toilet, tub/stall, mopping, surfacing wiping and sink and mirror wiping

The chair that was being pushed was 58 pounds and the ground reaction forces with the housekeeping standing on the force plates produced 22.5 pounds force. He said that when they start to push, they lean their body into it and that their hand forces are an integration of their body weight and the resistance of the chair. Dr. Wiker measured the peak or maximum force in every exposure, not the average force.

Dr. Wiker showed a slide of what the transition looked like and indicated that it was duct taped to the carpet so that it was rigidly in place and provides a similar experience to crossing an actual door threshold.

The results of the cart pushing task were demonstrated on a slide. Dr. Wiker concentrated on the worst case scenario, which was that a housekeeper would push with a dynamic peak force of 50 pounds. They took this data and looked at a NIOSH study that was done on cart pushing and pulling. Some audience members yelled "more than that" (i.e. more than 50 lbs.).

Dr. Wiker said that because housekeepers are not supposed to pull the carts he discussed only the data on pushing-carts. He found that the spinal compression forces were well below the NIOSH action limit and said that the risk of injuring the back was considered nominal or safe. They then looked at bathtub cleaning, and found that housekeepers, to reach into the bathroom, were getting into kneeling or squatting positions, resting against the edge of the tub, and that this short-circuits the mechanical forces acting on the body. The person (on the slide) was supporting their torso with their hand and their hips with the rim of the tub. He said that these were safe biomechanical exposures to the back because it's fully supported and there is no transfer of forces into the spine.

He did the analysis looking at vertical wiping, where they stand in the tub and wipe on the wall or if they clean a mirror, standing while wiping. Dr. Wiker said that the compressive forces were well below the NIOSH action limit and they were safe.

In the vertical wiping, he looked at strength and said that because the hand is being supported when it is up against the wall, it assists and that this falls within the safe zone.

He studied various tools including long-handled tools and that the housekeepers used them the way they normally do. Dr. Wiker pointed to the wrist of the housekeeper on the slide and said that this was not a safe posture and that the housekeeper was dorsiflexing the wrist and applying a lot of force. Particularly when the person gets down low, they have to lean forward. He said that this was an unsafe posture and that it compromises strength and the ability to apply force.

When the housekeepers have to go high, they raise their hands above shoulder level and apply these forces to reach up with the tools. This is another example of an unsafe wrist posture. Once again, the housekeepers were leaning into the tools to get the force transfer. He said that if the housekeeper stood inside the bathtub and wiped it with the hand, they'd be much safer.

In mirror cleaning, they looked at cleaning by hand and with a tool. Here the long-handled tool fared very well because the amount of force that had to be applied on the mirror was not that great. The housekeeper was standing essentially vertical and their posture resembled that of someone paint rolling. Unlike the bathroom where the housekeepers have to scrub hard, the mirrors can be cleaned pretty efficiently with less stress.

In looking at the mechanical forces acting on the body, Dr. Wiker pointed to the action limit on the slide and stated that the housekeepers were below those levels in both cases. When looking at mopping he found that the lowest force was with the long-handled tool. The highest force was with the intermediate handled tool.

Dr. Wiker next talked about the model output for mopping. For the long-handled tool, the compressive forces were well within in the green or safe zone.

For sink cleaning, even though the housekeepers are leaning over, they have one hand supporting themselves on the counter and the other is pushing and scrubbing and this reduces the low back stress. The strength demands are within 96-99%, so he said this was a safe job from both acute and cumulative exposure.

When looking at bed making, he found that housekeepers use different strategies. He looked at two conditions, one in which a barrier was brought in to represent a wall, where the bed is too close to the wall. Some housekeepers were small enough to get in and do a stoop-tuck, others were too large and had to turn to the side and do the tuck. He found that in many cases if there was no obstruction, the housekeeper can get into a squat and in this posture they are not lifting the mattresses as much.

Both fitted sheets and flat sheets were looked at in this process. The sheets, whether flat or fitted, basically produced the same amount of mechanical force. The example Dr. Wiker referenced used a fitted sheet that had not been laundered, so there is no requirement to stretch the sheet. However, if the sheet is laundered and a flat no-wrinkle sheet is wanted, then the corners of the mattress have to be lifted a bit to hook the fitted sheet underneath. When this happens then the biomechanical stresses became equivalent, but he noted that they are still safe and under the NIOSH action limit.

Dr. Wiker showed a graph that illustrated the three postures he had previously demonstrated on a photograph, the lift-tuck with a barrier, squat/forward tuck, and the stoop/tuck. All three conditions are below the hazard limit. The best one found was the squat/forward tuck. From observation of housekeepers doing their job, this posture is used more often than the others.

The two that they would be using are the stoop tuck and the squat tuck, unless the bed is put too close to the wall.

The strength outcomes varied for the barrier condition. When the housekeeper has to turn sideways and do a 25 pound mattress lift and a 15 pound tuck, this is their worst condition. In regards to the dynamic forces – the torso strength dropped below 80, so they are down to about the 57-58th percentile.

Dr. Wiker summarize his findings of the commercial tuck tool and the rice paddles, by saying that there is effectively no change in postures and no material changes in the hand forces with or without barrier condition. He said that these tools don't improve things over using the hands but they don't hurt them either. So if these want to be used, Dr. Wiker will not discourage this.

Dr. Wiker also did a work sampling study to look at the exposure to these tasks; they looked at the postures and exertion levels. What he wanted to see was whether the duration of exposure to these tasks changed with king size rooms or double rooms, or whether it changed when doing a check out level cleaning (high mess) vs. a refresh cleaning (low mess). A low mess is where the guest doesn't mess up the room too much, not all the towels are on the floor, if they have a double, they only sleep on one of the beds and leave the other one tucked. A high mess is a double room with all the beds torn up, furniture is moved around, everything is disorganized, all the amenities in the bathroom are gone and towels are down.

He used wide-angled video cameras and the housekeepers wore heart rate monitors. The reason to look at heart rate is that it is linearly related to the aerobic power demand – how hard they have to work. Dr. Wiker provided a heart rate recording for a housekeeper doing the eight rooms. The heart rate was recorded for about 5 ½ hours, which included the lunch break. Dr. Wiker then showed the heart rate limit that the housekeeper must average through that exposure period to be considered safe by NIOSH, from systemic fatigue. Dr. Wiker pointed to the ergonomic design limit for the workload and the actual average heart rate. He stated that it was ok to get above this limit, but the worker should not exceed it on average. The housekeeper was most aerobically challenged during the bed making task.

The heart rates were looked at when making beds with flat sheets and fitted sheet. What he found was that there was a statistically significant increase in the aerobic power demand for using fitted sheets. The reason why was not related to the forces of the sheet application – it was how many times the housekeeper had to walk around the bed for the fitted sheet because they had to go to each corner to get the sheet on. And when stripping the bed, the housekeeper could not just grab the sheet and pull it off – they had to go to the head of the bed and pull the sheets off the corners so they could strip the bed. So, most of the increase that is seen on the graph is due to extra walking associated and extra time with the fitted sheets.

Dr. Wiker stated that in bed making this does not represent them actually engaging in applying or taking the sheets off the bed or doing activities. It's the total start to stop. So there is a lot of walking involved in the bed making. If Dr. Wiker removes the walking out of this, then the value drops down much lower than 41%.

Dr. Wiker concluded that the housekeeper job does not present a material or above nominal risk of MSD hazards. He said that they have hundreds and hundreds of studies that show with this kind of exposure when you are in the control group, then your incidence or risk of MSD falls within the nominal risk zone or is deemed safe by NIOSH.

In terms of their ergonomic aids, he said that there is no material benefit for bed making – the commercial tuck tool, the rice paddle, or the fitted sheet really didn't make any difference in their exposures. He did like the long-handled tool for mirror cleaning, and said that it's was a clear winner in terms of reducing the stresses. But that they did not like to see the long-handled tools being used in the stressful or awkward postures when cleaning the lower areas in the bathroom.

Questions/Comments:

Ms. Neidhardt reminded attendees that everyone's input is welcomed and to please be respectful of all comments.

Cristina (no last name provided), shared that it is so hard to work in a hotel especially when the guest is going late and the manager doesn't care how the job gets done, only that the job is finished. This is a big problem, when the guest leaves at the last minute and the job still must get finished.

Dr. Wiker responded that that's a problem with managing and that his study dealt with the risk of the housekeeper getting hurt.

Pam Tau Lee, retired from the Labor Occupational Health Program UC Berkeley, thanked Dr. Wiker for his presentation and stated she had a series of questions. She said that the cart used and tested was not a realistic cart that the women actually use. She started her second question, but Dr. Wiker interrupted and stated that he would like to answer right away and then go on to the next question. He replied that the cart was stocked at that level and there may be carts that are stocked higher and have more dirty linen and would have weighed more. He added the push/pull study that NIOSH funded showed that even if you double the hand forces, then the compressive forces and the strain acting on the housekeeper in terms of acute injury would not materially change. He said that it would change the heart rate and the physical workload in terms of the aerobic power and that there is a limit to this study based on 300 pound cart. If you increase it to 350 then it's going to increase the heart rate and increase the coefficient of friction when pushing the cart.

Ms. Lee indicated that her concern is with stocking the cart and that Dr. Wiker did not include awkward posture. She said that when the women stock the carts, it is done in such a way that they cannot see. The safety element is that the women need to push the cart like this [she demonstrated the position].

Dr. Wiker responded that if you are pushing the cart and try to abruptly stop it by pulling it backwards; you are going to get into potentially hazardous areas. He said that he did not ask workers to push the cart that way, but the way they normally push it and that is looking ahead.

Ms. Lee added that there are other factors in terms of the pushing; there was no information on the thickness of the carpet. The thickness of the carpet also plays a factor in terms of the weight and the force, so she is not sure if the carpet (on the slides) was reflective of the carpet used in many of the renovated hotels who use thicker carpets.

Dr. Wiker responded that Ms. Lee is correct. If the carpet is thicker or has more padding, it changes the frictional resistance of the wheels, and you get a different outcome. Dr. Wiker would expect it to increase the push force required to initiate the cart movement and if that happens, that increase will still keep you below the limit. Dr. Wiker said that in general, with a thicker carpet, it would be more difficult to move the cart side to side.

Ms. Lee said that the use of the cart often requires you to make twists and turns around room service trays, glasses, little kids, and also policies in which you are supposed to park your cart outside of a door. Parking your cart requires you to go back and forth, back and forth so that the cart is appropriately in front of the door. So she has her doubts in terms of some of the factors that Dr. Wiker did not consider and on his assessment that the cart was relatively safe.

Dr. Wiker responded that he looked at the mechanical stresses and that he was concerned with the potential for an accident. He said that an acute accidental injury is not related to MSDs and that those are problems that are operational hazards. Dr. Wiker stated that he looked at what is planned for the housekeepers to do and not at unexpected events, like accidents.

Dr. Wiker continued that when Ms. Lee is saying that the stress measurements are not right, what he is saying is that they are correct with some modifications for the overloaded cart, they still hold. But he agrees that these are factors need to be considered and addressed.

In regards to cleaning tubs, Ms. Lee whether Dr. Wiker had considered whether anyone used the tub before it was washed, because when guests use the hotel tubs, it gets dirtier, such as by using oil. For some reason when guests go to a hotel, they do things in a bath tub they normally wouldn't do at home. So she asked if they factor in that some rooms may need deep cleaning and if the room attendants selected the hand tools or did Dr. Wiker select them.

Dr. Wiker responded that the tubs they cleaned were clean before they started the test. So he has no way of answering the question as to whether oil would make it easier or harder. Ms. Lee then asked again if he selected the tool or if the room attendant did.

Dr. Wiker responded that the tools they used were those available at those hotels. In regards to Ms. Lee's previous question, he said that the scrubbing of the oil would increase the exertions. He said that he was sure that workers will experience the perceived level of effort of doing the work and that the heart rate will increase.

Ms. Lee said that the posture that Dr. Wiker showed on the slide is the force against the hard surface and that she can see the support in terms of the back, but that the risk did not come up on the impact to the shoulders.

Dr. Wiker explained that their design guidelines are based on the rotational forces and not the axial loadings into the joint. He said that even if you put down 20 pounds of force, if it is acting through the shoulder going through the joint, it's not creating a risk of injuring the joint.

Ms. Lee asked how heavy the bed was. Dr. Wiker indicated that it was a normal double bed for that hotel and that he did not measure the weight of the entire mattress. Audience objected.

Dr. Wiker said the he is only concerned with the force that's required to lift the part of the mattress associated with bed making. So the mattress could weigh 500 pounds, but the maximum they measured turned out to be about 25 to 27 pounds. He noted that the box springs support all the rest of the mattress. He said that you're only encountering the weight of the mattress that you are lifting up – that corner.

Ms. Lee stated that other people wanted to ask also about the bed.

Teresa, who works for the Beverly Hilton, said that most hotels do not have the mats that Dr. Wiker had. So, the housekeepers put their knees on the tile and that's kind of rough. She added that her hotel doesn't have all the equipment shown in the slides. She noted that with the carts, if these ladies know that they are going to be filmed, they are going to do things the way they perceive Dr. Wiker wants it to be done. Not the way they do it normally.

Dr. Wiker responded that he understands, and that the standard procedure when they clean the tub is that they are supposed to put a towel down and kneel on the towel. In terms of pushing the carts, all he can say is that they were asked to do it the way they normally did it.

Teresa replied that the cart she pushes is about 150 pounds or more.

Dr. Wiker stated that the carts in the study were close to 300 pounds but that you don't have to push 300 pounds to get the cart to move because it has wheels. So you have to overcome the inertia of the cart and the frictional resistance and that if you change the carpet, or change the padding or is really thick, then you change the rolling resistance of the cart. Teresa then asked if the carts stick when the ladies were pushing them.

Dr. Wiker answered that they went over the transition –half inch of elevation and the quarter inch so that represented crossing a doorway transition. If you have something on the floor in front of the cart that falls within half inch or below, then their study addresses that. If it's more than a half inch, Dr. Wiker does not know what the outcome is.

An unidentified Spanish speaking woman asked Dr. Wiker, why had he not conducted a survey about the use of extra beds or cribs in a room. Dr. Wiker responded that he did not look at that.

The unidentified women said this was very important. In 11 rooms, they have two beds, plus a roll away in the middle, plus four pillows in each bed. She said that management don't care how the work is being done or if you injury your back, shoulder or knee.

Another unidentified Spanish speaking woman said she works in an area where they put extra beds, that she has fallen five times and injured her waist. Her physician told her that if she wishes to continue being a housekeeper, she will have to wear her back brace for life. So she wears it because they add extra beds in her work area and noted that Dr. Wiker should have focused more in rooms where there is more than one bed and two cribs.

Ms. Neidhardt explained that many of the comments heard are more appropriate for the input process and that she would like to focus on questions regarding Dr. Wiker's presentation, such as those that ask about what was included in his study. Amalia stressed that it was not to discourage folks from speaking, but that this time is for questions on the study.

Dr. Wiker said that if there were any questions that go outside the scope of Amalia's instruction, he would be available to talk about the study, answer any questions, or get any suggestions for making the study better.

Midred (no last name provided) asked about the time period used to conduct the study because her employer makes her do 17 rooms in eight (8) hours. She doesn't think she could use any of the tools Dr. Wiker showed.

Dr. Wiker responded that they looked at about eight (8) rooms and reported the heart rate over about five (5) hours. They didn't go to eight (8) because the tools that NIOSH provides to test

the strain on an individual (aerobic power demand) can be sampled in less than eight (8) hours. Dr. Wiker said that he did not address how many rooms you should do.

Maria Patlan from the Hilton in Long Beach shared that the study Dr. Wiker presented is like a dream, not reality. Going back to her co-worker's previous question, she said that the housekeepers must clean their number of rooms in eight (8) hours.

Dr. Wiker answered that they were looking at the mechanical exposures and the duration of those exposures. He said that when you change the level of mess or the nature of the check-out, you change the time it took to clean it, but that the proportion of those activities in the room remain relatively stable. He looked at the stress associated with that room and found that the exposure to the threshold risk factors wouldn't be affected. Dr. Wiker said that they are asking about production, how many rooms they should do and that his study was not designed to determine how many rooms housekeepers should do.

Argelia Rico from the Embassy Suites in Irvine said that Dr. Wiker's study it's not based on the reality the hotel housekeepers are living. She would have like the study to include 45 beds in eight (8) hours which is what she has done in one day or suites that have mirrored walls and where they do not have tools to clean these. She said that sixty percent (60%) of the hotel industry work is not reflected in the study presented. Regarding the carts, she said that the cart presented is not realistic; she who is handicapped must push a cart of more than 50 pounds.

Erik Myers stated that he understood the triangle, postures, durations and forces. He also understands that Dr. Wiker found that there were some postures and forces that concerned him, but that none had reached the duration that would cause a risk of musculoskeletal injury. Mr. Myers asked what were the postures and forces Dr. Wiker considered to be dangerous.

Dr. Wiker responded that he never said they were dangerous, but that they would start to be a concern about the presence of an MSD hazard. He said that the strength demands when you are against a barrier (wall) trying to make a bed in which you have to turn sideways and you have to do a heavy lift. He noted that it did not present an over exertions risk because even though the person is in this posture, the hand forces are not high enough to cause risk for damage to the lumbar spine and that the arms are aligned nearly vertical. Dr. Wiker then referred to the slide with the strength plots and pointed to the torso strength and said that because the housekeeper is bent over, it's in the high 50s [percent of population strength] and they want it up in the 80's. He said that if you didn't have a barrier and they could forward tuck or they were small enough to forward tuck with a barrier – they were above the 80%.

Mr. Myers asked Dr. Wiker if he looked at a scenario where you have not a wall, but a night table at the head of the bed and the force plates were positioned further out. Dr. Wiker replied, no. He then said that when you have a night stand on the way, the housekeeper has to insert her arm through that clearance which is relatively small to do the tuck. So it results in essentially the same posture but the housekeeper is flipped.

Mr. Myers said that if she was flipped, she would be facing the wall, but her feet would be substantially further and she'd be engaged in a longer reach than she is currently pictured in the slide. If this were the case, would this affect the amount of force that Dr. Wiker would calculate?

Dr. Wiker answered that it wouldn't change the compressive forces, it would alter the torso strength and to some extent the shoulder strength but that he has already classified this task as a potential hazard if the exposure duration is high enough.

Mr. Myers asked Dr. Wiker to explain the exposure duration that he is using.

Dr. Wiker responded that the exposure duration he is using is what NIOSH uses, that he breaks down the path of the exposure area for classification of the control groups to four (4) hours and below and four (4) hours and above. The exception to that is if you're in a manufacturing/production line environment where the task behavior is highly cyclic, and that the housekeepers perform many exertions but they don't get up into thousands.

Mr. Myers asked if Dr. Wiker is saying it's a different task if it's lifting hair off the floor vs. lifting a sheet. Dr. Wiker responded that he did both. He looked at the aggregate exposure through the work sampling for the eight (8) rooms and also looked at the cyclic behavior for the individual exertion of the task. And if you aggregate them, they do not meet the cyclic definition that NIOSH uses for epidemiological purposes.

Mr. Myers asked if there were other postures or forces besides the awkward stoop and the bed lifting that Dr. Wiker found problematic. Dr. Wiker replied that he did not like the long-handled tools cleaning the bath tub at the lower levels.

Mr. Myers asked Dr. Wiker to go back to the slide where the housekeeper is on her knees then asked if he is focused on is lower back injury. Dr. Wiker responded that no, it was all joints.

Dr. Wiker said that he looked at the exertions that are associated with the development of MSDs but that he did not study the contact forces for prolonged periods in terms of the knees.

Mr. Myers said he had a similar question with respect to long-handled tools and the mopping and asked Dr. Wiker if he could isolate the task of getting down on hands and knees and mopping the floor with a rag and the dangers associated with that. Dr. Wiker said that he did not study that and that the presumption is they will not get down and scrub the floors by hand.

Mr. Myers asked what tools Dr. Wiker identified that had the most utility, most beneficial versus working without tools.

Dr. Wiker responded that he would start with the ones he didn't particularly like. He picked up a tool and said it didn't have spherical grip, it has cylindrical grip and where the grip is coming through the fingers and this tucking action requires him to get down and push with that tool. This is why many of the housekeepers either squat or kneel when they are tucking in. He then demonstrated what happens to the wrist when trying to push a particular way – he had signification dorsiflexion and trying to push hard against the joint and causes a lot of torque. For this reason he doesn't like the tool. Dr. Wiker also didn't like that the housekeeper has to walk around the bed and put the tool in between the mattress and the box springs which increases the amount of time they have to walk around the bed and the amount of stooping and exertions.

Doing it by hand, the housekeepers told Dr. Wiker that when they tuck, you get axial loading on the finger tips, by pushing against the sheets underneath the bed, which does is not reflected in the models. He said that from an ergonomic standpoint, the rice paddle is not a bad tool. Dr. Wiker feels that it could be improved.

Mr. Myers stated that another tool Dr. Wiker seemed to find utility was in the mirror cleaning tool and asked that Dr. Wiker compare it simply cleaning with a rag and using arm motions.

Dr. Wiker responded that he did and that biomechanically you are better off using the long-handled tool for that operation. The housekeepers told Dr. Wiker that for the most part, unless the mirror has to be substantially cleaned, they would prefer to clean it with their hand because of the time-savings. Otherwise, they have to go to their cart and fetch their tool and the cleaning solution and then clean. It takes longer to use the tool.

Mr. Myers stated that Dr. Wiker measured compressive forces and asked if other forces that work with musculoskeletal disorders, like sheering forces and other stresses were studied. Dr. Wiker replied that he only presented compressive forces because NIOSH has set acceptable levels for these, but that NIOSH has not yet set acceptable levels for sheering forces.

Mr. Myers asked who paid for the study and where it was conducted. Dr. Wiker stated that the study was paid for by Hyatt and that it was conducted at the Hyatt Bellevue in Washington.

Mr. Myers asked if the presentation was going to be published and Dr. Wiker said yes and added that he is providing a technical report and that he is pulling out sections to submit for peer reviewed journals that address ergonomics and biomechanics.

Pamela Vossenas, Director of Health and Safety for UNITE HERE said that she spent the last eight (8) years studying and documenting housekeeper injuries, interventions and evaluations. Based on what she saw, the housekeepers' job is a non-stop, assembly line of constant motion and that it is cyclic. She noted that the Canadian Center for Occupational Safety and Health has estimated that housekeepers do 8,000 motions in a typical shift. She asked if Dr. Wiker recommends cleaning the shower wall with a rag over using a long-handled tool.

Dr. Wiker explained that if the housekeepers use the tools that they are provided to clean the bathroom stalls, they will use postures that ergonomists don't want to see. He said that if they can eliminate those postures and provide sufficient scrubbing force, he would advocate using those tools. He said that if scientific studies show the tools benefit the workers, then he would support using those tools.

Ms. Vossenas asked if these were adjustable tools. Dr. Wiker responded that they were and that they were set at various adjustments so they had long, intermediate and short. He said that the posture was dictated by the long-handled tool and the nature of the work and that what has to be done is to scientifically analyze the job to find out when and what tools should be used.

Ms. Vossenas stated that the whole idea is of using the right tool for the right job. The unsafe postures are because they are either not using the right tool for the right job or the worker has not been trained properly, which is a huge problem for housekeepers in the hotel industry. She finds it very disconcerting that Dr. Wiker is recommending a rag over long-handled tools.

Dr. Wiker clarified that what he said was that those were the tools that they have in their cart and that they tested the tools as they use them in their daily operations. Dr. Wiker talked to the housekeepers and the housekeepers don't like using those tools and feel it is less stress if they step into the bath and get close to the wall. He said that he did not make any recommendations to not use tools; he is just sharing his findings.

Ms. Vossenas stated that the other thing she found disconcerting was that Dr. Wiker stated that the problem with the fitted sheets was they had to walk around the bed because they had to undo each corner and that flat sheets would come off easy.

Dr. Wiker responded that if you look at how housekeepers do their job, they can be at the base of the bed with flatted sheets and pull the sheets and they will come un-tucked at the top of the bed. You cannot do this activity with fitted sheets. The time that it takes to do this increases the power demands on the housekeepers.

Ms. Vossenas said that the real focus is MSD's and she has never heard an ergonomist recommend not taking a break from compression forces, by walking around the four (4) corners.

Dr. Wiker said that if the fitted sheets were loose so that you could just slide them down and not have to lift up the mattress corner, then there is reduced compression forces associated with using fitted sheets. If the sheets are laundered, then those sheets could not be put on the corners without having to lift the mattress corner to allow you to hook them underneath. At that point there is no difference in the biomechanical exposure from flat sheets.

Ms. Vossenas stated that they also know there's a training issue and that Dr. Wiker hasn't done any scientific studies on engineering controls.

Dr. Wiker stated that very often what you find is that individual workers select individual strategies to achieve their job. If you did not design the rooms and the tools to fit 5^{th} to 95^{th} percentile, then you introduce differential stresses in the workers. The workers are basically experiencing those exposures and they're choosing individually based on their anthropometry, their strength profiles and other things, to use different strategies to do the job.

Ms. Vossenas stated that the NIOSH lifting equation does not take into consideration any trunk movement, velocity, twisting, things that housekeepers are going to speak about later today and that are part of their every job. She said that low back disorders are considered to be due to a progression of events leading to disability.

Dr. Wiker said that what industry should do is follow best practices in terms of protecting the workers and getting the job done. He noted that study models can be improved in the future and that if they come back and say things should be done differently or set different thresholds, then they're in a different ball game. He said that what he has shown today is an over prediction of the true force, the true exposures and that these are still below the NIOSH criteria for hazard.

Dorothy Wigmore said that she is an ergonomist, occupational hygienist and stress specialist, working in the field of occupational health and safety for more than 30 years. She would like to be clear that there are other approaches in the world as well. Although she hasn't been trained in it, she knows that the lumbar motion monitor that has been used in terms of assessing hotel workers hazards. She said that Dr. Marras and his colleagues have used this monitor to measure dynamics forces and get dynamic information of what's really happening to the housekeepers and get quite different results from what Dr. Wiker did. She thinks it's important to recognize that others have used the lumbar motion monitor and that it would be good to use different tools to study this and find out what tools really work. In Dr. Wiker's 2011 report, Ms. Wigmore found that in terms of the heart rate and the housekeeper sitting down and resting for five (5) minutes don't represent reality for many housekeepers. Ms. Wigmore feels the other reality is that just because NIOSH's equation says that there shouldn't be a problem, doesn't mean that they don't exist.

Dr. Wiker responded that for the heart rate study that was done for CHLA on the fitted sheets, the worker sat down after putting on the heart rate monitors to get a baseline-resting

measurement. He said that if NIOSH accepted the lumbar motion monitor he would be happy to use that too. But, that it has its limitations because you have to estimate what the hand forces are and you have to determine the load measurements that go into it. So Dr. Wiker said he is using a matrix that NIOSH and federal and state OSHA programs use to make these assessments. Dr. Wiker's personal preference is that the Borg scale is directly related to heart rate so the heart rate data here directly predicts Borg scale, so you can go back and forth. He said that's why Borg published the scale because it allowed you to estimate what the heart rate was based on a perceived exertion.

Meeting paused for lunch break.

Amalia Neidhardt gave a brief overview of the upcoming presentations and stated that at the end of the presentations, the floor would be open for questions and answers. Amalia's presentation was made available in the handouts. Anyone who not received a copy could request one from Amalia. She also informed the attendees that they could e-mail questions and comments to her.

Ms. Neidhardt then began her presentation by stating that like Dr. Wiker who focus on a particular area, her presentation would focus on information that the Division of Occupational Safety and Health (DOSH) retrieved from the workers' compensation insurance's database. The first thing that the DOSH wanted to look at was what type of data was retrievable from the workers' comp insurance system and what information can be gather from the claims of occupational injuries and illness filed by employers with the Department of Labor Statistics.

The first was to go into the Bureau of Labor Statistics and look at NAICS Code 721 – Accommodation. Under this classification, the incidence rate is 5.1 nationwide per 100 workers and 7.8 in California. Amalia said that there is more detailed information available nationwide – all the way down to maids and hotel housekeepers than statewide. When looking at the 2011 nationwide data, maids and housekeeping cleaners had the 13th highest total incidence rate in regards to injuries for all occupations. When it comes to overexertion and bodily reaction, maids and housekeepers account for the 8th highest incidence rate – this is comparing it to other occupations. Repetitive motion is 2nd highest and fall on same level (for example a slip) is the 3rd highest.

In regards to musculoskeletal disorders, if you compare maids and housekeeping cleaners to other occupations, such as nursing aids, laborers, janitors, etc., the incidence rate is 121.1 compared to the median which is 38.5 nationwide. So, what can be seen is that musculoskeletal disorders are occurring to these maids and housekeeping cleaners. Because similar data for California is not available, Amalia went into the workers' compensation insurance data. The Division signed a confidentiality agreement with the Division of Workers' Compensation, so that the name of the injured worker and the like cannot be revealed. This is information that is reported by employers on occupational injuries and illnesses via the Employer's First Report (Form 5020) and is kept in a searchable database that is maintained by the Division of Workers' Compensation. DOSH asked for information on claim injuries for CY 2009 through 2011 and partial 2012. DOSH looked at not only musculoskeletal disorders, but injuries related to strains, sprains, and falls on same level; and during this time period there were 7,860 injuries and illnesses. Amalia was interested in seeing what kind of information she could retrieve from these claims. She reviewed 2,000 of them, one at a time as she was particularly interested in the job task that was being performed when the injury occurred. Of the 2,000 entries, 665 or 33% did not specify the job task – just said the person got injured while at work. Of the ones that did have information, a great percentage of injuries occurred while the

workers were cleaning bathrooms, for example cleaning the tub or shower or mopping the bathroom floor; or while making the bed; while vacuuming; or pushing or pulling a cart and other tasks.

With the goal of identifying the tasks that need attention, Ms. Neidhardt conducted text string search on all 7,860 injuries searching for injuries related to making the bed. Of the 1,971 injuries that occurred while making the bed, 984 provided no other information other than "injured while making the bed". Of the ones that did provide additional information, there were some injuries associated with lifting the mattress and others while working with sheets or linen.

When doing a text string search for the word "mattress", Amalia noticed that of the 333 cases, 296 injuries occurred while tucking under or lifting the mattress. There were also a few (8) related to pulling or relocating the mattress; slipped or tripped while moving the mattress (24); etc. The body part most reported as being injured was the back, followed by the hand then shoulder.

When looking at injuries that occurred while handling linen or sheets (651), the greatest percentage occurred while pulling the linen off or changing the bed. Injuries also occurred when bending to pick up the linen off the floor or while tucking; and by slipping on the linen. The body part most frequently injured was the back, followed by the shoulder, then the hand.

Ms. Neidhardt explained that this is preliminary data as she did not look at all tasks, such as mopping the floors, cleaning the mirrors, cleaning the toilet, etc.

Of the 1,022 injuries that contained information on bathroom cleaning, a large percentage occurred while cleaning the tub or shower and a smaller percentage while cleaning the bathroom. Of the 525 claims of injuries related to the tub, 101 occurred while the worker was standing on the rim of the tub. Workers stand on the rim of the tub to reach the back wall of the shower or to change the shower curtain. Workers, who were not standing on the rim, often got injured when stepping inside the tub to clean it. Either they were inside when they slipped or slipped when getting in or out of the tub to clean it. There were also injuries that occurred when bending down to clean the tub or getting up. The most commonly injured body part was the back, then the hand, shoulder and knee.

Injuries that occurred while vacuuming had a smaller number of claims. Some of these were associated with tripping on the vacuum cord; pushing or pulling the vacuum; lifting the vacuum to put in on the cart; going over the threshold; or they were struck by vacuum. The most commonly injured body parts were the back, shoulder and hand.

In regards to operating the linen cart, the majority of the injuries were related to pushing the cart on the carpet (resistance); pulling or steering (out of the closet or elevator); tipped or stuck (cart overloaded or wheel got stuck); refilling cart; lifting cart (over a threshold); or struck by cart (by other worker). The most commonly injured body part was the back, then shoulder and hand.

Ms. Neidhardt stressed that this is preliminary data and that the intent was to identify the tasks where the injuries occurred and to encourage the audience to provide input and share any effective control measures being used to minimize exposure.

Pamela Vossenas, from UNITE HERE, gave the next presentation which included a review of previous ergonomic assessments that were done in 1997 and 1999 by Barrett and Milburn. Even back then, they found the difficulty of housekeepers making the bed because of the

furniture being in the way; provided recommendations on improved access and less twisting. The 1999 study is important because it shows how dynamic methods are actually far more accurate and that the static methods like the NIOSH assessments that Dr. Wiker presented underestimated the compression forces on the spine by anywhere from 1½ to 2 times, or even up to 5 times. Woods and Buckle had similar findings in 2000. In 2004, using the NIOSH lifting equation analysis on the king luxury bed it was found that it actually exceeded what NIOSH considers to be a safe lift, 1.29 which is greater than 1.0.

Ms. Vossenas said that Mr. Orr, also a CPE, used the Rapid Entire Body Assessment which showed that lifting exceeded the action level, so change or a remedy has to be implemented. Looking at the duvet which currently weighs 14 pounds, it required about eight or more rapid shoulder exertions. She said that later the housekeepers will share how this feels and the pain and injury they have suffered.

Ms. Vossenas said that a 2005 study using the Rapid Upper Limb Assessment with cleaning workers who do tasks like vacuuming and cleaning of toilets, found that immediate changes were required. Additionally, a survey that UNITE HERE Local 11 did of hotels with greater than 200 rooms in the LA area, found that nine hotels out of 26 hotels currently use fitted sheets. The nine hotel properties were from six different hotel companies. So, fitted sheets are not as uncommon as one may think. She noted that Chicago Industrial Dryer Corporation that services hotels that use fitted sheets have seen that 50-60% of Marriott hotels use fitted sheets.

At home, fitted sheets are used. In the Making the Grand Bed website, there is a quote from Hyatt that says that their luxury linens include fitted sheets for residential applications. So Ms. Vossenas asked why would employers not give housekeepers fitted sheets.

Ms. Vossenas talked about a study conducted by the Ohio State University researchers, who could not attend this meeting. The study used the lumbar motion monitor, as is a dynamic method of analysis that is used world-wide to predict low back disorders. She said that it can also determine the speed that the trunk moves, twisting, forward bending, side to side bending and the lift and has been used in over 400 high and low risk jobs. The first validation of it was printed in 1993 and has about 40 years of constant credibility in the peer-reviewed literature. The evaluation identifies the job as “high risk”, “medium risk”, or “low risk” and the likelihood of a low back disorder.

Ms. Vossenas said that the lumbar motion monitor low back disorder risk study was done on a full service, East Coast hotel where each housekeeper wore a lumbar motion monitor. She listed the cleaning tasks monitored that are commonly done by housekeepers and stated that the results showed that not one individual task registered as “low risk”. Cleaning shower wall and dusting were both at the “high risk” level. Ms. Vossenas noted that the overall chances that the job can create a low back disorder are at 73%.

Another evaluation was performed in a Midwest hotel with one king bed and one double bed checkout room. As housekeepers said earlier, checkout rooms are far more demanding than what is called a stay over room because you have to clean everything all over again. Ms. Vossenas presented a list of the tasks monitored and again noted that not one task fell under the low risk category. Cleaning floor (by getting down on hands and knees to clean it with a rag), vacuuming, dusting and cleaning the shower wall and pillow tasks are very high. She said that the chances of having a low back disorder are 79% and that what really knocks it off the chart is how many times they are forward bending and lifting the bed.

Ms. Vossenas said that a recent study in California compared the use of long-handled tools versus a rag or a short-handled tool by having twelve female housekeepers wear the lumbar motion monitor. This study showed that the amount of forward bending and twisting of the spine was statistically, significantly lower when the long-handled tool was used. Whether it was wiping the tub, wiping the shower walls or the floor, dusting an armoire or a night stand, it is statistically significantly lower with a long-handled tool. Ms. Vossenas provided the low back disorder risk values and stated that for the three bathroom-cleaning and two dusting tasks all were statistically, significantly lower when using long-handled tools. She said that this study very clearly indicates the value of long-handled tools, especially when using a dynamic method.

Lynn Mohrfeld, with the California Hotel and Lodging Association (CH&LA) gave a presentation on what his association does and on the safety and training that they've had. He said that they have an education foundation and that this foundation does two things, research and scholarships. Dr. Wiker's presentation is an example of the research that CH&LA has done, another is the English and Spanish program they did to connect service animals and the disabled community, both with the industry and with law enforcement. Mr. Mohrfeld noted that they are committed to education in the industry and give about 20 scholarships a year for employees and students. He also said that they have a northern and southern California conference with day-long events and a trade show where they demonstrate the latest products and services. They also have a conference on safety and security based in Anaheim for law enforcement and the industry. In 2011 in addition to webinars, they did housekeeping seminars across the state which included various topics.

CH&LA has 5,500 properties with about half a million rooms throughout the state. Performance in 2012 was 68.8% occupancy. Per Mr. Mohrfeld, on any given night in California, every hotel is only two-thirds full. This year they had a relatively good year, which is a 3.6% increase. Santa Monica was the best performing market and South Lake Tahoe was the worst. There are roughly 100,000 employees in the market and unionization is about 6.5% of all the market.

In terms of housekeeping studies, Mr. Mohrfeld indicated that there is a Green Lodging Program put together by the Department of General Services, a public/private partnership that gets properties to be greener. He said that for downtown Los Angeles they get a lot of business travelers who are in town for only one or two days and so there is more sheet changing than at a resort property where some stay four or five days. Water saving programs for California manifests itself in the towel program and hanging the towel so that it is not washed and use less water and even controlling the showers within the rooms.

Mr. Mohrfeld said that he talked to a lot of hotels, and that in terms of the safety and training that the hoteliers did, there are several different approaches. One was a week-long training program. A new housekeeper comes in and they are shown how housekeeping integrates with the rest of the property, they are trained for about a week, and then they are turned loose and they do their job. Another one is a job shadow and then kind of a twist on that – a job shadow and a reverse shadow – where a job shadow takes either a housekeeping supervisor or takes a long-tenured housekeeper and the new hire follows that person around for a set period of time. He mentioned a hotel property in the Bay Area where the experienced housekeeper followed around the new housekeeper and that this seemed to be a way to get the knowledge through and to actually translate the training into practical usage. Another method is a team rotation but that this was more of an employee orientation than a housekeeping part.

Mr. Mohrfeld said that every hotel has an IIPP and that some of them have weekly meetings. Sometimes it may be slip and falls, or incorrect posture, what they do on ladders, etc. He noted

that another approach was to go with weekly and quarterly re-enforcement and that they also had the injury and re-focus, which is the one Mr. Mohrfeld liked. With this approach, on a weekly basis if a particular worker, not necessarily in housekeeping, has an injury, they would take that and apply it across the hotel and talk about the injury, how it can be prevented, and appropriate safety procedures that have to be followed.

Mr. Mohrfeld said that one of the things they see in safety is standardization, the three C's – the continuity, the comprehensiveness and the consistence. For instance, at one property where there was no utilization for ladders, they skipped ladder safety. But as employees moved around in their organization, they would go to other properties where ladders were in use, but they had no ladder safety training. They standardize so that when employees move around, everybody gets the same training.

He noted that all hotels have a safety committee, not just a housekeeping committee but a company-wide committee which provides a venue for input. So you have the engineers within that safety committee that can state what the issue is and then you have champions and it's all brought up to management and brought up to a corporate level. Mr. Mohrfeld added that they are committed to safety and training and that in order to continue the improvements they are going to ask the American Hotel & Lodging Association Foundation for a research grant to look at best practices. They will look at best practices, model IIPPs, safety and training so that properties will know what others are doing. Whether they were going to adopt those or not, they were very interested in hearing a different perspective. He said that they want to work with Cal/OSHA and focus on best practices to see what they can do from a larger perspective.

Brian Atkinson with EcoLab introduced a tool kit that consists of an expanding pole so that it adjusts to the height of the cleaning needs and makes it easier to maintain a straight back. He said that the pole also comes with a scrubber and a microfiber pad to clean inside of showers, and that this not only speeds up the process, but makes it easier for the individual. Other attachments they have for the pole are a squeegee for large areas with glass windows, so they don't have to reach up high and a roller, so that when they can use the roller to take the hair off the ground. They developed this tool kit to address everything that housekeepers need to clean more effectively and safe, so that they will have less to carry around from room to room.

They also developed a pump up foam sprayer especially for bathrooms so that with a couple of quick pumps there is enough pressure to spray the entire shower area. This saves the housekeepers from the repetitive motion, since on average they do about 25 to 30 trigger pulls.

Andrea Nicholls with the LA County Federation of Labor gave a presentation on the hospitality industry in Southern California, specifically in Los Angeles, and the impact it is having on workers in LA County. She said that they are proud that so many workers, hotel housekeepers that are at the meeting were speaking up to get changes so they can be safe at work.

She said that the hospitality industry in Los Angeles is the 5th largest labor market in the US and that tourism in LA has increased despite the economic downturn. Ms. Nicholls noted that occupancy rates have exceeded their pre-recession rates, the number of visitors has increased and that revenues for the hospitality industry are also increasing because LA is a tourist and business destination. She said that according to the LA EDC report, there are 406,300 employees in the hospitality industry in LA County and that in 2012; the hospitality industry added 21,600 jobs in LA County. But that at the same time of this employment spike, they are seeing that companies are actually still reducing their labor costs. So business is going up, revenue is going up, employment is going up and labor costs are going down. Ms. Nicholls

pointed out a slide with national data that shows the ratio of workers per 100 occupied rooms: In 1988, there were about 71 hotel workers per 100 occupied rooms and in 2008, there were about 53 hotel workers per 100 occupied rooms. So basically it shows that no matter how many new jobs are created, no matter how many new facilities are being built, no matter how much revenue is being generated, workers are still having more and more work piled upon them because the industry is reducing their labor costs and increasing their profits. She believes this practice is directly contributing to worker injuries because of the increased workload.

Ms. Nicholls stated that increased workloads/increased pace of work are significant risk factors for hotel housekeeper injuries. She said that housekeeper injuries already exceed the rates of injuries for other employees in hotels and other sectors, and that they are considered dangerous jobs, such as mining and building construction. She noted that if only the NIOSH safe limits are being looked at and housekeepers are still getting injuries, there is something wrong and that those limits are simply not accurate any more for this population.

Ms. Nicholls stated that the control measures proposed by UNITE HERE, like long handle tools, fitted sheets and motorized carts are needed because workers are performing difficult tasks that involve heaving lifting, repetitive motions, awkward postures for eight (8) hours a day and this is what is causing these injuries. She said that when workers get injuries, the blame is often times put on them because they weren't being careful enough and that the conversation cannot be limited to worker behavior. Yes, training is important. Yes, safety committees are important, but they are not the whole picture. The industry has a responsibility to implement engineering controls. That means re-designing the work so that it eliminates or at least reduces workers exposure to the hazards.

She noted that fitted bottom sheets would reduce the number of times that housekeepers had to lift the mattresses and that long-handled tools would eliminate the need for housekeepers to get on their hands and knees to clean the floors, to reach low or high to reach areas. It's a simple, effective, low cost tool that will effectively eliminate those risk factors and hazards that workers are facing. Ms. Nicholls stated that motorized carts eliminate the strain of maneuvering heavy carts completely and that Cal/OSHA enforcement used this as a recommendation in their citation to the Hyatt San Francisco and that NIOSH also recommends it for safe housekeeping.

Ms. Nicholls stated that at the root of all this is how we value our workforce. As a public health professional, as an advocate for worker rights, and as a representative of LA County Federation of Labor, she whole-heartedly supports those three (3) engineering controls and the proposal that UNITE HERE has put forth.

Ms. Neidhardt then opened the questions and comments portion of the meeting.

Dr. Wiker indicated he had a couple questions. One was related to the incidence rate on the first graph that Amalia presented. There are two (2) denominators used to compute incidence rates. Dr. Wiker asked if the same denominator was used on both of Amalia's slides to calculate it.

Ms. Neidhardt replied that they are not using the same denominator. One has a link toward Table 1 and that has a different denominator than Table 18. The incidence rate of 5.1 is per 100 full-time workers and the other is per 10,000. The BLS links are attached to each slide.

Dr. Wiker asked if the risks being discussed mean that it is 5% total of all occupational injuries and for MSD's it is closer to 1%. A Neidhardt responded that they have different denominators and that if you look at the incidence table (referring to Table 18) and you look at the average for

all occupations, you have 38.5, but for maids and housekeeping cleaners nationwide you have at least three (3) times that amount (121.1).

In regards to Ms. Vossenas' presentation, Dr. Wiker would like clarify a couple things. One is that people who were not ergonomists could take a look at a job but that if you have a RULA or a REBA score that says you need analysis but not that you have injury. Ms. Vossenas replied that she was just presenting the findings in the literature.

Dr. Wiker said that he believed that Professor Marras' lumbar motion monitor had inaccurate biomechanics calculations because its designed does not incorporate information about pressing hands on walls or leaning on top of the edge of bath tubs or having any kind of support. Ms. Vossenas asked Dr. Wiker to clarify which part he was referring to.

Dr. Wiker said that anywhere where your arm supports the body, such as while cleaning the tub or in the sink, you're not getting an accurate combination of those forces and that this makes the lumbar motion monitors no longer prescriptive.

Ms. Vossenas responded that in the section that was on long-handled tools, there wasn't body contact with other surfaces and that it was all about using the tools. She said that it is not like the study Dr. Wiker did where he has very unsafe postures. She asked how long can they endure that and how likely is that they're going to be able to clean every part of the tub with one hand. She stated that they just disagree about the lumbar motion methodology.

Dr. Wiker pointed out that it has been in the literature for 30 years and that the study that Ms. Vossenas is referring to had a 49% accuracy which means that half the time it miss-predicts the stress and the other half it says it was safe when it wasn't.

Ms. Vossenas stated that she is an epidemiologist and Dr. Wiker is comparing apples with oranges. She asked if Dr. Wiker knew where the BLS data comes from. Dr. Wiker responded affirmatively. Ms. Vossenas then stated that the BLS data are coming from surveys that the BLS does of OSHA logs that are maintained as required by law by employers. She said that they are rates of injuries based on OSHA logs that are sampled from across the country and that there is an underestimation of injuries on OSHA logs. She has an entire presentation using BLS data that shows that hotel and motel workers have higher incidence rates than the national average for private industry.

Dr. Wiker asked Ms. Vossenas if she could cite any federal or state government that has adopted the lumbar motion monitor predictions. Dr. Wiker stated that there is no standard for health and safety based on the lumbar motion monitor predictions. Ms. Vossenas said that there is no standard based on the NIOSH lifting equation.

Dr. Wiker said that what Ms. Vossenas is predicting, the 79% large incidence rate, are not found anywhere in the country.

Baruch Fellner representing CH&LA asked Ms. Vossenas if she was very much committed to the methodology represented by the lumbar motion monitor (LMM). Ms. Vossenas replied that she feels dynamic methods are more appropriate for the housekeeping job than static method.

Mr. Fellner asked Ms. Vossenas if the LMM in her view is that kind of a dynamic method and she replied that it is one of them. Mr. Fellner asked if she was familiar or involved in the

suggestion of Professor Allread for the Hyatt Fisherman's Wharf Hotel and if her presentation was about that Cal/OSHA investigation.

Ms. Vossenas responded that her presentation was about the lumbar motion monitor. Mr. Fellner asked Ms. Vossenas if she was aware that Professor Allread did not use the lumbar motion monitor in the investigation of Fisherman's Wharf.

Ms. Widess interjected and stated that that case was not relevant at all. Mr. Fellner said that the record will show that Professor Allread did not use the lumbar motion monitor, which was so strongly endorsed by Ms. Vossenas.

Ms. Neidhardt reminded everyone that their input was welcomed and to please step to the microphone and state their name for the record. She also stated that everyone's questions and comments are respected.

Linda Delp, director of UCLA LOHP noted that the problem with the existing repetitive motion injury standard is that it does not go into effect unless workers are already injured, so from the public health perspective it is fundamentally flawed. It is also limited to repetitive motion injuries and as seen from Amalia's presentation, there is a predominance of back related injuries which are more acute trauma. Ms. Delp had a question and a suggestion for Cal/OSHA. She was curious if we had any sense of what the disparities might be from the work that has been done looking at injuries and illnesses in California musculoskeletal disorders, of the extent of underreporting. She would also like to encourage two (2) things: (1) that there be more investigation into those disparities and level of underreporting of musculoskeletal disorders in OSHA logs in California and (2) speak for the need and importance of what's proposed in terms of doing a job hazard assessment and the safe housekeeping plan with housekeepers input so that they look at preventing injuries and controlling and eliminating hazards instead of looking at a plan that goes into effect only once workers have an injury.

Ms. Neidhardt replied that there is no sense as to how much underreporting there is and clarified that the workers' compensation data was not specific to just musculoskeletal disorders. That the injuries also include those from strains, sprains and falls on the same level.

Ana Pineda has worked in LA Downtown for eight (8) years which was previously Marriott. She said that there are simple things that hotels can do to make their job easier and avoid any injuries. In her hotel, for example, they have sweepers, short and long mops to clean bathroom floors, so she does not need to get on her knees to clean the floors. They also have fitted sheets and they are all in love with these. The only things they need to do are bend over a bit and stretch the sheet over the mattress. There is no need to lift the mattresses. The mattresses weigh over 100 pounds. At this time, the hotel is undergoing renovations. They have new furniture, paintings, pillows, sheets, everything, but they still have fitted sheets. She does not understand why hotels don't use fitted sheets and give housekeepers adequate tools and said that these are small changes for hotels that will have lasting impact on their lives.

Argelia Rico works for Embassy Suites in Irvine and said that as a handicapped person it would make her job easier if there were fitted sheets. In one work day, she lifts one mattress eight (8) times to put the sheets and she must use her left foot to lift the mattress so she can put the sheets under the mattress. She said that a fitted sheet would help avoid any back or hand injuries and that personally she has not reported her injury for fear of losing her job and believes there are thousands in the same situation. She believes there isn't a higher rate of injuries because there are thousands who fear of losing their job. If she reports her injury at this time, she would have to stop working and she would not have the money to put her daughter through

college. She has to tolerate the pain in her back, hands and knees to maintain economic solvency and afford to pay for her daughter's college. She said that the hotel industry does not care about her health and only cares about money. She asked that workers be taken more into consideration as human beings.

Pam Tau Lee, with the Labor Occupational Health Program, complimented the work that Andrea Nicholls discussed regarding increased workload. Ms. Tau Lee shared that in the 1980's she worked in hotels cleaning rooms and that the workload was a twin bed and a double bed. She said that these were the days before coffee pots, heavy mattresses, before the many pillows and the days when housemen delivered linen to the rooms, did the deep cleaning, and changed the shower curtains. She recommended folks go the annals of history to looks at the pictures and compare.

Ms. Tau Lee said that in the 1990's she was at the Labor Occupational Health Program and received a call from one of the room attendants representatives there that was basically responding to the complaints about the carts, so they picked one particular hotel to address. Ms. Tau Lee, with the union, put them in contact with Dave Rempel with the ergonomics program at UC Berkeley. Through a few weeks of discussions with the unions and the hotel, the hotel agreed to do an assessment of the carts. The assessment involved Ira Janowitz, an ergonomist from the center. Mr. Janowitz asked that the room attendants set up the scenarios in which people actually used the carts. Other scenarios were set up involving room service trays, luggage, guests, being able to measure how the cart worked on different surfaces, the thresholds – in terms of going in and out of linen closets and elevators; lifting; sharp turns in hallways; measuring the speed in which they traveled to get to the next rooms. One of the observations that was made had to do with the wheels of the cart kept turning to the left so the room attendants demonstrated what they had to do to avoid hitting and scrapping the walls because they would get written up if the walls were damaged. Another observation had to do with the properly stocking of carts so that they could fulfill the supply needs of each room but found that this would obstruct their ability to see over the cart. Another thing that was taken into account was the pushing of the cart at a slight tilt to facilitate maneuvering and view.

She also said that the attendants were also asked where they hurt and that this information was included in the assessment. Ms. Tau Lee said that a room attendant suggested that it would be nice to have a motorized cart. A few weeks later, the union received a call asking them to look at a motorized cart, but before any action was taken it was suggested that that room attendants test the cart. Room attendants tested it and loved it. The motor easily turned on with the push of a bar. It moved and could be easily steered. They demonstrated how they could use it with one hand and how it reduced many problems. Suggestions were made in terms of stocking the lined and how shelves could be put at different heights. Through the testing and the input, the cart was made even better afterwards. She noted that this was over 21 years ago and it was not science-fiction.

Steve Smith, DOSH, asked Ms. Tau Lee if she could provide the assessment. Ms. Tau Lee responded that they could ask Mr. Janowitz to dig through his files to see if he could find it.

Ms. Widess commented to Ms. Rico, the worker from Embassy Suites, that she could appreciate her fear in reporting the injury and wanted to make it very clear that it would be illegal for any employer to in anyway restrict her work, fire her, or take any action for reporting a work injury. This would a case that DOSH would take very seriously if notified of such an event and would report that to the labor commissioner of California and encourage prosecution. She said

that the State of California and the Labor Agency are deeply concerned and want to do something about this problem.

Enedina Alvarez said that she has been a housekeeper for 12 years at the Westin hotel in LAX. About five (5) years ago, they pushed regular carts weighing about 150 pounds, because of all the supplies but that the company changed over to electrical carts and that they are happy working with these because all they have to do is push one button for the cart to move forward, and one button to move back. She is happy that they no longer push the heavy carts because they hurt their shoulders, back and wrists.

Maria Patlan stated that she has worked in housekeeping for 14 years at the Hilton in Long Beach. She said that as housekeepers, they are at risk of injuries and that she has had multiple injuries due to the lifting of mattresses and the cart they use to work which weighs about 125 pounds. She noted that not all hotels are the same and that some hotels have more rooms and others have fewer beds. She said that at the hotel where she works, the space is very limited and this is where she first injured her wrist, elbow and neck. This is why she would like the bed making system changed, it would be easier for them to use fitted sheets, and the cart should also be changed. This would facilitate the work and reduce employee injuries. Ms. Patlan noted that previously the company would give them an opportunity to do light duty, but that they no longer have that so she is now at home disabled. She came to share her work situation because she doesn't know if she will return, but also so that it can improve for her coworkers.

Nenita Ibe said that she has been a hotel housekeeper at Hyatt Santa Clara for 14 years and that she came to the US from the Philippines in 1996 as an immigrant hoping for a better life. She said that on September 4, 2009, she was working at the Hyatt and fell and has pain on her right shoulder. She said that after her injury, she went to see a doctor and a therapist. When she returned to work she was assigned light duty folding linens and towels. This required her to use her injured arm. She would wake up in pain every night. In June of 2012, she had surgery in her right arm and it is better now, but her arm is not the same as before. In January of 2011, she injured her left shoulder tucking under the mattress. Last month, she had surgery in her left shoulder and is currently in disability. She said that she traveled six hours from Santa Clara to share her story because all housekeepers deserve to be safe and have a workplace with proper tools to do the job.

Jessica Martinez with the National Council for Occupational Safety and Health (COSH) said that they are a federation of local COSH coalitions across the country interested in promoting and advocating for worker health and safety. She noted that they have learned that across the country there is a need to re-engineer work practices that allow for long-term safe work places. They are present to make a call to Cal/OSHA to lead the nation forward in supporting a comprehensive standard. Ms. Martinez said that they openly and wholeheartedly support a comprehensive housekeeping standard proposal by UNITE HERE. She stated that they are here to make a request that there be a change that will allow for a new standard that protects workers and which will focus on engineering controls and not so much individual worker behavior.

Shirley Alvarado del Aguilar a coordinator for the Southern California Coalition for Occupational Safety and Health (SoCalCOSH) said that they are a grassroots coalition of health and safety activists, workers, legal professionals, and researchers dedicated to eliminating hazardous working conditions in Southern California. She noted that they have been involved in supporting the struggle of housekeepers for many years and that in May 2007 they assisted in the fighting of a complaint by two Latina housekeepers employed at the LAX Hilton Hotel. This

complaint was for violations of the repetitive motion injury standard, which is only effective when the injury has already happened. She stated that they provided support and assisted these housekeepers in their fight for equality and justice in the workplace and that Cal/OSHA issued two (2) citations, one was general and one was serious, including the first ever RMI citation against a hotel. Through this and other efforts SoCalCOSH has been able to meet with hotel workers to hear their testimony and stories of pain, injury, high stress and illnesses. She said that they have witnessed hotels whose health and safety policies include incentives not to report injuries and illnesses, neglecting their duty to correct hazards. These are the reasons why she is here to support the proposed standard that will implement available and effective interventions.

Cass Ben-Levi, director for the Southern California Education and Research Center at UCLA and UC Irvine, said that they are supported by NIOSH and that their continuing education program tries to obtain grants so they can give workplace health and safety training to low-wage workers. She said that between 2007 and 2012, they were fortunate to get a couple grants from the California Wellness Foundation so they trained over 1,100 workers in the hotel and tourism industry, most of them housekeepers and supervisors. She noted that the training sessions lasted from two (2) to four (4) hours and that the main top included ergonomics and musculoskeletal hazards; slips, trips and falls; burns and cuts; and chemical hazards. They also produced a 40 minute video for service workers that includes best practices and posters which are available in English and Spanish.

Ms. Ben-Levi added that training is not often in the budget of organizations that employ low wage workers and they were able to provide this training because it was free due to the generous funding. According to the evaluations they received, the workers and the supervisors were glad to have the training. She said that workers were able to see the workplace in a new light, identify hazards they hadn't seen before and put into practice some of the ways of removing themselves from danger, but that this is not always practicable. Workers may be aware of what the hazard is and even know what the best practice is, but if the control isn't there and the tool isn't there, and the light-weight, long-handled cleaning equipment isn't there, then the training is lost. If the controls are there and people are not trained to use them properly, they're still not going to be used in the most efficient manner.

Ms. Ben-Levi noted that she is not just advocating that there be controls, but that training go along with it. Training is an inexpensive way to make sure the tools are used successfully and that injuries and illness can be reduced. She said that unfortunately, their grant ended in July of last year so they are unable to continue. If they are able to find additional funding, they would like to continue to do training and act as a liaison to help identify and control the hazards.

Ms. Vossenas commented that one of the things that Nina said about the carts that didn't get translated was that her cart weighed about 700 pounds. She also doesn't want anyone to have the impression that the motorized carts go run wild all by themselves down the hallways. They have a motor so it makes it easier to push, but they don't go down the halls by themselves. She said that there is a company called Hostar that sells housekeeping carts to large hotels. She noted that they recommend motorized carts for hotels with more than 300 rooms and that there are several casinos in Las Vegas that use that brand. She said that the money from the cart can be recouped within 12 to 24 months just in savings from injuries and improved productivity and that these carts have 8 to 10 inch casters which help the ease of movement.

Ms. Vossenas said that she looked at the cost of injuries and that a 2012 study by J. Paul Leigh, researcher at UC Davis Center for Healthcare Policy and Research showed that several low wage occupations account for the greatest total cost in injuries and illness due to days away

from work. The number one was retail, the second was janitors and cleaners and the third was maids and housekeeping cleaners.

Ms. Vossenas stated that in 2010, NIOSH released a report, in collaboration with BLS, called the Use of Workers' Compensation Data for Occupational Injury and Illness Prevention. She noted that one of the published papers was from Adam Seidner, a physician at Middlesex Hospital. Dr. Seidner did a study of a managed care database and that from January 2006 to January 2008 he pulled out 1, 976 claims where he found that the job title with the most frequent number of claims was room attendant. The description of the injury was sprain, lumbar region and that the most frequent cause of injury was strain from lifting.

Ms. Vossenas said that three university occupational health centers and UNITE HERE evaluated 3,716 employee reported hotel housekeeper injury cases in the 2000-2004 period from 102 union hotels operated by Hilton, Hyatt, InterContinental, Marriott, and Starwood and that they found that 44% of the injuries were strain and sprain injuries. The second most common was bruises and contusions which indicates the acute trauma plus the strain and sprain injuries. The event exposure most common was contact with objects and the second most common was over-exertion. The body part most affected was 32% at upper extremities and 22% at the trunk, including the back. Ms. Vossenas felt this was very much in line with the finding presented today.

Eric Myers stated that he had a few questions for Mr. Mohrfeld and asked if the educational foundation is a relatable entity to the CH&LA itself. Mr. Mohrfeld responded yes.

Mr. Myers asked if it funded the lodging industry study conducted by Dr. Wiker. Mr. Mohrfeld replied that it did.

Mr. Myers asked if the study was commissioned in order to provide ammunition against the SB 432 bill. Mr. Mohrfeld replied no and that it commissioned to look at fitted and flat sheet.

Mr. Myers asked if the industry had ever made any efforts to study the safety and health impact of room cleaning prior to introduction of legislation. Mr. Mohrfeld replied that he did not know and that their study focused specifically on flat versus fitted sheets so he could not comment on what the industry did or did not do.

Mr. Mohrfeld said that in terms of research, his organization did the fitted/flat sheet, and they participated in the housekeeping study that was presented this morning and they've done the *We Welcome Service Animals*, which can be called research and community outreach program. This has been the extent of their research.

Mr. Myers stated that he heard from Dr. Wiker that Hyatt funded the presentation or research this morning, and asked if it was Hyatt and the Hotel and Lodging Association jointly. Mr. Mohrfeld stated that he did not know how to answer that. It was heard this morning that Hyatt funded the study. Mr. Mohrfeld said that in terms of presenting within this forum, this is Cal/OSHA and therefore they wanted to present the best data possible and they felt it was Dr. Wiker's study. Hyatt was kind enough to allow them to use it and they feel it is a good tool in terms of presenting the risk and safety issues of the housekeepers.

Mr. Myers asked if the Hotel and Lodging Association has contemplated any studies in California, for example – the study being in Washington, a single property study in Washington, perhaps survey type studies.

Mr. Mohrfeld responded yes and that the study they are contemplating is a best practice and that it is going to be funded from the Education Foundation of their national organization. He also stated that this is what he explained at the end of his presentation and that what they are interested in funding is best practices and model IIPP's. This is a start. They want to work with Cal/OSHA, in terms of what Cal/OSHA would like them to study as well.

Mr. Myers asked if there were best practices that some hotel employers are using and that other employers perhaps don't want to spend the money to implement or maybe they don't know about them or maybe they don't care, if Mr. Mohrfeld would agree that it would be of benefit of all workers and to the industry, generally, that there should be a kind of standardization of those best practices. Mr. Mohrfeld replied that he did not.

Mr. Myers stated that he though Mr. Mohrfeld had an item called "Safety standardization enhances continuity, comprehensiveness and consistency". Mr. Mohrfeld said that it seemed to be a trend that was coming through in terms of the industry and that in terms of best practices, there are several different hotel types, different workers and different size of rooms, so he does not advocated for standardization.

Mr. Mohrfeld said that they are interested in safety and training, and in providing information about best practices at educational conferences and that they want the industry to be better.

Mr. Myers shared that so far two studies have been shown that seem to suggest that there is no problem. Mr. Mohrfeld stated that he would not agree with that. The first study was a comparison between fitted and flat and showed there is no difference, so that in terms of problems or no problems, he did not feel that was a fair categorization. In terms of Dr. Wiker's study, he felt Mr. Myers should direct those questions to Dr. Wiker as he is not there to speak of his research at all.

Dorothy Wigmore from Worksafe shared that she's been following the conversations and efforts to improve hotel housekeeper's health and safety. She was a hotel housekeeper back in the late 1960's and had to leave the job because of the issues she had with putting sheets on beds. As an ergonomist and hygienist, she is used to taking a public health approach to things and doesn't get hung up about arguing over measurements, but is more interested in hazard assessment and recognizing hazards and trying to fix them. In that context, there is much that is already known, both in terms of the hazards that are recognized literally around the world, that are in quite in sync with the kinds of things that have been brought up today and somewhat in contradiction to Dr. Wiker's findings. She wanted to remind Cal/OSHA about the long list of documents that she put together in November that have solutions literally from around the world. Everything from the arrangements of rooms, to a spiffy Australian device that lifted the bed so that bending would not be required or do anything in terms of making it.

On the underreporting, Ms. Wigmore asked what kind of information is needed to get a better picture of the state of underreporting, particularly for musculoskeletal diseases. There have been a number of reports about these kinds of things, official peer reviewed publications and others. She has a large state of them in her office, but doesn't know what would be useful. Ms. Wigmore stated that she'd be happy to help and can round up others to do so as well.

Ms. Vossenas said that in talking about the pros and cons about fitted sheets, one of them is the limited number of lifts, and very importantly that less tucking is required. She noted that this is why some hotel housekeepers bring in their own rice paddles, because they find it easier, and

because it is the rice paddle that is getting wedged between the mattress and the box spring, not their fingers. In the OSHA log there would be less sprained fingers and less sprained wrists. She feels that looking at tucking and reducing number of tucks is very important.

Ms. Vossenas continued to say that in 2011, Cal/OSHA issued an information memo and that Hawaii OSHA issued one at the Hyatt Waikiki. In 2012 Federal OSHA issued a letter identifying ergonomic risk factors to the Hyatt Corporation regarding inspections it did and they all make recommendations for interventions. Based on what Mr. Fellner and Dr. Wiker have said, it seems to Ms. Vossenas that these were based on evaluations that were done using a static method. Even using a static method, it appears that the OSHA agencies felt behooved to issue warning letters that recommended interventions. Ms. Vossenas feels that this is a very important point.

Ms. Neidhardt closed the meeting by stating that all comments are appreciated. For those who did not get an opportunity to do so, she informed them that written comments are being accepted. She shared that her e-mail information and said that she would be happy to give them her business card with phone number. There is no due date for comments and for those who may have been afraid to speak up she reminded them that all input, comments and suggestions are welcomed. She thanked everyone and said that the information would be taken into consideration and that the Division would be getting back to them.

Meeting adjourned at 3:26 pm.