

Public Health Institute Web Forum
Connecting Public Health and Food Sector Collaborators
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Remote CART Captioning

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[Captioner on standby waiting for event to begin.]

>> Greetings and welcome to today's forum on reducing sodium through meal and menu modifications brought to you by the national network of Public Health Institute and the Centers for Disease Control. My name is Dave Clark. I'll be your host. Before we get started, there are just a couple things that we'd like you to know about. First of all, real time captioning is available for today's web forum provided by Home Team Captions. The captioning panel is located on the right side of your screen. Can be toggled on and off by clicking the media viewer icon. If you are on a Mac, you'll see that icon on the bottom right of your screen. If you would like to use captioning, you'll see a link in the captioning panel that says show/hide header. If you click that, you'll be able to see the captioning. If the captioning window disappears, click that media viewer icon to bring it back again.

Concerning the audio. Today's web forum is listen only. That means you can hear us but we can't hear you. That doesn't mean though that today's event won't be interactive. We will be taking your questions during the web forum and you can type those questions at any time into the Q and A panel. The Q and A panel on the right side of your screen. Can be toggled on and off by clicking the Q and A icon on the top right of your screen. And if you are on a Mac, you'll see that icon on the bottom right of your screen. In this panel, make sure it says all panelists. If it doesn't, choose that option. That will ensure that your question gets sent to the right place. And you can also use the Q and A panel to communicate with me and my colleague, Laura Burr, if you are having technical problems or audio issues.

We are really interested today in your thoughts and your questions and your feedback on this topic. Make sure to get all those questions into the Q and A panel. We'll try to answer as many of them as we can, I promise.

Speaking of that, we thought we'd get interactive right here at the start of the web forum. We thought that you might be interested in seeing who else is attending this event today. So

we're going to bring a quick interactive poll so you can tell us whether you are attending alone or whether you are attending in a group. And you'll see that poll appear on the right side of your screen. You'll be able to select from one of the four choices. When you've made your selection, click the submit button you'll see down below.

So this is our poll. Are you attending today's web forum alone, individually, in a small group of 2 to 5 people, in a medium sized group of 6 to 10 people or in a large group of more than 10 people? Maybe with all of your colleagues today? Let us know. All right. Let's take a look at the results. If you are not seeing those results appear right away, give them a few moments to tabulate. They will appear. And, again, if you made a choice and didn't click submit button, go ahead and click that submit button. So go ahead and do that.

As we are waiting for the results, that not surprisingly a high percentage of you are attending alone today. And you can see the results now. 91%. We have about 4% of you attending in a small group of 2 to 5 people.

So if you are in a group, you may want to assign a single person of submitting questions on behalf of the entire group or individual group members. On the other hand, if you are alone, we don't want you to feel like you are there all by yourself. We want this to be a group event today. Make sure to get your questions into the Q and A panel. Don't be shy. Please join in on the conversation today.

All right. Let's get started with today's presentation on reducing sodium through meal and menu modifications. Our moderator today is Kelly Hughes, associate director of program strategy at the national network of Public Health Institute. Kelly serves as a liaison to the CDC providing support for CDC funded initiatives. Prior to joining NN pH I, she works as a health analyst to conduct policy analysis, partnership engagement, budget formulation, issues management, community health investment tracking and prevention and public health fund reporting for DCH programs and awardees. She's also a certified dietician and registered health specialist. Kelly, over to you.

>> Kelly Hughes: Thanks so much, Dave. Good morning and good afternoon, all. And thanks, everyone, for joining us today. The Centers for Disease Control and prevention and the national network of Public Health Institutes are launching a new series titled connecting public health food sector collaborators. This aims to share the perspectives of public health organizations around various topics related to sodium reduction. And you may also be familiar with our previous series. This series is a continuation of previous web forum series titled connecting public health and food service providers as well as connecting public health and the food industry. And you can access any archived web forums and learned more about the work on sodium reduction at www.nnphi.org/sodium.

This web forum will focus on tools, strategies and promising practices for implementing meal and menu modifications to reduce sodium. And such modifications include revising recipes, substituting or replacing ingredients or products, cooking techniques, addressing the use of condiments.

Chef Brad Barnes will be unveiling for the first time ever new culinary demonstration videos on sodium reduction techniques. And these videos have been under development over the last year and we're very excited to be able to share these with you all today for the first time ever. Then we'll hear from Nicole King who will discuss her work in several hospital cafeterias across the eastern health system as well as developing a tool kit and leveraging resources to sustain this work through other funding. And then finally, several presenters from the Oregon State University's center who will share examples, techniques, tools relate today reducing sodium in food products.

We'll have a brief Q and A portion after the chef's session and a longer one at the end. Please submit your questions. We'll be reading them and keeping tabs and making sure we address them at the end of all the presentations.

So before we jump in, let's learn about you all. So based on the registration data from Friday December 2nd, our audience today represents 44 states. Washington, D.C., Puerto Rico, Australia and Trinidad and Tobago.

And in terms of work sectors, the majority of the audience represents health departments followed by other academia and hospital and healthcare systems.

Now I'm honored to introduce to you all our first presenter chef Brad Barnes. The culinary institute of America alumnus Brad Barnes -- before returning in 2009, he was President of Gigga Chefs LLC, a consulting company for high volume food service. And previously held executive chef positions for a variety of establishments. The chef is the chair of certified master chef committee. He's also a certified competition chef, co-author of three books and the recipient of several honors. Following his presentation, I'll moderate a brief Q and A session. So get those questions in. And without further delay, happy to turn it over to chef Barnes.

>> Brad Barnes: Thanks very much, Kelly. I appreciate everybody taking the time to listen today. Thank you all. That's great. And I want to take just a second to thank Kelly and NNPHI for championing all this work. They made it completely possible. And Kelly has driven that initiative and we're super proud to be a part of it. So, again, thanks, Kelly for your great work.

We've developed these videos we're going to talk about and such a really good group of interesting tips and facts that will help folks tremendously.

So part of what I wanted to do today was introduce also chef Lisa Brefero who is not with us but is the talent in the video. She is a bestselling author of nutrition for food service and culinary professionals. A great textbook used in a ton of schools. And has done a tremendous amount of video work. We were pleased to have her work with us to get these done. If you watch the videos, you are going to get to see that talent. Really great resources. And I've had the opportunity to share some of those resources in the past couple of weeks. And have gotten great feedback. I would urge everybody that's listening to take advantage of these. They are short, they are interesting. They are quick and to the point. And really give cooks and culinarians a way to take back and make use of it. That's evident when you watch the videos.

One of the first videos is there really is no particular chronological order to the subjects. But we discuss ready to use foods. That's a big part of the feeding world. In healthcare and non-commercial food service in general. It was important to address this and different ways techniques and strategies about how to make use of ready to use foods in order to continue to keep that part of the business model in place and show folks how to use it differently than they had thought about before.

And certainly a bigger one from a stand point of where sodium lies in the typical diet. Salad dressings are huge. And really this goes into techniques about how to dilute salad dressings that bring them into a reasonable cost while reducing the actual sodium content. So really some clever stuff in this particular video.

The following things that we've talked about in this. It shows new techniques. It shows recipes. There's product uses, there's ideas and tips. The videos are just super easy to use and easy for folks to understand. So hopefully that will be helpful.

Tomato-based sauces was another subject we dealt with. They are so prevalent in food service today. And a lot of different ways to make use of tomato sauces to create great menu items. Again, very simply and to lower the sodium content of those items.

The last of the four videos is maybe my favorite. It's about flavor building. And this is really built to remind cooks and culinarians of all the things out there that can cause flavor, which, of course, helps us limit sodium from the fact that the food tastes good and bold and has a statement and a profile way before we ever start to put salt in. That is really the ultimate key that people have to think about learning is how do we make food taste delicious before the addition of salt? And once they do that, then they are in a position to add a little bit of salt or potentially not and still have great food that is appreciated by their customers. So really, that's a key piece there. And go into the use of spices, condiments, and the idea of understanding

what's important to developing a flavor which is cooking techniques. It's a huge subject but we captured the important parts of it in a short easy video. And it will be a great refresher for folks that cook for a living.

So I think we have some really interesting stuff. You could watch through all those videos and understand them in really less than 22 minutes, I believe. So it's a great tool. And kudos to NNPHI and CDC for finding the resources and getting the project to happen. It's a wonderful support tool and hope everybody enjoys it. We'll be looking forward to your feedback. And if you have any questions, Kelly's going to walk us through that process right now.

>> Kelly Hughes: Thanks so much. I was going to say the same thing. We appreciate the collaboration with the culinary institute of America as well as CDC to produce the videos. This is the first time we've shared them publicly. They are available on that web site provided on your screen. And both the culinary institute of America PHI will be doing outreach to get these tools into your inbox. And so stay tuned. So everybody can access these at some point. And thank you, Brad, for taking time to walk through those. We haven't received any questions yet.

>> Brad Barnes: Must have been clear.

>> Kelly Hughes: Crystal clear. Thank you, Brad. I know you won't be able to stay on. But I will be sure to relay any other questions we get to you. If there aren't any questions, then we can move right into our next presenter.

>> Brad Barnes: Thanks so much.

>> Kelly Hughes: Thank you.

All right. Next up we have Nicole King. The healthy food service coordinator for the eastern Maine healthcare system. She is a graduate of the Illinois institute of art in Chicago in culinary arts. And while working as a chef at Argon national lab, she discovered her passion for food. She is currently working on her master's and public health degree from the University of New England. In her role as healthy food service coordinator, she led efforts for the sodium reduction and community's program grant and continues effort to make hospital food healthier through the CDC partnerships to improve partnerships. We'll hold questions until the very end of her presentations but I encourage everyone to submit questions at any time. Happy to turn it over to Nicole.

>> Nicole King: Hi, everybody. And thank you, Kelly, for the lovely introduction. I appreciate it. And I appreciate everybody being here to join us today. As she said, I will be discussing our efforts to make hospital foods healthier based on the lessons learned through our sodium reduction project at EMHS.

I'd like to provide you with a brief background and then describe the sodium reduction strategies we use including procurement mechanisms, menus and recipes as well as promotional strategies. And finally, I'll discuss the healthier hospital food tool kit we created.

A little about EMHS. We are an integrated healthcare delivery system serving the state of Maine. And we have a broad range of services including nine hospitals, physical practices, long-term care facilities, home health and hospice care as well as ground and air emergency transport services. And through the sodium reduction in community's program, we had three of our hospitals engage in the last two years in the program. Eastern Maine medical center, Acadia hospital as well as Blue Hill memorial hospital. Just to give you more information about those facilities. Eastern Maine medical center is the second largest hospital in the state of Maine with just over 400 beds. And they serve 1500 customers in their cafeteria every day. Acadia is different. It's a secure mental health facility with 100 beds and still serve 4 to 450 customers a day. A larger portion of their customer base are patients rather than outside visitors because a lot of their patients are able to come down to the cafeteria daily. And Blue Hill was the smallest with 25 beds but serve over 100 customers per day in their cafeteria.

For the sodium reduction project, each of the organizations was asked to modify five popular items in their cafeteria to reduce the sodium content. And we focused on employee

health. They do make up the majority of the customers in our cafeterias. And through these three organizations, we were able to reach more than 5800 of our employees as well as any community and business members who happened to visit these facilities during this time and now.

So each of our strategies was based on the wants and needs and the resources available to us. And that would include the number of trained staff members, the type of equipment available, the time and space that were allotted to us, as well as our funding sources.

And due to these limitations and the needs of our consumers, it was important for us to really try to find a balance between flavor and cost while being able to improve the nutritional quality of these foods. And this was sometimes a real challenge. But overall, we were able to find very manageable and sustainable ways to make these changes that were cost effective, delicious and healthy and we didn't have to sacrifice our sales or customer satisfaction. And we were fortunate enough that each of the three organizations was, as I described, a little different. They each presented unique environments and features. But to use a wide variety of sodium reduction strategies. One of the first strategies we used to reduce sodium was through procurement and this project afterwards we now have six new low sodium items being purchased by one or more of the food service facilities involved. We had diced canned tomatoes, canned kidney beans, marinara sauce, chicken super base. Poultry and beef gravy mix and whole turkey breast.

I would like to call attention to that turkey breast. It resulted in the largest reduction of sodium. With 93% decrease going from 520 milligrams to 35 milligrams per serving. After they began using it on salad and sandwich bar, they've begun using 26% more of the product because the customers really enjoy it.

And based on the success at Acadia, Blue Hill decided to start using this product outside of the original changes they selected. They are using it on their salad bar right now and plan on using it in hot dishes in the program they are taking part of now with me. And one of the nice things for them was that they were using a pre-sliced deli turkey because they don't have a deli slicer. They were able to use the product because it's a real turkey breast. And they can cut it by hand. And they were able to save money because pre-sliced deli meat was way more expensive. But I will say overall, we did not see necessarily a price change in one way or the other in our low sodium changes. No prices were affected by our project.

One of the most common strategies we use was to reform late our recipes. And we did this by reducing the amount of high sodium ingredients in the recipes such as soy sauce or removed added salt or seasoned to taste so we can get a consistent amount of sodium. We switched to some scratch made products like a taco seasoning instead of buying packaged version. And also tried replacing shredded mozzarella cheese with pressure cheese.

And these recipe changes resulted in a really great domino effect. We were able to change 53 recipes with just a few items that we selected. So just, for instance, the diced canned tomatoes affected 34 recipes. So just one ingredient can make a huge difference.

And another one of our strategies was promotions. Mainly that we did not advertise any reduction in sodium. Based on our target population assessment and at the request of the food service directors, they did not want us to label anything as reduced or low sodium. So instead, we took what's called a stealth health approach. And now we have one of our next polling questions. So I would like to know if you believe advertising or labeling items as low sodium is an effective method to increase the consumption of the products. Based on our particular audience, we decided they will not be receptive. The food service director said they have tried things similar in the past. They were afraid it would affect their sales. So if you can answer yes, no or unsure, I would really be interested to see how everyone across the board feels.

And is this something you've thought about or something you've tried. Maybe a new approach you haven't heard of before. And we'll let those close up and should be coming in any second now.

I'll move on to my next slide. I don't see the answers quite yet. But I will say that our rationale was the stealth health approach was a way to avoid any stigmas. I got the report now. So it's almost evenly split between yes and no and a little unsure. Maybe it's not something you've addressed recently. So looks like we're in agreement here. So like I said, avoiding the stigmas, customers often feel before they taste it that it's not going to have flavor. And that can negatively affect the sales or the popularity of those items. So by not advertising, we feel we were able to track any changes in the sales or popularity without needing to take this particular factor into account. So we knew if sales dropped, it wasn't due to this. We could look for other reasons due to inclement weather or just the season change. And that way we can see the change.

Having that being said, we did not -- we did create and promote new culturally-themed recipes. This was particularly at EMMC. And when we offered these new entrees -- this was a way to test out new recipes without committing them to the menu. However, due to the very high popularity of these dishes, most of them have been incorporated into the menu cycle at EEMC. And for this promotion, we advertised our dishes through the company newsletters or the intranet. Or signs in and around the cafeteria such as you see here in the photograph. And we really feel that providing the samples was one of the most important parts. Our customers were hesitant to purchase a new item before tasting it. Which makes sense if they've never heard of not only the dish but some of the ingredients. We use culturally themed foods from around the world. There were ingredients unfamiliar. And this gave them an opportunity to try something familiar. They came in with the intention of trying it and making the decision whether or not to buy it. So this did influence our sales in making sure we advertised we were going to have the sampling was also key to that success.

So I'd like to talk a little bit about our healthier hospital foods tool kit. Based on the successful implementation strategies, we were able to develop this tool kit that has been designed to help others make these effective and sustainable changes to increase the accessibility and availability of healthier foods in their facilities. So a little bit about what the tool kit contains. Is first there are selected recipes that include both original and modified sodium content. We have the five items that each of the hospitals chose as well as the culturally themed recipes.

Also includes sales data as well as a summary of the sales data from the project. Some examples of nutrition policies that are established now or proposed. And a little chart about the sodium reduction efforts from this project from everybody involved across the country to see what everyone else was doing. And a chart of some of the popular software programs. Some facilities didn't have them. So we included this hoping it would help others. And it does have a couple other material such as we wrote a newsletter last year all about sodium. And this here on the right is a lovely chart made by the CDC that highlights the work we've done here. It's a really nice glance.

So we have one more polling question for you at least for my part. I would like to know out of curiosity if you think a tool kit would be helpful to you or your facility to initiate these changes or a way to educate others on how to make changes. So if you can answer yes, no or unsure. And be sure to hit that submit button. The tool kits have been provided to in-service directors as well as outside of our system. And they have begun to use the taco season recipe which was not part of their product but Blue Hill's project. So we're seeing cross utilization here. They are going to continue to use this from now on. Kind of nice to see we saw Blue Hill using the turkey. And we see the results here. Most of you said it would be helpful. That makes me happy. Obviously, our hope is this will enable and inspire others to make changes like we have

and provide materials and information based on our experiences to educate and expedite these changes. We've done some of this leg work for you.

And it doesn't have to be sodium specific. Titled healthier hospital foods. The same principles can be used as a jumping off point to reduce cholesterol as well as added sugar. Whatever you could think of. And we are moving forward and expanding continuing our healthy food efforts through another CDC grant to improve community health. Currently, we have engaged 12 more hospitals. Four of them are in our system. The rest are not. This is through 8 counties statewide. All committed to making changes that will increase the availability and accessibility of healthier foods in their cafeterias. And they are going to address three key areas. They are going to establish a nutrition-related policy such as 100% fruit juice. They are also going to make an environmental change to try to promote the sale of water rather than sugar sweetened beverages. And they are going to establish one new procurement mechanism such as we did.

And I would really like to thank everybody for taking the time today to listen to me talk about our sodium reduction strategies and continued efforts. Thank you very much for your input. These slides will be available later. Here's my contact information. Feel free to contact me. I'd love to hear from you. To you.

>> Kelly Hughes: Thanks so much for your presentation. I know I said we would hold questions until the end but we did get one question I wanted to ask since we're ahead of schedule here. Can you clarify who the food distributor was?

>> Major food group.

>> Kelly Hughes: Thank you so much. We'll hold the rest of the questions until the very end. With that, my pleasure to introduce to you all our final presenters from the Oregon state university's food innovation center. Our presenters include Sarah Masoni, Jason Ball and Ann Colonna. Sarah Masoni is a senior faculty research assist apt and food and process development team manager at the Oregon state university food innovation center where she resided for the last 15 years. She works as liaison between the university and food manufacturing industry by managing staff projects and budgets. Sarah specializes in food entrepreneurship and worked on products such as dairy, seafood and organic nut bars. So welcome.

Next we have Jason Ball who is a faculty research assistant and research chef on the product and process development team at the OSU center. His work utilizes scientific principles to develop value added across all categories. Jason manages culinary programs at the FIC. Jason worked in industry as a chef in Chicago, New York, London and Copenhagen. Holds a bachelor's from the culinary institute of America. Welcome, Jason.

And I think I will turn it over to you all and then I'll introduce Ann after your presentation.

>> Sarah Masoni: Thank you so much. Great to be part of this team of people talking about sodium reduction. So we're going to talk about tips and techniques for sodium reduction in your kitchen. The food innovation center is a unique facility. We're located right downtown Portland and work with a large number of food processers in the state across the U.S. and internationally. The food innovation center is a collaborative effort between Oregon state university and Oregon Department of Agriculture. And we work with people to create healthy food products and understand and design things that are sustainable and interesting to food consumers across the nation.

We have four basic categories. We have product and process development team. We work in sensory testing and consumer research. We have food safety research and training, and economic and technical analysis. The food innovation center has been open since May of 1999 and we look for opportunities to create food products using Northwest ingredients.

The product and process development group works on new ideas and focuses on trends. We are able to help with ingredients in sourcing and substitution. New packaging concepts and ideas. We're able to focus on new technologies and forward thinking. We are

experts in formulation of food products. Most of our work is done based on nutrition and facts and information that guides us to create healthy food products. We offer food product ideation. Which brings people in and help them decide what they'd like to do. We offer food photography and culinology program of the

>> Jason Ball: Okay. Jason here. Thanks for joining it. What I wanted to start with was to bring up facts. I don't need to read all of these. Some of this is basic knowledge. But typically, we like to start all projects or approach any problems with understanding why we're working towards a goal. We know sodium is essential nutrients bodies cannot produce. High sodium consumption does contribute to high blood pressure and increased risk of heart disease and stroke. So it's really something that we need to manage and think about. And these are just some basic facts from last year that provide us with a good understanding of why it's important to decrease consumption of salt. And that being said, it's helpful to look at common institutional foods that contain high amounts of salt. We look at these foods and understand that salt is -- 40% sodium, 60% fluoride. And it's important from a taste stand point we all use salt when we cook and use it in the kitchen. It can enhance the taste or flavor of food. It works on a functionality stand point. Can control fermentation processes. So there's a lot happen and going a lot to consider when we look at lowering sodium in foods such as bread and processed meat, supermixes. All of these things. But this is a nice list. We could call low hanging fruits. Easy targets we can identify in institutions and really good food items to begin to lower the sodium amount.

So it's also good to understand the misperceptions of salt. We have maybe heard of all of these. That sea salt is better. Sodium is the issue. And it's pretty commonly said that food has little flavor without salt. I personally find that to not be true. People that work in a kitchen, we have many ingredients and many techniques whether they are cooking methods or other items we can add to foods. Many ways to modify recipes to reduce the sodium.

So we can look at tips and techniques for salt reduction. So I would say that all of the tips and techniques we'll discuss fall under the umbrella of the idea that we should just do it. We tend to approach a lot of situations with this understanding that we can just kind of get started and really evaluate what we need to change and how we should change it and then do it. So essentially, what we can do is first start at simply reducing the amount of salt in recipe formulations.

Additionally, we can also look at a progression I have reduction in salt content. That would be to lower the salt content in food formulations by small percentages overtime. Eventually leading to a targeted goal of sodium content in the final food. But perhaps that would make it so it was less detectible by the consumer. Because it's not really a drastic change immediately. Something that happens overtime. And then additionally, we can modify recipes with spices or additional ingredients or pressure herbs or different flavor profiles. But those are three ways we can be proactive.

Other techniques would be to take some of the ability away from the consumer. Remove salt makers from dining areas. Also promote the health benefits of low sodium foods. And develop new marketing strategies for low sodium foods. We can look at how we are promoting low sodium foods and how we market those to consumers. I think it's great to remind consumers of the benefits. But I do think it is equally important to make sure consumers understand that low sodium foods are really only one tool in the toolbox. Healthy diet and exercise are also important. And then lastly, we can say that labeling food products is also a strategy that can be a potential deterrent to folks consuming high sodium diets or high sodium food products.

And I thought that it would be nice to have an example -- a quick guideline for reducing salt in bread. Ann participated in a study where it was reduced. And thought it would be nice to have this table here, which is from a different source. This is from a study that was done by the food standards agency and the National Association of Master Bakers. This was a project

looking at salt reduction in Kraft bread. There's a longer study, I have a link that will be a link for the paper. What this table is indicating are weights of flour. So we're looking at weights of flour on the left and weight of salt on the right. On the bottom it's an indication of the final content in the product. So looking at the amounts and how that corresponds in the base to reduction of salt content. I believe the goal was to reduce sodium content to 1%. Which eventually happened toward the end. So this is a great guideline and a great tool for understanding a way to make a progressive sodium reduction in bread products with metric and/or Imperial measurements.

And then lastly, I thought it would be nice to introduce a few resources that we think can be valuable. And just good tools and things to look at as you consider lowering sodium in food products. The first is the food standards agency I mentioned earlier. Below that is a link for a guide that Cargill published. And filled with really helpful information. Below that, the world health organization fact sheet has a lot of good facts and a lot of good information about sodium and how we may be able to reduce sodium content in food and food products. And below that, the National Association of Master Bakers. Again, also participated in a study with the food standard agency. Also good information. And the last two, the U.S. food and drug administration and American Heart Association. Both of these resources about important and relevant information related to reducing sodium in food products.

And I would like to conclude.

>> Kelly Hughes: Thank you so much. And now I will introduce our final presenter of the day, Ann Colonna, who is the senior faculty research assistant and sensory program manager.

She continued her education at the University of California Davis where she earned MS is sensory food science in 2001. And has worked at the food innovation center for over 15 years assisting industry clients with sensory and consumer testing and collaborates in mission-oriented research. And with that, I will turn over to you.

>> Ann Colonna: Thank you so much, Kelly. So thus far, we have discussed meal modifications and sodium reduction strategies. But we are very interested in testing these modifications with actual consumers. So back in 2013, we crab lated in a grant to do a study including a sensory testing component. And that's what I'll be discussing today.

Unfortunately, I cannot see my slides. So assuming we're all on the right slides. So why did we decide on bread? Bread and rolls are the number one source of sodium. Bread might not taste salty but because we consume a lot of it, it adds up. A single slice can have over 200 milligrams per slice. Next slide, please.

There's very limited research on sodium reduction in bread out there. So back in 2013 when we were looking at published studies, we didn't find a lot specifically in the United States. And so we wanted to make sure that our findings actually applied to the U.S. population because taste preferences, regulatory environments and sodium consumption can vary. Next slide, please.

So for this study, our sodium reduction test objectives included to measure at what level consumers can detect a difference when sodium is reduced given a 10, 20 and 30% reduction. And the reason we used whole wheat, that's what's standard in a lot of the schools in the Portland Oregon area. We also wanted to measure the overall liking, appearance, flavor, sweetness, salt level and textural aspects of bread. And understand consumers' habits around reduced sodium products.

So hopefully what you are seeing now is a picture of our sensory staging area. And we actually have 10 separate booths where we recruit consumers to come in, sit down in a booth and taste food products and give us their opinion through a computerized data system. So in this particular study, we have a database of about 28,000 consumers throughout the Portland metro area and we recruited about 200 consumers through a screener that we used who are sandwich bread users. So, of course, we were looking for people current users and likers of sandwich bread. Gender was as it fell. Looking for people over the age of 18. And then a

good distribution of responses for education, income levels and then specifically those who mentioned sodium as important to them as something they are looking for on a sandwich bread nutrition label. Some of the types of questions we asked were do you check the nutrition labels on the bread that you buy? Which items are important to you on a nutrition label? And we're looking for an answer that was sodium. Do you try to limit the amount of sodium in your diet? How sensitive are you to salt/sodium? Do you consider your current sodium intake?

So using those responses -- next slide, please -- we specifically chose consumers for our difference testing that were self-reported as more sensitive to salt. So you can see of all the consumers for this study for our difference testing, we selected people who were self-reporting that they were a lot more or more than -- more sensitive to sodium than the average person. We selected a more normal distribution for acceptability testing. The reason we wanted to do this was because we wanted to be confident in our results that we were using people self-reporting as even more sensitive to sodium.

So the little picture on the right is actually a sample tray of two solutions. One was straight water. And one was actually a sodium solution of 0.175 Grams per liter. And we asked our consumers to ask us which was the saltier sample so we could say they could detect sodium or not. And I'm happy to say they could.

So here's a picture of our test samples. We had four different types of sodium reduced bread levels. So we had a control loaf, one that was 10%, 20% and then 30% sodium reduction. And again this is 50% whole wheat bread.

So the methodology for our difference testing is that you see the tray in front. Consumers took three different difference tests. The first one they took was the control versus the 10% sodium reduced loaf. And, of course, they did not know which was which. They received the first tray. We asked them to take a sip of water, a bite of cracker and taste both slices and tell us which was the saltier slice. The second time was with the 20, the third time was the 30% reduced slice with the control. Next slide, please.

And here are the results we found. We actually found the consumers could not tell a significant difference between the control and 10% reduced loaf. Because we feel like with these results, we can go out to the industry and say we've done a study where we have shown consumers actually can't tell when you reduce your sodium by 10%. So potentially there's an opportunity to make that stealth reduction. Consumers definitely could tell a difference at the 20% reduction and 30% reduction. And these charts do show when there's a letter, that's a difference. So the a and b means there is a significant difference.

So now that we know consumers could tell a difference at 20 and 30%, we've moved on to acceptance testing. And this is where we give consumers a product and we ask them how much they like it, what do they think about the texture, the flavor the sweetness, aroma, appearance, salt level, et cetera. We were using plain bread. Most people don't just eat it this way. But people would be more sensitive to differences. And we want them to absolutely be able to concentrate on all of those attributes in the bread.

So here are the results. We found -- and, again, this chart here shows that these are the mean scores on a scale from 1 to 9 where 1 is dislike extremely and like is extremely. So these are the mean scores of our acceptability test with the population of 109 users. What we found is across the board the control 10, 20 and 30, there were no significant differences in their liking of the appearance. So what this tells us is doing these sodium reductions is not having any impact on the appearance liking scores for these particular consumers.

Next, we asked them to taste it and how much did they like or dislike overall? Again, just taking plain sandwich bread and tested them one at a time. That's how we got the individual data points. There were no significant differences again. So they liked the 30% reduced loaf just as much as the control.

How much did they like the sweetness? Again, no significant differences. So these scores are all what we consider to be relatively low. But again, that didn't matter. It was more about looking at the scores compared to one another.

So here is probably one of the most important data points of all and this is how much did they like or dislike the salt level. No significant differences again. It's very, very close. Next slide, please.

In texture, again, no significant differences. And the reason we feel confident about this data is because we had done that difference testing ahead of time to tell us yes consumers can tell a difference. These were a different group of consumers we used for the acceptability testing. So we could feel confidence in saying yes consumers could tell a difference between the samples. But in terms of acceptability of texture, they had no significant difference.

So here is the only point we found significant difference. That was purchase intent. Now that you know how each bread taste, would you buy it if the price was \$2.49? We found consumers told us they were more interested in the 20% reduced loaf than they would be in the control. So this is a scale where 1 would buy and 5 is definitely would not buy. So we have a 3.22 and that is significantly better than the 3.36 of the control as well as the 30% reduced loaf. Next slide, please.

So finally, we asked consumers how they would feel about bread manufacturers reducing the sodium content in their products. And we found a very large majority, about 83% were very supportive of bread manufacturers reducing the sodium content in their products. Whereas only 2% were somewhat very unsupportive of this reduction.

Final slide, please. So our conclusions. We found that reductions of up to 10% of the sodium content in 50% whole wheat bread are not detectible. Reductions of up to 30% did not adversely affect consumers' acceptability of any of the attributes we tested. So we really feel like there's an opportunity to capitalize on the regulatory requirements for large bread producers. And gradually reduce the sodium content in their products. Thank you so much.
>> Kelly Hughes: Thank you so much and thank you to all of our presenters today. And now we'll open it up for our Q and A session. I'd like to start with a question for Ann about the sodium reductions in the bread and the testing that you did. Can you speak to how -- I guess there's a couple questions. Did you bake the bread and create the recipe for the reduced sodium options? And what were some of your strategies for reducing the sodium in the bread?
>> Ann Colonna: We were lucky. We are right across the street from the wheat marketing center. We approached them to bake the bread for us. Because they are commercial bakers. So they did a beautiful job, as you can see in producing this bread. And what they used is just a very average level of sodium for control loaf. They found a standard commercial recipe for 50% sandwich loaf bread. And then from there, they made the 10, 20 and 30% reduction. So the morning of the test, I actually ran over to one of our other commercial bakers and had them slice it with the bread machine so everything was uniform and that is the bread that we used for the study.

>> Kelly Hughes: Great. And there was a question if there is a recipe available for the reduced sodium bread. Do they make it publicly available?

>> Ann Colonna: We'd be happy to make it available. The only modification we made was in that sodium amount. So I think we'd be happy to make that available.

>> Kelly Hughes: So it was a matter of reducing the salt content.

>> Ann Colonna: Yes. That's all that we did.

>> Kelly Hughes: Okay. That's helpful. Thank you. And another question for you, Ann. Can the findings out of 10% sodium reduction, the fact that it doesn't produce a significant difference be applied to other types of food aside from breads from your perspectives?

>> Ann Colonna: I love that question. Just recently, we got another grant from the Oregon health authority to do more work. So we will be exploring this with other products potentially tortillas. We're not exactly sure yet. This is a five-year grant. It's very interesting. And

certainly, wonderful to see that 10% reduction can be made in a stealth manner that consumers wouldn't even necessarily notice a difference.

>> Kelly Hughes: Thank you. And then I've got a couple questions for Nicole. Nicole, the healthier hospital foods tool kit that you mentioned, how can we access this tool kit?

>> Nicole King: We don't have it online. I do have a file I'd be happy to send to anybody if they feel free to contact me. My email address will be on the slides. I have hard copies I can send to some people or digitally.

>> Kelly Hughes: Great. Thank you. And a couple other questions for you, Nicole. You mentioned you were able to change 53 recipes or somewhere around that number. How did you create buy-in amongst the food service staff and/or provide training on modifying those recipes?

>> Nicole King: There wasn't too much to do with the staff themselves. The food service director and the executive chef made the decision to purchase these new items. So things like the diced canned tomatoes, there's no real training. Just opening a different can. They didn't seem to mind. They really backed us on all of the project. When I did the culturally themed recipes, I went in myself and made a small batch of it and tasted it so I could see how they felt. Some of them were big hits, some of them were not. And we reformulated them. We were excited to make new things. They've been making the same recipes over and over again for years. And now they've had new exciting meals not only to prepare but to go eat themselves.

>> Kelly Hughes: Thank you. And lastly, Nicole, for you. You mentioned that needs and wants of the target population was one of the factors considered in determining what tailored sodium reduction strategies identified. Can you speak to how you identified those needs and wants and how you assessed them in order to then identify those strategies?

>> Nicole King: Sure. We used the experience for our food service directors who know their consumers well. As I've said, they've experimented in the past with health messaging and wasn't received very well. It's a meat and potatoes kind of place. Don't really want to scare them off. They'll put hearts next to some of the meals to indicate that. But trying to not be too much in their face. They didn't do a full assessment. This is based on their experiences in the past.

>> Kelly Hughes: Okay. Great. Thank you. And I think that concludes the questions that we've received unless we have any final questions that come through. So I want to take a moment to thank all of our presenters today. And thank everyone for their participation. But a special thanks to our presenters for their time and effort.

Sorry. Excuse me. We also want to thank our partners. So thank you to the centers for disease control and prevention and special thanks to Dialogue4Health.

And with that, I will turn it over to Dave to wrap us up.

>> Dave Clark: Thanks so much. And I would like to thank all of our presenters today for their insight into reducing sodium through meal and menu modifications and thanks to the others.

A recording of today's presentation will be available shortly. We're also going to send you an email. In the email, you'll find a link to the record and going the slides as well. Check your inboxes for that. And that email will include a link to a brief survey. But we hope you'll take it. We'd really like to know your thoughts concerning today's web forum. And we'll really like to hear about what topics you'd be interested in. And we read all of those comments and all of that feedback that comes back to us. Please take a couple moments to complete that survey.

Thanks so much for being with us today. That does conclude today's web forum. Have a great day.

[End webinar]