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"CONNECTING PUBLIC HEALTH AND THE FOOD INDUSTRY"  
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REMOTE CART Captioning

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>>: Joanna Hathaway: Hello and welcome to Connecting Public Health and the Food Industry: Reducing Sodium Through Food Manufacturing, another installment in the Web forum series on sodium reduction brought to you by the CDC and NNPHI. My name is Joanna Hathaway and I will be running today's forum along with Holly Calhoun.

Closed captioning will be provided along with the webcast. Karen with Home Team Captions will be providing realtime captioning. The closed captioning text will be available in the media viewer panel. The media viewer panel can be accessed by clicking on an icon that looks like a small circle with a film strip through it. In the PC it can be seen in the upper right-hand corner of your screen. In the Mac, it should be located in the lower left-hand corner. In the media viewer you'll see the show/hide header text. Click on this in order to see more of the live captioning. During the Web forum, another window may cause the media viewer panel to collapse. Don't worry, you can always reopen that window by clicking on that same icon that looks like the circle with the film strip running through it.

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The audio portion of the Web forum can be heard through your computer speakers or through ahead set plugged into your computer. If at any time you are having technical difficulties regarding audio, please send a question in the Q&A panel and Holly and I will provide the teleconference information for you. Once the forum ends, a survey link will come up in a new window. Please complete the evaluation because we use your feedback in planning future forums.

The presentation will be posted at [www.dialogue4health.org](http://www.dialogue4health.org). We are encouraging you to ask questions throughout the presentation and will be addressing them at the beginning and the end. Type your question in than and hit send. Please send your question to all panelists. We will be using the polling feature to get your feedback during the event. The first poll is on the screen now. Please select your answer from the available choices and click the "submit" button. I am attending this Web forum: A, individually; B, in a group of two to five people; C, in a group of six to ten people; and D, in a group of more than ten people. And click submit. Once you're done with the poll, click on the Media Viewer icon to bring back the closed capping.

Kelly Hughes is our moderator today. Kelly is Associate Director for Program Strategy at NNPHI. She worked with us at Dialogue4Health on several forums on the sodium reduction series. It's great to have her experience, her spirit, and her knowledge. I am pleased to welcome her back to the PHI microphone today. Kelly, please go ahead.

>> Kelly Hughes: Thank you so much. I'm Kelly Hughes, associate director for program strategy at the National Network of Public Health Institutes or NNPHI. This Web forum is the first in the new series called Connecting Public Health in the Food Industry, which is a continuation of a previous series that we hosted earlier this year on Connecting Public Health and Food Service Providers. This series will feature expertise, best practices and success stories for working with the food industry to reduce sodium. The Web forums also showcase public health practitioners showing real life experiences and lessons learned to create change in a variety of settings. The series is supported by the Centers for Disease Control and the National Public Health Institutes in partnership with the public health team.

Today we will focus on food manufacturers. First we will hear about a unique partnership between an integrated public health system and pizza company to lower sodium in the pizza sold to customers. We will also hear from the National Dairy Council, who lead in product innovations as part of the solution to help lower sodium while maintaining expectations for food safety and taste.

Before we get started, I would like to welcome our presenters. Today we are going to hear from Corinne Cook and David McCoy and Jason Melanson. We want to hear from you. Please feel free to submit your questions throughout the Web forum. We will get to them during the Q&A session after each presentation.

And now I'm honored to introduce to you our first two presenters. First up is Corinne Cook, the Healthy Food Service Coordinator within the Community Health Improvement District of MaineHealth. Located in Portland, Maine, it is an integrated group of leading high quality providers and other healthcare organizations.

The focus of Corinne's work is to achieve the goals of the CDC's Sodium Reduction Initiative, and she helps MaineHealth hospitals to invent creative recipes to reduce sodium and maintain taste. She is a registered dietician and graduate of Le Cordon Bleu. Corinne has ten years of experience on recipe treatment and healthy reformulation of recipes.

We also have Jason Melanson, the General Manager of It'll Be Pizza Company located in Scarborough, Maine. They manufacture pizza for Portland Pie Company and it has a growing presence in the northeast frozen pizza dough industry, servicing establishments such as pizza shops, schools, healthcare facilities and restaurants in every state in New England and beyond. Jason has been baking 20 years and joined It'll Be Pizza Company in 2006. He not only works as general manager but also an integral part of their development production staff, formulating new pizza doughs for the company's growing gourmet pizza line.

We are happy to have Corinne and Jason with us today and I'll turn it over to Corinne to kick us off.

>> Corinne Cook: Thank you, Kelly. Good morning, good afternoon, everyone. Thank you all for joining us. We are excited to present to you today and have the opportunity to describe some of the work we've done to see cease sodium levels in hospital food. I'm happy to be joined by Jason Melanson, who will be providing his experience from the manufacturing/vendor's perspective. Let's get started.

I would like to provide background about my organization. MaineHealth is an integrated healthcare system of high quality providers and other healthcare organizations. We work together to make our communities the healthiest in America. As you can see here, we are made up of several members and strategic affiliates. MaineHealth is the largest health system in northern New England, home to regional hospitals with 1200 independent and employed physicians, including 300 primary care physicians, independent and regional accountable care organizations, MaineHealth is a network of home health and rehabilitative services, service

organizations, aligned with acute care services as well as a frequent partner of public and private sector organizations. MaineHealth is an organization committed to decreasing the prevalence of obesity to improve the health and wellbeing of our patients, families, employees as well as community members. We work towards this goal by incorporating obesity prevention into the strategic plan and focused goals of our member facilities. Facilitating a hospital food service task force made up of food service directors from across our entire system from the most rural critical access hospitals to the largest hospitals in Maine. We also partner with our employee wellness programs, works on wellness, which serves over 17,000 employees. We disseminate the Let's Go - Child Obesity Prevention Program throughout communities. We participate in the National Partnership for a Healthier America, Hospital Healthy Food initiative, as well as we have been implementing the CDC Community Health Program.

In 2012, MaineHealth was invited to participate in the Partnership for a Healthier America, Hospital Healthy Food Initiative. Each CEO from our ten, ten of our organizations committed to working towards the standard list you see here, from 2012 to 2015.

A closer look at the initiative brings us to our biggest city in Maine, Portland, which happens to be the home of Maine Medical Center, one of the ten hospitals Maine works with to increase healthy food and beverage.

>> CONNIE: Assumption. Maine Medical Center is the largest in our state with 637 licensed beds and employing more than 6,000 people. Impressions cafe is actually considered to be the largest restaurant in the state of Maine serving 3,000 meals a day.

We know that affecting change within this facility can make a huge impact on the health if not only the patients and families within the hospital but the thousands of employees within the organization as well.

In working with all of our organizations to increase the amount of healthy food they offer, one of the major issues we consistently, that consistently arises is finding low sodium products in the marketplace.

Hospital food service directors frequently have difficulty accessing staple agreements that are low in sodium, whether it be deli meats and cheeses, soups, stocks, bases, sauces and gravies or one of the most difficult products to find, bread products, be it sliced breads, rolls, tortillas or pizza dough.

How can we procure products in the marketplace that will reduce the amount of sodium in our meals? For years, Maine Medical Center struggled to find a pizza dough that was both whole grain and lower in sodium. Sales people from It'll Be Pizza Company approached us at a trade show. After having several discussions at these types of events, the food service director agreed to a meeting with the It'll Be Pizza Company and shared with them their desire to move forward with testing out the lower sodium pizza dough for retail sale. Due to their involvement in the Hospital Healthy Food Initiative, Maine Medical Center was also working to increase the amount of whole grain in their pizza as well as reduce the sodium and fat content. They are also eager to promote a local business and a product that many of their customers already knew and loved. Time to turn it over to Jason so he can go into how they made this healthy choice available to us for sale.

>> Jason Melanson: Thank you, Corinne. I'll start with a brief history. It'll Be Pizza Company opened its doors in 1997 as a take out restaurant. The owners decided to make pizzas on pizza dough to differentiate themselves. It was instantly successful. When they opened the second location a few years later they decided to rent out a small production facility and make the pizza dough independently from the restaurants. The new dough company called It'll Be Pizza began by making the flavored pizza dough, with cheese, beer, multigrain, and other flavors, and making it available. There are several locations in Maine, New Hampshire and Massachusetts that serve over a million pizzas a year. This is only part of our production. The dough has grown separately from the restaurants. Now other customers are pubs, schools, hospitals, and

many others throughout the United States. We sell through a market retail chain. We moved into a new production facility that produces 30,000 pounds of pizza dough per shift. Our signature flavor dough balls are distributed by numerous food distributors. Some shown here throughout the country, delivering to Pennsylvania, Ohio, Michigan, West Virginia, Florida and all of New England. We are working hard to push into new territories and hope to have a new manufacturing facility in a few years. When we talked to Maine Medical Center, we were bringing whole grain pizza to their cafeteria. We help institutions meet requirements for whole grains. We spent six months on the recipe to be sure it was palatable to kids. We did all of our taste testing in school cafeterias. It was a great time for the Maine Medical Center because much of the recipe formulation had been started for the school districts. Lower sodium levels in the dough met that goal for modification.

I want to describe the process we went through to create the low sodium dough. Sodium accentuates the flavor, controls excessive yeast activity, and inhibits the reaction of microorganisms. The taste of salt is obvious, and most people know that salt is a great food preservative, but it makes it tricky to adjust the amount that goes into a recipe. The gluten and wheat flour when mixed with water creates a three-dimensional spider web in the dough. It produces gas which gets trapped in the framework of the wheat gluten. That's what we call bread rising. It's an interplay of temperature and ingredients. The gluten in the flour develops a strong framework. The yeast blows up the dough fast, dies, and then it collapses. It results in a cracker-like product which is not appreciated by people who want pizza.

The pizza. We started with our original recipe. We continued to lower the salt content until the dough was no longer viable. At the end of the process we were able to get the sodium level from 250 milligrams to 164 milligrams per serving and decided that it's time to share the new product with the staff of the Maine Medical Center.

Aside from producing premium flavored pizza dough, It'll Be Pizza also take pride in helping our customers in all aspects of their business. The sales associates go through a month long training session in one of our restaurants to become expert at handling the dough and the procedures in a busy kitchen environment. We provide free consultation services to customers who may be new to the pizza business, advice on equipment, dough handling and trouble shooting, menus and pricing and staffing schedules.

Our sales staff works closely, worked closely with staff at Maine Medical Center as seen here to provide tips and ideas on how to use the new low sodium dough effectively.

So we make pizza dough, but we have found through working at it so much at our restaurants, it can be used for all kinds of different things. Our restaurants use the pizza dough for calzones, for strombolis, focaccia, bread pockets, fried dough and actually loaves of bread with pizza dough.

I understand that many of you listening may be trying to implement the new nutrition standards in your facility. We have specialty products developed, looking for will schools and other institutions that developed these, that's a place to start. Finding companies aggressively pushing into new markets is key. It'll Be Pizza is excited for the challenge to continue to reformulate and develop more dough recipes so we can meet the needs of our local business partners. Seeing people have tastier meals like what we are discussing today is a wonderful thing. I will turn it back to Corinne to talk about the low sodium efforts that we have discovered with our pizza dough.

>> Corinne Cook: Thanks, Jason. At the same time that Maine Medical Center was partners with It'll Be Pizza Company, Maine medical Center was approached by the HHS of Maine to participate in the CDC's Sodium Reduction Community Program. This grant allowed MaineHealth to hire a full-time coordinator, myself, to focus on decreasing the sodium content in our hospital's food. This program aims to increase access to lower sodium food options. It also aims to reduce overall sodium intake and to continue to build practice based evidence around effective population based strategies to reduce sodium consumption at the community level.

As part of the sodium reduction in communities program, MaineHealth focused on Cumberland County with Maine Medical Center with spring harbor hospital to reformulate five of their most popular menu items. Both facilities determined that pizza was among the prime recipes to focus on and reformulate.

Key components of the recipe which contributed higher amounts of sodium were identified and the following modifications were implemented. The previous pizza dough was found to have 218 milligrams of sodium per serving. With the implementation of the It'll Be Pizza dough, this number was reduced to 164 milligrams. This one change alone meant the dough itself had 25 percent less sodium than its previous counterpart.

Other modifications made to lower sodium included decreasing the mozzarella cheese and eliminating the parmesan cheese as well as switching from higher sodium premade pizza sauce to a lower sodium scratch-made version.

In looking at the results of the recipe reformulation for the cheese pizza that was selected for this project, the original product had 571 milligrams of sodium and was reduced to 445 milligrams of sodium. This is a 22 percent sodium reduction. In looking at the results from the pepperoni pizza recipe reformulation, the original product had 767 milligrams of sodium and was reduced to 641 milligrams, representing a 16 percent sodium reduction. Both of these products saw a reduction in not just the sodium content but fat and calories as well. And in this particular instance, the pepperoni wasn't even adjusted.

There have been many benefits for MaineHealth for its collaboration with the It'll Be Pizza Company, including improved nutritional profile for food items, supporting local businesses and the ability to provide all MaineHealth facilities access to healthier products through major distributors.

The challenges for MaineHealth include the fact that these types of developments take time. Things like developing a new dough, calculating new recipes, taste testing and negotiating price and distribution which alone took approximately six months. It doesn't happen overnight.

And we also have found ongoing challenges can be every day things in the business world like negotiating competitive sales prices. The benefits for It'll Be Pizza may include, have included increased brand recognition, opportunity to provide a public service, increased sales, and the fact that MaineHealth has started to have their facilities purchasing this healthier product across the board. The challenges for It'll Be Pizza Company included having competitive sales prices while balancing the ability to make a profit and increase the demand in current production space.

MaineHealth is now in year 2 of our sodium reduction communities program. We have expanded our work with key sodium reduction strategies within our MaineHealth system's departments. Our goal is to continue to share efforts across the healthcare system. Our foreseeable work includes continued recipe reformulation, ingredient substitution, and new recipe development for lower sodium substitution options.

We also continue to encourage our hospitals to pursue partnerships such as the one we piloted today between Maine Medical Center and the It'll Be Pizza Company. We do this because we know what great outcomes they can produce.

Well, thank you, everyone, for joining us today and listening to us talk about this important work. We have included our contact information for any questions that may arise after the conclusion of this webinar. Please feel free to reach out to Jason or myself. We will be happy to respond.

>> Kelly Hughes: Great! Thank you so much, Corinne and Jason. I wanted to just take a moment to open it up for a couple questions. And so feel free to please send any questions that you have using the Q&A feature.

I have a couple questions. If you don't mind I would love to ask those. We'll wait if we have any other questions come in. Thank you both for your engaging presentations. I think you on spoke to this briefly but I would be curious to hear a little bit more about you came to partner. How did this collaboration get started between MaineHealth and It'll Be Pizza Company? Who

approached who first? And how did you kind of negotiate the terms of the work and your shared interests?

>> Jason Melanson: Hi. We were at a food show for one of our food distributors. We spent a lot of time because we are partners with so many food distributors. We have one every week. Someone from Maine Medical Center came up to our booth and asked a question about the level of sodium that is in our products. It was very high, and he was curious if we could make something that reduced the level a little bit. We are always very willing to try new things. So we just kind of went from there. We made one test batch and it didn't come out very well. So I made another one and kept going until we got something that met what they were looking for and performed the way it was supposed to perform and tasted the way it's supposed to taste.

>> Kelly Hughes: Great, thanks so much. We have another question for Corinne. Can you explain your process for deciding on the menu items that were targeted at the hospitals? Did you use nutritional outline first and then select those that had high ones or did you preselect items that had high sodium?

>> Corinne Cook: We approached the facility and asked them to select five of their most popular higher sodium products that they sell. So they actually chose the products for us. They have access to the nutrition information from the nutrition analysis software that they use. So they were able to identify higher sodium products and they knew which ones sold the best. They put two and two together. That's how we got the list we got.

>> Kelly Hughes: Great. Thanks.

So another question, and either one feel free to take this one. Please discuss strategies used to obtain stakeholder buy-in for pizza dough reformulations to reduce sodium content? I might add to this if you received any preliminary customer feedback once those changes were made, the reformulations? We would love to hear about that as well.

>> Corinne Cook: So as far as purchasing? As far as the customer purchasing feedback is what you are looking for?

>> Kelly Hughes: You know, there is not an elaboration, but I think any sort of -- if you could speak to the marketing that was used? How did stakeholders, how did you ensure that stakeholders were going to support the formulation to reduce the sodium content, if they were aware at all?

>> Corinne Cook: Sure. In general with our sodium reduction in communities program project, our grant, we used self help marketing. We already focused on helping our customers select healthier food items in our cafeteria spaces. And so we have already some signage up in place in regards to healthy food selection. So we didn't want to necessarily add even more or different marketing to that. The other thing is, there's not always a positive response, UV, when people are made aware that products are lower in sodium. So we chose to do a self help approach in regard to lower sodium products.

In regards to the It'll Be Pizza dough, however, we did market that product, that product is well-known that it is being used at, because it's a well-known product within our community in our area. It's a popular product, a product that people can find in the grocery store. It is a recognizable name. So it is one of those things where we may not necessarily advertise that we are doing lower sodium things, but we do advertise that we are selling It'll Be Pizza dough, which happened to be lower sodium doughs. So we are kind of doing both but they don't really realize that we are doing it.

>> Kelly Hughes: Yeah, that's brilliant. Leveraging the reputation of a popular brand that people are familiar with. Did you anecdotally or informally hear from customers about the taste of the product? I'm wondering if they, knowing that it's an It'll Be Pizza brand that maybe if there was any sort of feedback that you received?

>> Corinne Cook: Oh, yes. We had great feedback. I think by far this particular product is definitely superior to the product that they were previously using. And it's a bonus that happens with the better nutritional profile, but this company is known for having really good pizza dough.

So there was hands-down just a really positive response overall from the community and from the people buying the dough and buying the pizza and we had several staff taste tests as well as customer feedback and we got a lot of great feedback across the board from everyone.

>> Kelly Hughes: That's great. I know you touched on this in the presentation about how it was a challenge to negotiate a competitive sales price. Do you have any preliminary sales data that you were able to calculator to pull that would give some preliminary evaluation information?

>> Corinne Cook: Well, when we started the sold reduction in communities program, the modification to the It'll Be Pizza dough was made right away. So unfortunately, we didn't have a lot of reportable sales data prior that we had submitted for the sodium reduction in communities grant. So off the top of my head I don't have that information. However, I do know that sales have been very good. Their pizza sales, I believe, are about 350 slices a day. And it is one of their most popular, one of their most popular products. I definitely have not heard anything from the staff at the Maine Medical Center in regards to their food service sales dropping. If anything, the sales data that we have been seeing has been consistent and very good.

>> Kelly Hughes: Great. I think this is going to be the last question and then we will transition to our next presentation.

Jason, I wanted to hear from you from the food manufacturer perspective if you had a piece of advice to offer public health professionals who are interested in partnering with manufacturers, what would you suggest about approaching food manufacturers for collaboration or prioritizing changes or implementing changes, negotiating sales, any insight that you have that you would like to offer to the audience? That might be helpful in their work.

>> Jason Melanson: Yeah, I would encourage people to engage manufacturers. You can tell fairly quickly if someone is interested in working with you to develop something new. A lot of companies do one thing or do ten things and that's all they do. They do it very well and they are not interested in modifying what they do to meet the needs of one customer, a new customer. So within the first conversation with the food manufacturer you should be able to tell if they are interested in catering what they do to fit into something that you are trying to do.

So I think that is what Maine Medical Center found with us. With he were actually interested in doing something new. Being a company that is based on doing new things all the time, we have a set of flavored pizza doughs that we do but we are constantly rotating new flavors into our lineup. So our testing process is ongoing. We are nonstop always trying new things. We did the 51 percent whole grain for the schools. We've done a gluten-free pizza dough. We are often getting feedback from customers. If we sell a 16-ounce pizza dough ball and somebody asks for 15 and a half ounce pizza dough balls, many places say we don't do that, but we do. You can find out when you talk to a manufacturer's rep how willing they are to to cater to you. That would be my advice.

>> Kelly Hughes: Thank you, Jason. We have a few other questions but I might hold those until the end of the Web forum and we will address those as we have time. So I want to thank our audience for the engaging questions and especially to our presenters for this great information and for your thoughtful answers.

And now I would like to transition to our next presenter, who is Dr. David McCoy. He has recently retired as Vice-president of Product Research after seven years at the National Dairy Council, a division of the Dairy Management, Inc. There he was a leading scientist in the Innovation Center for U.S. Dairy and Cheese Task Force, a coalition of thirty manufacturers, suppliers, and universities.

He directed scientific and manufacturing expertise and coordinated the laboratories associated with five universities. Prior to joining the National Dairy Council he was with Chris Hanson, the leading culture and enzyme supplier for 30 years. He was principal scientist of North America. He has been a trustee of the American Dairy Science Foundation and member of the Board of Directors of the American Dairy Science Foundation.

We are pleased to have Dave with us today. I would like to turn it over to you. The floor is yours, Dave.

>> David McCoy: Thank you, Kelly. First of all I would like to thank Kelly and Joanna that and the team for putting this webinar together. We truly appreciate the opportunity to talk about what the dairy industry is doing about sodium.

And thank you to the people who are on the webinar for taking the time during this afternoon. The dairy foods have always played an important role in the health and wellness of the food industry. For over 100 years the National Dairy Council, the dairy farmers and broader industry have been committed to producing delicious dairy foods. I'm here on behalf of the Innovation Center on behalf of U.S. Dairy founded in 2008 and combines the collective resources of the dairy community to foster innovation for healthier choices, all on a pre-competitive basis. The makeup of the Innovation Center is broad and growing with over 450 current companies repped and over, well over that thousand participants involved. As part of the health and wellness effort of the Innovation Center one of the efforts is sodium reduction. The key points I want you to take away from my talk is to understand the important role of dairy in the diet, the critical role that sodium plays in cheese making, to provide an assessment of the approaches including the action of the dairy industry in manufacturing using sodium. If I reference specific brands in today's presentation, it is solely for purposes of illustration and not to endorse any of the brands mentioned. I'll start by talking about why cheese makers are taking action to reduce sodium. First, where do we currently stand in terms of sodium? As we all know, sodium consumption is higher than recommended. The average daily intake by Americans is about 3400 milligrams, which is about half again as much as we recommend and 2300 milligrams per day. For certain subgroups the recommendation is even lower at 1500 milligrams per day.

Here is what the dietary guidelines say about dairy foods: In 2010 the dietary guidelines called for increasing dairy intake to meet current recommendations for most Americans that's three servings a day. Dairy foods supply three of four nutrients of concern to the nutrition industry and Americans don't get enough of these: Calcium, vitamin D and potassium. In fact, milk is the basic food source for these nutrients. Dairy intake is associated with multiple health benefits including bone health, and especially in children and adolescents, reduced cardiovascular disease, reduced Type II diabetes and lowered blood pressure in adults.

Despite these guidelines, most Americans do not meet recommendations for dairy food intakes and dairy foods provide these important nutrients. The yellow box in the lower right you can see the current intakes, milk, cheese and yogurt contribute 51 percent of the calcium and 58 percent of the vitamins, only providing 10 percent of the calories. Total cheese intake contributes 8 percent of the sodium in the U.S. diet. That's not the whole story. In thinking about dairy foods remember that dairy foods intake is associated with multiple health issues: bone density, diabetes, lower blood pressure.

Most Americans are not meeting dairy recommendations and eating cheese can help this. Of all foods Americans eat, cheese is the number two source of calcium in the diet and source of high quality protein.

The National Institute of Health-Diet included about an ounce of cheese a day along with other dairy foods, showing cheese can be part of a healthy diet. Reducing cheese is not necessarily the answer.

With this nutritional information in mind the dairy community is taking steps to support the sodium reduction work while being very careful about making changes that may compromise cheese quality or safety. Also not to reduce important nutrient intakes.

We kicked off our sodium reduction efforts in 2010 at a planning meeting that included 27 different organizations, including thought leaders from the nutrition community, health and wellness, universities and, of course cheese makers.



It was determined that the whole system must be involved to build a robust perspective and broad action in addressing sodium. The dairy community definitely wanted to be part of the solution and not part of the problem.

The cheese and sodium best practices task force was formed. The task force is comprised of representatives of over 25 different countries. I think you can see the logos from a lot of companies that you would recognize in this slide.

These companies represent about 80 percent of the cheese volume nationally and collaboration has been truly unprecedented. The task force has come together on a pre-competitive basis to take a leadership role in reviewing the science and insights and conducting new research to help address the sodium challenge. Time and monetary investments from cheese makers, universities and farmers has been significant. Many of these companies put their best scientists at the disposal of the task force.

These resources have been primarily used to identify and advance key sodium reduction initiatives that will help the entire cheese community innovate to the benefit of public health. In reviewing these warnings later, if we could go to polling question number one?

The question basically is: Is your organization actively working to reduce the amount of sodium consumed?

A, yes, very actively involved. B, yes, fairly actively involved. C, somewhat but not really actively involved. D, no, it's not a priority at this time. We have other things that you are a bigger concern.

Or E, not applicable to my line of work.

We set the stage for the work we're doing, I would like to provide baseline information, specifically the role of salt in cheese making, different approaches and challenges to sodium reduction and learnings from retail cheese and consumer studies to help with what we are focusing on.

I'll talk about the critical role of salt in the cheese making process first. We are starting to discuss the world of cheese, it seems simple and straightforward. Cheese is one of our oldest traditional foods found in many countries and cultures around the world. One of the first natural foods. Cheese is a product made of four ingredients: Milk, salt, starter cultures, enzymes and at the basic level, this is a straightforward product. Cultures are added to the product as in the top corner. Enzymes are added. The cheese is cut into small cubes and the excess whey is drained off. The picture in the upper right, it's cheddar cheese where you can see the bottom of the vat. This is recut into small cubes and the salt is being added by hand in the pictures. The other two pictures you can see how they make mozzarella where they stretch the curd and put it down into brine where the salt gets into the cheese as the cheese itself is cooling down.

The excess liquid is referred to as whey. It is drawing the whey away from the curd.

While it sounds simple, this is a rather complex product. Once we get past the basic level of cheese making the world of cheese gets much more complicated. In the United States, there are seven, what are referred to as standard of identity cheeses, these are cheeses identified by the federal government, by their composition. These are the 72 that have been identified. There's well over 300 different cheeses that we are familiar with and possibly over a thousand. The compound things even more, different types of cheese have different levels of sodium.

Salt performs five critical functions in making good quality, good tasting cheese. First and foremost, salt plays a pivotal role in the safety of cheese. Salt helps to control the growth of pathogens and any reformulation requires extensive testing to ensure that the changes do not permit growth of pathogens.

Similarly, salt helps to control the growth of spoilage microorganisms. Lowering the salt content can reduce the shelf life and quality of the cheese. Third, salt is critical to the taste of cheese.

In fact, salt is a key flavor in some cheeses and critical to the development of flavor in other cheeses as part of the fingerprint or design of any particular quality cheese.

Fourth, salt plays a key role in the texture and performance of cheeses. Whether it melts or doesn't melt. This is important especially when you get a grilled cheese sandwich. You don't want it to look like rubber. Lastly, salt has a role in the production process. Salt addition helps to separate the whey from the curd. When we make a salt reduced cheese, manufacturing times can increase by over 25 percent. So if we would go to no salt cheese this would be a tremendous detriment to the industry.

I will talk you through some of the approaches to sodium reduction. For a number of years dairy processors including cheese makers have been working to lower the level of sodium. Several approaches have been researched. First approach has been to look at the opportunity to reduce salt addition. Research has shown that reducing salt alters the flavor chemistry and leads to increased off flavors, acidity and bitterness. People's acceptance is generally limited to a 10 percent reduction in salt. More than that and we've done significant studies on it, more than that, the people can tell the amount of salt in the cheese and will tell us it tastes bland. However, reducing sodium variability is an important opportunity. I'll talk about that a little later. Another approach has been, that has been investigated is the exploration of replacing salt with potassium chloride. Not all cheeses, 25 percent replacement is possible, although cheese maker would like to add a masking agent to cover the bitter taste. If you are using white salt out of a grocery store which is 50 percent potassium chloride and 50 percent sodium chloride. You get a better tasting product. We look at flavor boosters to help compensate for reduced salt. All of these approaches need to ensure that people's acceptance, quality and safety of cheese is not compromised.

As we mentioned earlier, there are 72 standards of identity for cheese and cheese products in the Code of Federal Regulations. These standards have an implication in the process of reducing sodium in cheese. Using substitutes may result in a product that could no longer be a specific type of cheese. Cheddar cheese is made with salt, but if it is using potassium chloride, it is called a cheddar like cheese product. This is inferior to a cheese, so it is a cheese product. Corinne and Jason mentioned this when they talked about having pizzas having reduced sodium and consumers were not accepting of this.

The reduced sodium, 25 percent less sodium than the regular product and then you can use potassium chloride, for example.

We knew that these label claims may affect people's acceptance. People do not always react positively to reduced sodium claims, especially in foods they see as traditional and natural. And in addition to the issues with standards of identity, there are other hurdles to consider such as product acceptance, safety, and cost. Study have been conducted on reduced sodium cheeses. We found that people can detect even small changes in the sodium in the cheese. Therefore, reductions must be gradual and not too fast in order to avoid dissatisfaction. Going to low sodium may lead to unintended cost consequences such as reduced dairy consumption and, therefore, reduced nutrient intake. Remember, these are major sources of calcium, vitamin D and potassium. Again, with regard to safety, salt is a major factor in preventing the growth of pathogens. Salt plays a critical role in keeping the good bugs in and the bad bugs out. Another hurdle is the cost factor. One of the potential approaches is to use potassium chloride as we mentioned. Potassium chloride on a use basis costs ten times more than sodium chloride. The cost of product development and production changes is also significant. It takes innovation and collaboration to find economical efficient solutions that are useful in the cheese industry.

It also takes extensive research and testing to reformulate cheeses with lower sodium and also have a high level of acceptance in terms of both taste and function and which is safe and complies with the standards of identity. It is an iterative process that takes a great deal of time. Jason and Corinne talked about it taking six weeks, but with cheese making, it can take six months to a year for one experiment. Parmesan cheese, it is aged and ripened according to the

Federal Code of Regulations, for at least ten months before it can be considered ready for consumption. If you have to do this many, many times, it easily gets to years of research. I will conclude our situation overview with the learnings we gained from two large retail studies, a consumer sensory study and these were conducted to fill in information gaps and to assure that the right solutions were being focused on.

The first study, it was determined, understanding of the current amount of sodium in cheese was needed to be understood. This is the largest study ever done. 1600 samples pulled out of the grocery stores on a blind basis was conducted as a baseline for future production. This found sodium across different brands, different forms of cheese and sample to sample variation with the same manufacturer. The study also had uncovered a very surprising thing. That was that the amount of sodium in cheese is typically about 10 percent lower than the amount on the label. The second study conducted was a consumer study to understand how product satisfaction is impacted by reducing the sodium level. From taste testing we found that reducing sodium below a certain level impacts satisfaction or liking of the cheese. In fact there's a narrow range of sodium in the highest product satisfaction area and we learned that the best approach to sodium reduction is reducing in small increments. The easiest thing for the industry to do is reduce those cheeses where we over salted back to the area where consumers really prefer.

Cheese makers have found some success in reducing sodium in cheese, but the challenges cannot be underestimated. We mention here a number of things we have seen in the industry. Simply reducing the amount of salt is not successful because of taste, melt and safety are all adversely impacted. Instead extensive research and testing process is required to deliver a high quality cheese with lower sodium. As we saw in the consumer sensory study, people will not compromise on taste and cheese makers will not compromise on safety. The gradual, in the examples listed here that have been successful in the gradual sodium approach has been used. We now go to question number 2.

Does your organization use or recommend lower sodium cheeses? Usually we recommend lower sodium cheeses, sometimes we use or recommend lower sodium cheeses, hardly ever use or recommend lower sodium cheeses, haven't looked at it. Or not applicable to my line of work.

Now I'm going to take you through some of our key sodium reduction research. Cheese makers, after multiple feedback sessions and discussions with cheese makers and insight from the search studies you agreed about, the Cheese and Sodium Task Force agreed that there were four primary initiatives we could work on pre-competitively to move sodium reduction forward. Rapid sodium development, and outreach. The first of these initiatives is rapid sodium testing. As I just shared, one of the key take-aways from the research studies was the variety of sodium levels. There are currently two measures used by cheese makers to measure sodium. One doesn't measure sodium but chloride. It's less accurate but would not work at all if we used potassium chloride as a solid replacement. The other is, you have to make a decision in 20 minutes or less. Through an open innovation process, the technology was identified which was developed by Oxford Instruments for the minerals industry, and the use was required to be tested, which is known as XRF. The XRF technology produces results in 15 to 20 minutes which is the window that we had, directly measures sodium and it went on both fronts. It simultaneously measures other minerals like potassium which are important to salt substitutes. It helps when we are using these types of products as well. One of the issues identified during pilot testing is caused by the warp of the instrument chamber. This isn't an issue in the mining industry but it is a problem for cheese which separates warmed curd causing sodium and fat migration and not as good accuracy as we would like. This takes time and money and the funding source has not currently been identified.

The instrument might be beneficial to the baking industry and to the meat industry. Areas where salt reduction is also underway.

All of this work is being done to get adoption and action so that we can better control sodium variability and simultaneously measure other elements important for food safety and quality. The research and development work is largely being conducted by the dairy research centers at the universities. There are six regional centers for excellence and they are gauged in cheese and sodium task force. This is focused on product acceptance and the safety of cheese. As we saw in the consumer sensory study, people will not compromise on taste. The cheese community will not compromise on safety. I reviewed the key learnings on the. Please feel free to contact either the National Dairy Council at [dairy.org](http://dairy.org) or to contact this organization in order to get questions that you would like to have answered. We have a handout summarizing all of the research that has been done and all the papers that have been published on reducing sodium in cheese.

Finally, our third initiative is the, what we refer to as the food safety curves. There are concerns around the continued safety of new products. The overall objective of this initiative is to update 35-year-old food safety data for shelf stable processed cheeses. These are used in Nachos, for example, or maybe the cheapies which show up in cheese burgers or grilled cheese sandwiches. We know what the minimum amount of sodium is. So we developed a 80-sample statistically designed test to look at seven factors and how we could find a safe product. These are a mixture of safe and unsafe samples as they were designed to be. This work has taken several years to complete and the information will be scientifically published in a journal and be available targeted mid year 2016.

Finally, the education and outreach initiative is our last key focus area. The goals have been to educate health and wellness professionals, thought leaders, the public on nutritional importance of dairy in the diet and the critical roles of sodium in cheese as well as to dispel misinformation. This webinar is part of that outreach program. Science-based content have been used and many vehicles have been used like pamphlets, published articles, social media and speaking out in various forms. Educational resources can be found on our websites at the National Dairy Council, the dairy report and dairy good.

But also I would like to provide you examples as part of that education of ways you can reduce sodium currently. First, whenever possible, there are naturally lower sodium cheeses that can be used. Many people don't realize it but Swiss and baby Swiss cheese qualify for the designation low sodium cheeses or low sodium products.

Some brands of fresh mozzarella can also meet this definition. These are alternatives for people trying to reduce sodium in their product but not reduce the quality of cheese and the quality of their products. For Corinne and Jason, these may be cheeses they want to use if they don't want to reduce the amount of cheese on their pizza.

Second, different sodium content cheeses can be used to reduce the overall sodium content. We know that salt is needed for the aging, but it doesn't have to necessarily be there. In a pasteurized or processed cheese, which mixes young cheese with aged cheese for different flavor. If we use a provolone cheese, mixed possibly with a fresh mozzarella or baby Swiss, we have a good taste without reducing the quality of the product.

On things like pizza crust and sauce, we find that the whey permeate which is part of the cheese making product can be used as a sodium replacement than and it minimizes food waste. Contact us if you would like to learn more about examples.

In summary, in considering will sodium reduction, it is important to consider the whole study. Sodium plays critical role in bone health, reduced risk of Type II diabetes and lowering blood pressure in adults. It plays a critical role in cheese making. The dairy community will not compromise on safety and the public will not compromise on taste. We all know that. We are taking steps to support sodium reduction via the initiatives we talked about while being careful about compromising cheese safety, quality, or nutrient intake.

We are excited about the progress of the dairy community has made and always welcome your input and ideas to continue to address sodium in dairy foods. That you can for the opportunity

to speak with you today. Please submit the questions that you may have either directly to us or through Dialogue4Health. Thank you, Joanna and Kelly at Dialogue4Health for help inputting this webinar on today. Again, thank you.

>> Kelly Hughes: Thank you so much, Dave. We are going to open it up for questions from the audience. So please do submit your questions through the Q&A feature and we sure it goes to all panelists. Then I will kick us off with a couple questions for Dave. Dave, you mentioned that the public is not willing to compromise on taste and the dairy community is not willing to compromise on safety. Can you speak at all about how price and costs play into this? Are lower sodium, those not naturally occurring, are lower sodium cheeses more expensive to produce and how does that affect the chain in formulating the cheese? Is there push back from stakeholders in how cost is affected?

>> David McCoy: There is always push back of the as we mentioned in the presentation, to replace sodium chloride with potassium chloride, you are increasing that particular cost by a factor of ten. And the dairy industry runs on very, very, very low margins, especially in commodity cheeses like mozzarella and cheddar. There is an impact. I think the industry would absorb that impact or work are around that. Depending on the demand from the public. And they are trying to -- there is always going to be a concern there.

>> Kelly Hughes: Okay, great. Well, building off of that question, can you talk a little bit about the process leading to a cheese maker wanting to reformulate their product? I'm sure some of that is coming from being driven by consumers, but how does that come about? How are cheese makers hearing from consumers that they want lower sodium products? If you can speak to that at all so that we understand kind of the process that brings the manufacturer to want to reformulate a product.

>> David McCoy: I guess basically it's like everybody else: You listen to the people, your customers, in this case typically the people that distribute to restaurants, distribute to food service agencies or grocery stores and see how those products are changing. And we've seen food service, for example, possibly reduce their sodium re-usage, but they are not going to say it on their menus.

And so it is direct communication usually from the customer back, or the customer through some kind of a distributor back to the cheese maker.

>> Kelly Hughes: Okay.

>> David McCoy: There are fairly major changes in the manufacturing process, almost in some cases it would almost require them to make nothing but a reduced sodium product which, of course, is an extremely high risk operation if it doesn't happen to sell.

>> Kelly Hughes: Okay, yeah, absolutely. We have a question from the audience for Dave. Can you please explain more about whey permeate as a sodium replacement? Does it only apply to the cheese making process?

>> David McCoy: The use of permeate would be in almost anything but the cheese manufacturing process. Cheese permeate is basically the minerals and small amino acid compounds that are left after we make whey protein and separate out lactose. You make the cheese, separate the whey protein for other uses, separate the lactose for other uses, and what is left is milk minerals and some amino acids. There is sodium and other min wales in there and some other things in the small amino acid will chains.

Not a lot of manufacturers make it, but some do. It's a matter of demand. It's dried and it's sold by various ingredient manufacturing companies and would be used as replacement for salt or partial replacement for salt. Typically in a baked product, for example, you would also replace some flour or something else because you have to have a little bit more of this product than you would strictly the salt.

>> Kelly Hughes: Thank you. Another question for Dave. Elaborate on the importance of sodium in cheese. This is fairly broad so maybe we can specify the variability of naturally

occurring sodium in cheese. And I'm sorry, if the individual who submitted that question wants to clarify, please feel free to submit --

>> David McCoy: I would --

>> Kelly Hughes: Go ahead.

>> David McCoy: What we found, if you go back to the cheese-making slide, think about that cheese-making slide, you do have a few places where -- I hadn't thought about that. We can go back into it.

>> Kelly Hughes: Not this one?

>> David McCoy: Okay. So if we go through this slide, on the upper left-hand corner they are milling the curd, making very small, like cheese curd you might see at the store. No, how about the one ahead?

>> Kelly Hughes: I'm sorry.

>> David McCoy: No problem.

>> Kelly Hughes: Joanna, would you turn the control over to Dave so he can find the slide?

>> David McCoy: I have it now.

>> Kelly Hughes: Perfect.

>> David McCoy: In the upper right hand corner they are making small chunks of cheese. You can see the guy throwing salt into the vat. That's a small manufacturer. Large manufacturing process it is sprinkled but it is not 100 percent uniform. When you make mozzarella, you heat the curd, stretch it out and put it down in brine. When you are putting it down in brine, there's more salt on the outside than the inside of the cheese. You can see variation depending on moisture, temperature, a lot of things control how much cheese gets -- salt gets into the cheese itself. We see this in individual packages of cheese and sliced cheese which can vary 15 to 20 percent from the amount they see in one location.

Realistically, controlling that, carefully controlling that was not a major demand of the industry until some of the salt initiatives came through. Then we started looking at how much variability there truly was. But again if you are going to -- you have to be able to measure it if you are going to control it. And the measurement process needs a lot of work. And we are working on that. That's one of the things we talked about in this presentation. Especially if we go to a salt replacer, we have to have a better method to measure so that we can control. If we can control it, we can take those people who put in more salt than they really want to put in, then you have a better technique to control that extra salt and lower the average amount of salt in cheese.

>> Kelly Hughes: Great. Thank you so much.

>> David McCoy: Sorry about being long-winded.

>> Kelly Hughes: Not at all. Very helpful. Another question for you, Dave, could you speak a little bit more about how or why there is variability in the actual amount of sodium in cheese versus what's labeled for the standard of identity? And maybe what that means for industry. Is that saying that sodium reduction is more feasible than some might think?

>> David McCoy: Yeah, it's a fairly simple answer, actually. The regulations on nutritional panel, packaging panel say that you can, basically you are not to exceed the amount of sodium that's on the label. So you look at your manufacturing process and you say well, I'm up and down, but here is how much I may have in my product and that's how you label it. That eye not the average amount in the cheese, that's the maximum amount you put in and typically you're 10 percent less than that. And a lot of people hadn't thought about that. It hadn't been a real concern until 2008-2010 when we started looking at how much sodium was in the cheese. It was like many of the people who are looking at sodium in their diet are using labeled sodium. They don't know how much is in the package. So we are really telling people there is more sodium in our product than there really is on average.

>> Kelly Hughes: Interesting, interesting. Thank you.

I have a question for Jason, if Jason is still there. Was it expensive as a manufacturer to test the many doughs before finding a acceptable and viable formula? If so, do you think the sales have balanced?

>> Jason Melanson: The testing process wasn't stickily expensive. The smallest test batches I could do because of our equipment is about 100 pounds. I wound up donating a bunch of that, most of that. So there was a little bit of cost involved there.

But it wasn't too bad. I wound up doing seven or eight tests all together. So I probably gave away seven or 800-pounds of dough.

What was the second part of your question?

>> Kelly Hughes: Do you think the sales have balanced out? If it was in fact costly or expensive to test many doughs, did it balance out with the sales?

>> Jason Melanson: Probably not at this point, but the lower sodium program that the Innovation Center made as money is kind of a pilot project for us. It may lead to something bigger in the future.

>> Kelly Hughes: That's great.

>> Jason Melanson: Does that answer your question?

>> Kelly Hughes: Yes, it does, thank you.

>> Jason Melanson: Sure.

>> Kelly Hughes: All right. Well, it doesn't look like we have any more questions in the queue. So I'm going to go ahead and wrap up. If anyone has other questions in the next minute or so, feel free to submit them. What I would like to do is thank everybody for participating in today's Web forum. A special that you can to our -- thank you to our presenters, Corinne, Jason, Dave, as well as the CDC for their partnership with the Web series. There are several people behind the scenes and they include Chris Kinabrew with the National Institutes of Health. Kristy Mugavero and her team at CDC, Holly Calhoun, Joanna Hathaway and Jessica Levings with the CDC; and Josh Jennings and Judy Keenan who have been supporting Dave in this presentation.

Please do complete your evaluations as your response will help us shape future Web forums. As a reminder, this Web forum was recorded and slides will be available soon. We hope that you'll stay tuned for our future Web forums. Information will be available at Dialogue4Health and we are aiming for January 16 for the next Web forum. Thank you for joining us. We hope that you'll come back and join us in January.

(The presentation concluded at 3:20 p.m. EDT.)

(CART provider signing off.)