

UNITED STATES FOOD AND DRUG ADMINISTRATION

New Era of Smarter Food Safety Summit on E-Commerce:  
Ensuring the Safety of Foods Ordered Online and  
Delivered Directly to Consumers

DATE: October 19, 2021

TIME: 11:30 a.m.

LOCATION: Remote Proceeding  
U.S. Food and Drug Administration  
White Oak Campus, Building 31  
10903 New Hampshire Avenue  
Silver Spring, MD 20993

JOB No.: 4840126

REPORTER: Irene Gray  
Capital Reporting Company

A P P E A R A N C E S

Natalie Adan

Food Safety Division Director

Georgia Department of Agriculture

Kari Barrett

Public Engagement Team Lead

Communications and Public Engagement Staff

Center for Food Safety and Applied Nutrition

U.S. Food and Drug Administration

Domenic Caravetta

Head of Microbiology, F&R, R&D, NA

Unilever North America

Mary Cartagena

Retail Food Policy Team Lead

Office of Food Safety

Center for Food Safety and Applied Nutrition

U.S. Food and Drug Administration

Ashley A. De Smeth

Director of Federal Affairs

Grubhub

A P P E A R A N C E S

Laurie Farmer

Director, Office of State Cooperative Programs

Office of Regulatory Affairs

U.S. Food and Drug Administration

Charlean Gmunder

Chief Operating Officer

Blue Apron

Thomas Gremillion

Director of Food Policy

Consumer Federation of America

William K. Hallman, PhD

Professor and Chair, Department of Human Ecology

Rutgers University

Jorge A. Hernandez

Vice President of Quality Assurance

The Wendy's Company

Michael Kawczynski

Project Manager

Center for Food Safety and Applied Nutrition

U.S. Food and Drug Administration

A P P E A R A N C E S

Andreas Keller, PhD

Director, Multi-Commodity Foods

Office of Food Safety

Center for Food Safety and Applied Nutrition

U.S. Food and Drug Administration

Phil Lempert

Editor, SupermarketGuru and Food Industry Analyst

Glenda Lewis

Director, Retail Food Production Staff

Office of Food Safety

Center for Food Safety and Applied Nutrition

U.S. Food and Drug Administration

Sharon Lindan Mayl

Senior Advisor for Policy

Office of Food Policy and Response

U.S. Food and Drug Administration

Carletta Ooton

Vice President for Product Assurance

Risk and Security

Amazon

A P P E A R A N C E S

Howard Popoola

Vice President of Corporate Food Technology  
and Regulatory Compliance

Kroger Company

Brittany Saunier

Executive Director

Partnership for Food Safety Education

Dilshika Wijesekera

Director, Food Safety & Regulatory Compliance

Instacart

Janet Woodcock, MD

Acting Commissioner of Food and Drugs

U.S. Food and Drug Administration

Frank Yiannas

Deputy Commissioner for Food Policy and Response

U.S. Food and Drug Administration

## C O N T E N T S

	PAGE
Welcome & Housekeeping	
Kari Barrett	8
Day 1 Public Meeting Overview	
Andreas Keller, PhD	10
Acting Commissioner's Greeting	
Janet Woodcock, MD	12
Opening Remarks	
Frank Yiannas	15
Featured Speaker	
Phil Lempert	28
Session 1: Industry Perspectives on E-Commerce and Food Safety:	
Procedures and Standards of Care from Production to Delivery to Consumer	43
Moderators:    Andreas Keller, Natalie Adan	
Panelists:	
Domenic Caravetta, Ashley A. De Smeth, Charlean Gmunder, Jorge A. Hernandez, Carletta Ooton, Howard Popoola, Dilshika Wijesekera	

C O N T E N T S

	PAGE
Session 1: Q&A	115
Session 2: Consumer Perspectives on E-Commerce and Food Safety:	
Ensuring Business to Consumer E-Commerce Models Produce, Sell and Transport Safe Food	136
Moderator: Sharon Lindan Mayl	
Panelists:	
Thomas Gremillion, William K. Hallman, PhD, Britanny Saunier	
Session 2: Q&A	167
Open Public Comment	
Moderator: Kari Barrett	
Panelists:	
Sharon Lindan Mayl, Glenda Lewis, Mary Cartagena, Laurie Farmer	
Daily Wrap-Up	
Andreas Keller	228

P R O C E E D I N G S

WELCOME & HOUSEKEEPING

MS. BARRETT: Welcome everyone to the New Era of Smarter Food Safety Summit on E-Commerce: Ensuring the Safety of Foods Ordered Online and Delivered Directly to Consumers.

As Michael noted, my name is Kari Barrett, and I'll also be one of your co-moderators during this three-day event. Whereas Michael is typically behind the scenes ensuring the smooth operation, I'll be working with our summit panelists and speakers, keep us on track so we can cover all the great content that we do have ahead of us over the next three days.

And again, the purpose of the summit is to help FDA and interested stakeholders improve our collective understanding of food safety considerations as foods are sold through business to consumer e-commerce models across the U.S. and globally. The summit meant to be the start of a continuing FDA foods program conversation on e-commerce, and we hope that you will find the summit useful in evaluating the current state of affairs in relation to e-commerce and



food safety and that the discussions and presentations will help you in the public commenting process that we have set up.

A few quick notes, I just want to remind folks that the summit agenda, a background document, as well as all the speaker biographies are posted on our FDA website on the meeting page. We also are transcribing and recording our three-day event, and the recording and presentations of our speakers should be available relatively soon, typically within about a week. The transcription can take a few weeks. So I just want you to be aware of that if you're looking for it.

So now at this point I'd like to turn the program over to our summit host, Andreas Keller. He is the director of multi-commodity foods in the Office of Food Safety in our FDA Center for Food Safety and Applied Nutrition. Andreas will join us each day as we start off our summit, and then he'll join again at the end of the day to close. Today you'll also see Andreas in his co-moderator role during our industry perspectives panel.

So with that, Andreas, let me hand it over to you.

DAY 1 PUBLIC MEETING OVERVIEW

DR. KELLER: Thank you, Kari. It is my pleasure to be hosting this three-day summit focused on business to consumer e-commerce and food safety. This is an area that I've been immersed in for a number of years, and it is exciting to see all of the thought leaders that this summit has brought together.

This first day features leaders from government, industry, consumer organizations to give you a sense of how inclusive our collaboration on this food safety issue will be as we unite behind our shared goal of keeping consumers safe.

Global collaboration between government, industry, public health advocates is a building block of FDA's New Era of Smarter Food Safety Initiative, and this summit demonstrates that commitment. These leaders include the next two speakers who it is my pleasure to introduce to begin our summit and greet all of our participants.

We have Dr. Janet Woodcock, acting

commissioner of food and drugs. Dr. Woodcock began a long and distinguished FDA career in 1986 with the agency's Center for Biologics, Evaluation and Research and, in 1994, Dr. Woodcock was named director of the FDA's Center for Drug Evaluation and Research, overseeing the center's work as the world's gold standard for drug approval and safety.

In a further step of a very distinguished public health career, this past January Dr. Woodcock was named acting commissioner of food and drugs.

Following Dr. Woodcock's greetings, we have Mr. Frank Yiannas, FDA deputy commissioner for food policy and response who will provide opening remarks. Mr. Yiannas, a renowned food safety expert and likely known by many of you, is the principal advisor to the FDA commissioner on food safety issues and is in effect the agency's chief ambassador to reduce food safety risks and achieve high rates of compliance with FDA food safety standards while being committed to working in innovative collaboration with external partners and stakeholders.

Our morning lineup will close with our

featured speaker, Phil Lempert, who Frank Yiannas will introduce after his remarks. I will now turn the program over to Dr. Woodcock, with Mr. Yiannas to follow.

ACTING COMMISSIONER'S GREETING

DR. WOODCOCK: It's my great pleasure to join you for this New Era of Smarter Food Safety Summit on e-commerce. You know, I've been at the FDA for many years and I've served in a lot of different positions and capacities. And one of the greatest pleasures and honors was serving as acting commissioner is the opportunity to focus in a way I never have previously on the actual Food and Drug Administration foods and the work that we do ensure the safety of the food supply.

The FDA has oversight over approximately 80 percent of the foods Americans eat. This includes everything from seafood, fresh fruits and vegetables to milk and dairy products, baby food and infant formula to frozen, canned, packaged and snack foods, juice, soft drinks and so much more. The list involves a lot of different kinds of foods which come

from many different places and in a variety of different kinds of packaging. But one thing that's shared by all of these diverse products is that Americans have come to expect that whatever food they're getting will be there when they want it and it'll be safe to eat.

Ensuring that safety is a critical public health responsibility. It touches every American every day and is a responsibility we at the FDA take very seriously. To achieve this though means keeping up with changes and advances in production, delivery and sourcing of food. It means encouraging staying ahead of innovation to ensure the availability and the safety of products and to do so without sacrificing public health.

Striking that balance today can be challenging because of the increasingly global nature of the good supply and the continuing development of new types of delivery systems including online ordering and delivery directly to consumers.

During the current pandemic, we've seen some of these changes and how they impact the food supply

and food safety. The good news is that the FDA is committed to respond to and stay ahead of these changes.

The way we achieve this, whether it's in our efforts to ensure food safety or our work on medical products, tobacco or any of the other areas where we have responsibility is by relying on the best available science, the most rigorous data and the most modern tools needed to analyze those data to make our decisions and ensure the safety of the products we regulate.

In a few minutes, you'll hear from Frank Yiannas about our New Era of Smarter Food Safety Initiative. This initiative is focused on helping protect foods from contamination with particular awareness of the emergence of new business models, including e-commerce and new delivery systems which are changing to meet the needs of the modern consumer.

This is an important initiative. But its success relies on a broad base of support and engagement. That's why I'm so pleased that the focus of this summit is bringing together global

stakeholders and partners from industry, international regulatory agencies and others to consider these new e-commerce business models.

I look forward to your discussion and the formulation of new ideas and responses to the changing world of food production and delivery. By collaborating, sharing experiences and strategies and building partnerships, we can achieve our mutual goals and continue to work to ensure food safety worldwide. Thank you very much.

#### OPENING REMARKS

MR. YIANNAS: Thank you for joining us today for what I believe is going to be a very important conversation on how all of us working together can help ensure the safety of foods ordered online and delivered directly to consumers' doorsteps.

Today's summit is something that we said we would do when we launched FDA's New Era of Smarter Food Safety Blueprint over a year ago. In the blueprint, we recognized to address the growing complexity of the food system, we needed actions informed by the best expertise. And we promised to

convene this summit to bring industry together, government leaders and consumers to identify future courses of action to address potential food safety vulnerabilities in foods delivered via e-commerce.

And we're doing just that over the next three days, bringing together industry leaders from companies that include Amazon, Blue Apron, Grubhub, Instacart, The Kroger Company, Unilever, Wendy's and others.

We've also invited leaders and regulatory partners from local, state and federal agencies. This include officials from the counties of San Diego, California and Fulton County, Georgia, from the city of Philadelphia and the Rhode Island Department of Health, from the Association of Food and Drug Officials and the U.S. Department of Agriculture.

You'll also hear from FDA leaders in the Center for Food Safety and Applied Nutrition, the Center for Veterinary Medicine, the Office of Regulatory Affairs and the Office of Global Policy and Strategy, and there will be consumer advocates such as the Consumer Federation of America and the Partnership



for Food Safety Education and experts from Rutgers University.

And the issues that we'll be talking about are not unique to the United States. These changes are happening all over the world. So we'll be hearing from officials from Brazil, Canada, Germany, Japan and Wales who will share with us international regulatory perspectives on e-commerce and food safety.

I will shortly be introducing SupermarketGuru Phil Lempert as today's featured speaker, who will give his perspective on these new business models for the delivery of food. This is truly a meeting of some of the most informed and best thinkers on this topic from within and outside the boundaries of the FDA.

The New Era of Smarter Food Safety is an FDA initiative designed to leverage new and emerging technologies, tools and approaches to create a safer food system that keeps pace with the evolving way in which food is produced and travels from farm to table.

In the very first paragraph of the blueprint that outlines our New Era goals, we've said that we are in the midst of a food revolution. That's right.

We are in the midst of a food revolution. Many believe we're going to see more changes in the food system over the next ten years than we have over the past several decades. I believe that. Foods are being reformulated. New foods and new food production methods are being realized, and the food system is becoming increasingly digitized. In this way, the change is and has been transforming the way consumers get their food, both groceries and meal.

I heard this quote recently that summarizes this point quite well: "Fred, the rate of change has never been this fast, and it will never be this slow again." Some of the changes we're seeing are driven by consumer demand for a variety of reasons such as convenience and healthier, more sustainable food choices.

Other changes are innovations that are being driven out of necessity. Long before the pandemic, we saw a steady increase in the volume of groceries and other foods being ordered online. In fact, before the pandemic, it was estimated that \$1 in \$5 spent on groceries would be spent through an online platform by

the year 2025.

But the pandemic changed that with online ordering of food exploding as consumers stayed at home and restaurants and food service locations closed their in-store seating. And I personally don't see this trend reversing completely as new habits have been formed many are finding convenient. In other words, there are new normal emerging in our lives.

In these modern times, we're going to need more modern approaches and must ensure that these approaches are safe with goals outlined in FDA's New Era Blueprint including partnering with food delivery companies to provide education on the importance of proper food handling.

These plans include working with government, industry, academia and consumer groups to develop educational materials for consumers on the handling of food delivered to their home, whether it be a meal kit, groceries or dinner from their favorite restaurant.

It includes encouraging the use of innovation such as smarter and more sustainable packaging that

allows foods to be transported or shipped under more effective temperature control. It includes the use of technologies that automatically monitor product risk factors such as time and/or temperature. There are other things to consider too such as tamper-resistant packaging and last mile food traceability.

We are committed to laying a solid and level foundation of safety so that no matter why consumers are ordering foods online and no matter who is in the business of doing so, the right steps have been taken to help ensure the safety of those foods.

Again, I believe the way we get our food will continue to evolve. This is now a fact. The reality is that the food system has been evolving since the beginning of time. Just a few decades ago, it was new and exciting when a restaurant had a drive-through window. Remember that? Now there are drones delivering food.

And who's ordering food online? Well, it's not just the Millennials or tech-savvy individuals, but all sorts of consumers. The population of people ordering online crosses ages and economic divides.

For example, it was originally through that Baby Boomers would always want to go to a grocery store. That's not necessarily true anymore.

At the same time, the food supply has changed as it's growing more interconnected and distributed and too often people talk about the food supply chain, but in reality it isn't a linear chain at all. Today the way we get our food from farm to table has evolved into a complex network of interdependent entities, and while there is no question that today's food system has provided consumers with a more diverse, convenient and economical source of food, it also at times presents new challenges.

For the issues that we're going to be discussing over the next few days, there are many questions that we'll want to ask and have answered. What are the many different ways foods are being delivered to consumers? In other words, what's already happening in the marketplace or what's expected to come? Meal kits, groceries delivered to your door, your favorite restaurant meal delivered by an autonomous vehicle or drone, ghost kitchens and

more.

Next, what are the appropriate standards of care that all participants must follow to ensure foods delivered to consumers are safe, and how can we ensure that the foods are delivered on time and/or at the right temperature? How do we guard against cross-contamination between ready-to-eat foods and raw foods such as raw meat, raw poultry or raw seafood that could be harboring harmful bacteria?

And how do we deter food tampering events? How do we provide and empower consumers with the information they need to make informed choices before they place their order and ensure that what is delivered complies with what they've asked for.

We also know there's a lot of diversity on how these business models are operating today, many different ways. And we also know there are many regulations for the production of safe food. So how do we ensure that we provide the right regulatory framework so that we have a solid and level foundation so that food delivery is done the right way, every day, by everyone in this line of business? And how do

we work collaboratively together on solutions? These are just some of the important questions we're going to address over the next few days and we want your help to find the best answers.

Now some of you know that every once in a while I serve as an adjunct professor in a graduate program in food safety at a very prestigious U.S. university. So before I close with my comments, I'd like to give you a bit of a pop quiz. Some people wonder how big of a deal is e-commerce to food safety really. My answer is always there's some big megatrends that I think we need to spend some time thinking about.

So I'd like to pause for a moment and ask you to think or write four e-commerce megatrends that have implications for food safety. Where is my answer?

Number one, in an e-commerce era, the world is the grocery store. Number one, the world is becoming the grocery store. In the 1980s, when you walked into a grocery store, how many different food products do you think you could find? Literally there were about 16,000 food SKUs in a grocery store in the

1980s. You fast-forward to today and if you walk into your grocery store, you're going to find close to 50,000 to 60,000 different food SKUs.

In an e-commerce world, it's theoretical that we would have an endless shelf, not limited by the size of a brick-and-mortar store with limited shelf space. We might have the ability for consumers to order whatever they want, from wherever they want it and potentially from all over the world.

Megatrend number two is that the last mile of food delivery from farm to table continues to change from around the corner to around the city to around the nation and maybe even to around the world. The last mile continues to change. And there are so many different kinds of delivery methods emerging from food delivered by car, van or bike to novel delivery methods like robots and drones, to home shipping and meal kits.

Delivery, regardless of manner, should consider controls that I often refer to as TTTC. The first two Ts are time/and or temperature as a public health control. The third T is ensuring that



packaging is tamper-resistant, even if it's the use of a tamper-evidence tape. And the C stands for preventing cross-contamination.

The third megatrend that I think of is food packaging is going to require more innovation and validation. Food packaging is going to require more innovation and validation. You're like me. you've probably seen a wide variety of different ways in which food is packaged for delivery, some clearly better than others.

In some instances, the packaging materials may not be fit for the purpose in that it's not effective at maintaining temperature or preventing foods from leaking. I think many of us can relate to an experience where we've received a package that contained food and it felt like there was just too much packaging there, unnecessary waste and it didn't feel like a sustainable solution.

I'd like to challenge those listening to develop innovative, cost-effective and sustainable solutions to these challenges. And let's make sure that the processes that we use, whatever they may be,

are validated to work under worst-case scenarios or conditions.

And the last megatrend, number four, I'd like to share is the reality is that digital will be the primary way to communicate with consumers. Digital will be the primary way to communicate with consumers and provide them with the information they need to make informed choices.

For example, if a consumer is interested in the nutritional value of a food they're ordering, how would they have obtained the information and is it accurate. What if a consumer has a food allergy and orders a food on an online platform but the product is out of stock and the firm provides a substitute? How do we ensure those types of specialty needs are taken into consideration?

You see, in closing, there's a lot of ground that we have to cover over the next few days. The ultimate goal of the New Era of Smarter Food Safety is to bend the curve of foodborne illness in this country and the world once and for all so that consumers worldwide can live better lives.

We all want safe food. We welcome new delivery systems that meet consumers' changing needs and expectations. So let's work together to identify and address potential food safety challenges. Let's take steps now to ensure that food safety measures are as modern as the food delivery systems themselves. And after the meeting, we will move forward together to decide next steps.

FDA has an obligation to make sure controls keep pace with the innovations happening in the marketplace. This is a responsibility we share with the state regulators who oversee retail food operation. It's time for all of us to pause and look to the future. How can we do our work differently to keep foods delivered through new business models as safe as they can do?

And now, it's my privilege, and I'm delighted to introduce you to our featured speaker, Phil Lempert. Phil is one of America's leading food trend watchers and analysts. And I was thrilled and grateful when he agreed to help us kick off FDA's New Era of Food Safety Summit on E-Commerce.

Known as a SupermarketGuru, Phil has been predicting the future of food for the last 30 years. For more than 20 years, he has served as the food trends editor and correspondent for NBC's Today Show. He's also the founder and editor of "The Lempert Report," a columnist for Forbes.com, an author and so much more. I've had the privilege of serving on the stage with Phil, and I think you're going to find his comments to be very interesting.

I've asked Phil to harness his uncanny ability to identify and analyze food and food safety trends to paint a picture for us on the challenges we've faced since COVID-19, to talk with us about the rapidly changing retail and restaurant landscape and focus on the role that technology will have for food and food safety in the future.

I'm confident he will ignite our imagination as we work together to best ensure the safety of foods ordered online and delivered directly to consumers.

FEATURED SPEAKER

MR. LEMPert: Thanks, Frank. And as always, your insights are invaluable. My job here today is to

talk about e-commerce, where it's been, where it's going and, frankly, what's next. What's that opportunity? And there's three basic areas that we need to focus on.

Number one, the consumer. The consumer has changed an awful lot since the beginning of the pandemic. There's no question about that. Number two, retail is changing. Retail is evolving. We have a broken supply chain. We need to reimagine what our stores look like. We need to understand how to build stronger relationships from the farm to the ranch to the distributor to the retailer. Every step of the way, we need stronger relationships.

And third, technology, technology, technology. Technology is changing everything, the way we buy, the way we sell, the way we merchandise our foods and beverages both in store and on e-commerce.

Some might say it's the Wild West, and I would agree. What we've seen during the pandemic are lots of retailers trying lots of new technologies, trying to understand how they can best serve their

customers. And it's important because for the first time in so many people's lives, they walked into the supermarket and they saw empty shelves, and it scared them. They started hoarding. They started buying just about anything because they were fearful that their family might go without food.

Well, we've turned that corner, and even though we continue to see prices rise, consumers have better expectations than they did at the beginning of the pandemic. Now our job simply is to inspire them, to make sure that they understand that the supermarket, that e-commerce, that food delivery, whether it be from a supermarket or from a restaurant is there to help them.

COVID-19 brought a big change to consumer behaviors. Today's consumer has more of a social conscience than ever before. They're more concerned about health and wellness as during the pandemic so many people, especially our youth, gained so much weight. We want life hacking, that Silicon Valley term, to make our life easier and better, and they want to support local.

What they found during the pandemic is a lot of those local suppliers, a lot of those local supermarkets had product for them. And e-commerce has changed everything. In fact, just last week, Incisiv released their 2021 digital maturity benchmark study. And what they found is online today comprises 9.5 percent of that \$1.1 trillion that's spent on food and beverage purchases.

They also found that 75 percent of online orders are either store or curbside pickup. They surveyed over 42,000 consumers to get this data. And Kantar reports that 41 percent of people are shopping both in store and online. And Incisiv is projecting that online food and beverage sales will grow 18.5 percent by the year 2025. And if we take a look at who's driving this, it really comes down to the 25- to 34-year-olds. Now the group to watch is the 18- to 24-year-olds because they haven't bought digitally nearly to the extent that we would have expected.

And if we look at who's leading when it comes to grocers and the status from 2020, Kroger is number one. Walmart is number two. Number three for food

and beverage is Amazon.com. We need to look at how these players are capturing those consumer needs, how they're making sure that they're satisfying what the consumer wants. And it's important to note from the Incisiv study, 80 percent of those 42,000 people said that they would leave a website if it failed to offer a convenient navigation with relevant results.

We need to do better in e-commerce data. We need to do better on supermarket websites to offer correct nutritional information, correct ingredient information, correct allergen information and be able to use these tools to filter what products consumers want for themselves and their families based on their diet, based on their religious belief, based on their health needs.

And the question that we have to answer over the next three days is what's the objective of e-commerce. Is it about convenience for the shopper? Is it being able to have a broader assortment for the shopper? For the retailer, does it offer expansion into markets where they don't have brick-and-mortar stores, but they can just have micro fulfillment



centers throughout the country. And they can double or even triple their business. Or is it just a return on investment for those venture capital funds?

Does it offer incremental sales to that retailer, to those brands that are participating? And what about profit for the retailer? It's estimated that the average order that's done online and delivered, the retailer loses about \$10 per delivery. That's not sustainable. That is not something that can continue. So we have to understand how e-commerce can grow profitably for the retailer and serve the needs of the consumer at the same time.

And one of the biggest challenges that we have frankly is people want to connect with their food intellectually, physically, emotionally. And how does e-commerce do that? How does a website do that? And that's the next big challenge that we've got from a technology standpoint.

When it comes to food safety, we need a whole new era of smarter food safety. We need 21st century approaches to food safety. We can't think about food safety the way we did five years ago or ten years ago.

We've got to look at the entire supply chain. And as Frank had mentioned, blockchain is one of the keys and one of the most important aspects that we need to implement in the food supply. Being able to trace products from the ground to the time they get to the consumer.

It's critical that we have accurate data that we can access in a matter of seconds. We need to think beyond the box. We need to understand how to look at food safety through a whole different lens than we did before. We need to look at food safety from that delivery driver's car to the time it gets to that shopper's door.

There's been a lot of talk about drone delivery, a lot of talk about autonomous vehicle delivery. We need to be testing all these to make sure that we can deliver food and beverages to shoppers safely and transparently. Ninety-eight percent of consumers want more transparency on their fresh and their packaged food products, and e-commerce platforms must deliver it if they're going to continue to grow.

Artificial intelligence is being embraced by retailers both in store and in the backroom in order to get more predictive behavior to avoid wasting products in the store, to making sure that those products, whether it's on their website or whether it's in store, meet the needs of that consumer.

And we're going to fast-forward into a home new era of the home Internet of things. We're going to have smart refrigerators. We're going to have refrigerators that around the perimeter of the door is a scanner, that the shelves are actually scales. So every time I take a carton of milk in and out of that refrigerator, it's measuring my consumption.

And I've gone onto a retailer's website. I've said that I never want to run out of milk. And a little popup will appear when I'm going to run out of milk in a day or two days or however I've set that, and then I'll be able to order it or I can just have the store instantly order it.

And we're going to do the same thing with our cupboards. We're going to do the same thing with our trash bins. And we're even going to do the same thing

with our toilet paper.

So let's take a look into the crystal ball. What does the future of supermarkets look like? Well, in 1984, I met an artist by the name of Herbert Hofer. And we sat down for a couple of days and I described what I had hoped the supermarket in the year 2000 would look like.

And this is what he came up with. Excitement. Empowerment. Fun. You know, we don't buy food just for nourishment. We love to buy food. We love to shop for food. And we need to bring that back to retail, even during the pandemic. And if we look at the stores that are being built right now by major chains around the country, they're starting to look like this. They're having better in-store experiences that they've ever had before.

And I want to take it one step further. If you imagine a 40,000 square foot supermarket, I want to cut it in half. I want the back half of that store to be a micro fulfillment center, fully robotic. And I want to have those unemotional, private label boxes and cans and brands and boxes being fulfilled by that

micro fulfilment center, by those robots. I'm going to go online to my retailer's website. I'm going to make an appointment for when I shop, just the way I would for a restaurant.

And that's going to afford the retailer two things: number one, social distancing and, number two, being able to staff appropriately as we continue to have the labor shortages that we're having. It's estimated by the year 2025 we will be down 100,000 truck drivers. It's going to get worse before it gets better. And I'm going to order those jars and cans those brand names that I love online.

And then the front half of the store is going to be what Herbert Hofer showed. It's going to be where the fresh food is. It's going to be Betty the baker. It's going to be Bob the butcher. I'm going to be able to walk in and talk to them. I'm going to be able to pick my own produce because the number one complaint that we hear from consumers when it comes to delivery is about produce not being picked properly. The number two complaint is meat.

So what we mean is consumers want to buy

those things themselves. They want to choose those things themselves. That's when we have fun. And on my way out the door, that's where I'm going to pick up all those groceries that I ordered online. The supermarket Internet of things needs to be explored. Technology is moving so quickly. I want to show you a brief video from Tesco when they did an experiment in Korea.

(Video playback.)

MR. LEMPert: There's other technologies that are now bringing farmers and consumers closer together, and this is important. during the pandemic, what we saw is we saw consumers reach out to farmers and ranchers to buy directly from them, whether it was meat or produce or cheese. They want to have that connection. They want to know where their food is coming from, and they want to make sure that they have food for their families.

Meal kits have now been around close to ten years, and we've seen them ebb and flow. You've all seen the ads that, you know, buy a meal kit and you get ten free. Well, now we're into the next evolution

where we've gone from \$5 to \$10 per person for a meal kit to now \$20 a person for a meal kit. And sure, the product is higher quality. But the question is do people really want meal kits. The question is will they accept all that waste as it relates to the packaging.

Retailers are doing a great job by preparing meal kits right in the supermarket. We're seeing the same thing on e-commerce where you get all the ingredients fresh and not overpackaged. The future of meal kits will not be delivery via FedEx or UPS. It'll be delivery from a supermarket or to be picked up in a supermarket.

Technology can do wonderful things. On my smartwatch, I can just point it at a pizza and I can look to see what all the ingredients are and then the nutritional information for all those ingredients. And I can then decide whether or not I want to buy it. We're going to see that kind of technology on these e-commerce websites for grocers.

The key is to be frictionless, whether you're in store or whether it's on an e-commerce website.

We've got to make it easier for shoppers than ever before and we must understand that it's all about the relationship with that shopper. We need to understand shoppers and their behaviors as it relates to e-commerce better than we do today.

There's three questions that you should be asking yourself over the next three days. Number one, what's the next big trend? When we look at e-commerce, is it the next step for micro fulfillment centers being dotted around the country? Is it the way I describe, cutting the store in half? What do you think that next big trend is going to be?

What are the three things about consumers, e-commerce consumers, that you don't know that you wish you did know? Write them down on a piece of paper. And then find out the answer. And then write down another three. This is a job 365 days a year for us to get closer to understanding consumer behavior as it relates to e-commerce as we're going to see it continue to grow.

And Incisiv also predicts that by 2026, one year later, it'll be over 20 percent. So this is not



a fad. E-commerce is here to stay.

What's the one innovation that you've seen that really gave you a great idea? I'll share with you what happened to me a couple of years ago. I had a long trip. I was on three planes. I get to my hotel about 3 o'clock in the morning, and I walk up the steps to the hotel and I notice to the right there's an avantgarde art museum. It's closed. Obviously it's midnight. But I made a note, that's really cool, I'm going to check that out tomorrow.

And as I turn and I walk to the front desk, all of a sudden the marble floor has changed and it's now Plexiglass and I am now standing on a movie. And it's a couple in bed. And, you know, when you're with your partner, you pull the sheet, you kick each other. You do all those things when you're asleep. And I said again, this is really cool.

Get up to my room. As I said, I was tired. It was late. So I decided to take a shower. So I pulled back the shower curtain and in my bathtub is a three-and-a-half-foot-high red plastic penguin. So for the first time ever, I figured out why there's

phones in hotel bathrooms. I picked up the phone and called downstairs and I said, hey, I hate to bother you, but somebody left a three-and-a-half-foot-high red plastic penguin in my bathtub. And the desk clerk said, I know. And I said, I know it's late, but seriously.

And he said, we have ten of those and every night we put one in different people's rooms. And if you're lucky enough to get that three-and-a-half-foot-high red plastic penguin, we send you up a free bottle of wine. And I said, you'd better send up that wine because there's a three-and-a-half-foot-high red plastic penguin in my bathtub.

Wow. What's your wow? What's the innovation that you want to see happen in e-commerce, in food safety, in food security that we've never imagined before? The next three days is designed to create those wows. Thank you very much.

MR. KAWCZYNSKI: I'd like to personally thank FDA's acting commissioner, Janet Woodcock, and Deputy Commissioner Frank Yiannas for their opening remarks as well as our featured speaker, Phil Lempert, for

their insight and helping us kick off the New Era of Smarter Food Safety Summit on e-commerce.

We're now going to take a 15-minute break, and upon our return, I will hand it over to my colleague, Kari Barrett.

(Off the record)

MR. KAWCZYNSKI: Take it away, Kari.

MS. BARRETT: All right. Well, thank you, Michael, and welcome back everyone. First with our panel session is "Industry Perspectives of E-commerce and Food Safety: Procedures and Standards of Care from Production to Delivery to Consumer."

We have two moderators for this panel. We have Andreas Keller, director, multi-commodity foods, Office of Food Safety, FDA CFSAN, and we have Natalie Adan, Food Safety Division Director, Georgia Department of Agriculture. So at this time, Andreas and Natalie, take it away.

SESSION 1: INDUSTRY PERSPECTIVES ON E-COMMERCE AND  
FOOD SAFETY: PROCEDURES AND STANDARDS OF CARE FROM  
PRODUCTION TO DELIVERY TO CONSUMER

MR. KELLER: Hello, everybody again. Welcome

to the panel discussion on "Industry Perspectives on E-commerce and Food Safety: Procedures and Standards of Care from Production to Delivery to Consumer."

Natalie Adan, from the Georgia Department of Agriculture, and I, Andreas Keller, we will be moderating today's panel.

Natalie serves as the Food Safety Division director with the Georgia Department of Agriculture where she oversees and provides support to the retail food, manufactured food, dairy and produce safety programs.

I currently serve as the director of multi-commodity foods at the FDA Center for Food Safety and Human Nutrition. I manage crosscutting food policy and food science issues, and I'm the co-lead with my FDA colleague, Glenda Lewis, director of retail, of the New Era of Smarter Food Safety Summit on E-commerce.

For those watching, I would like to mention that your participation is essential to ensuring the success of the summit and that FDA has the input necessary to determine just what, if anything, it

might need to do further to ensure the safety of foods produced, manufactured, sold, and being delivered via e-commerce business models, what we sometimes refer to, B2C.

You have two options for providing your input. You can submit questions live to the panelists to answer or you can provide your input to us in writing. We'll let you know when it's time to send us the live questions.

If choosing the second option, we have opened a docket to solicit a wider range of views from all stakeholders, and I encourage all of you to submit comments that address any of the topics we will be discussing during this summit as well as any other issues discussed in the Federal Register notice and background materials for this summit.

Natalie?

MS. ADAN: It's my pleasure to introduce today's first panel on e-commerce and food safety. We are honored to have with us today a diverse, distinguished, and accomplished panel which will cover the manufacture, retail, delivery and sale of food via

e-commerce. The purpose of this summit is to engage with all stakeholders and obtain your input throughout this meeting as well as through comments submitted to the FDA docket mentioned by Andreas.

FDA intends to use all the information obtained at this public meeting and comments submitted to the docket to determine what action, if any, should be taken to help ensure the safe production and delivery of foods sold through e-commerce business models.

Our panel of seven will be presenting the perspectives on food sold through business-to-consumer e-commerce. Their bios can be found on the FDA website. Our distinguished panelists are Domenic Caravetta. He is the head of microbiology, F&R, R&D for Unilever North America.

Ashley De Smeth is the director of federal affairs for Grubhub. Charlean Gmunder is the chief operating officer for Blue Apron. Jorge Hernandez is the vice president of quality assurance for The Wendy's Company. Carletta Ooton is the vice president for product assurance, risk, and security for Amazon.

Howard Popoola is the vice president of corporate food technology and regulatory compliance for Kroger Company. Dilshika Wijesekera is director of food safety and regulatory compliance for Instacart.

As Andreas mentioned, our panel will focus on how several industry sectors represented here today manage food safety in the e-commerce arena, will focus on new technologies, food safety issues, standards of care, any compliance challenges which might exist, labeling, consumer education on safety and handling of foods sold via e-commerce as well as transportation and delivery.

Given the wealth of manufacturing, retail, delivery experience in e-commerce possessed by our panel as well as their data sharing experiences and the fact that they're innovators in the e-commerce arena, today's discussion promises to both be interesting and informative for us all.

With that being said, please, allow me to introduce you to our first speaker. Our first speaker is Domenic Caravetta, with Unilever North America.

MR. CARAVETTA: Hello, everyone. Thank you,

Andreas, Natalie for this opportunity to share some approaches to this new era of smarter food safety for e-commerce.

I do want to take you back a little bit to the origins of the new era in food safety, specifically the origins of HACCP and its evolution and its transformation to FSMA. These are what we call systematic approaches, which focus on prevention for food safety issues and a systematic means of accomplishing food safety by design.

And so, I've continued to be a very strong proponent of these principles, whether you call them HACCP principles or FSMA principles and how these may be applied to e-commerce. These principles are always meant to be applied comprehensively, terms that you've heard such as from farm to fork or some of you may also have heard from soil to soul in a more spiritual sense.

For e-commerce, the extra attention is given in the distribution aspect of it and reviewing the risk assessments and preventive controls needed. But these very same principles apply.



As we see going back to the 1960s, these principles were developed to make food for space travel. And it was quite a rigorous program that was developed, Pillsbury working in conjunction with FDA. The first program was developed by Howard Bauman at the Pillsbury Company. I had the privilege to do my first HACCP program with him in the mid-1980s.

When they taught this course in 1972, it was a 21-day course, immensely rigorous, 11 days in the classroom, ten days were spent in the canned foods factory. Using these principles, the FDA developed our low acid canned food regulations a few years later using this HACCP mindset, and it continues to serve us very well.

In fact, with my international experience of the years, I can very confidently say that the United States has probably the most rigorous and best low acid canned food regulations in the world.

During the 1980s and mid-1980s, several emerging pathogens were coming about, specifically *E. coli* 0157 and *Listeria monocytogenes*. And it was at that time that the FDA began to embrace HACCP as a

potential tool for the industry to deliver food safety by design. We started to reframe HACCP and reposition it for industry to apply. We started to see industry begin to embrace it. And as that began to happen in the late '80s, early '90s and mid-'90s, we started to see HACCP beginning to deteriorate in terms of how it was being applied.

And I use this HACCP iceberg as an example where we see things being superficial where in fact the bulk of what's really required to conduct a proper food safety plan was often missing. I think some of the efforts were being made at that time to avoid calling critical control points, CCPs, calling them SOPs. I call it washed-up HACCP or HASOP, and it began to deteriorate and very symptomatic of the culture at the time trying to limit CCPs.

We had a lot more HACCP gurus at the time than there were actual HACCP plans, if I remember correctly back then. And so, the system was not what it was intended for.

So, I'll share some examples of what was going on in the late 1990s and throughout the early

2000s. These are not so much about HACCP failures but really talking about why a new era of food safety was really needed and required and how that came about. And these slides that I'm going to share exemplify very large visibility. These incidents took national attention and brought enormous cost to the food industry as well.

So, this was bagged spinach with 0157 salmonella in peppers which at the beginning were thought to be tomatoes as the root cause, causing millions and millions of dollars of destruction, a peanut butter salmonella incident in 2008 causing some tragedies and listeria in cantaloupe in 2011.

And I remember this one clearly. I was at the time, based and spending a five-year assignment in China. And I was looking at how *Listeria* had been evolving from food category to food category. And this one to me was immensely surprising. *E. coli 0104* in sprouts, fenugreek sprouts. This was mostly European, but it affected 16 countries, 51 deaths.

And so, we see the opportunity to really look for modernization, a food safety modernization system,

a new era in food safety. And for me a lot of FSMA is very similar to the HACCP principles. And the term CCP was then replaced with preventative controls.

But there was one important difference in FSMA, was that there was a mandatory aspect to FSMA which I believe in many cases was missing with HACCP, except for, maybe in some cases, with USDA.

But I believe this to be an immensely meaningful aspect in terms of FSMA and the principles and tools. Of course, there's still a lot of work to do. And you can see incidences still arising from some of these conditions we're facing in the food industry.

But I wanted to share in terms of how I apply a lot of these same principles in building food safety by design within e-commerce. Now beginning from end-to-end hazard analysis, for me, the e-commerce presents the opportunity to focus significantly on the distribution risks and doing a very solid hazard analysis there.

Of course, there's certain qualifications and expertise that are needed here as well. And it's

important that there's a lot of experience in doing proper conducted hazard analysis and looking at preventative controls.

One of the principal things is that I like to understand the predictive fate of pathogens of public health significant. So, what is the state of those pathogens in the product? And potentially what kind of -- what kind of hurdle technologies can be applied to either create lag in the growth of microorganisms or even eliminate growth completely?

I'm a very strong proponent of inoculated challenge studies, and this is an area that I feel needs to be done in many cases, if not always in every case, but in many cases, it needs to be properly considered and align with the worst-case conditions, whether they be in distribution, temperature, time-related, but really simulating worst-case conditions with inoculated challenges, not just exposing product to those conditions and what I refer to as reasonable worst-case conditions.

Of course, with FSMA, validation and verification of controls is one of the essences of

FSMA. And to me, consumer communication is probably the biggest opportunity I feel is in this area, how to recognize safe and acceptable product upon receipt of your packages, educating the consumer to understand what it means is a potential reject product lot.

And so, whether there are time-stamped records that are accompanying the package, just ways of communicating and educating the consumer. More other technologies such as time/temperature indicators and other tools that can help the consumer in the end really understand that this product has arrived and safe and ready for consumption.

A final slide here showing the comprehensiveness from farm to fork and, for some of you, from soil to soul. Thank you.

MS. ADAN: Thank you so much, Domenic Caravetta. That historical perspective is very helpful. Our next speaker is Ashley De Smeth, with Grubhub. Ashley?

MS. DE SMETH: Great. Thanks, Natalie. And hey, everyone. I'm so happy to be here today. I'm Ashley De Smeth, the director of federal affairs for

Grubhub.

Unlike a lot of what we were just talking about which is the relevant product, Grubhub is an on-demand delivery company that goes ahead and facilitates the delivery of product that is often very freshly prepared by restaurants directly to the consumer. And really what we are is we're the intermediary between the restaurant and the consumer which makes our individuals that are carrying out our deliveries really package carriers more than anything else.

So, a little bit of background on Grubhub, who we are and what we do. Grubhub is the leading global online food delivery marketplace. It's super exciting that we are privileged to serve 33 million diners. That's just in the U.S. And Grubhub features more than 300,000 restaurant partners in over 4,000 U.S. cities.

Delivery from restaurants to consumers, just first some context because I feel like delivery network companies, which is the really nerdy legal term for who we are and what we do, you know, there's

a lot of interest on it for the role that we played during of course COVID-19 and growth in popularity.

But just to go back to basics, delivery's been around for a very long time. It started in Naples when Queen Margherita that the pizza that was eventually named after her -- hence the Margherita pizza -- was brought to her and the king.

From there, it took a while to really grab hold in the U.S. But in the 1920s, it's really Los Angeles and New York City who take the prize for fomenting the role of delivery and particularly delivery from restaurants to consumers in the United States. We see some up and down swings along the way due to the Great Depression and certainly due to World War II.

But in the 1950s with the advent and really this practice of having TVs in the home, people wanting to hang out with the family and catch their favorite show, you see this huge up spike in home delivery that just continues through today.

The COVID-19 pandemic of course, as I said before, has thrust delivery network companies into a



lot of the spotlight for our role in helping individuals during COVID-19, particularly individuals who are immunocompromised and other individuals during the pandemic and during the ongoing pandemic who don't feel comfortable leaving their home to go grab food or to necessarily dine in restaurants.

So, the individual who's carrying out the delivery, Grubhub was very concerned at the onset of the pandemic of how to keep these individuals safe and what we could do as our part. The vast majority of delivery drivers on our platform are independent contractors.

And therefore, we must work with governments on every level, right, local jurisdictions, cities, counties, states and then up to the federal level to really help devise guidance that would keep them safe but also allow them the choice to work, you know, when they wanted to and how they wanted to.

So, one of the first things that Grubhub came up with was the concept of contactless delivery. This means when you go on the app and put in your order, all of a sudden you have this option of the

driver leaving the delivery at the door. You could see the delivery driver, you know, walk away, drive away, bike away and then all of a sudden you could open the door and grab that delivery. This was critical in making sure that individuals who maybe did not feel comfortable doing a direct pass-off had that at their disposal.

The second is certainly providing protection for drivers in the form of PPE and other sanitization guidance. So when possible, and fairly frequently Grubhub shares safety guidelines and guidance, particularly those put out by governments, directly to drivers. And this can come in the form of emails and notifications through the app.

Restaurants certainly trust Grubhub to get their product from point A to point B, and consumers trust us that the package that was sealed by the restaurant arrives directly to them in the fashion that the restaurant intended. This is highly specific. Like I said, the restaurant seals the package, they have everything contained in it and that our drivers to the extent do not even put in, you

know, single-use plastic of ketchup packets or anything of that sort. That's directly for the restaurant to finish the product and then for our individuals that are carrying out those deliveries, to carry the package from point A to point B.

This is just a fun little shot. I don't know if you guys know the social media icon. It's the sign guy. But it's a small picture, but it says delivery apps are better than dating apps, which shows how much we are continuing to go into the mainstream.

And the fact that the COVID-19 pandemic certainly drove this idea of on-demand delivery from maybe what was considered a luxury or certainly something that was a choice into a function of an important aspect of just getting through your day.

What is next for food delivery? I'm very excited to share this advancement with you. Earlier this year, Grubhub launched robots. We call them rovers. But for all intents and purposes, I'll say robots. And these are essentially self-driving rovers that carry out deliveries.

We launched this program at Ohio State

University, the campus, and we launched 50 rovers on that campus, which is rumored to be -- we still need to check the facts, but potentially one of the largest deployments of delivery robots or rovers in the country, which is exciting.

Something about this program and how it works, just because I know everyone will have some questions, so essentially what happened was that Grubhub, working with Ohio State University and their food program on campus, to create resources for students who maybe were missing mealtimes, right? We all remember back in the day if you -- on your meal card, if you missed a meal time, you were really kind of in the lurch until the next meal time.

Ohio State wanted to make sure of course that students had access to nutritious meals when they want them and need them. Essentially working with, like I said, the on-campus food providers, we created this system through the Grubhub app where the students could order food directly from the food service providers on campus and have it delivered to them by one of these rovers.

We're also seeing a huge, huge advancement in certain countries and states that have favorable laws towards innovation practices. For example, this photo was taken in Norway where this pizza company that's featured is test piloting drones delivering their pizzas.

And what's really fascinating about this is that, you know, we really do see that certain governments are embracing these types of innovations and letting companies figure it out and sort it out with consumers and then coming in and working with the individual companies and certainly with consumers to help understand, you know, what may be needed for regulation, what may be needed to be tweaked, but certainly also what does not.

You know, a lot of the in-between in relation to what Grubhub does, right, which is restaurant deliveries directly to consumers, you have a ton of regulations and checks on the restaurant side, whether it's, you know, health and safety codes for the local jurisdiction, whether it's the products that they're getting through their distributor are coming through

the supply chains and the checks along the way.

And it's really to the restaurant to then prep the food and make sure that the consumers are getting the product that they want at the end of the delivery process.

But we do find again, for example, areas like Ohio State's jurisdiction, like different places in the U.S. that are helping different AI cars learn and certainly drive on the road. It's certainly helpful to create new ways for technology to help the consumer and certainly to help the business. but without that type of guidance and certainly without that type of encouragement, it's very complicated for businesses to be able to test these types of technologies.

Now to go back to what I was talking about before, the balance of innovation and regulation, so in the same way that a delivery driver on a Grubhub platform, when they're picking up an order, take that sealed package, put it in their car and drive it to the consumer, through the app the consumer can see, hey, you know, what pathway is the driver taking or are they on the route.

And this has created a ton of situations where instead of, you know, me, for example, going and picking up a delivery for my family and maybe I realize that I haven't picked up my dry cleaning along the way and then maybe I need to go do something else, we have less stops, right?

If it's just the individual who's facilitating and carrying out a delivery from a restaurant directly from point A to point B, then it's extremely efficient and it's much faster and therefore much less of a risk for any sort of food sitting for, you know, long periods of time.

This is also the same in the more traditional model that we've all seen in those 1980s movies where there's like the pizza guy that has 15 pizzas in the trunk of his car and you're maybe getting your pizza two hours later. And instead, like I said, the delivery network companies and certainly through the app and the transparency that they provide, customers can understand if their food is going really from point A to point B in a very safe, effective, and efficient fashion.

So where do we think innovation and regulation can have a better place in this, right? I think additional guidance directly to restaurants on packaging, right, is always helpful.

During COVID-19 we worked carefully with restaurants and postings with restaurants to help them figure out how to seal packages so that consumers felt safe that nothing, you know, had been exposed, especially in the nascent days of COVID-19 when there were still a lot of questions about how it was spreading and so on.

And then the other thing is just the piece on consumer safety. I think it's great if we could continue to have some communication that could be sent to consumers about delivery and potentially about different types of items and temperatures related with those items.

Thank you so much for your time, and I look forward to the question-and-answer.

MS. ADAN: Thank you so much, Ashley De Smeth. This was very interesting and great information, a great look at what the near future



looks like in this arena as well as the struggles.

Our next speaker is Charlean Gmunder, with Blue Apron.

MS. GMUNDER: Thanks, Natalie. Hello, everyone, and thank you again for joining us today. My name is Charlean Gmunder, and I'm Blue Apron's chief operating officer.

At Blue Apron, we provide direct-to-consumer meal kits from chef-inspired recipes that empower our customers to embrace their culinary curiosity. Our vision is better living through better food, and we believe that it is our responsibility to show our customers the amazing benefits of a homecooked meal and how it can complement their daily lives.

Every week our customers can choose from up to 50 menu options to fill a box that features quality and seasonally inspired ingredients. These recipes are created by our culinary team who have trained in the best kitchens in the country, as well as in-house nutritionists and a registered dietician. Each box is then shipped to thousands of customers and it includes pre-portioned, fresh ingredients and step-by-step

instructions.

We do all of this while minimizing our environmental impact by using a direct sourcing supply chain, maintaining high ingredient standards with established animal welfare requirements, deploying an extensive food waste reduction program, and pursuing a deep commitment to recyclable packaging.

Blue Apron was founded in 2012, and we are one of the pioneers in the meal kit industry in the U.S. Every week our customers choose different recipes through our website and mobile app, from easy prep and cleanup to premium recipes to meal prep options.

We have a fully integrated ecosystem. This allows us to deliver the best for our customers from ingredient sourcing to how we develop recipes to ensuring that there is a simple way for them to select, cook and share feedback on their experience. This in turn allows us to make our recipes and experiences better.

We serve the contiguous U.S. from our two FDA-regulated and SQF-certified fulfillment centers.

We have one based in Linden, New Jersey and another one in Richmond, California. We are committed to sourcing fresh, quality, and seasonal ingredients year-round from our supplier network that includes farmers, ranchers, and fisheries. Our recipes change every week and often feature specialty ingredients that promote culinary exploration.

Through our carefully crafted recipes, we can introduce our customers to ingredients that they may have never experienced before. We have close, streamlined supplier relationships. With 70 percent of our ingredients sourced directly from suppliers, we can provide several benefits to our customers.

We can work with suppliers on demand planning and specification to optimize inventories and minimize waste. Throughout our process, we leverage data and analytical tools to help us identify forecasted demand and make sure that we make purchasing decisions accordingly.

With our suppliers, we also co-create ingredients specifically for our recipes such as custom sauces, unique spice blends or, for example,

ramen noodles from a third-generation noodle maker.

We can use our economies of scale to make quality, high standard ingredients available to our customers at value such as meats produced without added growth promoters or subtherapeutic antibiotics, pasture-raised beef, certified humane pasteurized eggs, or even personal-sized spaghetti squash. Lastly these relationships help us ensure supply chain transparency as we move forward against our responsible sourcing and sustainability goals.

Blue Apron is committed to providing safe, high quality ingredients every time, everywhere. We approach our ingredient selection process for our meal kits with strict ingredient specifications, and we can do so in part because of our close supplier partnerships.

Our approach to sourcing ensures that each supplier upholds the same standards we do. Our vendor qualification process includes an in-depth assessment of sourcing practices to ensure they uphold our strict ingredient standards, including alignment to our commitment to the humane treatment of animals raised

for meat and poultry.

Once our culinary team has identified an ingredient to use, they work closely with our product category leads, our food safety and quality assurance team and the supplier to start the qualification and onboarding process for that item.

We require all our suppliers to enroll in a trade vendor management system where we collect a robust, industry standard set of documentation related to food safety, quality assurance and labor welfare, among other things. This enables our team to perform an in-depth risk assessment and determine if the supplier is able to meet our stringent standards. And if so, it helps us determine the appropriate schedule for onsite food safety audits.

After a product passes our intense qualification process, we start to introduce them into our fulfillment center and the production process. Once ingredients arrive at the fulfillment center, we can conduct strict auditing at our dock to inspect products against our standards. When ingredients are accepted into our facility, each lot is assigned a

code based on regulatory guidelines.

Now once codes are assigned, the ingredients can be moved to storage or ingredient preparation. Prepped or repackaged ingredients are stamped with an internal date that we can trace back to the date of production. Food safety regimens are embedded in every step throughout the facility, and we also follow a very strong, cold chain management program which helps maximize ingredient shelf life and limit food waste.

Our fulfillment centers are set up with five coolers to ensure that we can store proteins, produce and other ingredients at their optimal temperatures. For example, we have freezers where we store all frozen proteins. We use coolers set at about 50 degrees Fahrenheit to store ingredients that undergo undesirable chemical changes in extreme temperatures. And we store dairy and other items in coolers with a temperature around 36 degrees Fahrenheit.

We also use a warehouse management system which allows us to keep track of inspection history for inbound ingredients, incorporate each ingredient's

unique temperature range as well as restrict employees from standing an ingredient into a storage room outside of the acceptable range.

Packaging. You know, we can't deliver our product to our customers safely without the right packaging. Packaging plays a very important role in meal kits. It protects the safety and shelf life of ingredients that have different storage requirements as they travel to our customers' homes. It is also an important part of the customer experience.

To manage this complexity, we take a holistic approach to address the critical design attributes. We designate unique packaging based on weather, recipe size and transit dynamics and make sure that the packaging is rightsized. We do all of this with a goal of improving the sustainability of the packaging by using recyclable content, all while never compromising food safety, ingredient quality or optimized shelf life to reduce waste.

We use over 250 ingredients in our recipe combinations. And each ingredient has its own temperature requirements. We use proprietary tools to

help us figure out the right packaging combination that is based on temperature forecasts and benchmarked testing standards.

In our operations, we have a dedicated cross-functional team and packaging engineering lab who drive process here. We have built a proprietary packaging specification system that helps us right-size each customer's box and packaging materials so that we're sending the necessary packaging to keep ingredients safe and maintain quality.

We're also always finding and testing new innovations and materials in our lab to enhance sustainability with partnership from our FSQA team and often with collaboration from our packaging suppliers. With the right packaging identified, which can change depending on the configuration of a box, our boxes are packed by my colleagues on the packing line. Finally, we work with shipping providers with refrigerated trucks that allow us to ship our boxes safely to our customers.

So once the boxes arrive in our customers' homes, we have clear directions on our box, recipe



cards as well as on our website and blog to show different ways to safely store the food. We also offer information on how to recycle the contents of their box.

As an e-commerce company, social media is one of the many ways we communicate with our customers, either proactively to get them excited about new initiatives or as a way for them to reach out to share experiences.

As a direct-to-consumer company, it is important for our customer service team and our operations team to stay in lockstep. We believe that both are extensions of each other. With both functions reporting directly to me, it allows us to make sure that the teams are connected and supportive of each other.

We believe this allows us to stay ahead of any potential issues like missing information being communicated with social channels or making sure that we can respond to customers' questions quickly to avoid any confusion about our product quality and delivery. We also monitor conversations across

channels to help us get ahead of any potential conversation around food safety topics and ensure accurate information is being shared.

Thank you for your time today. I am proud of Blue Apron's work and industry leadership in food safety. And I truly believe that we are at the forefront of food safety standards. I look forward to your questions later in the session.

MS. ADAN: Thank you so much, Charlean Gmunder. It was a very interesting presentation. Our next speaker is Jorge Hernandez, with The Wendy's Company.

MR. HERNANDEZ: Thank you, Natalie. Thank you to you and to Andreas for this opportunity and to the FDA to share our thoughts on this new business model that we see growing through globalization. You see, Wendy's, it's very keen to food safety. Our motto is quality is our recipe and food safety is always the first ingredient. So that's why we're very proud to be part of this conversation.

My name is Jorge Hernandez, as Natalie noted, and I'm in charge of food safety and quality assurance

for The Wendy's Company from supplier all the way to customer.

A little bit about our company, just for those of you guys who aren't familiar with us. We're in 32 countries, you know, and we have over 6,700 restaurants in what we call traditional and nontraditional formats, including delivery-only and delivery- and pickup-only, you know, restaurants. We also, as an interesting point, we also have about ten languages that are spoken in our restaurants. So that makes it very interesting.

So today we're going to be talking a little bit about nontraditional facilities. And I want to say that I'm going to limit my comments mostly to those that are virtual -- what people call virtual kitchens, ghost kitchens, delivery-only kitchens where there is no dining area and there's just -- we rely on customers to pick up or delivery services to get the food to the customer.

And I will divide my conversations in a couple of different ways. We'll talk about the food safety part and some of the things we learned, some of

the things we have questions about and perhaps some of the opportunities that are available in these modes, and then I'll talk a little bit about regulations, at least in the United States, and how they help or not, to enable these kind of businesses.

One of the things that I want to mention before is that these business models have grown significantly. They were there before the pandemic. But they have grown significantly since the pandemic, and they continue to grow. And there is not one single model. There are different models with different ways to do the work. Sometimes it's one facility with one concept in a specific location, and othertimes it's a number of different concepts in one location that makes it easier to deliver a lot of different foods at the same time.

What I want to mention here, it's important to keep in mind as I mention my comments that these business models are still in flux and they're probably going to continue to be in flux for a period of time. All of them are trying to get the best quality food to customers very fast and continue to meet that customer

demand for convenience.

When it comes to food safety, you know, one of the things that we have learned is it's very, very important to develop the right food safety management system for the location and for the business model.

Like I said, they're different models. Some of them, all the preparation is done in the location. Some of them, certain parts of the preparation are done in a location and then transferred to another location where they are assembled and put together to delivery either for pickup for a customer or for a service that would deliver that product to the customer.

That is critically important to understand how that's going to happen so you can make sure that you identify the right control point and you put them as part of the system to manage the operation and ensure the safety, the quality, consistency, and regulatory compliance all the way across.

Some of the models, like I said, you know, the space is just one for one concept. But a lot of times, the models, especially when you share the space

with other businesses or other concepts, you must share the space. You must share equipment. You must share people in cases. And sometimes some of the food can go into different things.

It is very critical to understand all of that, to ensure that you have the right processes and procedures so that your food safety management system is appropriate for that location. And that can present a challenge when a new business -- when a business exits and another one comes in which is very, very often the case in several markets.

Okay. After all, you know, we are all committed to ensure that there is no foodborne illness and, you know, to ensure that all the food is prepared correctly. But it is important to ensure that those systems are not static, that they continue to change. Some of the things that can be difficult to manage, especially when you're sharing either space, equipment, people, or food is allergens.

Okay. It's very important because what you communicate to the customer needs to be true and accurate and sometimes some of the other customers

have allergies that you're not aware of. Having the management systems to keep that appropriately segregated, clean, et cetera, are going to be very, very important to these type of operations.

Okay. Then if we move to the pickup part from the restaurant businesses, we don't always have a lot of control on the people who pick up the food. Sometimes we do have relationships with those organizations who pick up and they are official and good, but sometimes we don't.

And it's very difficult for the person who's preparing the food to know the person who's picking up the food at the location. Like I said, some of them are pickup and delivery, if indeed the customer is the customer themselves or part of another business who is going to deliver the customer, you know, to another customer later.

I think the issues of packaging are very important for these concepts, you know, to ensure that you minimize and if possible eliminate any tampering possibilities or the possibility of any contamination and of course that you're mindful of the

time/temperature relationship until that product makes it to the ultimate customer. So that's a very key area for operations to keep track of and make sure that they have the right controls.

And then we have also the actual delivery, which depending on the market, can be done for all kinds of -- it can be somebody who just walks in from one place to another. It could be a bicycle. It could be a car. It could be a motorcycle. And again, we don't always have control of that. And we don't know if the people who have taken possession of that product have the training to ensure that that product needs to be maintained safe, protected, you know, at the right time and temperature throughout the delivery process until they deliver it to the ultimate customer.

Things that can happen here, and we've seen it sometimes, is unsanitary containers, unsanitary conditions in the delivery vehicles or in the containers that some people can use to be able to do that, the shipping containers, again, clean, sanitized and cross-contamination with other deliveries from



other concepts can be a problem here. Allergens, can be a big issue.

These are the things that are important delivery systems and companies must understand to be able operate, ensure food safety, and manage controls to ensure that there is no tampering.

And another one that would be important, is to ensure that there is traceability to ensure that that product went through that process to the customer because the customer is looking at the purchaser which they think their purchase is from a business like the restaurant or that brand, you know, in this case it would be Wendy's, and they don't realize they went to another -- necessarily they don't realize necessarily they went to another business to get to them. So that's a very important part of the entire process that needs to be watched out for delivering the right safety to all.

And that takes me to the next step which is, you know, the other regulatory environments. In this case, what we've seen, it's a little bit of a gray area and confusion from jurisdiction to jurisdiction.

In my opinion, the definition in the FDA food code does establish, you know, that part of the food establishment definitions that relinquishing possession to consumer directly or indirectly through ad livery service such as delivery services or common carriers are part of the code.

They should be part of that requirement that are the same as the requirements for all restaurants to ensure the safety of the product throughout. But that's not always the case. Jurisdictions see that as a gray area and some of them either don't regulate or some of them put additional regulations that may be different for what we've seen in the regulatory environment to be able to do that. That can be -- that can be a concern.

The other one is of course during the preparation area, there shouldn't be an issue if you're meeting the regulations with the right food safety systems, with the right controls, you know, in the right area, depending on the location and the processes and procedures that we have.

What we have seen sometimes is locations are

mobile and they just work for certain hours of the day where they receive a product that may be ready to be assembled and they're just going to be in a certain amount of time where they'll assemble it. They'll get it together, assess and with the best quality they can to the customer.

All of those things are variable, and they seem to be an influx. But they're very important to ensure the safety and the quality of that product that it goes throughout. Then we have during preparation - - within pickup, where we're seeing an uptick in requirements that can vary from jurisdiction to jurisdiction or what weight that we would consider tamper-resistant.

Some of them are very, very defined. Some of them are very, very restrictive. And some of them are not very effective. Are they written down with one product in mind or one type of product and can they be extrapolated to all products.

The delivery, like I said, the people, if they should be part of the process, do they have any training, are they keeping the equipment they are

using and bringing safe and sanitary? Tampering and traceability are very, very important.

A lot of times the companies, with delivery, they see themselves as software companies, not necessarily food companies, that they are doing the service. This is something to keep in mind as we look at this issue.

Again, from my perspective I think the regulations, they just need to be clarified in those gray areas to ensure that the foods are protected all the way to the consumer, regardless of the business who's handling the product along the way.

I'm looking forward to your questions, and I'll kick it back to Natalie again. Natalie, thank you.

MS. ADAN: Excellent information and great perspective around the importance of developing those relationships. Thank you so much, Jorge. Our next speaker is Carletta Ooton, with Amazon.

MS. OOTON: Hello, everyone. As you heard, my name is Carletta, and I lead a global team at Amazon called Product Assurance, Risk and Security.

It's great to be here for this virtual summit on e-commerce, and I also want to express my gratitude to the FDA for convening this meeting.

Today I'm going to talk about how we work to ensure the safety of food through investments we've made in technology and investments in innovation. I also want to talk about how we lead with a technology first approach to solve some of the big challenges that we have and to capitalize on some pretty cool opportunities. Let's go ahead and dig in.

I'm hoping that some of you have heard of Amazon, and I'm even hoping a bit more than some of you are very valued customers. I want to start with just a little bit of context about Amazon because I think it's important for the rest of the presentation. I do want to share Amazon's vision, and that is simply to be Earth's most customer-centric company where customers can find and discover anything they may want to buy.

This vision has led to a variety of business models that speak to the sheer size and scale of how we operate at Amazon. We like to start by saying

we're an innovation company. We were originally one of the first online bookstores and today we're a store where you can find and buy almost anything you could ever need or want.

What's stayed constant for us though is this notion of customer obsession, which is one of our leadership principles at Amazon. At Amazon, we provide high quality foods at great prices with free delivery available in almost every area, and we're constantly looking to expand and enhance our vast selection of consumable product offerings. We use the term consumables to describe everyday food and essential items that you might need, things that are used every day in your home and everyday life.

Amazon gives customers access to a wide selection of shelf-stable groceries and pet foods, personal care products, things that are in everyday pack sizes with delivery across every ZIP code in the United States, including Alaska and Hawaii, through our Amazon.com site. Hopefully that would be the one most of our customers are familiar with.

We also have something that we call Amazon

Fresh which launched almost a decade ago. Amazon Fresh offers free delivery for most areas where they are available, and we have a complete selection of full-service grocery kinds of products, right, fresh, frozen, produce, seafood, dairy, all those kinds of things. But we also have electronics, toys and gifts and other things customers might need.

Today our physical stores that carry consumables include 520 Whole Foods Markets, 15 Amazon Go stores and 19 Amazon Fresh stores.

Amazon has literally thousands of people in virtually every region around the world focused on product integrity and customer safety every single day. At every hour of every day, all year long, there are people at Amazon working on food safety.

Our strategy leans heavily on technology. We do this to ensure product integrity and regulatory compliance. We choose this approach because it's part of our corporate DNA to embrace innovative solutions. But also, at the scale we do business and because technology advances so quickly, we know it's smart, it's adaptable and it's forward-looking and it's a way

to really promote compliance and safety in our stores and in our catalog.

I want to dive into a few of the tools that we use to leverage food safety at the scale in which we do business on the next couple of slides.

Broadly speaking, we use a combination of proactive and reactive processes that marry human experience and expertise with artificial intelligence to create safety mechanisms at scale. Amazon's predictive controls can be illustrated using our machine learning technology that captures customer feedback data and applies it to the machine learning models to inform new insights into all related products.

The use of predictive controls has allowed us to move our actions upstream from reaction to preventing, and we think that's a critical component of our food safety controls. As an example, if you select a product from our website, we've calculated the relative distance between it and any product that has ever received a safety-related concern.

If close enough, we also predict the severity



of a potential issue as well as the likelihood that an issue could occur. If something's above our confidence threshold, we treat each prediction signal the exact same as we would a customer contact. Our investigation process is identical. We stop selling the product. We request testing documentation to substantiate product safety and compliance, and to close the investigation, we either receive proof and are able to reinstate the item or we use our recall tools that allow us to keep the product from being unsuppressed or relisted at any point in our catalog.

We look for signals of abuse, notices of copyright infringement, customer complaints and those types of things. We're able to combine those factors and scores of others to inform a comprehensive risk evaluation approach.

With predictive modeling, we're able to calculate most risk predictions for our selections and items in our stores before they have ever shipped.

It's worth noting here that this is very much an iterative process. Our algorithm and our personnel, our folks on the teams with experience feed

back into the system so that it keeps improving over time. Machine learning is critical to staying ahead. But it's our team of engineers, scientists and investigators that feed it the information it needs so that it can continuously improve.

Even as we continue to invest heavily in our proactive technologies that I just covered; we also have expansive reactive controls. We have tools that basically are -- that include ongoing monitoring to help us patrol our catalogs.

We perform something that we call customer feedback monitoring on all listings identifying issues and potential safety concerns. Last year, we consumed about 67 million pieces of customer interactions per week. And each of those data points is incredibly important and relevant because it helps to inform our product safety and our compliance strategy and approach.

Our systems scan and scrape our stores every single second looking for concerning items or concerning sellers. We ingest and sort through these hundreds of millions of data points in real time.

When a concern arises, we move quickly to protect customers and we work directly with sellers, with brands and with government agencies.

When we find a potential problematic listing, we can suppress it or basically remove the detail page so that a customer can't purchase an item. We can then evaluate the potential issue and then take the appropriate action. Globally we have tens of thousands of policies or rules which govern the sale of our products, including the restriction or ban of certain items. Those who violate our policies, or our rules are subject to actions, including the potential removal of their account.

Another tool we are leveraging is something that we call product risk evaluation tool, or PRET. It was developed to achieve a synchronized, objective, data-based risk output that is generated from global industry, regulatory and internal data for each supplier and product.

PRET is an algorithm that helps determine overall supply risk based on inherent product risk, manufacturing audit performance, consumer feedback,

food safety withdrawals and recalls, desk audits and onsite assessments.

PRET helps us understand industry-specific issues including product risk, recall incident type, food fraud, source country concerns and has helped inform and prepare auditors, identify areas of focus, and raise our internal standards. It's important to understand that while PRET helps us optimize our resources for high-risk products and categories, we still pay close attention to our low-risk categories as well. What we never want is to see a low-risk product somehow become a high-risk product because we weren't possibly paying enough attention.

Last, I want to share an example of how we use technology to drive compliance for our employees in our day-to-day grocery operation. At Amazon, we believe our employees are our greatest asset, and we believe they deserve best in class training, resources, and a delivery of training through innovative media. As such, we have moved to provide real-time, compliance-driven, automated prompts that remind our employees of critical steps to take during

their operational workflow.

In this example I want to share, it's a training solution for Amazon employees that uses prompts to prevent cross-contamination in a shopping bag. If you think about your experience in a traditional brick-and-mortar store, customers have the option to bag produce or separate raw meat items or make sure that chemicals stay away from the foods that they are purchasing. Even at checkout, the customer has that option to request that items are handled and separately bagged.

In an online shopping model, we are optimizing for that customer experience and we require bagging of raw proteins and chemicals. To automate that requirement, we've established text-driven prompts. These prompts tell employees to bag this item or line this bag to control -- as examples. This mechanism has driven a 39.4 percent increase in employee bagging compliance across a very large sample size.

We continue to add more prompts to the tool including, like I said, guidance on when to use

thermal packaging, when to use bakery paper for open baked goods or tips even for produce selection. It is showing us that real-time food safety compliance and quality coaching tools are effective as both training and effective in enforcing safety and quality requirements.

With that, I want to thank you so much for your time today for listening to a little bit about what we're doing at Amazon. I hope this presentation was helpful, and I hope that you leave understanding that food safety is a core element of our everyday operations and that we make these investments in technology and innovation to accelerate our approach to food safety. Thank you.

MS. ADAN: Thank you, Carletta, for your insight and perspective. Very interesting information about the machine learning technology.

Our next speaker is Howard Popoola, with Kroger Company.

MR. POPOOLA: Good morning, good afternoon, and good evening, wherever you may be. I'd like to thank the FDA for inviting me to share a little bit

about Kroger's B2C models, the challenges we face from a food safety standpoint and how we are addressing those issues and, better still, how we can share our own learnings for the improvement of the industry with everyone here today.

My name is Howard Popoola, and I have the overall strategic responsibility for Kroger's food safety and regulatory compliance efforts, and that's over 2,800 retail stores, 33 manufacturing facilities, 32 warehouses and several automated fulfillment centers and, lastly, third-party last-mile delivery relationships.

Kroger's B2C models include but is not limited to what you're seeing on the board. First the Kroger-Ocado fulfillment operation is an exclusive association between Ocado Solutions, a company well-known for its hardware and software platforms that powers and utilizes bots in grocery picking. The first three of up to 30 locations that are planned, hubs are already in operation along with their spokes, as you can see to the left of the slide.

We also have ghost kitchen operations. Very

familiar. This is a relationship between Kroger and third-party kitchens, a model that you may have heard of and one that has been obviously discussed extensively in past presentations. There is the traditional Kroger Pickup, formerly known as our Clicklist, and this model is well-known and adopted by mostly all retailers. It involves just ordering groceries online, picking them up in the store or driving up in a line so that the groceries can be loaded to your vehicles. There's Kroger Ship, another well-known model where customers order product online and it's shipped directly to their homes.

Hometown is native to Kroger and this is a model that we utilize for delivering groceries to one central location, usually in a place that is regarded as a food desert where there is not a lot of retail stores present here. Of course, we use the Instacart and third-party delivery model just as every other retailer, and of course autonomous delivery which you've had the opportunity of hearing about today.

For the purpose of my presentation today, I will be focusing on our catalog of solutions, powered



fulfillment center operation along with a brief mention of the ghost kitchen operation which I suspect you're very, very curious to hear about.

Now let us examine how the fulfillment model differs from the traditional grocery stores. Our customers will show online on our website or using our app for all categories of groceries. The fulfillment center utilizes an automated process to pick the customers' orders. And then those centers, as we know, are refrigerated at 34 degrees and our freezers are at -11 degrees, except of course for the administrative offices where people work.

When a grocery is picked, a proprietary software program will generate a delivery route for our drivers who are a hundred percent company employees and utilizing our company-owned delivery vans. It is important that I emphasize this because third party delivery services are utilizing various models being discussed during these sessions.

These facilities otherwise referred to as hubs also utilize a spoke model where -- maintained also at 34 degrees Fahrenheit brings in product from a

hub that is far away across dock in all our delivery vans 34 degree Fahrenheit is maintained to complete the last-mile delivery to consumers' homes.

Like every new introduction or concept, there are challenges to the process. The automated fulfillment network is an entirely new concept without precedent. This concept is not your traditional grocery store. It is not an assembly nor is it a distribution center. Our business will continue to evolve as we seek to maximize efficiencies regarding size, scope of business and with new product entries and how to better serve our customers.

We have been challenged by the lack of or inconsistency in how these models have been regulated market to market, city to city, state to state. We have found different guidelines, directions, and enforcement on issues.

One glaring opportunity though is in shelf-life management. It is obvious that different retailers have different go-to market strategies and therefore must consider how product shelf-life is managed within this model.

Training is also a challenge. Associates often view this model as a box-in/box-out operation. We must and have continued to invest massively in the training of our associates in the area of food safety and customer focus.

What has been helpful to us in this journey? Being largely unregulated, we have taken it upon ourselves to implement processes that continue to guide our operations while ensuring the safety of our customers.

My team and I are embedded in the process leading to the design, build and operation of every fulfillment center. One of the ways to this is making the case to build food safety into our operations by operating an all-refrigerated facility, ensuring that products are received, stored, picked, and transported at the appropriate temperature.

Our training group, along with the food safety team, developed and trained associates and managers in all fulfillment centers at -- as they begin their operations. We have also -- external food safety audit protocol -- conducted on periodic basis

to entrench food safety culture in those associates and within those facilities.

Let's talk a little bit about how the ghost kitchen differs from a traditional grocer. Kroger has been in the news very often due to our association with third-party ghost kitchens. I'd be remiss if I did not have a few things to say about the concept. And as you may already know, ghost kitchen operations differ greatly even within its own model. Customers may choose and order food from local restaurants served by a single vendor who has been contracted by the local restaurant for a purpose. This may be done inside of a Kroger store or externally in a space rented by the single vendor.

There is also a model where multiple restaurants converge under a single roof consisting of a kitchen, operated by a third-party to fill customers' orders. Regardless of the model, a third party is generally utilized for delivery of the food to consumers' home or to a Kroger location to be picked up by the customer.

What are some of the food safety risks that

we see? The food safety risk associated with B2C e-commerce operations have been talked about and are well-documented. For us at Kroger, managing the risk in our cold chain and that of the party partners in diverse operating conditions takes the most of our condition, and those include the models that I talked about earlier on.

Managing deliveries and ensuring that food is left in safe and sanitary conditions is of utmost importance. The ability of our third-party partners to be accountable and to be attentive to customer complaints or issue resolution along with lasting corrective action is one that we do not take lightly. Safety and security of our autonomous delivery system is also top of mind.

How do we manage food safety during transit and delivery? Kroger has taken numerous steps in ensuring the safety of our product from fulfillment, transit, and delivery to customers' homes. We do this using our own delivery appendages, the use of insulated totes, dry ice for frozen items as well.

We also maintain outbound and load

temperature logs on our delivery vans that I talked about earlier on along with a -- that ensures safety and guaranteed quality for those products. These processes are part of our internal and external audits. Our third-party partners also undergo a very robust vetting process where roles and responsibilities are clearly spelled out for accountability purposes.

I would like to end my presentation on the need to examine B2C operations with a view to approaching this growing area from a different regulatory landscape. Some of the challenges I will ask our regulators to examine include storage practices in these automated warehouses and how it influences cross-contamination. As one of the presenters mentioned earlier, software companies are not necessarily food companies.

Number two, how do we establish the true chain of custody and accountability for all players? And finally, I ask that we work together to begin the development of standards for these operations and food in transit for home delivery, autonomous delivery

which includes driverless cars, drones, rovers, however you want to call it. Most importantly, TCS foods delivered or sold from unattended or remote locations are considered.

Thank you very much for listening. Now I'll kick it back to Natalie.

MS. ADAN: Thank you so much, Howard. Our last speaker is Dilshika Wijesekera, with Instacart.

MR. WIJESEKERA: Thank you, Natalie. I hope everyone is having a good day so far. First, I want to thank the FDA for giving me and Instacart the opportunity to join this very important discussion on e-commerce and food safety.

For those who don't know much about Instacart, we are a San Francisco-based technology company that offers same-day, on-demand grocery and pickup services to consumers and offers a turnkey solution that -- our retail partners. Currently there are over 600 retail vendors on our marketplace ranging from large, national retail partners to regional and local retail partners, including (indiscernible).

There are over 600,000 food service shoppers

providing shopping services from nearly 55,000 stores over 6,000 cities across North America, and we are accessible to over 87 percent of the U.S. households.

During the next few minutes, I will discuss how Instacart thinks of e-commerce and food safety and the tips we are taking to ensure that grocery delivery does not act as an incremental food safety risk to the products we offer daily. We have built the platform with food safety principles in mind, and we have integrated electronic controls where possible to mitigate any potential food safety risk.

Based on the shopping location, the Instacart customer app will show a selection of regional vendors available in the area. The Instacart customer will have the ability to select their favorite store to shop at. Once a store is selected, consumers can shop by aisle, category or by typing the name of the product they are looking for.

Consumers can click on the product to get more information such as ingredients, allergy information and nutritional information. If listed, the customer can also provide additional information



to the shopper such as -- options, any allergy, dietary or religious information that will help the shopper with product selection.

Afterwards the customer will select the product, select the pickup or delivery-window and pay for their order. The customer will get a message when the shopping has -- when the shopper has started shopping for their order.

At this time, the customer can follow along as the shopper picks each product on their order. Also, the customer can discuss any changes or assessment directly with the shopper through the app since we have created a real-time, personalized shopping experience.

Once the shopper has completed the shopping portion, the order will either be held for pickup under proper temperature controls or delivered to the customer's doorstep.

The shopper flow is also very similar to the customer flow. When adding products to the customer's order, the shopper will scan the barcode which ties the product to the customer's order. If the shopper

scans the wrong product, the app will prompt the shopper to verify the product selection. This is an example of an electronic control in place to mitigate any potential allergen risks.

Once the shopping is complete, the shopper app will suggest directions to the customer's address by the most efficient route to reduce travel time. The customer can also track the route taken by the shopper in the customer app like how you would track a driver in a rideshare.

The short delivery times of our -- when delivering groceries does not cause any incremental food safety risk to consumers. Shopping at a grocery store and taking those groceries home is not an odd concept and we as consumers do it safely every day. The 600,000-plus shoppers on our platform are also consumers that shop for their families and they obviously know how to do it safely.

When we think of food safety and grocery delivery, we think of ways to make it relatable to the shoppers in concepts they understand. Therefore, we aim to -- what we aim to do at Instacart is to provide

them with additional guidelines and educational materials to make it even safer when they're shopping for other consumers.

It is important to note that shoppers may come on our platform from a few hours a week to a few hours a month, as most shoppers use the platform as a flexible earning opportunity. Therefore, traditional food safety education practices using manufacturing and retail spaces don't necessarily translate well to the on-demand gig economy space.

We know that shoppers search to find information on the shopper app. We can strategically place the food safety information so that it's easily accessible to shoppers. We try not to use terms such as food safety as we don't believe most shoppers relate to those terms.

Instead, we provide the food safety principles in easy to understand, short modules which are designed to provide the necessary food safety information to shoppers to help them make better decisions without burdening them with unnecessary food safety information that they just don't need.

For example, rather than having educational modules on cross-contamination and allergen control, we have modules on introduction to packaging and delivery and introduction to making great replacements.

Within these modules, we discuss the need to reduce chemical and raw meat -- why chilled and frozen items should be bagged separately from hot food, why it's important to use insulated bags and to keep a pet- and smoke-free vehicle when delivering groceries, among other topics.

As you can see, we are achieving the same results in terms of educating the shopper. But we use a more pragmatic approach by covering the food safety material in the shopper -- to make sure they're needed for -- what they need for delivering safety.

In addition to bitesize modules, we also provide all the food safety guidelines in our help center which is accessible through the shopper app. I'm also very proud to say that our food safety education material was reviewed by AFDO as -- (audio interruption) --

MR. KAWCZYNSKI: All right, Dilshika. We're good. Take it away.

MR. WIJESEKERA: Okay. Thank you.

OPERATOR: Your microphone has been turned on.

MR. WIJESEKERA: I'll start at the modules. Within these modules, we discuss the need to bag produce, chemicals and raw meats separately, why chilled and frozen items should be bagged separately from ambient or hot food, why it's important to use insulated bags and to keep a pet- and smoke-free vehicle when delivering groceries, among other things.

As you can see, we are achieving the same results in terms of educating the shoppers. But we use a more pragmatic approach by covering the food safety materials the shopper needs to shop and delivery safely. In addition to these bitesize modules, we also provide all the food safety guidelines on our shopper app in the help center which is accessible to the shoppers.

I'm very proud to say that our food safety and education material was reviewed by AFDO, which

stands for Association of Food and Drug Officials. AFDO utilized subject matter experts with substantial food safety expertise and knowledge of the FDA's model food code to review and evaluate the content to make sure that it's relevant to the shopping and delivery activities performed by shoppers when fulfilling customer orders.

We take great care when -- we take great care to make sure that shoppers on the platform are vetted to make sure we protect the entire Instacart community. During onboarding, we also offer a food safety walkthrough to shoppers that discuss the main food safety principles followed by a knowledge check. We also perform thorough background check and ID check to ensure that our platform remains safe for everyone.

For example, in addition to doing a background check, we ensure our shoppers' driver's license is valid and the picture on the license matches that shopper that's onboarding. As an added safeguard, we randomly ask shoppers to upload a selfie when they are opening the shopper app and use automated and manual screening to verify their

identity.

To ensure food safety and temperature compliance, we have systematic controls in place rather than only depending on the human element. We also perform delivery validations, worked with academic consultants, and run packaging monitoring programs to ensure that we don't add any incremental food safety risk during delivery.

When setting the delivery radius for a store, our team evaluates various inputs including the climate, traffic patterns and any other local developments in addition to the distance to ensure that delivery can be completed during the established safety window. We also use machine learning to continually optimize chances to reduce drive time and have built-in buffers and safeguards when an order is late due to an unavoidable circumstance such as a flat tire.

Our logistics operations team continuously monitors and can take proactive steps to mitigate potential concerns. For example, if an order is late, they can contact the customer, cancel the order, and

immediately dispatch another order to the customer to maintain the positive customer experience.

We have made it very, very easy for customers to let us know when they have any order concerns. Customers can easily report issues such as wrong, missing, or damaged items, late deliveries, and any other issue that they may have encountered directly on the app.

Any food safety concerns are directly escalated to our trust and safety team for our review and action. The trust and safety teamwork with the cross-functional team of investigators to investigate and correct any concerns and also prevent recurrences. If the consumer provides feedback on other product issue such as foreign material or if the concern is store-related, we will deal directly with the regional partner to address those concerns.

Since the shopper scans each item when picking a customer's order, we know exactly what products each customer purchased with each order. Products that don't have scannable stickers like produce items, we still record the product name the



consumer ordered so we have a record of it. This information is helpful to us to directly target customers that may have purchased a recalled product.

We use a third-party alert service which scrapes all regulatory sites for recalls and sends out standardized updates. We review these updates seven days a week and query the product catalog to identify any customer orders that contained the recalled product.

We take a more conservative approach and method based on the production date starting on the date the product was delivered to the store or made available to the customers at the front of store. If the recall notice contained the production note, we use a more conservative date range to message customers. And lastly the customer that purchased the potential recalled item will receive a standardized email typically in 24 hours which points them to the regulatory recall notice so that they can receive the most up-to-date information including exact lot codes and expiration dates.

That's the end of my presentation, and I hope

I was able to provide you some helpful information on how Instacart thinks of food safety and the steps we take to protect the entire Instacart community. Thank you so much.

SESSION 1: Q&A

MR. KELLER: All right. Thank you very much to the panel for providing such an interesting and technical perspective on B2C e-commerce. Now we move into our next session, which is the Q&A live and our colleagues on the line and watching this video and the show that we are presenting to you can submit questions to us by going to this email here on the slide, which is [smarterfoodsafety@fda.hhs.gov](mailto:smarterfoodsafety@fda.hhs.gov).

We would like to pose a few questions to you, and these questions were submitted to us by our summit registrants. Here's the first question, and I would like to mention that each panelist will have an opportunity to answer each question should they wish to do so.

It is another exciting round here of more knowledge to come our way. First question, how do businesses which utilize ghost kitchens actively

manage and control the safety of foods produced at such establishments? Who would like to take the first question here? And let me see. We are telling here - - and I think -- let's see. We're still waiting.

There's a little bit of a delay here and --

MR. KAWCZYNSKI: Howard's got his hand up.

MR. KELLER: Yes. Howard will take it.

MR. KAWCZYNSKI: Howard.

MR. KELLER: I'm slow in reading. I'm sorry.

MR. POPOOLA: Thank you, Andreas. You know, I anticipated that this question is going to be coming up. Everyone tends to look at the retailer and point the accusing finger at the retailer as the one being responsible for the food safety management systems in both kitchens.

But the truth of the matter is that this is a partnership between us and the ghost kitchens. I mentioned during my presentation that we thoroughly vet our third-party partners. And what that vetting includes, number one, is that they understand what they are about to go into.

Number two is that they have a comprehensive

food safety management system that they've developed for the potential operators of the kitchen and that they can hold them accountable to. There is no sharing of ingredients. You can't be out of this ingredient and say I'm going to go get it from the other side and go use it. These are some of the things that we look out for during the vetting process, that the systems are there, that the associates are trained to the level where they understand what steps to take and what food safety means and that the training isn't a one-shot situation, that it's detailed and ongoing for of the associates that will be utilized in the kitchen.

We also make sure that, you know, from a legal standpoint, they understand what accountability stands for. And once that is entrenched in them, we've found the relationship to be very complementary. We go into their operation. We look at it. We give them feedback. They take it. They make improvements.

MR. KELLER: Thank you, Howard. Jorge, I thought maybe you could add something to this, if you would. Thank you.

MR. HERNANDEZ: Sure. Absolutely. I think Howard is right. It is about the food safety management system designed for that facility. One of the things that is very important to note is this is not something that you copy and paste. You can't have ten facilities. You've got to tailor it to the facility, to your menu, to all things that you're going to have to be able to be successful.

The only thing I would add to what Howard said is you need to have regular information that comes in third-party verifications, you know, third-party verifications, you can put in place e-control points where they're either temperature taking or things that are going to be monitoring those critical areas for that product that is going to be delivered are being done every day, every time with every delivery so that you can have oversight over the entire system that is taking place.

There are several ways that you can do that. But the thing that I like about what Howard said is it's got to be tailored to that specific location, menu, people, and training. You know, otherwise,

you're going to be -- you could be missing something that is going to cause a big problem. So, yeah. Make sense?

MS. ADAN: It does. Thank you so much. Great. Great responses. The next question is how do delivery services ensure the health status of their workers and cleanliness of the delivery vehicles, including with respect to communicable diseases and COVID-19. And Carletta Ooton, with Amazon?

MS. OOTON: Yeah. Sure. I can jump in on this one. I don't know that I would suggest thinking it's rocket science is my answer. I would say that really comes from clear procedures, simple, effective training, really having the right inspection and audit mechanisms and then of course being able to provide the right supplies.

Of course, like many of the other panelists, we were significantly impacted from a COVID perspective and our customers depended on us in a way that they never had before.

To provide just a little bit of context, you know, we've communicated broadly that we've spent over

\$11.5 billion on COVID supplies and that's what it's taken in our supply chain to actually really make sure we could do it safely, that we could keep our delivery associates safe and our vehicles and our sites and everything safe. We added 6,000 additional janitorial staff. We I think procured 34 million pairs of gloves and 48 million ounces of hand sanitizer.

And, you know, it's not done. We've got to keep doing it. But we've got to do it in the backdrop of those things I mentioned outside of the supplies, right?

MS. ADAN: Right. Ashley, do you have anything to add?

MS. DE SMETH: Yeah, absolutely. To piggyback off, of what Carletta was just saying, it's certainly constantly a work in progress, right, to be better and better and better in every way that we can. But it does certainly go back to providing PPE, being able to forward guidance and understanding of proper sanitation and certainly just best practices.

We all learned a lot more about best practices during COVID-19 and we're all still getting

better in relation to what that means in the ongoing environment and so just fomenting that. And then I will go back, you know, as these units are being carried from point A to point B, it is also about like packaging and better guidance on packaging and what we'll measure along the way.

MS. ADAN: Great input. Packaging has been a lot -- there's been a lot of talk about packaging lately. Dilshika, do you have something to add to this question?

MR. WIJESEKERA: Yeah. Thanks, Natalie. I'll talk a little bit about how Instacart kind of responded to the pandemic.

From the very outset of the pandemic, we developed a robust set of health and safety guidelines with the support from an expert panel which was also reviewed by the CDC which discussed everything from reporting illnesses, hand washing, using hand sanitizer, cleaning and disinfecting insulated bags and vehicles and how to shop and deliver safely.

We also provided safety kits at no cost to shoppers which included masks and hand sanitizer. We



developed an in-app wellness check to ensure that shoppers that have any COVID symptoms don't come on the platform to shop. We've provided free doctor on-demand to all our shoppers because it was hard to find one if you feel sick where they can talk to an MD and get a virtual diagnosis, just a clinical diagnosis which we honored and provided extended pay for.

For our extended pay program, we have it until the end of the pandemic where we are paying up to 14 days for a shopper that's diagnosed with COVID so they can stay at home and recover without having to come on the platform. We also introduced leave (indiscernible) where they are to minimize any physical interactions between the shopper and the customer.

To protect shoppers specifically, we introduced mobile checkout, so the shoppers don't have to interact with sales material or credit card machines. We are also offering vaccine support stipends to shoppes to make sure that we encourage our shoppers to get vaccinated and to reduce the impact of the pandemic.

MR. KELLER: Wow. Impressive. I'm blown away by your answers, and yeah, I'm ecstatic that we are all tuned into these safety measures. Thank you very much for your answers. It's reassuring that we are doing a good job.

To our next question, any of you, please discuss the various types of existing B2C e-commerce business models and modes of delivery. What are they and what are the differences between them? And here we go.

Ashley, if you could take the first stab at it? Thank you.

MS. DE SMETH: Yeah, absolutely. I won't go too far back into the rovers I discussed further and certainly any of the further technology in relation to that.

I will say that the rovers do have a spot inside that it's insulated plastic and then there's an insulated bag that goes inside them as well, right? This is one of the several types of safety measures, to make sure that things do make it to where they're going to be in the form that they want.

But I think the other thing that we should talk about, right, is that a lot of people associate delivery constantly with cars. And that's simply not the case.

Particularly in urban areas, we see a lot of bike deliveries and e-bikes, which are important to sustainability and making sure that those individuals can, you know, do the work that they want to do to earn but also do it in sustainable and environmental practices as well.

E-bikes and bikes and so on, which have their own challenges in relation to insulation and insulation bags.

MR. KELLER: Thank you, Ashley. Carletta, I thought you may be able to elaborate a little more on this, if you would, please.

MS. OOTON: Absolutely. Thanks, Andreas. You know, so I covered several of our business models in the brief time I was talking. And I don't want to go through all of that in painful detail.

But, you know, I of course mentioned Amazon.com, right, the ambient shelf storage -- or

stable food. But the physical stores, there's also models that we call FBAs, fulfilled by Amazon models where we don't own the inventory, but we manage all the delivery and the handling.

There's a ton of different models even within physical grocery stores, right, for us. We offer things like the Dash Cart as a pay to check out or if some of you went into our stores and had an experience with Amazon Go, Just Walk Out technology. You literally just pick it up and walk out, right?

I think what's important is that there are these many different models between even at Amazon, but the way other panelists think of their models.

Of course we absolutely want to ensure food safety across every single model because at the end of the day it really is about the customer. And so instead of saying, hey, I do this, or I do that, what I would tell you is with every new business model or every new business innovation, what we're doing is taking that customer-centric approach.

We want to have the right food safety controls that are science-based and that meet or

exceed the regulatory obligations for every area that we operate. And I think that's the key, right? If you take that, the models are kind of irrelevant. It's about getting it to the customer and doing it in the safest manner possible.

MR. KELLER: Thank you, Carletta. And I love the mention of science-based, which we know is very important to making good decisions and it's at the heart and soul of FDA.

But I thought maybe Howard is another good candidate here to give us a little bit more information on this question here, if you would. Take it away, Howard.

MR. POPOOLA: Thank you, Andreas. You know, I want to look at it from a different perspective. You know, we offer several B2C models. And one thing that I'm finding out, one thing that we're looking at is that this is going to stretch us from a food safety perspective when we look at one model and we look at the opportunity of utilizing that model to deliver for another model.

When I talked about Hometown, which is very,

very unique to Kroger, taking groceries from a store to a food desert, getting that out to consumers, the question is what stops us from utilizing an automated process to fill those orders and go Hometown that way, you know?

I see a future where those models would intermingle, you know, and there will be for us a functional step happening between one model and the other. This is one that I want my colleagues and I to be thinking about as we step into the future with these new B2C models.

MR. KELLER: Excellent. Thank you very much. Jorge, I saw you nodding when we were talking about interconnection between models, I'm pretty sure you're the next guy here to give me some insights.

MR. HERNANDEZ: Yeah. One of the things that I think I mentioned in my presentation is that we haven't seen all the possible models that we have. This is an evolving situation. The goal, I think, is to give customers convenience. This continues to evolve, there are going to be more models. There will be parts of two different ones put together or there

will be ones.

The point here is that food is food. And we just need to make sure that whatever model comes next, the safety of the food becomes an integral part of that delivery, that storage, that preparation, right? The principles are going to be the same. The application may be different because there will be different parts of it or you will be on different segments.

But I think it's important to -- at least from my perspective, it doesn't matter what models will be created. It's going to have to be maintained safe throughout depending on the needs of that food matrix for time, temperature, cross-contamination, you know, clean and sanitized. The same things are going to apply. They're just going to have to be applied a little bit different and in, you know, different situations.

MR. KELLER: Thank you, Jorge. Excellent. Natalie, I think I'm going to kick it over to you. Otherwise, I'm going to start losing my voice here. you go ahead.

MS. ADAN: Okay. Great. Just a reminder to submit your questions by email to [smarterfoodsafety@fda.hhs.gov](mailto:smarterfoodsafety@fda.hhs.gov). Our next question is are there any unique food safety issues which exist for foods, produce, manufactured -- or sorry, let me start over again.

Are there any unique food safety issues which exist for food produced, manufactured, sold, and delivered using B2C e-commerce and, if so, what are they and why are they unique to B2C e-commerce business models? Let's see, Charlean?

MS. GMUNDER: Happy to answer this. You know, it's interesting. For most of my career, I have worked in what one might consider the traditional B2B food industry in terms of working for a manufacturer that supplied what I'd consider to be a limited number of customers directly to retailers.

And contrast that with the B2C e-commerce model where there are many, many thousands of customers, or millions even. And we are, you know, supplying customers that will have what I consider having a variety of very different cold chain



experiences versus when you're shipping to a retailer. You've got a smaller number of retailers you're shipping to. They're in much more controlled cold chain experiences. You know what that's going to be like.

And it's also you know exactly where they're going whereas the B2C model, you've got customers throughout the country, maybe the world and therefore a huge variety of different cold chain experiences.

The challenge I think for us is to ensure that we can deliver food safety to our customers around the country, I know at Blue Apron -- and I've talked about this already, but we really need to make sure that we have a strong validation of our packaging to maintain that cold chain.

At Blue Apron, we have a very proprietary packaging specification system that helps us to truly create right-side customer boxes and packaging materials so that we make sure that we have the necessary packaging to keep the ingredients safe and to maintain quality. But it also helps us to limit unnecessary packaging use. I think this is one of the

critical components that really sets B2C model apart from --

MS. ADAN: That's great. Domenic, do you have anything to add?

MR. CARAVETTA: Yeah. Sure. In terms of being unique food safety concerns, first, they're exposed to all the same kind of food safety concerns that even non-e-commerce-type. This is already a challenge in and of itself.

I think the uniqueness comes into understanding not when things are always working well, but circumstances when things are not according to expectations or things didn't -- there's failures in the system and distribution. And at that point, does your consumer become your quality control person as the last line of defense.

To me, it's not when things are all going well. It's what happens when things are -- failures have happened along the way. How is that communicated? How is that captured? And I heard some wonderful technology-based aspects that the folks here have presented today.

I think that aspect of failures in distribution become critical because in non-e-commerce-type, you always have some control agent somewhere along the way. Here sometimes it becomes a consumer who potentially is a very hungry consumer and needs to have feedback soon that the product that's arrived is safe or not. I think that's one big aspect and uniqueness of it.

MR. KELLER: Great. Thank you, Dominic, for your perspective. And we have time for one more question here that came in, and the question is how is food safety controlled with the currently utilized delivery modes where foods must be temperature-controlled for safety? How is such managed, assured and verified?

I will pick on Charlean first. Charlean, take it away, please.

MS. GMUNDER: Thanks, Andreas. I've certainly had experience in both areas in terms of understanding what is unique and what is not. And what I would tell you is that for us at Blue Apron, our food safety systems are modeled based on GFSI

standards. We have many of the same traditional food safety practices that anybody would expect.

Of course, for our particular model, we place an incredible focus on temperature management. And, you know, we're monitoring temperatures for high-risk items throughout critical steps in our food safety plan and we are working very hard to ensure that all our ingredients stay fresh and safe all the way to our customers.

But I would want to point out one thing that's kind of interesting. I think we have an advantage in the B2C model in our food safety program, and it has to do with customer communication because compared with a traditional retail channel, we can be very intentional and agile with direct customer communication in the event that any kind of market action or food safety quality concerns. We have a direct connection, and I really value that. I think it sets us apart.

MR. KELLER: And I thought I saw Carletta waving. Hello. I'm pleased to hear you talk about this too.

MS. OOTON: Yeah. I'm having a technology challenge. For us, you know, again I'm not going to spend a ton of time on temperature. I think Charlean did a great job.

You know, for us we're looking at inbound. We're looking at, you know, temperature during hold and making sure we have the right alarms and the right procedures for what happens if we get into an alarm situation.

But we've also developed a sustainable, consistent, and science-based chill chain model, right, where we're able to kind of think about ultra-fast delivery, but we're also able to think about passive refrigeration, things like ice packs and stuff that Howard mentioned, right? But again everything focused using science and with the customer in mind.

So for us we also -- you know, we try to hire the scientists. We try to implement the technology controls and then we also leverage global experts from around the world to make sure we're doing it as effectively as we can.

MR. KELLER: All right. I also had a little

challenge here with my technology. This brings us to the end of our Q&A. I want to thank you from the bottom of my heart, to this great group of individuals, panelists, the brains of our time, who look into the future and are designing the future, what it will be and challenging us to do a better job.

I think we are on time and can go and take a little break. Thank you very much to our panel. I appreciate it very, very much. Goodbye.

(Off the record)

MS. BARRETT: Wow, what a great first panel we had. And now it's time for our second panel on "Consumer Perspectives on E-Commerce and Food Safety: Ensuring Business to Consumer E-Commerce Models Produce, Sell and Transport Safe Food."

So moderating our second panel, we have Sharon Lindan Mayl, who is a senior advisor in our Office of Food Policy and Response at FDA.

And Sharon, I'm going to hand it over to you now. Thanks so much.

SESSION 2: CONSUMER PERSPECTIVES ON E-COMMERCE AND  
FOOD SAFETY: ENSURING BUSINESS TO CONSUMER E-COMMERCE

MODELS PRODUCE, SELL AND TRANSPORT SAFE FOOD

MS. MAYL: Well, thank you, Kari, and good afternoon to everyone and welcome to our second panel which focuses on consumer perspectives on e-commerce.

As Kari said, I am Sharon Lindan Mayl, and I work with Deputy Commissioner Yiannas in the Office of Food Policy and Response. In my role as senior advisor, I have had the privilege to manage many cross-cutting food policy issues and currently have the privilege of serving as the lead for implementing FDA's New Era of Smarter Food Safety Blueprint. We have already made so much progress on each of the core elements, and this summit is yet another milestone.

I am excited for this very distinguished panel today. But I want to reiterate what my colleagues have already said, that the purpose of this summit is to engage with all of our stakeholders. So we invite your input during this meeting, as well as through comments submitted to the docket which closes on November 20th.

We intend to use all of the information resulting from the public meeting and the docket to

determine what actions, if any, we should take to help ensure the safe production and delivery of foods sold through e-commerce business models.

So we just heard the industry perspective on the previous panel who described how they help to ensure the safety of the foods that they produce, manufacture, sell and deliver directly to consumers using e-commerce. Now we're going to switch gears a little bit and we're going to hear from the consumer side of things.

We are so very fortunate to have three very accomplished panel members with us today to provide their perspectives on foods sold through e-commerce. You can read their full bios on the website.

But I'd like to welcome Dr. Bill Hallman, who's a professor and chair of the Department of Human Ecology at Rutgers University, Mr. Thomas Gremillion, the director of food policy at Consumer Federation of America and Ms. Brittany Saunier, the executive director for the Partnership for Food Safety Education.

Each of the panelists will provide a short



presentation that will address the consumer perspective on issues related to food safety risks, standards of care, regulatory oversight, labeling and consumer education on the safe handling of food produced manufactured, sold and delivered through e-commerce.

We'll follow their presentations with a moderated Q&A portion just as we did with the first panel. And we can further explore all of these topics. Some of you who are listening may have already submitted questions to pose on these topics.

But as you listen to our panelists, I encourage all of our meeting attendees to continue to submit their questions that they would like to see addressed today, and there'll be an opportunity to do that when you see the slide. And we'll post the correct place to do that.

So I am going to hand this off to our first speaker, Dr. Bill Hallman, from Rutgers University. Take it away, Bill.

DR. HALLMAN: -- I'm going to talk for about ten minutes about a study which took a couple of years

to complete where we worked with our colleagues from Tennessee State. This was a USDA-funded study of meat, poultry, seafood and game products offered online and delivered by FedEx, UPS and, yes, indeed, even the U.S. Postal Service. It was a multistage study including a survey of more than a thousand consumers.

We looked at food safety information on the websites of 427 domestic vendors and looked at their delivery policies. We looked at the -- we measured the delivery and food safety parameters of more than 160 shipments of these items to residences in New Jersey and Tennessee. We opened the boxes, looked at 684 products for the presence of indicator organisms and some specific pathogens.

We looked at the food safety information that was included with those shipments, and we've provided some recommendations for both consumers and the industry to improve food safety related to these particular products. So I want to be clear that this study was of meat, poultry, seafood and game products only. We weren't actually looking at meal kits. We

were just looking at the proteins that were shipped in these particular boxes.

So I want to start with the fact that we found that there were indeed more than 500 online vendors in the U.S. offering these particular products with direct delivery to consumers using FedEx, UPS and the U.S. Postal Service. There are -- one of the key things that we found is that there is indeed a relatively easy entry to the market. In fact, there are very few barriers to either entry to the market or to exit without a trace.

When we began the study in 2013, we found 500 vendors. When we began looking at their food safety information, there were 500. Then we began to look at how to order from these particular vendors and about a hundred were gone and a hundred had taken their place. So what we figured out was that indeed there are very few barriers to beginning this particular business or to just closing up shop and leaving the internet.

We found vendors located across the country. They ship across the country, everywhere from the Gulf of Alaska to the tip of Florida and the tip of

California and the Gulf Coast, really around the country. The other thing that we found is that there's no central list of vendors or any nationwide regulatory oversight.

In order to find these particular vendors, we had to do searches, Google searches looking for online sales grass-fed beef or online sales of lobsters. There is no central registry for us to take a look at. We did a survey of more than a thousand consumers in 2013. So we screened people. These are a thousand consumers who have either purchased these kinds of products or received them as gifts. And we found that more than 80 percent said that they were satisfied with the quality of the products that they received.

More than 90 percent believed that receiving fresh or frozen products -- these are again meat and poultry and seafood and game products -- via these various package delivery services is safe and almost 90 percent said they would order from the online company again. So the key finding here is that consumers perceive very little risk associated with the online ordering and delivery of these particular

products. Unfortunately what I'm about to show you is that they are very, very wrong.

We know, and a number of the panelists know, previous to this have talked about the idea that these parcels containing perishable foods are really treated no differently than any other package that's handled by FedEx, UPS or the U.S. Postal Service. And so the packages have to maintain the cold chain. They have to maintain proper cold temperatures on their own.

I was part of the study and had packages of meat and seafood delivered to my house. And they were literally put on my front porch along with a Dell computer and a book order from Amazon and they were not treated any differently.

One of the things we found early on in looking at their delivery policies is that the vast majority of these companies deliver using a policy that's called signature release. And that's the opposite of what you might think it actually means. Signature release means delivery without requiring a recipient's signature.

What it means is that packages can be left at

an exterior door. What was interesting was that only about 5 percent of those vendors, of those 427 vendors specifically required a signature upon delivery but only 5 percent required you to sign for the package. And while the vast majority were essentially left at the recipient's doorstep, only about a quarter actually stated that their packages would be shipped signature release. So most of the vendors are not actually warning their customers that they can be left on a doorstep.

So of course the issue there is that packages can be left outside for quite a long period, which can result in temperature abuse. The other thing that we realized is that many of these products are actually ordered as gifts. And if you are shipping these perishable items to someone else and you're not sending them an email in advance saying, hey, expect that there is going to be this gift, people may not realize that in fact they should be expecting these packages outside their doorsteps.

Now there are significant questions of liability that we discovered. Both FedEx and UPS

actually disclaim responsibility if the perishable products become either spoiled or damaged during the delivery process. They say it's the vendor's responsibility to make sure that their perishable goods are packaged properly and maintain the cold chain inside the box. It is the vendor's responsibility to make sure that the perishable goods reach their customers safely.

At the same time, many of the vendors also disclaim responsibility. So here's some examples from, for example, Cape Porpoise Lobster Company saying that they are not responsible for the misuse, accidental breakage of products or product that's left outside in adverse weather conditions. Cook's Bison Ranch, we cannot guarantee the freshness of your order if it sits outside unattended for more than an hour after delivery. And Sagaya Seafood is saying due to conditions beyond our control, once the package leaves our facility, it's the responsibility of the customer to take the necessary steps to ensure the quality of the product within.

So the shipping companies, FedEx and UPS, are

saying it's not our issue. It's the vendor's responsibility. And the vendors are saying it's not our issue. It is in fact the customer's issue.

At the same time, we found that many of the vendors actually made it quite difficult for consumers to report any problems or to receive refunds. So again it's -- you know, it's sort of the customer's problem. We found very poor food safety information on websites.

About four in ten of these vendors -- only about four in ten of these vendors provided any food safety information, so about 60 percent, about six in ten provided no food safety information at all on their websites. Where the 42 percent did provide food safety information, that information was really difficult to find. And where there was food safety information, actually a lot of it was quite bad. We found a lot of inaccurate food safety advice.

So perhaps -- there are lots of examples I could give. The worst I think though is the cool to the touch advice. We found quite a number of companies saying things like your bison meat may be



thawed by the time it gets to you. Touch the meat, and if it is cool to the touch, your order is in good condition.

But perhaps my favorite is, yes, it is safe to eat the meat as long as it is cool to the touch according to USDA standards. Well, I can assure you that there are not USDA standards related to cool to the touch. Cool to the touch is a relative temperature relative to the ambient temperature in the room. And in fact you can have meat that is 60 degrees and if your room is 70 degrees, it's going to feel cool to the touch.

Here is the bottom line from our study. Almost all of the packages that we received arrived intact. So there were very few visible indicators of potential food safety problems. You know, a few boxes with obvious leakage issues, a few crushing problems, but otherwise no real visible sense that there may be problems inside. But almost half of the 684 products arrived with one or more surface temperatures above 40 degrees Fahrenheit and so should not be considered safe to consume.

Now this fact, the idea -- or the fact that almost half of the products came in the danger zone, combined with a lack of food safety information and abundant inaccurate food safety information on both the vendors' websites and inside the packages that were delivered, that combined with consumer confidence that what they're receiving is safe and barriers to report problems and receive refunds fundamentally places consumers at increased risk for foodborne illness.

So that's the bottom line I want to leave with you. Consumers don't realize that there are in fact problems with these particular packages. They're not looking for it. They're not expecting it. If you're spending \$200 on a pack of gourmet steaks, pretty much the assumption is that the company knows what they are doing. In fact, we found that many could not in fact deliver safe products to their customers.

I want to acknowledge the research team, my colleagues from Rutgers University, Don Schaffner, who you'll hear from in this conference, my colleague,

Angela Senger-Mersich and my colleagues at Tennessee State University, Sandria Godwin, who is the PI, Fur-Chi Chen and Richard Stone. And if you would like more information about the study or if you would like to complain, you can reach me at this address. So thanks very much. I think I'm right on time.

MS. MAYL: Thanks so much, Bill. You've raised a lot of important consumer issues and I really appreciate the consumer perspective on this. And we're going to delve into a little bit more what you were saying during the Q&A period, so thank you.

So with that, I'm going to turn it over to Thomas Gremillion, from Consumer Federation of America. Thank you, Thomas.

MR. GREMILLION: Okay. Thanks, Sharon. That's a tough act to follow. There's some really alarming results frankly and I'm looking forward to talking more about that. My name is Thomas Gremillion, and I am the director of food policy at Consumer Federation of America.

Consumer Federation of America is a nonprofit organization established in 1968 to advance the

consumer interest through research, education and advocacy. And we have over 250 nonprofit member organizations who help to set our policy agenda.

And so today I want to talk about some of the concerns that consumer advocates, our group and member groups as well as others have raised in response to the rise and increase in food sales over the internet and kind of try to give some context for critical research like Dr. Hallman.

This first slide is starting at a really high level. As the starting point, I want you to consider the food safety system and a function of these three interacting and sometimes even overlapping components. I got this from Professor Timothy Lytton's book, "Outbreak," which I'd highly recommend. You could draw the boundaries a little bit different around some of these areas. But I think it's a pretty good encapsulation of the critical components of the food safety system and, you know, it's a helpful way to think about how we might want to adjust some of the policies that relate to these different components of the food safety system as we talk about the changes

that are being wrought as a result of increased e-commerce.

I thought I'd run through a concrete example from Dr. Hallman's presentation, you know, one of these online steak vendors today and just, you know, illustrate for government regulation, we have laws that require federal inspection of meat and poultry that's sold across state lines.

We have other laws and regulations that determine how a company labels its product, the claims it's allowed to make in its marketing, the allowable limits of antibiotic residue on the meat and so on and so forth.

For a product that causes foodborne illness outbreak, it's government inspectors that try to track down what caused that outbreak and identify the source and, you know, government enforcement agencies that take action against the food company that's found to have caused a foodborne illness outbreak. So all of that you can put into government regulation there and much, much more.

For the civil litigation and consumer

advocacy, it's straightforward. Like it says for our online steak vendor, they might get sued by a foodborne illness victim if they make someone sick. The trouble is that, as most of the folks tuned in now probably know all too well, foodborne illnesses are rarely tracked back to the source.

There's some silver linings with whole genome sequencing and some ways that that's hopefully changing for the better, but not the best kind of insurance policy for getting to your optimal food safety.

A consumer advocacy campaign might be, you know, some effort to name and shame the companies that maybe are using packaging that's wasteful or it could be an effort to pressure an agency like FDA to take enforcement by documenting all of the companies that are breaking the rules. And I would put Dr. Hallman's research and his colleagues' research in this bucket as consumer advocacy and, you know, shining a light on problems in the system.

Last but certainly not least is the industry supply chain management. And this is one of the most

important components because the companies themselves are really best positioned to identify the food safety risk in their processing and distribution and know how they can mitigate them. And often they do it with the help of third-party consultants and auditors who traditionally have been required by a lot of retailers and other downstream firms. So that's kind of an overview of the food safety system.

This next slide -- I'm not very tech savvy. I apologize. I'll try not to read too much. This is just some of the ways I've tried to list out the increased online food sales may be affecting or could affect the different components of the food safety system. It's hardly a comprehensive list. If you have ideas as I'm talking that you think aren't included, you know, I'd love to see them in the chat or, you know, reach out to me afterwards.

But some themes that run through here, you know, one is related to the fact that there are reduced barriers to entry. There's a lot of new upstart food companies like Dr. Hallman mentioned. You know, there's the coming and going and seemingly

fly-by-night firms. In itself, it's not a bad thing that there's more firms involving food production. We probably need more competition in the food system. We definitely need more competition in the food system.

But to the extent that reduced barriers to entry allow firms to operate without investing adequately in food safety, then the food safety system needs to adjust. And as I'll kind of discuss more, I think increased government enforcement may be, you know, a key factor in that and where we place litigation -- well, legal liability.

Another driver of these phenomena I think we might shift away from traditional -- excuse me, a shift away from traditional gatekeepers like retailers, one of the panelists alluded to that in the previous panel, the accountability gaps that come about as a result of new distribution channels. And so, you know, since FedEx is now part of the farm-to-fork continuum, what is FedEx doing to keep food safe. And if it's not doing anything, then what do the online vendors need to do in order to get more information to the consumers.



We don't want, you know, consumers to be exposed to more food safety risk or to shoulder responsibility, more responsibility for understanding product claims correctly. And so the final note on this slide, as online food sales grow, the role of traditional kind of place-based regulatory entities will have to adapt and they'll need more coordination and there'd probably be some jurisdictional quandaries to solve.

So I want to give some examples of how we see this kind of affecting public policy. And one thing when Dr. Hallman showed us some of his initial research prior to this panel, you know, I felt really good about some work we did before to oppose kind of deregulating meat and poultry inspections because, you know, if it happens, these packages are getting to the door at over 40 degrees Fahrenheit, you know, I would hope that at least they were inspected in a way to neutralize the pathogen at the slaughterhouse.

But, you know, who's to say if some of these firms may be breaking the law and shipping across state lines. They're not supposed to. But the law

says you need to be federally inspected to ship meat and poultry across state lines.

This is a headline from a letter that we sent with partner groups opposing H.R. 7425 which would have allowed meat and poultry processors to ship product directly to consumers without the benefit of federal inspection. This -- fortunately these bills don't have -- you know, they have some powerful enemies but -- in this case which don't always -- large meat packers that, you know, aren't always with consumers' best interests at heart. But in this case, I think those firms and the consumers' interest align pretty well.

Another policy takeaway that we might have from this is a need for bright line rules, bright line rules regarding labeling but really in general. Here we've got two new hard seltzer type drinks that are regulated by FDA. This cocktail, you can buy online. It says it's an excellent source of vitamins. It's an alcoholic beverage.

We've, you know, called FDA's attention to this, that we think it's violating their policy on

fortification and it's mislabeled and the records that FDA shared with us, the agency seems to think that their policy isn't clear enough to support an enforcement action. And so that was -- the need for us to have a clear rule that's easier to enforce and, you know, can help us set that level playing field.

Also as you've had these new entities, making clear that the rules apply to them as well. It's important here that you've got Grubhub and UberEATS putting menus online but not putting calorie information that the Affordable Care Act has required other, more conventional food service establishments to provide.

And so my final substantive slide at least, as my time runs out, is making the point that we're going to need stepped up enforcement. Not sure how much you can see this. But this is an Amazon review of some poppyseed that were not washed and consequently made a family sick or, you know, drugged a family on Christmas dinner, with their Christmas dinner.

And I want to make the point here very

briefly that it's enforcement from the government regulation side. But there's also a role of third-party vendors like Amazon in keeping, you know, food safety norms up.

I'm going to -- I'm going to quit now. I'm looking forward to answering lots of questions, and I'll just say that you can find me on the internet at the Consumer Federation of America's website. My email address is there and other contact info, and I'd love to hear from folks afterward. Thank you very much.

MS. MAYL: Thank you, Thomas. I think you raised some really important issues that we all have a role to play in food safety. And I want to delve into that a little bit more. Particularly I'm going to get back to you on the role of government regulation in that. So, but we'll get more into that in the Q&A session. Our last panelist that's going to speak, at least on panel two, is Brittany Saunier from the Partnership of Food Safety Education. So take it away, Brittany.

MS. SAUNIER: Thank you, Sharon. And thank

you so much to the FDA for arranging this very important meeting today, and also throughout this week.

Today I'd like to share with you a campaign that has been developed for American users of food delivery services that's intended to help them know their role in the handling of delivered foods and how to handle those foods safely. It's important to note that this campaign called "Prep Yourself" does touch on all aspects of the delivery network chain including subscription or meal boxes, prepared foods and grocery delivery.

So before I jump into the campaign though, I did want to take this opportunity to explain a little bit about who the Partnership for Food Safety Education is. We are a public health nonprofit dedicated to reducing the risk of foodborne illness through consumer food safety education. We've been doing this important work since 1997 which is when we started through a memorandum of understanding which was a -- we like to describe it as a spirit of cooperation. It was signed with the USDA, FDA, CDC --

goodness, the acronyms -- through industry consumer groups and scientific associations all came together and agreed that the fork end in the chain of prevention needed to be addressed, and that's where we came to be.

So this Fight Bac dude here that you'll see, the green guy here, he was the first consumer-facing campaign on food handling, so steps home cooks can take to reduce their risk of illness. Fast-forward to today at year 24, getting ready to celebrate 25 next year. We serve 13,000 health and food safety educators. They represent the sectors that you can see here on your screen.

And through them, they reach about 8.5 million households in the U.S. with safe food handling information. And the all the information we -- excuse me, provide them are science-based and free to access. So it's really important that we continue in that vein to support this amazing network of community-based health and food safety educators so we are helping households understand their role in the chain of prevention.

I also wanted to touch base on the why. I think it's safe to say that all of you tuned in today understand the importance of food safety education and understand, you know why we're here, what we're all trying to do, why it's important to prevent foodborne illness. It's a very serious illness that has long-term health impacts for many.

And at the Partnership, our intention is to reduce this rate of incidence. And we do that through consumer food safety education. Given our historical leadership and cross-sector collaboration, we believe we're poised to support them because we have that buy-in, that collective buy-in and can provide consistent messaging.

And we're definitely poised now because, you know, the way people are sourcing food is changing and we're ready and we're here to support them with the campaign called "Prep Yourself."

So a little bit about that changing landscape and how people are sourcing their food and how it has changed. Some of this is likely not much of a surprise to you all. You probably have experienced it

in your work life, your personal life. But it's always good to understand the formative nature that created the campaign.

So we can see here on this slide that in 2016, 2017, even 2019, food delivery in some capacity was growing. It was trending upward. So then we have this peak COVID time, that March 2020 where the pandemic sets in the U.S. And as we all know, that moment in time, we can all recall rather clearly, delivery picks up exponentially.

And then beyond that initial onset, we have from March to June additional growth in delivery. And we're still seeing those trends go up. There've been some waves, of course. But what we know through research is that the trend is here to stay. We have here that what's anticipated is that 42 percent will continue using delivery from restaurants, 49 percent will continue using delivery from groceries and 53 percent will continue using meal kit delivery. So that's pretty significant and indicative that the way we are sourcing our food has changed.

Now what we do know is that the science and



guidance for handling of delivered foods once it gets to your home does not necessarily change. But we have this opportunity now to reach those homes through these different channels and what we are considering as a modernization of food safety education to try to reach households differently through the ways they're sourcing their food, which in this case is good food safety. Hence, prep yourself.

"Prep Yourself" was developed with these goals in mind: one, to raise consumer awareness around home safe handling of delivered foods in all forms, including grocery, prepared foods, meal or subscription kits -- that's a tough one -- and to also encourage healthy food handling habits in households using food delivery services. So it's twofold. It's not only to raise the awareness but to also influence those behaviors.

We've identified two opportunities: one, to educate delivery users about potential areas of risk and also to leverage food delivery as a new vehicle to communicate to consumers safe food handling because that's where they're paying attention. It was clear

to us that the delivery handoff is a clear moment in time where people are accepting their role in the link of food safety and whether they realize it or not, they have a role to play and we're here to help them know what that is.

So "Prep Yourself" was designed with three steps of advice to the household, and you can see here in one of these graphics, which also fall under the premise of knowing your role, washing your hands, washing counters and the importance of cook, serve or save. And if you go to the URL that's listed here, there's more guidance underneath each bucket area.

But these are some digital assets here that just are designed to capture attention and get people to that landing page so they can learn more. If all they take away is washing hands and washing counters, we have some success.

So the Partnership, you know, performs in a collaborative nature, as I have mentioned. However we also -- all of our campaigns are designed through a formative process. So we don't just willy-nilly it, right? And so I want to share a little bit about that

formative process behind this campaign.

It started in 2019 actually as a cross-sector taskforce with federal agency input from the FDA, USDA and CDC. Then in the summer of 2020, after a series of taskforce meetings and input gathering, we commissioned a survey through Iowa State University with the intent of identifying who those users are of those three delivery services or service types.

What you see here is meal kit, grocery and prepared food. And at that intersection of all those users, it was revealed that those users are primarily male. They're in the ages 35 to 54, urban settings, two or fewer kids.

We also did some literature review on observational data, what we know about consumer handling behavior, what's already been documented about food delivery handling behavior specifically. And we also held stakeholder interviews, so interviews with companies in the e-commerce space to understand a little bit about their customers' experience and how they communicate with their customers. We also did some formative testing. So we did message testing.

We did creative testing to ensure that we are reaching our target audience which we've identified here as male and also that we are motivating them to change their behaviors and to practice safe food handling.

And some of that value perception testing that I found was really important to share today showed that people are really motivated if you are able to demonstrate to them that they can be a protector of their family or their friends. So they're more motivated to protect their loved ones than themselves.

We also learned that they find sources that they come -- that may be healthcare organizations or information that comes from their family members to be the most influential in modifying their behavior. And we also learned that they respond to statistics if it is tied to something personal or local to themselves. So as you can see here, they want something that is connected to themselves, but mostly their loved ones to motivate their behavior. And that information really solidifies that base for "Prep Yourself" and the messaging framework that we developed.

This slide shows you some of the assets that were created for the campaign. They can be accessed now if you're eager to go get those. You can access them at [fightback.org/prep-yourself](http://fightback.org/prep-yourself). We have bag tags, fliers, all of these resources can be used digitally or print.

You can include them on product packaging. You can include them in product packaging. You can include them in customer communications, whether that's via app notifications or on the end of a digital receipt. And these messages and assets were designed to bring people back to the landing page to get more information. And they were tested with that in mind as well.

So we encourage folks to adopt these assets. A key component to this campaign being successful is strategic partnerships and for companies in the e-commerce space to adopt them in one way or another in communication with their customer. So I'm happy to discuss that with anybody who has interests or ideas for how to do that.

And lastly, just a huge, huge thank you. The

creative of this campaign was made possible by support from the Association of Food and Drug Officials, Instacart and Sysco. Additionally Uber made the formative taskforce that I mentioned earlier possible in 2019 with participants from FMI, HelloFresh, Instacart, Sysco, Walmart, Uber and Nax and industry - - or excuse me, federal agency input from FDA, USDA and CDC.

A big thank you to you all for making this possible. And I will pause there because I think we're going into questions now. Thank you.

#### SESSION 2: Q&A

MS. MAYL: Thank you so much, Brittany. And I would say if you haven't looked at the "Prep Yourself" campaign, I would urge you all to go online and take a look at that. Really appreciate the perspective from all of our panelists. And now is the part of the panel where we're going to go and probe a little deeper into some of these issues by posing a few questions.

So as I've said, those of you who are attending this summit virtually have a role to play as

well. If what you've heard from our panelists has raised some questions in your mind, I urge you to submit them to us and we'll try to get to as many of those as we can during the session. And you can submit them through the mailbox that you see here, [smarterfoodsafety@fda.hhs.gov](mailto:smarterfoodsafety@fda.hhs.gov).

So I'm going to start with a first question to all of our panelists. Thanks again for joining us on camera. Each question that I ask will be open to all of you and you can jump in.

Several of you, as well as some of the panelists on the earlier panel today talked about the food safety issues around food sold in B2C e-commerce, and we've heard about temperature abuse and cross-contamination and issues with delivery and storage and other issues. I wanted to open this up a little bit to you to elaborate on of all the issues that we've heard about today, which are top on your mind, which really are of the deepest concern to you.

Britanny, you're smiling so I think I'm going to start with you and see if you can jump in here.

MS. SAUNIER: Well, I'm happy to answer.

MS. MAYL: Yeah.

MS. SAUNIER: Thank you. I think at the Partnership for Food Safety Education, we're extremely and solely focused on the consumer food safety education angle and ensuring that people in their homes know their roles.

So to us, our concern is whether or not they know that role and do those resources exist for them. Do they understand that once the food arrives, the steps that they need to take to ensure that it arrives safely and also to ensure that the integrity is maintained and that, you know, they cook, serve or save it right away?

So our main concern, and that's why "Prep Yourself" came to be was we realized there's a gap and a need for ensuring that households are aware of how to handle food in this new context. And that would be our main concern.

MS. MAYL: I'll turn it to some of the other panelists. Thomas, would you like to jump in here?

MR. GREMILLION: Sure. Can you hear me?

MS. MAYL: We can.



MR. GREMILLION: Okay. Great. All right. You know, I'd say all of the above. And, you know, it's different depending on the company you're talking about or the situation. And certainly Dr. Hallman's presentation, you know, raises some serious concerns related to shipping and temperature abuse.

But there are concerns related to, you know, less oversight by traditional -- you know, by the traditional gatekeepers, the retailers. I had that slide with the hard seltzers, you know, to kind of a make a point that mislabeling can have this corrosive effect if the rules are not respected for some of these little fly-by-night companies and the big guys see that they're getting away with it. Then all of a sudden you've got -- you know, I had the Coco seltzer or whatever, this fly-by-night company. But then you have Vizzy that's being sold all over the country that has a pretty equivalently, you know, mislabeled vitamin claim on it that it got.

So I think, you know, there's lots of wrinkles to this and, yeah, it's going to take a lot of different approaches to mitigate those risks and

whatnot.

MS. MAYL: Thanks, Thomas. Bill, would you like to add anything on food safety risk?

DR. HALLMAN: Well, I sure would. The question is where to start. And maybe the place to start is the fact that we don't really have centralized regulatory oversight over a lot of this. It is pretty much the Wild West at this point.

All you need to be in this market right now is a website. Fundamentally that's it. We don't have the equivalent of inspections of these, you know, particular vendors. We're not requiring them to go through the equivalent of like a serve safe. So they're not being trained on how to do this properly. There's a much longer presentation which I'm happy to give on the fly, you know, where we found issues with not enough coolants, with boxes that were too large, with cross-contamination inside the boxes, no coolants at all, mislabeling, no labeling.

I mean, it's really sort of the Wild West, and that's what really concerns me because even though we saw all of that, there's a disconnect with consumer

expectations. Consumers are not anticipating that there is a problem with any of these particular products. So we need to solve, you know, the disconnect here.

And I'll say one other thing which is it is possible to do this work safely. But it does cost a little bit more to do it right, to, you know, afford proper coolants, to train your people. And so we need a kind of even playing field. We need some regulation to ensure that all companies are doing it right because you can do it wrong very inexpensively.

MS. MAYL: Okay. I'm going to follow up on that, Bill, and it's going to lead me to where the next set of questions was going. I think I know your answer to the first part of this question which is do you think the current food safety regulatory system for oversight is sufficient to protect consumers for foods sold in B2C e-commerce.

But I think I already know the answer to that from what you just said. I guess my next part of that question is what are the regulatory gaps that you think are best filled from the government perspective.

DR. HALLMAN: So one is we need a central registry of all of these players. We don't know who's -- who these vendors are necessarily. We don't make them sign up. It's unclear when there are problems whose responsibility it is to actually follow up with the particular vendors.

The study that I presented today is one-off. We don't have a structure to do what I did on any regular basis. So, you know, I don't really know how the industry has changed since we initially did this study. We need the resources to do this, to ensure that what is, you know, reaching people's homes is in fact safe.

MS. MAYL: I'm going to turn it Thomas. Maybe I'll go to you next because you also in your presentation talked about the role the government can play in ensuring the safety of food.

So I'm going to put you on the spot here and say, you know, what actions can the government take right now to help fill in those regulatory gaps if you think they exist? You had an emphasis on enforcement. Maybe your perspective is that it's more about

enforcement.

MR. GREMILLION: Enforcement is certainly a component of it and, you know, like I alluded to in the presentation, that's in one part just taking enforcement actions.

But it's also changing rules so that they're more easily enforced and, you know, having bright line rules that don't take a lot of -- require a lot of interpretation. I think it's intriguing what Bill said about, you know, having a registry and I think it points a little bit to the fragmentation of the food safety system. For years and years we've supported, you know, legislative reform to create a single independent food safety agency. You know, that's the pie in the sky dream.

But I think short of that, you know, we haven't talked about, you know, third-party platforms like Etsy and eBay and Amazon. But maybe there's some liability rules that could be tweaked there. But yeah, I think enforcement is definitely where I would emphasize.

MS. MAYL: Well, I would say to those that

are listening to this conversation too, thinking about whether regulatory oversight is sufficient and where regulatory gaps are and how they could be filled is something that we as an agency would really like to receive comment from a broader array of stakeholders. So, you know, those of you that are listening will have an opportunity to provide that comment.

Britanny, I'm going to shift it a little bit to get your perspective and rather than talking about oversight, since you're focusing on education, I think I'll twist it a little bit and ask you what role you think the government, whether it's the federal, state or local level, can play in helping to educate consumers about the safety of foods online.

MS. SAUNIER: Yeah. Thank you, Sharon. That's a great question. And I would want to commend the FDA first for hosting this meeting this week. I think it's a really great take at that. And I know that I'm thinking about the FDA team we collaborate with, a very strong team and we know that they're personally invested and motivated for advancing food safety education.

So I would advocate and request continued efforts in consumer food safety education. But where the gaps are, you know, we need more research. And I know everyone says that. But we need more research on how these -- how delivered foods are handled and consumer perceptions around that so we may be more effective at our health messaging to them, to the household and influence their behaviors.

So you know, I think the FDA's commitment to consumer food safety education has been rather strong and that continued approach and look at that and also in the inclusion of food safety culture too which I really appreciate seeing that as part of the New Era Blueprint.

Culture goes beyond just a workplace. It is societal values and norms. And if we are all are as human beings in homes trying to meet our basic needs and feed ourselves, practicing safe food handling, that is a value and norm that will go into the workforce. And so continuing that exploration as well I think is really important for regulators to do.

MS. MAYL: Thank you, Brittany. I appreciate

that. We think it's very important as well. I did want to talk a little bit about the labeling of foods. Brittany, you already talked a little bit about this, about what safety labeling information is important for consumers to have and, Bill, you certainly talked about the lack of even, you know, knowing enough to ask if there is a problem.

But what would be important for consumers to know about this food and how should that information be presented? I don't know who wants to jump in first.

DR. HALLMAN: I'm happy to talk about it. Of course I'm always happy to talk. So there is in fact a longer version of this presentation where I talk about meal kit companies and the fact that, you know, part of the target audience for those companies are people just learning to cook.

And in fact, you know, many people are learning to cook or being introduced to new culinary repertoires through these meal kits. So, you know, there's a real opportunity for us to teach food safety in the kitchen, to teach food safety, you know, when



the products are received.

You know, there's a whole generation, a new generation of people that we could be teaching about food allergens and about time and temperature. All of that can be part of the recipes that are shipped along with these particular products. It ought to be on the websites. It ought to be, you know, in the packages. We're just missing this opportunity.

You know, I'll tell you that one of the things that we did is we recorded everything that came out of these packages. Almost all of them had a catalog for you to buy more products. Very few of them had cooking instructions, safe temperature instructions or decent food safety information. We can do better than that.

MS. MAYL: Thank you, Bill.

MR. GREMILLION: Yeah. I'd just -- I'd add to that that there should -- the disclosures that are available going into a brick-and-mortar store should also be available online and available in a product that's shipped to your home. I mean, that should be, you know, the floor of what we would expect.

I've been really proud to work with the Partnership for Food Safety Education over the years, and I was on the board and CFA has been, you know, really involved in that organization from the start.

And one of the things that most excites me about that, the work that Brittany and her staff are doing is incorporating, integrating food safety information into recipes. And that's not something -- you know, obviously you can't pass a law or require that people talk about food safety in the recipes that they publish on the internet.

But it does kind of tie into that culture component and just trying to popularize some of these foods safety practices I think could be really effective. But you can only expect so much from consumers, right? I mean, people expect that their food is going to be safe.

We live in -- we've gotten spoiled maybe, you know, by good regulators and, you know, a functioning civil society. And people aren't expecting that they're going to have to, you know, handle their food with a hazmat suit on. So there needs to be an

emphasis on what the suppliers are doing first.

MS. MAYL: I have a couple of questions for audience. But I want to get to Brittany, let you have a chance to answer this one.

MS. SAUNIER: And I want to thank you, Thomas, for bringing up the safe recipe style guide. That is -- you know, the Partnership -- and I keep talking about the Partnership in this way.

But I think it's important to note that it's -- we came together as this cross-sector collaboration so that there is consistency in messaging. These resources exist. They're science-based. They have that cross-sector stamp of approval. And we want companies, we want those in the e-commerce space, in any food space to leverage these resources in that way, to influence food handling behaviors as well as alongside us and as well as addressing directly reaching consumers with this information too and recipe writers. You know, those resources are there and exist to be turnkey and to be disseminated at will, free to access.

So I just wanted to make sure that I pointed

that out because I think it's important for those who are tuning in to know that if you're motivated and you want to get started right away, they're there. Let's go.

MS. MAYL: Thank you so much. We have gotten a number of questions from the audience. So I'd like to try to bring in a few. One of them was are there any regulatory industry guidelines on disposal of food that cannot be delivered; for example, a customer refuses the package or it's the wrong address? Is anyone aware of any industry practices or local guidelines on that? I think I'm hearing maybe not.

MS. SAUNIER: Well, I can speak from a nonregulatory point of view. Part of "Prep Yourself" is there's guidance there for the consumers. If you have questions about the practices or about your product, to call that company and service and to go that extra step. So, you know, in that case if a person doesn't know what to do, that is the step that we are advising folks to take.

MS. MAYL: Thank you. Anyone else want to weigh in on that one or should I -- I'm seeing some

head shakes there.

We did get a question in about food packaging and whether an item -- I don't know, Bill, if you've done an research on this or if anyone has any knowledge -- but whether the food that is arriving is in the original packaging from the producer of the food and whether that packaging is safe for food use.

DR. HALLMAN: So that's a great question. And one of the things we did in our study was to take pictures of everything that came out of the boxes. I have way more data than I can possibly use. We did observe some products that were repackaged. We saw some products, particularly seafood products interestingly enough, that were just in bags with ties around them, wire ties around them, unlabeled actually.

We saw some meat products that were shipped without any inspection marks on the packages themselves. So you couldn't do traceback. You know, we pretty much saw everything that's possible in those 684 items. So yeah, there's some issues there.

MS. MAYL: Thank you for that. Does anyone

else have anything to add? Thomas had to let his dog out. We know who let the dog out. Anyone else have anything to add on that?

We have another interesting comment and question which is that has to do with the last mile and it says to ensure oversight food safety in this area, it will be necessary to monitor critical control point data, such data such as delivered product temperature. Assuming that we have technological allowance for temperature monitoring, what obstacles do you foresee in data generation and data sharing and responsibilities for delivery in this area?

This has to do with time temperature controls and the ability to ensure along the whole way that those temperatures were maintained. Thoughts on that?

MR. GREMILLION: I will say that sounds like a good job for the carriers, right? UPS and FedEx and maybe kind of points to the need to pull them into this process. It's a good question.

DR. HALLMAN: It's a great question. And there are a couple of issues. I've had conversations about this. So, you know, one is that the technology

is not there yet at a price point that makes it possible to monitor every product in a package.

You know, there are some technologies which are inexpensive enough to monitor the temperature inside a package. But it doesn't necessarily mean that the products themselves are at that temperature.

And in fact I've had some conversations at conferences where vendors have asked me where they could put a temperature sensor that would be most advantageous to them as opposed to most advantageous to the consumer. And, you know, so secondly the question is who would that data be for. Where would that data go? You know, what we really need are some time temperature sensors that would be very apparent to consumers when a product has been outside of the safe temperature zone and for how long. You know, it should turn red.

Again a lot of these products are being delivered as gifts. If you're opening the box, you don't really know what's there. If we have a time temperature sensor that turned red and instructions that said if this is red, you know, call the company,

this is not what you want to consume, you know, ultimately that's where we want to go.

MS. MAYL: Great. And speaking of red, I think just got the red light on this panel. This panel is going great, and I would love to continue the conversation.

I'm going to just ask if everybody if they have any closing remarks that they want to make before I close out the panel, anything they want to talk about, about, you know, looking to the future. Is there anything that we need to do to ensure the safety of food sold through e-commerce or what's most on your mind. And going to ask you really to limit those to a short answer given that I'm getting the hook here.

DR. HALLMAN: So I'll start. I'll just reiterate it's possible to do this safely. But we need to have people who are trained. We need some basic regulations that create a level playing field so that everybody is playing by the same rules. It's possible to do this safely. It's also possible to do it cheaply and not very safely.

MS. MAYL: Thank you.



MR. GREMILLION: I'll just say --

MS. MAYL: Thomas? Yeah.

MR. GREMILLION: Oh, sorry. Sorry.

MS. MAYL: Go on.

MR. GREMILLION: Just really briefly, you know, incentives are important and it's important to look at how, you know, changes in the way people buy their food are going to, you know, change the incentive structures that are out there and how we can, you know, adjust the food safety system to continue to protect consumers at the level they've come to expect and improve consumer food safety education.

MS. MAYL: Thank you. Brittany?

MS. SAUNIER: Yeah. I would just like to add that, you know, "Prep Yourself" is designed not to make the consumer necessarily a regulator by any means, but mostly to raise awareness of the steps that they can take when handling these products to prevent their risk of foodborne illness in their home and also to start modernizing food safety education, start connecting with folks where they're receiving their

foods through these different sources and as these channels begin to evolve and adapt, and they will, there'll be partnerships and new technologies to prepare the consumer for how to handle those foods. It's really important to help them understand their role in that process as well is really important.

So, and I just want to add another thank you for having us today and for hosting.

MS. MAYL: Great. I want to thank all of you again. Your perspectives have been extremely valuable. Your knowledge to us at the FDA and those that are listening, it's really informative. I hope that you will continue to stay involved in this and provide additional comment.

And again I want to emphasize the importance of all of those who are participating in this meeting to submit comments to the docket. As I said, it's open for another month or so until towards the end of November 20th. And I really urge all of you to continue to share your thoughts on these topics that were discussed today but also in the Federal Register notice and to look to the background materials for

this summit.

So I know what follows us is a 15-minute break. I think we went a little over, got a little behind schedule. But you guys were great, and thank you again from FDA.

DR. HALLMAN: Thank you.

MR. GREMILLION: Yeah. Thank you.

MR. KAWCZYNSKI: All right. So with that, as Sharon said, thank you to all of you. And we are going to take a short break. So we will be back in a few minutes.

(Off the record)

MR. KAWCZYNSKI: All right. Welcome back for that short little break. We're now going to go into our last portion of the meeting, and I'm going to hand it back to our moderator, Kari Barrett. Kari, take it away.

OPEN PUBLIC COMMENT

MS. BARRETT: All right. Well, thank you, Michael. And boy, what a great second panel we had, and I really enjoyed that Q&A. And I agree with Sharon. It was a shame to have to end it. But it's

just been such a great day so far, and now we're in sort of a different part of the agenda.

This is where we have our public comment session, and we're really here and ready to listen to our stakeholders' reaction and perspectives on the summit topics that we've been discussing. So I want to welcome all of our public comment presenters, and I want to thank them in advance for taking the time to prepare remarks and to offer this public comment during the summit.

This afternoon, we have a number of folks that are lined up and ready to go to give a comment. So please ensure -- I know that they're all ready. But again, just be sure that you're in a place and situated so that you're ready to go when your name is called. I will call each individual by name, and then they're going to have five minutes to present their remarks.

And so joining us for this session, we do have a panel of FDA subject matter experts who are here to really listen and absorb the comments being offered. And what I'd like them to do, if they're

willing, is to go ahead and introduce themselves.

I know that you've seen Sharon in the previous panel. But Sharon, why don't we go ahead and start with you, and then we'll go to the others. So Sharon?

MS. MAYL: Sure. Thanks, Kari. And good afternoon to everyone. I'm Sharon Lindan Mayl, and I am senior advisor for policy in the Office of Food Policy and Response which is in the commissioner's office. And in that role, I manage cross-cutting food policy initiatives, and I currently serve as the lead for implementing FDA's New Era of Smarter Food Safety Blueprint.

MS. BARRETT: Great. Thank you, Sharon. Glenda?

MS. LEWIS: Good afternoon, everyone. I'm Glenda Lewis. I'm the director for the retail food protection staff in the Office of Food Safety within the Center for Food Safety and Applied Nutrition, CFSAN.

And in that role, I have responsibility for oversight of two teams, one that directs the

development of retail food policy and also for the interstate travel program, policies for interstate travel conveyances. Happy to be here today.

MS. BARRETT: Great. Thank you, Glenda. And Mary, we'll go next to you.

MS. CARTAGENA: Hi. Good afternoon. I am Mary Cartagena, and I am with the retail food policy team in the Office of Food Safety for Center for Food Safety and Applied Nutrition. I lead the team in development of retail food policy documents such as the FDA food code and the voluntary national retail food regulatory program, among other retail guidance documents. thank you.

MS. BARRETT: Great. Mary, thank you for being here. And Laurie?

MS. FARMER: Yeah. Hey, everybody. I'm Laurie Farmer. I'm the director of FDA's Office of State Cooperative Programs. My responsibility is strategic leadership of FDA's field, milk, shellfish and retail programs, and I'm the co-lead for core element three in New Era. Thank you.

MS. BARRETT: Great. Well, glad to have all

of you. What we're going to do as the FDA group at this time is we're going to go ahead and turn off our cameras. This will be an audio-only portion of the meeting. And we'll go ahead and start the open comment process. And so Michael, if you can call in our first commenter, please?

MR. KAWCZYNSKI: All right. Eva Greenthal, you are the first up. Go ahead and take it away.

MS. GREENTHAL: Thank you. Good afternoon. My name is Eva Greenthal, and I am a senior science policy associate at the Center for Science in the Public Interest, a nonprofit consumer health advocacy organization.

I'm here to ask that FDA take swift action to ensure that consumers purchasing food online have access to the same critical information that they would have when purchasing foods in brick-and-mortar restaurants and retailers. Online food ordering has exploded in recent years. Even before the COVID-19 pandemic, \$1 out of every \$5 used to purchase food was spent online.

During the pandemic, use of restaurant

ordering apps and online grocery ordering have continued to grow rapidly. There is an urgent need for food labeling regulations to keep pace with consumer trends.

Since 2018, chain restaurants with 20 or more locations have been required by law to post calorie information at the point of sale both in store and on the internet. My organization has previously urged the FDA to issue guidance ensuring this rule is enforced with respect to restaurants posting their menus on third-party ordering platforms like Grubhub, DoorDash and UberEATS.

In addition to clarifying its rules with respect to online restaurant menus, CSPI also urges the FDA to issue a guidance or voluntary rulemaking describing how and where Nutrition Facts, ingredients and allergen information should be disclosed at the point of sale for packaged foods purchased from online retailers and platforms such as Walmart, Instacart and Amazon.

While many online retailers do make Nutrition Facts and ingredient information available, a study of



top online retailers published in 2020 found that 15 percent of foods required to bear this information on their packages had no Nutrition Facts or ingredient information posted at the online point of sale.

And even when some of this information was available, it was often inaccurate, incomplete or difficult to find. For example when shopping on safeway.com, Frosted Strawberry Pop-Tarts are a prominently featured item in the breakfast and cereal products category. When you click to purchase the Pop-Tarts, you must scroll far down past promotions for other products to find any nutrition or ingredient information.

The Nutrition Facts are unintuitively located under a tab labeled ingredients, making them difficult to find. Even worse, the Nutrition Facts label is inaccurate and incomplete. A dash next to sugars misleadingly suggests the Pop-Tarts contain no sugars and the Nutrition Facts label does not include a line for added sugars. On the contrary, Frosted Strawberry Pop-Tarts contain 30 grams of sugars per serving, not zero and all of these are added sugars.

At the bottom of the product page is a disclosure from Safeway stating, "We assume no liability for any inaccuracies or misstatements about products listed on our website or app."

Providing partial or incomplete information about a product's nutrition, ingredients and allergen risks can mislead consumers and deprive them of information critical to their health.

We urge FDA to issue guidance on how nutrition information should be displayed online at the point of sale, including the following five points. First, FDA should ensure online sellers present full Nutrition Facts information in the same format as required on the products themselves.

Second, FDA should ensure that nutrition, ingredients and allergen information is readily accessible, including by minimizing any intervening marketing information and the number of clicks between the product listing and the critical information.

Third, FDA should ensure that nutrition, ingredients and allergen information is presented in a format that makes it easy to read, for example, by

providing an option to zoom in.

Fourth, FDA should ensure that when an image of the front of package is presented, that image includes all statements required by law on the label in a format that allows consumers to easily read each statement.

And fifth, FDA should clarify that selective or incomplete presentations of nutrition, ingredient or allergen information can be considered accurate or misleading. Thank you very much.

MS. BARRETT: Thank you so much, Eva. Thank you for your remarks. And we'll go to our next commenter, which is Bryan Hitchcock, for the Institute for Food Technologists. Bryan?

MR. HITCHCOCK: Thank you. Good afternoon, and good day. I'm Bryan Hitchcock, speaking on behalf of the Institute of Food Technologists, IFT. IFT, founded in 1939, is a nonprofit scientific individual member institute whose mission is to connect global food system communities to promote and advance the science of food and its applications. IFT has more than 12,000 individual food scientist members from

across industry, academia, government and nonprofit organizations.

Organized around the core values of community, integrity, passion, progress, respect and inclusion, IFT members and staff are focused on overcoming barriers to feed our future safely by developing scientifically sound solutions.

IFT appreciates the opportunity to provide these comments at the New Era of Smarter Food Safety Summit on E-commerce. IFT and its Global Food Traceability Center has a long history of active engagement in food safety and traceability, in partnership with the FDA, nonprofits and the private sector, including undertaking task orders, conducting primary research, leading pre-competitive industry platforms, creating implementation tools and delivering educational programming.

As with IFT's previous foundational work to support FSMA and enhance food safety, IFT recognizes a suite of stepwise needs to achieve FDA's articulated goals of understanding possible food safety risks of business-to-consumer e-commerce and needed additional

actions.

These include supply chain mapping to explicitly identify how product moves and who handles the product in each of the various B2C e-commerce supply chains, modifying current outbreak investigation and reporting to enable risk quantification associated with B2C e-commerce supply chains and developing a risk ranking model to support any additional action.

Following this stepwise approach will illuminate possible food safety risks and reveal what additional courses of action may be warranted to address these potential and realized food safety vulnerabilities. We commend efforts to further enhance and clarify requirements for safe, transparent e-commerce.

In addition to the unique structural risks that may characterize the B2C e-commerce supply chains, IFT recognizes that these retailers have a unique set of challenges that diverge in important ways from conventional food retailers.

IFT encourages the FDA to work with neutral

technical service providers to convene key stakeholders, understand their educational needs and support development of educational materials that recognize and speak to these differences and needs. IFT believes this will be critical to mitigating food safety risk in this sector.

IFT looks forward to improving e-commerce food safety and stands ready to partner with the FDA and private enterprise in quantifying possible food safety risks and supporting efforts to design and implement methods to mitigate them. Just as in any other channel, e-commerce consumers are counting on us to provide them with great-tasting, nutritious and, most importantly, safe food.

Thank you for considering our comment on this important initiative.

MS. BARRETT: Great. Bryan, thank you so much for your comments today. We'll now go to our next commenter. Okay. We have Gina Kramer. Gina?

MS. KRAMER: Thank you, FDA, for conducting the New Era of Smarter Food Safety Summit on E-commerce, and thank you to academia, industry and

consumer groups who have been part of today's summit.

My name is Gina Nicholson Kramer. I am the program director of partnership and learning for the Center for Foodborne Illness, Research and Prevention, which is a center housed within the College of Food, Agricultural, Environmental Sciences at The Ohio State University.

The Center for Foodborne Illness, Research and Prevention was founded as a national nonprofit organization in 2006 to drive the development and implementation of innovative, science-based solutions for food safety challenges of the 21st century. We view ourselves as knowledge brokers working to translate science into practical, evidence-informed policies to protect public health and prevent foodborne disease.

Our objective is to provide an independent voice, committed to using the best available science to develop evidence-informed policies and practices that create a positive food safety culture from farm to table and beyond. In all that we do, we are led by our guiding principles, rooted in science and

committed to advocating for the best science-based practices.

As we look at e-commerce and third-party food delivery of both human and animal food to the consumer, our primary concern is lack of regulatory oversight of both e-commerce and third-party delivery. We believe that the chain of custody that is broken when foods leave the retailer and food service and enters into the hand of a third-party delivery is compromised and that the safety of that food may be intentionally or unintentionally compromised to the consumer.

We also believe that it is important to both e-commerce and third-party delivery of foods to consumers that these organizations be licensed and registered for their business. there needs to be an equal playing field for all businesses involved in the food and beverage industry. All should have to comply to regulatory policies and procedures that ensure safe food to the consumer.

We believe that registration of all e-commerce is necessary as discussed by my colleagues



from Rutgers this afternoon. It is very inexpensive and easy to put together and develop an e-commerce website to sell food and beverage products. Similarly it should be very easy for federal, state and regulatory agencies to regulate e-commerce of food and beverage to consumers.

Second, licensing of all third-party delivery individuals is important. While companies that are in the retail and food service space that offer delivery by their own employees, they are able to regulate that delivery service. However when a third-party delivery company is involved, that particular license, retailer and food service operator completely loses the chain of custody and control of the food being delivered to the consumer.

We believe that licensing of those organizations is paramount, that they should be inspected, that they should be required to have food safety training and there should be validation of food safety practices through inspection of their practices by state or local regulatory agencies.

We believe that FDA needs to provide

resources to state and local regulatory agencies so that they can register, license, inspect and monitor the activities of both third-party delivery of retail and food service foods to the customer as well as e-commerce that has direct delivery to the consumer.

We also believe that it is important that the rules and regulations and policies for both e-commerce as well as for third-party delivery be included in the FDA retail food safety guidance document and that those rules and regulations and guidance should be available as soon as possible.

We thank FDA and all of the experts that gave their time today to be part of this summit. We look forward to increased policy, increased regulation and increasing food safety of foods delivered directly to the consumer through e-commerce and through third-party delivery organizations.

And at the Center for Foodborne Illness, Research and Prevention, we continue to conduct research on this specific topic and our goal is that in everything that we do, we are led by our guiding principles, rooted in science and committed to

advocating for the best science practices. So thank you for this time.

MS. BARRETT: Gina, thank you so much for your comments and definitely appreciate what you have shared today as well.

So we'll now go on to our next commenter, which is Roberta Wagner, Consumer Brands Association. Roberta?

MS. WAGNER: Thank you, and thank you for the opportunity to provide comments on behalf of the Consumer Brands Association today. Consumer Brands represents the consumer packaged goods, or CPG, industry which includes companies that manufacture household, personal care and food and beverage products.

Consumer Brands advocates for uniform, workable and durable regulatory frameworks that are informed by risk-based science, promote choice and build consumer choice across the sectors we represent. Consumer Brands believes that the growth in the digital purchasing of foods seen during the pandemic is here to stay.

We want to partner with FDA and others to establish a regulatory framework for business-to-consumer, or B2C e-commerce models that assure important product information is available to consumers on the digital shelf and that food is safe when delivered.

Regarding the labeling of foods sold through B2C e-commerce, Consumer Brands supports the creation of a standard set of labeling elements that must be visible at the point of purchase on the digital shelf that includes information consumers need to make informed purchasing decisions about food and beverage products.

This includes labeling information that allows consumers to meet their individual guidance needs and for those with food allergies to avoid food products containing specific major food allergens.

Consumer Brands does not believe all mandatory information available on the packaging of food and beverage products on a brick-and-mortar store shelf needs to be transferred over to the digital shelf.

For example, major food allergen declarations, the list of ingredients and nutrition information for food and beverage products should be available on the digital shelf while certain other mandatory on-pack labeling elements including, for example, the address of the manufacturer or distributor, would be of limited value to a consumer on the digital shelf.

Requiring visibility to all on-pack mandatory labeling information at the point of sale on the digital shelf may have the unintended consequence of diluting the visibility of important food safety and nutrition information.

Consumer Brands supports the use of modern digital platforms such as smart label to provide consumers with product information for purchases made through B2C e-commerce. The use of digital platforms should disclose mandatory labeling information has now been adopted in federal and state regulations and guidance.

Digital triggers including links, QR codes, watermarks and embedded frames to product information

are an effective way in e-commerce platforms for providing consumers access to both mandatory key labeling elements and other voluntary product information like that pertaining to sustainability.

Regarding food safety in B2C e-commerce models, Consumer Brands believes the regulatory frameworks and associated principles established through the Food Safety Modernization Act and FDA's food code and voluntary national retail food regulatory program standards should be considered when designing a regulatory framework to address potential safety risks presented by B2C e-commerce models. Like these existing regulatory frameworks, the framework established for B2C e-commerce models will need to be flexible and durable to provide for differences in the models and innovation.

Consumer Brands believes B2C e-commerce models extend beyond the existing regulatory frameworks just mentioned for the manufactured and retail food sectors, potentially putting consumers at risk. We believe requirements for identifying and controlling food safety risks now need to extend from

the retail through delivery of food to consumers.

Consumer Brands supports development of a regulatory framework to fill identified food safety-related gaps presented by B2C e-commerce models. We suggest the regulatory framework include, in part, a requirement that a hazard analysis be conducted to identify potential food safety-related risks that could result in the delivery of adulterated or unsafe food to consumers and then implementation of controls to address any identified hazards.

We also suggest clear designation of the individuals and/or business entities responsible for addressing potential food safety-related risks associated with food delivery direct to consumers, identification of the regulatory bodies with jurisdiction and oversight responsibilities relative to B2C e-commerce and a basic food safety training requirement for those designated as responsible for assuring the safety of food during the last mile of delivery to consumers.

To close, Consumer Brands supports FDA's New Era of Smarter Food Safety Initiative and believes

robust stakeholder engagement is critical to achieving the goals identified in the agency's blueprint. We encourage the agency to continue to provide opportunities such as the summit today to seek such stakeholder input. Thanks.

MS. BARRETT: Great. Thank you so much, Roberta. And we'll now go to our next commenter, who is Peter Schlactus. Peter?

MR. SCHLACTUS: Thank you. Good afternoon. My name is Peter Schlactus, and I am the executive director of the Association for Delivery Drivers. The Association for Delivery Drivers is a national not-for-profit organization dedicated to ensuring that delivery drivers have affordable access to the solutions and services they need to conduct their business safely and successfully. We welcome the opportunity to address this important FDA initiative on food safety.

When it comes to e-commerce, all too often the perspective that is lacking is that of the frontline workers, the drivers who work long hours under stressful conditions to get meals and groceries



delivered timely and safely to homes and apartment.

Our members, consisting of delivery drivers nationwide, are among the heroes of this pandemic, risking their own health to tend to the needs of the rest of us and make a decent living for themselves and their families.

A key point that is often overlooked in discussions of delivery standards is the fact that a large percentage of the people doing B2C delivery work are not employees. Employees can be directed and trained and supervised in a straightforward traditional manner. Many or most people doing food delivery work are independent contractors, mini businesses in their own right. They purchase, use and maintain their own vehicles, equipment and supplies.

They provide their services to larger logistics companies and e-commerce platforms that in turn provide delivery solutions to grocery chains, restaurants, virtual food retailers and the like. Interaction between the delivery drivers and those that they do work for is circumscribed by the imperative to avoid the control and supervision that

characterizes employment relationships.

In other words, vetting standards for delivery drivers with employees in mind won't necessarily succeed in touching many of the frontline workers you are targeting.

Another challenge is the limited means that many small delivery vendors have to invest in additional technology, equipment, et cetera. The Association for Delivery Drivers has experience helping to bridge the gap and facilitate standards for independent delivery drivers. For example, the association provides independent medical couriers with insurance, discounted equipment and online interactive training to comply with HIPAA, OSHA and Medicare/Medicaid standards.

Our solutions are all designed for independent drivers who can access everything on their own, 24/7, as their schedules permit and obtain certificates of completion that they submit to their contracting companies. This relieves those companies from having to decide between directly providing driver solutions like training at the risk of inviting

worker misclassification allegations or neglecting important responsibilities impacting public health, privacy and safety.

The association also wishes to sound a note of caution about tradeoffs between safety and speed. Your standard setting process should carefully consider how procedures designed to ensure food safety may interact with marketplace pressures for timely delivery that drivers are subject to every day. Setting aspirational standards without sufficient attention to how these could be met within delivery timetables that consumers demand and retailers promise is not a recipe for success.

Ironically overly taxing food safety mandates could increase time pressures on drivers and lead to auto accidents that endanger both drivers and the public alike. Drivers should not have to choose between safe driving and delivering food at safe temperature or within a safe time period for freshness.

Delivery drivers accept being on the front line with respect to their work. But this should not

put them on the front lines of new legal battles over accountability for food safety. Certainly drivers can and should be accountable for their behavior. But let's acknowledge that it is difficult to know the condition of the food that drivers pick up. Rarely is there a time nor is it realistic for drivers to have expertise that would enable them to know if restaurants, grocers or others have provided them food that can be delivered safely.

Drivers should not be pressured by larger businesses to sign work contracts that unfairly foist responsibility and liability on them.

The association for Delivery Drivers stands ready to assist and collaborate in the development and rollout of rules, standards and guidance that increase the safety and healthfulness of delivered food. Our members, after all, are first and foremost consumers of this food, not just the people who deliver it. They have as much of a stake in the success of this New Era initiative as any. Until recently what they lacked was a voice and a resource to go to for solutions.

The Association for Delivery Drivers is proud to have taken on that role, and we thank you all for the opportunity to share our perspective. We wish you all success.

MS. BARRETT: Peter, thank you so much, and thank you for joining us today and providing that perspective. It's deeply appreciated. And so, thank you for the comments.

And for all of our commenters today, here's one reminder. We'll remind again, but we are encouraging everyone to put their full comments into the docket. So thank you again, and we'll go on to our next commenter, which is Laura Abshire, from the National Restaurant Association. Laura?

MS. ABSHIRE: Good afternoon. My name is Laura Abshire, and I'm the director of food and sustainability policy at the National Restaurant Association.

The National Restaurant Association is the largest food service trade association in the world, and we represent and advocate on behalf of more than 500,000 restaurant businesses and are actually the

second largest private employer in the U.S.

Since the pandemic began, restaurants have been particularly hard hit with around 90,000 restaurants closing and many still struggling. As in-person dining restrictions took hold and consumers stayed at home, many restaurants pivoted their operations to increase pickup and delivery models in order to continue serving customers.

Now during this time, restaurant delivery sales have increased dramatically including those done through third-party delivery apps. In fact, sales for food delivery app companies grew by 122 percent, up to \$51 billion 2020. Food delivery is expected to remain high even after the pandemic with approximately two-thirds of Millennials reporting that continued food delivery is essential to them.

Food safety and quality assurance, however, are still the top priority for the restaurant industry. And with delivery models currently representing one of the most important segments of growth for the restaurant industry, it is essential that there are consistent measures in place to ensure

the safety of food that is being delivered directly to consumers.

We know that consumers expect the same degree of food safety from delivery as they do when dining inside a restaurant. We commend the FDA for gathering public input on this extremely important topic, and we stand ready to work with the agency and share best practices we've learned from the restaurant industry.

Our industry currently has controls and best practices in place to ensure food safety is a top consideration when restaurant food is delivered. Earlier this year, the National Restaurant Association collaborated with the National Environmental Health Association and subject matter experts representing third-party delivery companies.

This collaboration resulted in the development of low-cost training courses which educate deliverers on important food safety principles including personal hygiene, forms of contamination, time and temperature abuse and cleaning and sanitizing. These training courses are currently available now through our website and the National

Environmental Health Association's website.

Regardless of the delivery method, is it essential that all delivery drivers demonstrate knowledge of proper safe food handling procedures. This can be done through educational courses and training or certificate programs similar to the other types of food safety handling training in the U.S. These types of programs are low cost and effective and courses have already been developed by the industry and regulatory organizations in collaboration with restaurants of all sizes and third-party delivery companies.

Additionally, in 2021, the Conference on Food Protection deliberated and discussed an updated guidance document for direct-to-consumer and third-party delivery service. This guidance includes best practices for transporting food directly to consumers, including proper packaging, temperature control, receiving and storage, contamination and allergen control and other general food safety information.

Food delivery does not have a one size fits all approach. But the currently develop training and



other materials that cover food safety can be tailored to fit different types of delivery models.

We encourage FDA to review these materials and consider amending the food code to include references to the components contained in these existing training materials. The information within could also be used to develop any FDA guidance documents or training materials on this topic if necessary.

Food safety will always remain the top priority of the restaurant industry. As the agency works to address potential food safety vulnerabilities in the food delivery model, we ask FDA to provide additional opportunities for public input to allow of the sharing of best practices.

Thank you for the opportunity to share these recommendations with you. The restaurant industry looks forward to preparing more detailed and formal written comments in the future.

MS. BARRETT: Great. Laura, thank you so much for your comments today. Really appreciate your time and the thoughtful remarks.

We will now go on to our next commenter, who is Robert Earl, with the Food Allergy Research and Education.

MR. EARL: Thank you. Good afternoon. My name is Robert Earl. I am vice president of regulatory affairs at FARE. FARE is the world's leading nongovernmental organization engaged in food allergy advocacy and the largest private funder of food allergy research toward treatment and prevention. FARE thanks FDA for convening this e-commerce summit and the opportunity to provide oral remarks.

On behalf of the more than 32 million Americans who suffer directly from life-threatening food allergies and 85 million that are directly or indirectly affected by one or more of the top nine food allergens, FARE appreciates this opportunity to discuss the needs of our food allergy community when purchasing foods via e-commerce.

Our comments today focus on the following topics: complete labeling, up-to-date online information, challenges related to substitution and international e-commerce.

Some background context. FARE's recent food allergy consumer journey presented to the FDA last year provide insights into the needs and behaviors of our food allergy community. We found the following. When it comes to purchasing food for themselves or food-allergic community, the food allergy community will only buy a product if they are convinced it is safe for consumption and hopefully tasty to eat. The food allergy community spends on average three to five minutes reading labels and 71 percent read labels for every single food every single time, even if they have purchased the product before. Lastly, branding matters and 28 percent of the food allergy community only buy products with allergen-friendly labeling.

To our first topic, we urge complete labeling related to food allergens. FARE believes that food allergen labeling for e-commerce must be required to mirror all FDA and USDA required labeling for allergens on packaging. E-commerce is labeling. FARE requests that FDA issue guidance requiring that e-commerce entities include complete labeling, ingredients highlight or contained for foods sold

online.

We also encourage FDA to request that e-commerce entities include may contain and other precautionary allergen labeling statements at points of online sale. All are critical for those with food allergy and their caregivers to make informed and safe purchase decisions. Through guidance and coordination with food manufacturers and e-commerce entities, FDA can help ensure that complete, accurate food allergen information is provided to consumers.

On our second topic, e-commerce must provide up-to-date online information. The food package provides current food allergen labeling. Since our community needs to read labels at every purchase, and they do, it is critical that e-commerce food product information provide current food allergen labeling. Since formulations change over time and with the upcoming requirement to label sesame as the ninth required food allergen under FALCPA, all food product information must be exquisitely current. Extreme vigilance is required in maintaining e-commerce websites.

Finally we have concerns related to substitutions and international products. FARE concurs with FDA's guidance that substitutions related to supply chain availability must never introduce food allergens to food products.

We have seen that e-commerce internet searches need to fine-tune to ensure that foods that clearly contain a food allergen do not come under searches such as for peanut-free. International food product sources that come up in searches may not provide labeling and food allergen information relevant to the U.S. audience. FARE looks forward to working with FDA to address this gap.

Our food allergen community believes that food label transparency equals safety via honesty and it builds trust. Thank you again for the opportunity to provide comments today on behalf of FARE's food allergy community. We will also submit comments to the FDA docket. Thank you.

MS. BARRETT: Thank you so much, and thank you for your thoughtful comments this afternoon. We will now go to our last public commenter today, which

is Chris Guay. Chris is with the National Conference on Weights and Measures. Chris?

MR. GUAY: Wow, I get to be last. Good afternoon to those of us in the Lower 48 states. Good morning to those that are farther west and good evening to those farther east.

The National Conference on Weights -- my name is Chris Guay, and I am on the board of directors of the National Conference on Weights and Measures. I am also chairman of their packaging and labeling subcommittee.

The National Conference on Weights and Measures, better known as NCWM, is a professional nonprofit association of state and local weights and measures officials, federal agencies, manufacturers, retailers and consumers which has developed national weights and measures standards since 1905.

The National Institute of Standards and Technology, NIST, publishes the uniform laws, regulations and standards adopted by NCWM in NIST Handbook 130 and from there those are used and adopted by states into their own state regulations.

NCWM focuses on creating new standards to accommodate innovation in the marketplace and to promote uniformity in net content regulation. NCWM and its almost 3,000 members has a long history of working collaboratively with FTC and FDA and other federal agencies.

NCWM has been working on e-commerce since 2017. First we developed principles regarding e-commerce, then guidance and now we're working on a proposed model regulation. Essentially the proposed guidance basically has turned into a proposed model regulation.

NCWM's development and adoption process is a public process, and we encourage all stakeholders, including FDA, to participate in this development.

The proposed regulation that NCWM is currently considering focuses on the websites and apps where products are purchased, basically the point of sale, and on the information that is accompanying products upon delivery by the purchaser.

The regulation is intended to apply to all products being sold online because despite the federal

agency that may have involvement, almost all federal regulations have something to deal with net quantity, statement of identity, declaration of responsible party as part of their regulations even if the actual substance is not identical across the board.

For the states, having uniformity for both their enforcement as well as consumers is viewed as a priority because ensuring equity in value comparison and a level playing field are the key primary drivers of any action that NCWM takes.

The current regulation that is being proposed focuses on four elements, which while they're not directly food safety or tangential or related to food safety because they're so basic, the net quantity information, statement of identity, the statement of responsible party and the price, all elements that ensure that a consumer can make a value comparison when they're looking at making a purchase online and ensures equity for them and it ensures a level playing field for the manufacturers and the retailers.

I'll make the point that the regulation deals with these subjects differently in terms of what's



required online than what's required upon delivery and, for example, the comment was made earlier for example that information such as the manufacturer address and ZIP code and street address and city. We also do not have that on our website requirements. But we have that on the requirement for product upon delivery.

The model regulation could be adopted as early as 2023. And the NCWM holds public meetings in January and July of every year and currently right now our next meeting obviously is in January then, and we want to encourage FDA, as they're looking at food safety, as they're looking at the labeling aspects of that, to participate in or be aware of what is going on through NCWM and the model regulations that are being developed for the fact that states are already in the process of trying to put something in place for at least these elements to ensure equity in the marketplace.

So again we encourage FDA to be aware of and participate in the process and not basically create something from scratch, absent of what other

organizations are doing in the area. I think we can all work cooperatively to achieve the same objective of ensuring consumers get safe product as well as getting, you know, product that they know what they are purchasing. So thank you very much.

MS. BARRETT: Great. Thank you so much, Chris, and we'll definitely consider your input, along with all the other commenters that we had this afternoon. It was a great closing panel of public comment. So really want to thank you all once again and also encourage you to submit your full comments to the docket, as noted before. So thank you so much again for your time this afternoon. Very thoughtful, informative comments.

All right. I think, Michael, at this time we're going to now look to do our closing. I'd like to welcome back our summit host, Andreas Keller, who is the director again of multi-commodity foods, Office of Food Safety at the FDA Center for Food Safety and Applied Nutrition.

So Andreas, take it away and close us out for the day.

DAILY WRAP-UP

MR. KELLER: Thank you, Keri. Thank you, Michael. Thank you to all participants that were listening to us, to the panelists and all the public comments. We had an amazing first day already.

This summit and your participation is a true testament to how important food safety is to all of us. Food sold via e-commerce directly to consumers is a global reality, and the events related to COVID-19 pandemic significantly increased B2C e-commerce food sales. Consequently, the global community has to have an action plan and well-developed communication and collaboration channels that can be actuated in case of any adverse event relate to food sold via e-commerce. Let us work together and create food safety-related partnerships now, for it is better to be proactive than reactive.

We had a diverse group of presenters who shared their points of view about e-commerce. I'm glad we had this transparent and open dialogue. I learned a lot and see that we need to continue to work together to strengthen the safety of B2C sales of

foods sold via e-commerce.

The following are today's highlights. Well, we started in our first panel and there we heard several very important topics. Some suggestions are that HACCP still applies, hurdle technology and inoculated challenge studies are needed. Consumer communication and education.

Technology has made delivery easier and increasing the efficiency and transparency of sales made via e-commerce. Rovers on the streets and humans being able to have access almost, well, 24/7 and increasing understanding of creating best practices.

We have chats about cold chain management, packaging, ghost kitchens and how we share information with other businesses. In addition to that, we not just share information. We all share business space, equipment, people. There's a need for training of delivery and drivers.

We also heard from our consumers that the safety of the drivers is very important. all of this together, the predictive controls, the reactive controls and automated fulfillment centers, it's an

impressive testament to how technology has evolved and how much we are making use of that.

Our next session talked about studies and how some of the vendors are treating the products, the parcels containing perishable foods treated no differently than any other package. We talked about packaging material, the need for safety of the packaging so that it's tamper-resistant, the need for disclaiming responsibilities.

The Consumer Federation of America talked about how the supply chain management changed and the need to step up enforcement. Delivering food safety and education information.

Changing the landscape. How the growth of everything that's being sold on the internet has changed in relation to food. And also, "Prep Yourself." There is a lot of information out there that we can use and share and build the future here of e-commerce, making our foods safer.

We also heard about the threat of food allergens linked to e-commerce, that our decisions and information we use has to be rooted in science, that

we should be strengthening our regulation and the framework thereof for the business-to-consumer e-commerce. Standardization of labeling. Smart label. Food safety controls. Designation and registration of e-commerce businesses and so on.

So again this has been an amazing day, and there is much more to come. So I want to encourage all of you to listen in again tomorrow at 11:30 Eastern Time. We will start with our second day of the e-commerce summit.

With that, thank you very much for listening. It has been a pleasure and an immense honor to be here with you. Good evening, good day and be safe. Goodbye.

(Whereupon, at 5:10 p.m., the foregoing was concluded.)

CERTIFICATE OF NOTARY PUBLIC

I, IRENE GRAY, the officer before whom the foregoing proceeding was taken, do hereby certify that the proceedings were recorded by me and thereafter reduced to typewriting under my direction; that said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the

outcome of this action.

IRENE GRAY

Notary Public in and for the

STATE OF MARYLAND



CERTIFICATE OF TRANSCRIBER

I, SONYA LEDANSKI HYDE, do hereby certify that this transcript was prepared from the digital audio recording of the foregoing proceeding, that said transcript is a true and accurate record of the proceedings to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

SONYA LEDANSKI HYDE