Food Safety and Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

New Era of Smarter Food Safety: Using a Science-based Approach to Reimagine Food Safety

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Center for Food Safety and Applied Nutrition
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New Era of Smarter Food Safety: Using a science-based approach to reimagine food safety education

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Director, Office of Analytics and Outreach

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Consumer Research at FDA

- FDA's consumer education is science-based
- Social science research methods are used to inform and assess our food safety messages and materials for consumers

FDA's Science-Based Approach

Assess

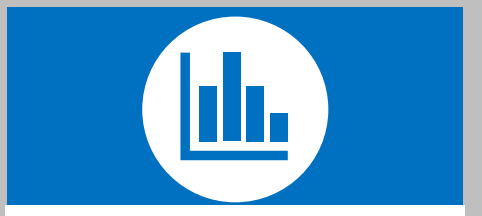
Understand what consumers know, believe, and do

Develop

Develop and test messages with consumers

Disseminate

Disseminate resources through various channels



Evaluate

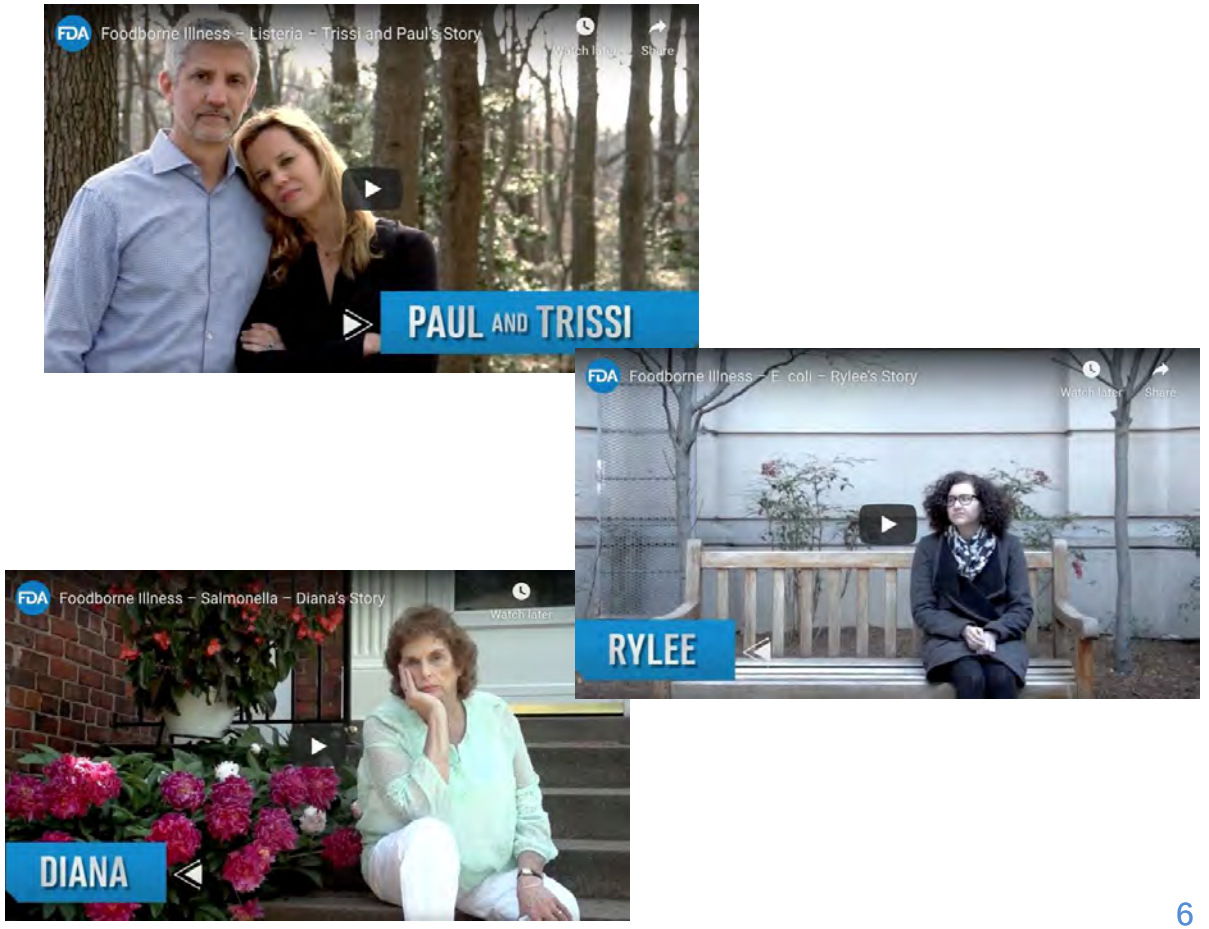
Monitor knowledge, attitudes, and behavior

Using Research to Inform Our Messages: Produce Safety

- FDA Food Safety Survey identified a gap in self-reported consumer behavior regarding washing produce, specifically hard-rind vegetables
- FSIS observational research identified similar gaps in consumer behavior
- Worked with federal agency partners to develop clear, consistent messages
- Intend to explore new technologies and platforms to deliver these messages

Using Behavioral Science Principles to Inform Our Messages

- Research in behavioral science shows narrative and storytelling can be more persuasive than facts and statistics and can increase comprehension and engagement
- FDA worked with consumers whose lives had been impacted by foodborne illness to tell their stories and reinforce the importance of food safety



Food Safety Culture

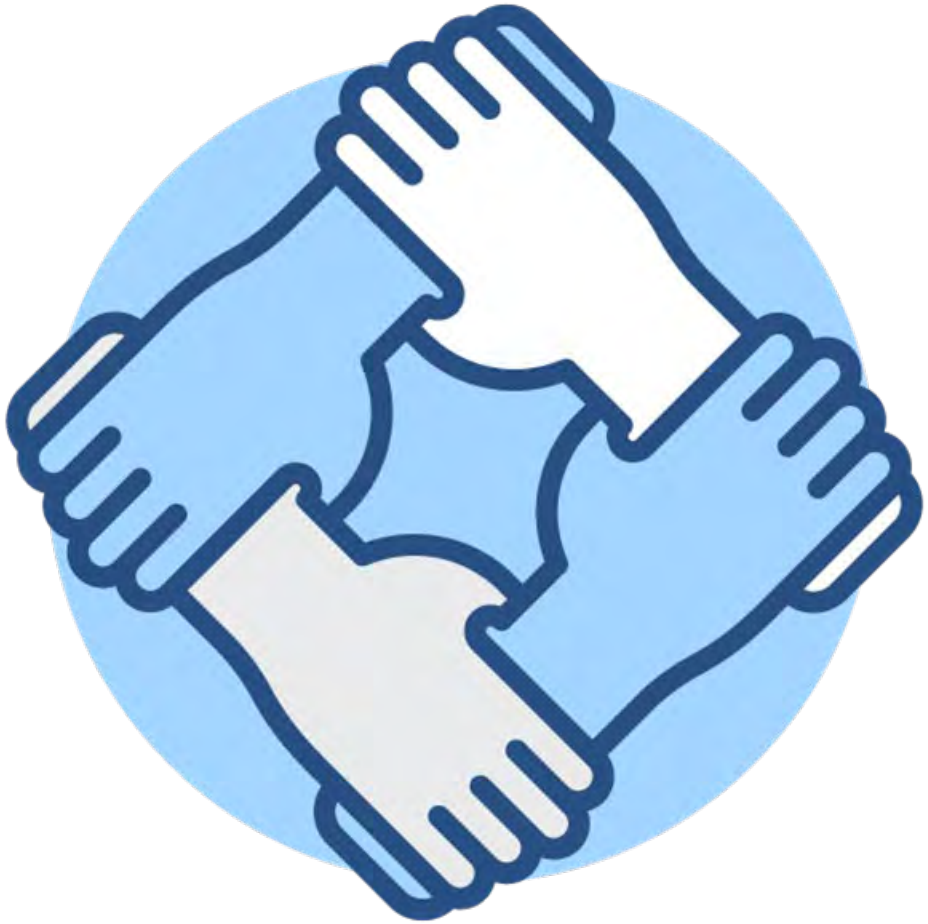
1. Promote food safety **throughout the food system**
2. Further promote food safety **throughout the agency**
3. Develop and promote smarter food safety **consumer education campaign**

Smarter Food Safety at Home

- Use our science-based approach to bring smarter food safety messages to consumers
- Assess existing food safety messages and food safety research to determine what our foundational message is for consumers
- Update current consumer food safety messages based on the latest science, including behavioral science

Collaboration

- Engage new partners in a broad coalition to promote food safety culture
- Long history of working together with federal agencies and private organizations on food safety research and science-based food safety education for consumers



For More Information

New Era of Smarter Food Safety

www.fda.gov/food/new-era-smarter-food-safety

- Subscribe to updates
  www.fda.gov/food/new-era-smarter-food-safety#subscribe
- Contact us
  smarterfoodsafety@fda.hhs.gov

Federal Food Safety Information

https://www.foodsafety.gov/

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Application of Social and Behavioral Sciences to Understanding Community Handwashing and Hand Sanitizing Behavior During the COVID-19 Pandemic

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Centers for Disease Control and Prevention

Application of social and behavioral sciences to understanding community handwashing and hand sanitizing behavior during the COVID-19 pandemic

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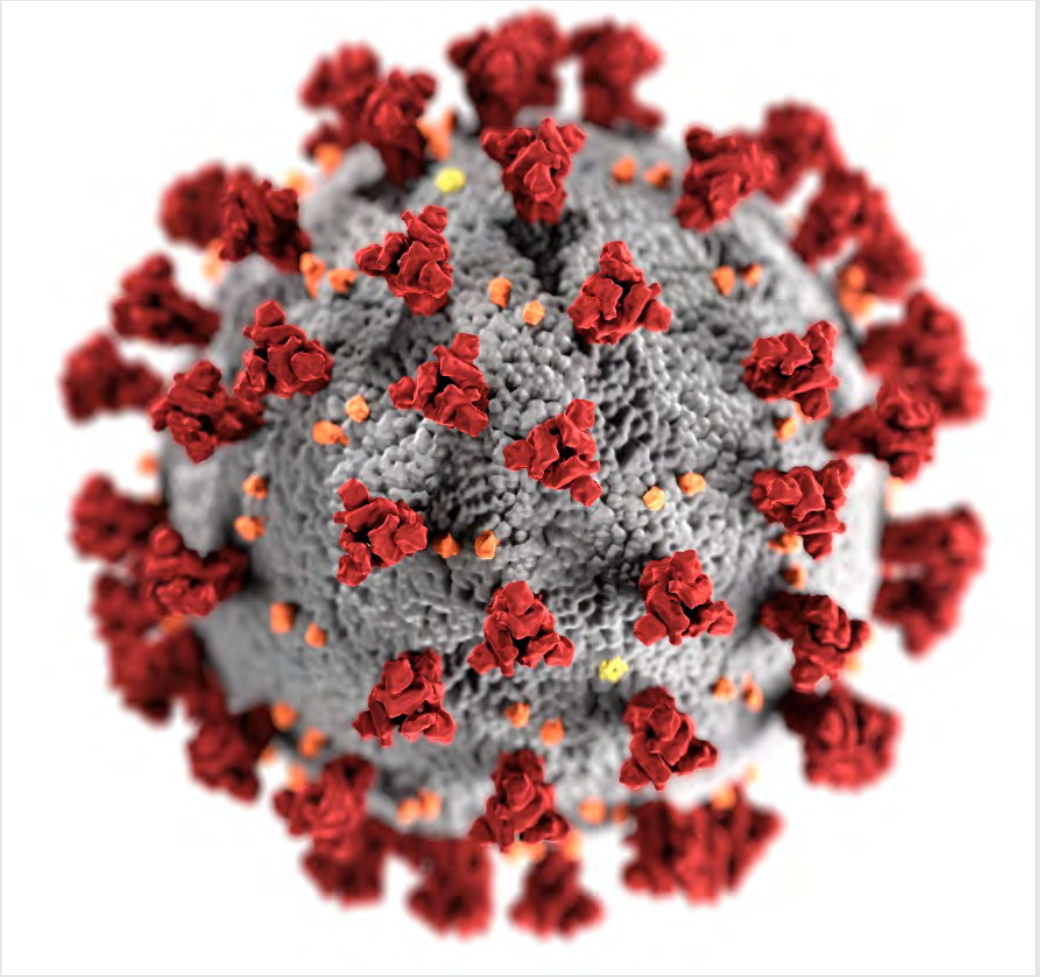
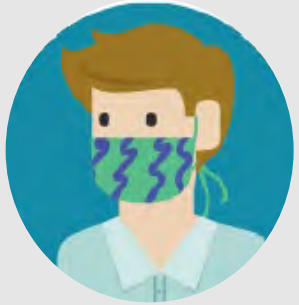
October 19, 2020



cdc.gov/coronavirus

Prevention in Community Settings

- Cover mouth and nose with a mask when around others
- Put at least 6 feet of distance between yourself and people who don’t live in your household
- Wash hands often with soap and water for at least 20 seconds
  - If soap and water are not available, use a hand sanitizer that contains at least 60% alcohol
- Participate in case investigation and contact tracing
- Cover coughs and sneezes using a tissue or the inside of the elbow
- Clean and disinfect frequently touched surfaces daily



https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

Prevention in Community Settings

- Cover mouth and nose with a mask when around others
- Put at least 6 feet of distance between yourself and people who don't live in your household
- **Wash hands often with soap and water for at least 20 seconds**
  - **If soap and water are not available, use a hand sanitizer that contains at least 60% alcohol**
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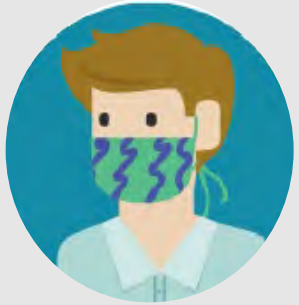


https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

Community Hand Hygiene

- CDC promoted handwashing and hand sanitizing behavior before the COVID-19 pandemic many topics, such as:
  - Flu prevention
  - Enteric disease prevention

https://www.cdc.gov/flu/prevent/prevention.htm
https://www.cdc.gov/handwashing/index.html

Community Hand Hygiene Behaviors

- During COVID-19 pandemic emerging questions include:
  - How to encourage and promote community hand hygiene behavior
  - How to integrate hand hygiene behavior into a routine healthy habit

- Social and behavioral science methods and approaches can help answer these questions

Agenda

- Behavioral epidemiology of community hand hygiene behavior
  - Application of epidemiological approaches to understanding human behavior
- Trends and characteristics of hand hygiene-related public inquiries received via CDC-Info (1-800-CDC-Info)
- Synthesis of evidence-based findings on community hand hygiene behavior
- Implications

Behavioral Epidemiology of Hand Hygiene Behavior

Behavioral Epidemiology of Handwashing

- Recent published survey studies in Australia, United States, and United Kingdom found between 76-86% of survey respondents self-report frequent handwashing
  - Pre-pandemic self-reported handwashing behavior after going to the bathroom estimated at 87%
- CDC survey study conducted in March 2020 among US adults found 93% of survey respondents self-reported frequent handwashing to prevent coronavirus

https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767261
https://www.bradleycorp.com/handwashing/healthy-handwashing-2019
https://pubmed.ncbi.nlm.nih.gov/32574184/
https://www.medrxiv.org/content/10.1101/2020.04.25.20079996v1
https://www.medrxiv.org/content/10.1101/2020.04.01.20050039v1
https://www.openicpsr.org/openicpsr/project/120312/version/V1/view;jsessionid=F1B16DA680BAEE824D69B7E4BACF0C86
https://www.researchsquare.com/article/rs-62989/v1

Behavioral Epidemiology of Handwashing

- **Polling data have suggested decreases in self-reported handwashing behavior over time**
  - Between April and May 2020, decrease in self-reported handwashing (63% to 52%) after going to the grocery store
  - Between April and May 2020 decrease in handwashing or using disinfectant more frequently (75% to 68%)

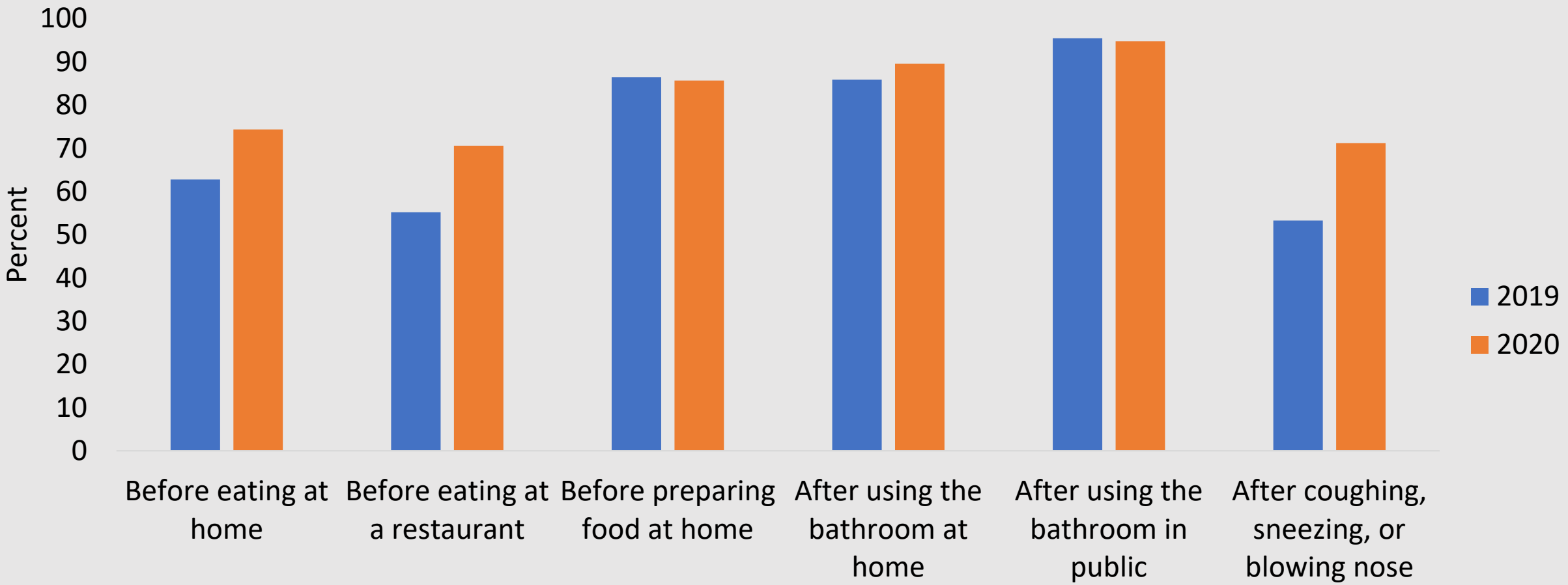
https://foodinsight.org/consumer-survey-a-second-look-at-covid-19s-impact-on-food-purchasing-eating-behaviors/
https://www.ipsos.com/sites/default/files/ipsos-coronavirus-us-aggregate-topline-052020.pdf

Behavioral Epidemiology of Handwashing

- **Patterns of Behavior**
  - Men and young adults have lowest levels of self-reported handwashing compliance
- **Knowledge**
  - Survey studies conducted by CDC between April and June, 85% of respondents had heard that washing hands was important to protect against coronavirus
- **Attitudes**
  - Survey study conducted in Australia found over 90% of survey respondents believed handwashing with soap and water was effective for COVID-19 prevention
- **Motivators**
  - Risk perceptions strongly correlated with self-reported handwashing behavior in study conducted across 10 countries

https://pubmed.ncbi.nlm.nih.gov/32427341/
https://pubmed.ncbi.nlm.nih.gov/32556260/
https://www.researchsquare.com/article/rs-62989/v1
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0235112
https://www.tandfonline.com/doi/full/10.1080/13669877.2020.1758193

Behavioral Epidemiology of Handwashing Behavior



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Behavioral Epidemiology of Hand Sanitizer Use

- Survey studies conducted in March 2020 in Australia and United Kingdom found between 56-60% of survey respondents self-reported frequent hand sanitizer use
- CDC survey study conducted in March 2020 among US adults found 60% of survey respondents self-reported carrying alcohol-based hand sanitizer to prevent coronavirus

https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767261
https://pubmed.ncbi.nlm.nih.gov/32574184/
https://www.medrxiv.org/content/10.1101/2020.04.25.20079996v1
https://www.medrxiv.org/content/10.1101/2020.04.01.20050039v1
https://www.researchsquare.com/article/rs-62989/v1

Behavioral Epidemiology of Hand Sanitizer Use

- **Polling data have suggested decreases in hand sanitizing behavior over time**
  - Between April and May 2020, decrease in self-reported hand sanitizing use (47% to 38%) after going to the grocery store

https://foodinsight.org/consumer-survey-a-second-look-at-covid-19s-impact-on-food-purchasing-eating-behaviors/

Behavioral Epidemiology of Hand Sanitizer Use

- **Patterns of Behavior**
  - Little is known
- **Knowledge**
  - Survey studies conducted by CDC between April and June 2020, between 73-79% of respondents had heard that using hand sanitizer was important to protect against coronavirus
- **Attitudes**
  - Survey study conducted in Australia in March 2020 found about 80% of survey respondents believed using hand sanitizer was effective for COVID-19 prevention
- **Motivators**
  - Little is known

https://www.tandfonline.com/doi/full/10.1080/13669877.2020.1758193
https://www.medrxiv.org/content/10.1101/2020.04.01.20050039v1

Trends and Characteristics of Hand Hygiene-Related Public Inquiries ~~to CDC from the Public~~ from CDC-Info (1-800-CDC-Info)

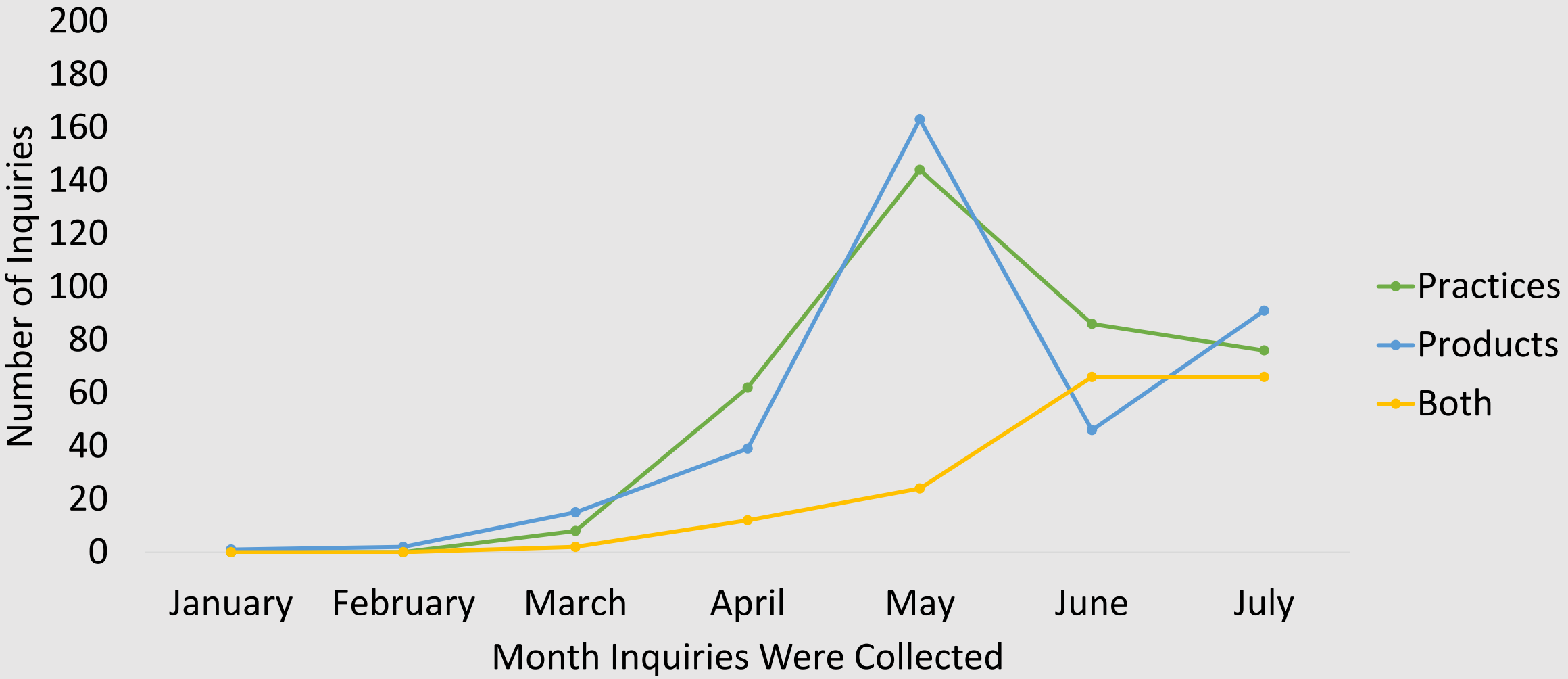
Public Inquiries to CDC About Hand Hygiene

- Public inquiries related to coronavirus made to CDC are inventoried as part of a system called CDC-Info
  - Between January and July 2020, CDC received over 260,000 coronavirus related inquiries
- Narrative search using SAS and hand coding to identify WASH-related inquiries
  - Between January and July 2020, CDC received 7,748 WASH-related coronavirus inquiries
    - Of those 903 were related to handwashing or hand sanitizing in non-healthcare or non-clinical settings

Main Types of Inquiries

Hand Hygiene Practices (n=376)	Related to how to properly clean hands or concerns or questions about practices being used.
Hand Hygiene Products (n= 357)	Related to type, effectiveness and/or safety of hand hygiene products, about access to hand hygiene products, and making hand hygiene products.
Both (n=170)	Any inquiry that could be classified as both hand hygiene practices and products. Such examples included inquiries considering the use and effects of certain hand hygiene products as well as availability.

Trends in Inquiry Type



Synthesis

Synthesis

- Room for improvement in hand hygiene behavior
- Patterns of behavior are similar to other respiratory pandemics, and to non-outbreak handwashing data
  - Men and young adults have lower levels of self-reported hand hygiene behavior
- Although hand hygiene recommendations are not new, the public continues to have questions about how to engage in hand hygiene, and what products to use

https://onlinelibrary.wiley.com/doi/full/10.1348/135910710X485826

Implications

Implications

- Gaps in understanding include limited studies examining motivators of hand hygiene behavior, especially among low compliance groups, to inform behavior change strategies
- Gaps in research characterizing hand sanitizing behavior and patterns of behavior among different populations
- Limited work focused on developing and evaluating effective interventions to promote community hand hygiene behavior
- Lack of polling data over time tracking changes in hand hygiene behaviors overall, and among certain populations
- Outreach may need to go back to basics and continue to provide information on how to engage in hand hygiene, when to do it, and what products to use

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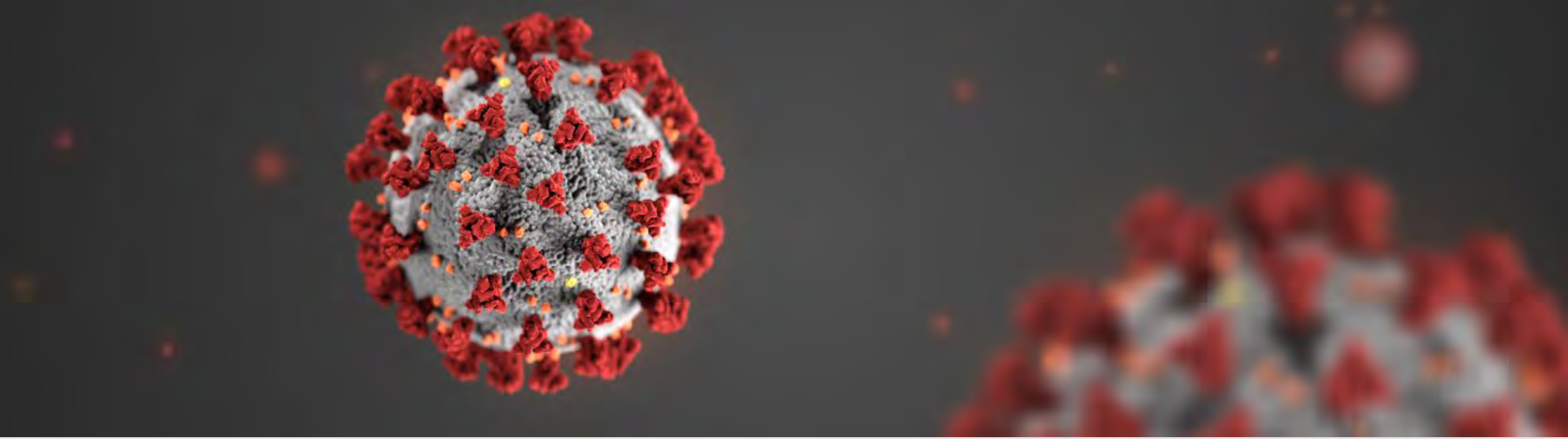

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Industry and Consumer Education

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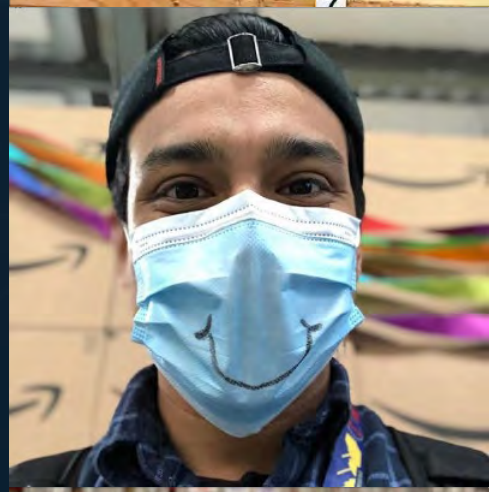
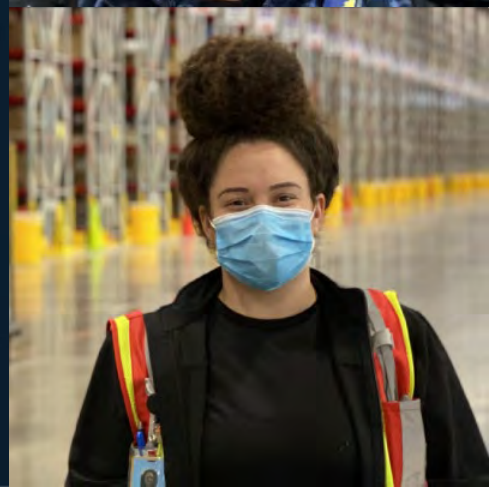

Industry and Consumer Education

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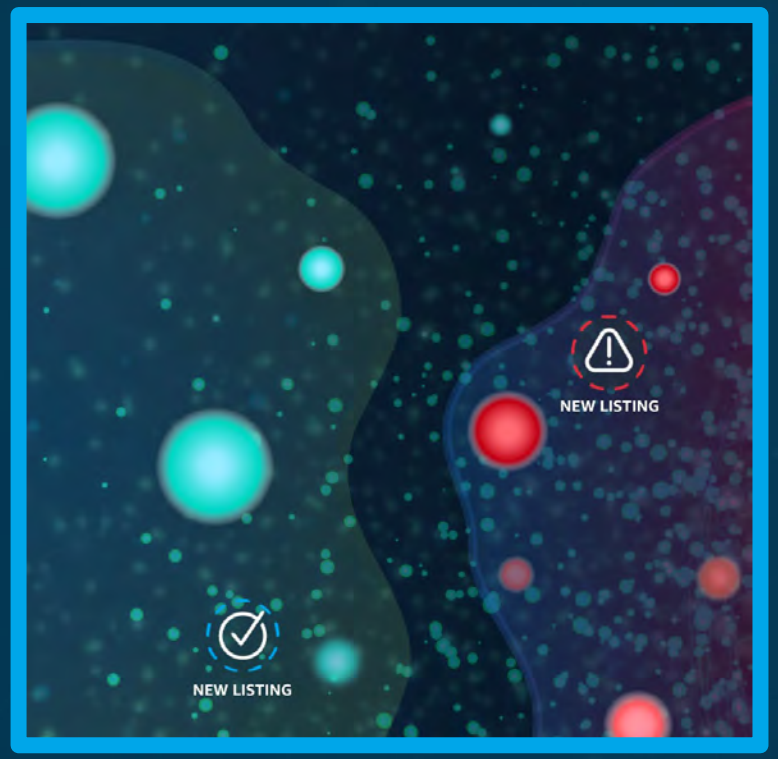
Product Assurance, Risk & Security (PARS)

01 Amazon & Food

02 Technology To Impact Customer Safety and Compliance



Predictive Controls

Reactive Controls

Product and Process Controls

03 Predictive Controls

04 Reactive Controls

05 Product and Process Controls

Food Label Image

Text Localization

Predicted text locations

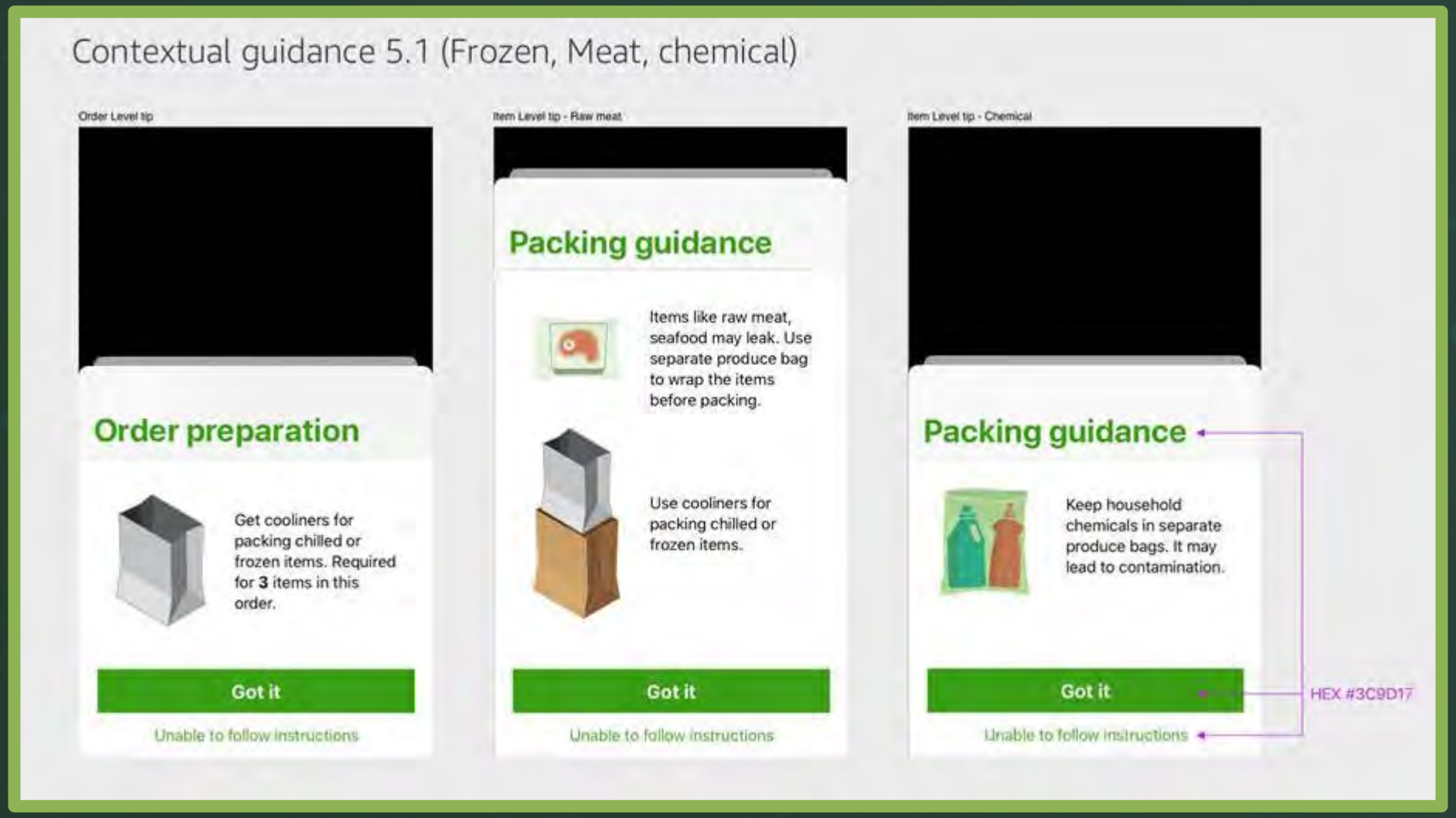
Text Recognition

Predicted text (transcription)

Allergen Detection

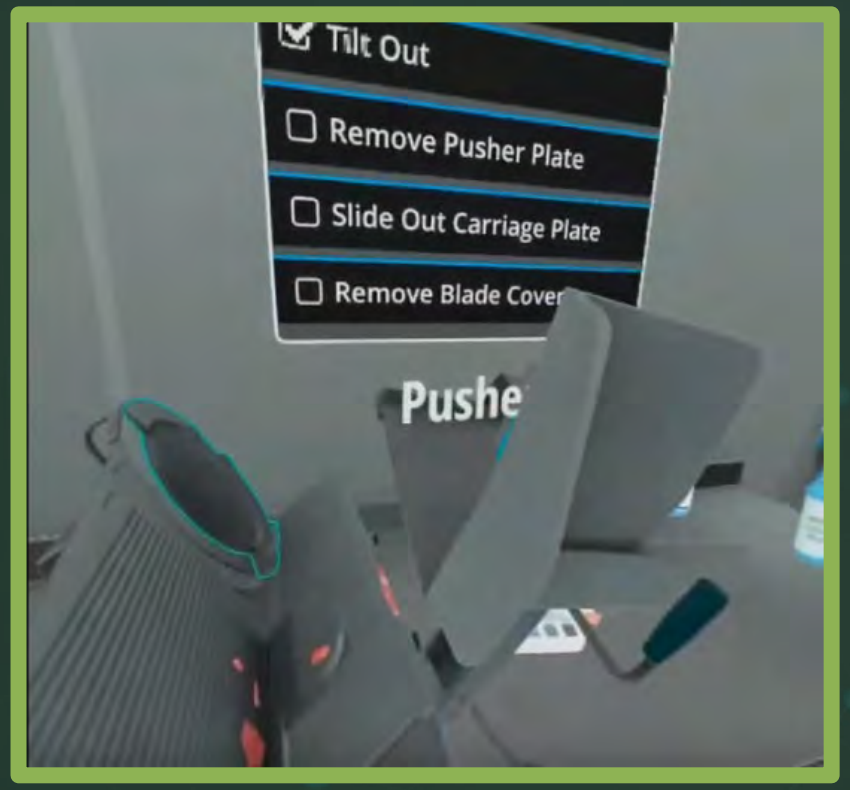
Allergen Detected: Milk

06 Workflow Compliance Prompts



07 Novel Training Methods

Virtual Reality



Deli Slicer Cleaning

Gamification

Deli Workflow

08 Current and Forward-Looking Customer Connections

Thank You

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Product Assurance, Risk & Security (PARS)