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• Questions should be submitted to the presenters during the presentation via the **Questions section** at the right of the screen. Questions will be answered at the end of each session.

• It is important to note that all opinions and statements are those of the individuals making the presentations and not necessarily the opinion or view of IAFP.

• This webinar is being recorded and will be available for access for paid registrants at [www.foodprotection.org](http://www.foodprotection.org) within two days.
Welcome

William Marler, Managing Partner, Marler Clark LLP PS &

David Tharp, Executive Director, International Association for Food Protection (IAFP)
William Marler
Managing Partner
Marler Clark LLP PS
David Tharp
Executive Director,
International Association for Food Protection (IAFP)
COVID-19 & Food Safety Global Summit

Global Host
Our mission is to provide food safety professionals worldwide with a forum to exchange information on protecting the food supply.
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Sent monthly to Members
IAFP Annual Meeting
the leading food safety conference
Other International Conferences

China International Food Safety & Quality Conference + Expo

November 4 - 5, 2020
Shanghai, China
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- Exchange
- Inform
- Connect
IAFP Membership

Annual Membership Fee

US$55

Membership for Students

US$27.50
Make it your association!

www.foodprotection.org
Session I
Moderator: Junshi Chen

COVID-19, food safety and security – a global perspective
Markus Lipp, Senior Food Safety Officer, Food Safety & Quality Unit, Food & Agriculture Organization

COVID-19 – What are risk-based official controls?
Gudrun Galhoff, Minister Counsellor for Health and Food Safety, Delegation of the European Commission to China

FDA’s Food Program Response to COVID-19
LeeAnne Jackson, CFSAN Food Lead – 2019 Novel Coronavirus FDA IMG FDA Co-Chair, Food and Agriculture Sector Government Coordinating Council U.S. Food & Drug Administration

Investigation into China’s recent food-related COVID-19 outbreak
Junshi Chen, Senior Research Professor & Chief Scientific Advisor, China National Center for Food Safety Risk Assessment

Panel Discussion Topics:
• What are the biggest global threats from this pandemic?
• Food import control associated with COVID-19
• How can regulators support food safety and food security in times of a pandemic?
• What is the role of other stakeholders (industry and consumers)?
Markus Lipp
Senior Food Safety Officer
Food Safety & Quality Unit
Food & Agriculture Organization
Gudrun Galhoff
Minister Counsellor for Health and Food Safety
Delegation of the European Commission to China
What are risk-based official controls?
Risk-based control programmes - benefits and challenges

- risk categorisation
- allocate resources to high risk/maximum impact areas
- reasonable assurances as to the level of compliance
- improve public confidence - justify resources
- legislative obligations
- balance different risks
- sufficient knowledge of activities
- keep low risk operations under review
- determine the frequency of controls
- flexibility for new, emerging risks
- distortion of risk categorisation by outside intervention
- certification requirements
What risk is COVID-19?

Disease transmission

- infected people release droplets /aerosols in crowded, confined indoor spaces including factories + restaurants
- susceptible live animals
- goods (food, packages) and other fomites

low

high
What risk is COVID-19?

Food safety and food security

- neglect of planned control activities
- new risks through process modification and substitution of ingredients
- compromised food security
- hungry, malnourished people
What are risk-based controls COVID-19 times?

- balance risks (disease transmission, food safety/security)
- simple, cost and resource saving
- flexible and modular
- easy to understand for all stakeholders (transparency)
- documented – evidence for decision-making
- continuous improvement/adaptation to new science insights
LeeAnne Jackson
CFSAN Food Lead – 2019 Novel Coronavirus FDA IMG
FDA Co-Chair
Food and Agriculture Sector Government
Coordinating Council
U.S. Food & Drug Administration
Junshi Chen
Senior Research Professor & Chief Scientific Advisor
China National Center for Food Safety Risk Assessment
Investigation into China’s Recent Food-Related COVID-19 Outbreaks

Junshi Chen

China National Centre for Food Safety Risk Assessment
New confirmed COVID-19 cases by dates during Xinfadi outbreak (N = 368, new confirmed cases 335 & asymptomatic cases 33)

368 cases (99.5%) linked to Xinfadi market
Findings from the Xinfadi outbreak

SARS-CoV-2 isolates
- Strains different from Wuhan or Beijing before April, 2020
- Highly contagious, significantly more infectious than Wuhan or Beijing strains

Cases not transmitted by animals

Two possible sources of transmission

Source 1
COVID-19 patients visited Xinfadi

Source 2
Imports of frozen seafood or meat from Europe or America, contaminated with SARS-CoV-2

Transmitted to local people causing outbreak
Current consensus of experts?

- **Possible Source 1**: Person-to-person transmission, not local (Beijing) origin, based on the DNA sequencing of SARS-CoV-2 strains isolated from Xinfadi cases.

- **Possible Source 2**: Food-to-person transmission, multiple SARS-CoV-2 positive samples found in Xinfadi, including salmon chopping board, raw food samples (sea food and meats) and environment samples.

- Investigations still on-going, no direct evidence of either possible source.
Impact on food safety

- Regulatory control – immediate closure of Xinfadi market, all seafood and meat removed and destroyed as medical waste 2 weeks after the beginning of the outbreak.
- Suspension of sale/serving of salmon and other seafood by supermarkets/restaurants in Beijing.
- Large scale sampling and testing on imported seafood and meat.
- Confusing media reports led to consumers’ concern about buying, cooking and eating seafood. Nucleic acid positive samples from Ecuador white shrimp package.
Each salmon dish served in restaurants carries a nucleic acid testing report

Salmon:
- I have no lungs
- I do not infect COVID-19
- This is my testing report
- I am not infected
- Please don’t worry to eat me
Lessons learned

- Further research is needed to determine whether there are live SARS-CoV-2 virus in nucleic acid positive food samples as well as the amount of live virus on the contaminated food.
- Regulatory control measures should be science-based.
- Negative psychological effects > food safety risks.
- Effective communications from beginning of the crisis.
Session I

Questions & Answers
Session II
Moderator: Donald W. Schaffner

Panelists:

Donald W. Schaffner, Ph.D. Distinguished Professor and Extension Specialist, Rutgers University
Benjamin Chapman, PhD, Professor and Extension Specialist, North Carolina State University
Lawrence Goodridge, Leung Family Professor in Food Safety; Director, Canadian Research Institute for Food Safety; Director, Food Safety & Quality Assurance MSc Program, Department of Food Science, University of Guelph
Donald Schaffner
Distinguished Professor and Extension Specialist
Rutgers University
Benjamin Chapman
Professor and Extension Specialist,
North Carolina State University
Lawrence Goodridge
Leung Family Professor in Food Safety
Director
Canadian Research Institute for Food Safety
Director
Food Safety & Quality Assurance MSc Program
Department of Food Science, University of Guelph
Session II, Schaffner, Chapman, and Goodridge

• What is currently known from the published literature regarding SARS-CoV-2 best practice management information to the food industry?
• What are the critical knowledge gaps in that information according to food industry stakeholders?
• What lab research is needed with surrogate organisms and SARS-CoV-2 to fill those gaps?
• How can we best translate new knowledge to create best practices and promote risk reduction?
Session III
Moderator: Kali Kniel

- Best practices for implementing physical distancing
- Suppliers and food chain dynamics
- International Issues in Food Production
- Practical considerations around the overall risk-based COVID-19 management approach, elements of appropriate training programs, and factors for primary production.
- An overall risk-based approach for COVID-19 management will include considerations for implementing an optimal hygiene program.
- AOACRI Emergency Response Validation for Detection of SARS-CoV-2 on Surfaces
- How might wastewater surveillance fit into the big picture of detection and control?

Panelists:
John Donaghy, Head of Food Safety, Nestle S.A.
Michelle Danyluk, Professor, Food Science, University of Florida
Ruth Petran, Senior Corporate Scientist, Food Safety & Public Health, Ecolab
Sharon Brunelle, AOAC Technical Consultant
Kali Kniel, Professor, Microbial Food Safety, Department of Animal & Food Sciences, University of Delaware
John Donaghy
Head of Food Safety
Nestle S.A.
John Donaghy
Nestlé

Navigating COVID in the Food Supply Chain

IAFP Webinar July 2020
Lessons from Land to Lockdown

Resource Availability

Farm

Supplier/ Primary Processing

Manufacturer/ Factory

Supplier/ Packaging

Consumer Demand

Licence To Operate
Agility Needed at All Steps of Supply Chain

**Supplier/ Primary Processing**
- Widespread application of preventative measures
- Enhanced use of digital/remote technology
- Flexibility for audit and certification
- Environmental Monitoring and analytical flexibility /contingency

**Manufacturer/ Factory**
- Increased e-channel food sales
- Adjusting production schedules /production run times, etc. for consumer
- Adjusting product offerings (economic & health impacts)

**Farm**
- On-Boarding New Suppliers
  - Approve and Verify
  - Travel–free audits
  - Increase Food Safety analytics
  - Food & Packaging risk (Covid)
  - Logistics

**Supplier/ Packaging**
Hierarchy of control – Engineering and Administrative solutions

Physical Distancing: Not just in the Production Area

Transport

Check-Ins

Locker rooms

Canteens/Break-out rooms

Production Lines

(Face) Mask Wearing PPE or Not PPE

To wear or not to wear

Availability & which mask to use – PPE or source control

Certification, Standards, Criteria, Compliance

Procure, train/educate on wearing, disposing, reuse

Assessing occupational risk in higher environments

EU/201/745
EU/2016/425
AFNOR ST6-001
Michelle Danyluk
Professor
Food Science
University of Florida
Employee Training

NORMAL FOOD SAFETY TRAINING

- Bacteria bias
- Focuses on fecal-oral route
- Emphasis on hand hygiene/washing & personal hygiene around fecal-oral and zoonosis
- Focus on cleaning and sanitizing zone 1
- Emphasis on the “why”
- Well established protocols and practices

UNIQUE TO COVID

- Viral pathogen
- Respiratory, person-person transmission
- Exposure risks outside the workplace
- Focus on cleaning and sanitizing touch points
- Mask use as PPE
- Rapidly changing information and recommendations

https://foodsafety.ces.ncsu.edu/covid-19-resources/
Social Distancing

BAD:
Workers are in too close contact: Less than 6 feet apart either beside or across from each other, not wearing a cloth face covering/mask.

BETTER:
Workers are at least 6 feet apart and not facing one another; workers wear a cloth face covering/mask.

BETTER:
Physical barriers are used as partitions to keep workers separated; workers wear a cloth face covering/mask.

BEST:
Physical barriers are used to partition both between workers side by side and across from one another; workers wear a cloth face covering/mask.

Risk as a spectrum - 6 Feet is not a magical number that the virus can’t move beyond

Challenges with COVID Training

Lack of concern
- Its fake, just the flu
- Morbidity issues not just mortality

Lack of hard science
- Constantly changing messages

Understanding of transmission
- Pre/asymptomatic Transmission

Agricultural workers
- outside is no risk

Mask/face covering use
- How to wear (i.e. covering nose)
- Hot and uncomfortable
- Disbelief of efficacy

No direct emotional connection

Trainer experience

“My rights”

Vaccine reluctance

Social distancing/remote trainings

Risk factors outside of the work place
- You can only catch this at work

Trust of employees
- Convincing them you care if they get sick

Misinformation in media/social media
Exploring fact vs fiction: COVID-19
YouTube and Misinformation

Grocery Shopping Tips in COVID-19

You should wash fruits and vegetables in soap or a bleach solution = FALSE
Exploring fact vs fiction: COVID-19 TV and Misinformation

Stated you can use “any disinfectant; they are all effective”.
NOT TRUE – check EPA List N
Ruth Petran
Senior Corporate Scientist
Food Safety & Public Health
Ecolab
CHALLENGE
How to optimally manage risks of a new illness agent that we are still learning about

APPROACH
Rely on classic risk assessment principles

Risk Identification  →  Risk Management
HOW DOES CORONAVIRUS SPREAD?

It depends on the particular coronavirus.

Human coronaviruses spread by respiratory droplets from an infected person to others through:

- **Droplets** from coughing and sneezing or even talking
- **Close personal contact**, such as touching or shaking hands
- **Touching** an object or surface with the virus on it, then touching your mouth, nose or eyes before washing your hands

Transmission from person to person is occurring with COVID-19. Surveillance continues.

IMPLEMENT ENHANCED HYGIENE

TAKE ACTION

Public health recommendations focus on standard infection control practices, training and compliance.

PERSONAL HYGIENE

- Wash hands frequently with soap and water. When soap and water aren’t available, use an alcohol-based hand sanitizer.
- Minimize close contact with people who have symptoms of respiratory illness.
- Ensure proper use of personal protective equipment (PPE) where appropriate.

ENVIRONMENTAL HYGIENE

- Clean and disinfect surfaces and high-touch objects with approved disinfectants.
GOOD NEWS!

Coronavirus is a small-enveloped virus. Enveloped viruses are the least resistant to disinfection, which means *disinfectants* can be used to effectively kill coronavirus on surfaces.
**Differences between CLEANING, SANITIZING AND DISINFECTING**

**Cleaning**
- **REMOVES** soil from a surface but does not kill any organisms.

**Sanitizing**
- **REDUCES** the number of bacteria in the environment, significantly.

**Disinfecting**
- **DESTROYS** or irreversibly inactivates bacteria and viruses.*

---

Sanitizers and disinfectants are regulated by the U.S. Environmental Protection Agency (EPA) and are used to manage public health risks. It is a violation of Federal law to use these products in a manner inconsistent with labeling.

*See product label for specific organism claims.
## RISK BY SURFACE TYPE

<table>
<thead>
<tr>
<th>SURFACE TYPE</th>
<th>EXAMPLES of SURFACE TYPE</th>
<th>RISK LEVEL</th>
<th>CDC RECOMMENDATION</th>
<th>ADDITIONAL STEPS, IF DICTATED BY RISKS</th>
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</thead>
<tbody>
<tr>
<td>Non-Food-Contact</td>
<td>Door handles, push plates, cash register, railings, chairs and booths, trash can, menus, restrooms, desks, high-touch point objects in public spaces</td>
<td>High</td>
<td>Disinfect</td>
<td></td>
</tr>
<tr>
<td>Hard, Non-Porous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food-Contact</td>
<td>tables, ice machine, food prep tools and equipment, ware</td>
<td>Low</td>
<td>Clean&gt; Rinse&gt; Sanitize¹</td>
<td>Disinfect &gt; Rinse &gt; Sanitize</td>
</tr>
<tr>
<td>Soft, Porous</td>
<td>Couches, cushions, mattresses, carpets</td>
<td>Low</td>
<td>Clean</td>
<td>Launder or Sanitize (if possible)</td>
</tr>
<tr>
<td>Linen (non-Healthcare)</td>
<td>Towels, sheets, pillowcases, rags, uniforms</td>
<td>Low</td>
<td>Hygienically Clean</td>
<td>Sanitize</td>
</tr>
</tbody>
</table>

DISINFECTION: NON-FOOD CONTACT

Clean and disinfect hard surfaces and high-touch objects with approved disinfectants. Increase frequency as needed.

1. **PRE-CLEAN**
   Pre-clean visibly soiled areas to be disinfected

2. **DISINFECT**
   For an emerging viral pathogen, use a disinfectant with an EPA-approved emerging viral pathogen or coronavirus claim. Refer to the product label for complete directions for use.

3. **WAIT**
   Allow surface to remain wet for the time indicated in the directions for use on the product label.

4. **DRY**
   Wipe the surface or allow to air dry.
DISINFECTION: FOOD CONTACT

During RED REMEDIATION: Clean and disinfect hard surfaces and high-touch objects with approved disinfectants. *Increase frequency as needed.*

**RED: REMEDIATION**

1. **PRE-CLEAN**
   Pre-clean visibly soiled areas to be disinfected

2. **DISINFECT**
   For an emerging viral pathogen, use a disinfectant with an EPA-approved emerging viral pathogen or coronavirus claim. Refer to the product label for complete directions for use.

3. **WAIT**
   Allow surface to remain wet for the time indicated in the directions for use on the product label.

4. **DRY**
   Wipe the surface or allow to air dry.

5. **RINSE AND SANITIZE**
   Rinse the surface with potable water and sanitize using food-contact sanitizer according to label directions.
KEY POINTS

- Consider the relevant risks
- Sanitizers and disinfectants can help manage risks
  - Choose the right product
  - Use it properly, following the label
- Verify implementation of hygiene protocols
AOAC RI Emergency Response
Validation for Detection of
SARS-CoV-2 on Surfaces
AOAC Research Institute

Performance Tested Methods℠ (PTM) Program

• Validation of Commercial Proprietary Test Kits
• >300 Certified Methods
• >80% Microbiology
  • 0 Viral Methods

Emergency Response Validation

• Developed for immediate response to emerging food safety crises
• Single study coordinated by one independent laboratory
• Multiple candidate methods
• Methods will receive a special EU PTM Certificate effective through 1Q21.
  • Can submit additional data to convert to “full” PTM status.
ERV for Detection of SARS-CoV-2 on Surfaces

• Molecular methods
  • No distinction between intact virus and residual RNA

• ERV Protocol Approved
  • Selectivity (inclusivity/exclusivity)
    • First implementation of *in silico* analysis
    • AOAC OMA Appendix Q: Recommendations for Developing Molecular Assays for Microbial Pathogen Detection Using Modern *In Silico* Approaches
  • Matrix - Food-grade stainless steel surface
  • Reference method – CDC EUA method

• MRIGlobal under contract
• Application deadline July 29, 2020.
Part 1: In Silico Analysis for Selectivity

Minimum Requirements:

Inclusivity – Analyze minimal set of GISAID database sequences
  • Sequences deposited through June 26, 2020
  • Includes >15,000 accessions after the removal of duplicates and low-quality sequences (>300 Ns)

Exclusivity – Analyze near neighbors and background (environmental) organisms
  • Near Neighbors – 8 viral strains including other human coronaviruses, SARS, MERS, and a porcine coronavirus
  • Background - 23 bacterial and fungal strains, 8 Eukaryotes, and 26 viruses

Quality – Unimolecular folding (secondary structure) and bimolecular hybridization ($\Delta G$, $T_m$) for each primer and probe and their respective binding regions.
Part 2: Matrix Study

Control 100 µL transport medium (0 GU/5 µL) n=5/method
Low 100 µL SARS-CoV-2 at fractional level for CDC method n=20/method
High 100 µL SARS-CoV-2 at 5X Low level n=5/method

- Process Control if applicable
- Swab surfaces according to candidate method
- Randomize and blind code swabs
- Swab surfaces according to WHO method
- Extract RNA according to approved method
- Human Specimen Control (HSC)

- Extract RNA or lyse according to candidate method
- Ship blind coded extracts/lysates to method developer
- Perform candidate method RT-PCR (method dev.)
- Extract RNA according to approved method
- Perform CDC method RT-PCR (indep. lab)

Process Control meets specification.
Control all negative.
High all positive.
Compare POD values at low level.
No difference detected or POD_{candidate} > POD_{reference}
AOAC Experts

• William Burkhardt, FDA/CFSAN/OFS/DSST
• Jacqueline Woods, FDA/CFSAN/OFS/DSST/MHSB
• Efi Papafragkou, FDA/CFSAN/OARSA
• Sanjiv Shah, EPA/ORD/HSMMD
• John SantaLucia, Wayne State University
• Chengzhu Liang, Qingdao Customs District
• Laura Rose, CDC/DDID/NCEZID/DHQ
Kali Kniel
Professor
Microbial Food Safety
Department of Animal & Food Sciences
University of Delaware
Wastewater-based Epidemiology

How sewage could reveal true scale of coronavirus outbreak

DUTCH SCIENTISTS FIND CORONAVIRUS IN CITY’S WASTEWATER

The proof is in the sewage: hundreds of Yosemite visitors may have had coronavirus

Indian scientists find COVID-19 gene in wastewater, hailed by global community
Wastewater-based Epidemiology

How might wastewater surveillance fit into the big picture of detection and control?
• Complimentary approach to clinical surveillance

Viral concentrations in municipalities and communities may be a leading factor

Rapidly Moving Field!
• Preliminary and published reports of SARS-CoV-2 surveillance are plentiful, but uncertainty concerning use of information to inform public health response remains.

Scientists are up to the Challenge
• Characterizing viral shedding
• Quantifying viral load across different clinical specimens is challenging
• What constitutes the proper wastewater sample? Composite analysis?
• RNA detection versus viable virus?
• Method development...

COVID-19 WBE Collaborative
Sewage Analysis CORe group Europe (SCORE)
Global Water Pathogen Project
Session III

Questions & Answers
COVID-19 & FOOD SAFETY GLOBAL SUMMIT
Thank you!