



COVID-19 and Food Safety

Moderators

Dr. Yifan Zhang, Wayne State University, United States

Dr. Zhinong Yan, Walmart Food Safety Collaboration Center, United States

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COVID-19 and Food Safety

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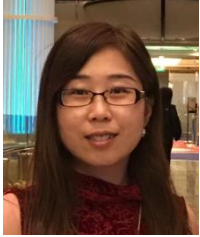
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Today's Moderators



Dr. Yifan Zhang

Dr. Yifan Zhang is a professor of food microbiology at Wayne State University. Her research is to understand the role that food and agricultural environment play in transmitting human pathogenic bacteria and antimicrobial resistance in urban agricultural settings. Prior to her current position, she was a postdoctoral researcher at Ohio Agricultural Research and Development Center (OARDC), The Ohio State University. Dr. Zhang earned her PhD in food science from University of Maryland, College Park.



Dr. Zhinong Yan

Dr. Zhinong Yan is the Executive Director of the Walmart Food Safety Collaboration Center (WFSCC). He leads a team that promotes the development of food safety in China through stakeholder collaboration in the three areas of food safety innovation, education and policy support.

Dr. Yan has over 30 years of academic and industry experience in microbiology and food safety. His experience spans the entire food supply chain from farm to table. His expertise includes analysis and overall solution against the occurrence, contamination, traceability and control of foodborne risk factors during the stages of production, processing, retail and catering for grain, meat, fruits, vegetables, and snack foods; Dr. Yan has extensive experience in microbiological inspections, analysis, monitoring and control of food processing equipment during production and in the business environment. He has published over 30 research papers and book chapters.

Dr. Yan actively participates in the industry construction work; he is currently Vice Chair of the Global Food Safety Initiative's (GFSI) China Steering Committee, Chairperson for AFP China, Vice President of China Animal Health and Food Safety Alliance, Deputy Director of the Expert Committee of the Cold Chain Logistics Committee (CCLC) of China Federation of Logistics & Purchasing, and Expert Advisor of Franchise Association (CCFA) and China Children Food Safety Program of China Children and Teenage Foundation(CCTF). Dr. Yan has a Ph.D. from Auburn University in Plant Pathology, and he received his B.S and M.S from China Agriculture University .



Dr. Junshi Chen was graduated from the Department of Public Health, Beijing Medical College in 1956 and has been engaged in nutrition and food safety research for more than 50 years at the Institute of Nutrition and Food Safety, Chinese Center for Disease Control and Prevention (the former Chinese Academy of Preventive Medicine), Beijing.

Since 2011, he took the position of Senior Research Professor at the China National Center for Food Safety Risk Assessment. He has served as the Deputy Director, Institute of Nutrition and Food Hygiene, Chinese Academy of Preventive Medicine (1987-1998); Vice President, Chinese Society of Toxicology (1998-2005); Chairperson, Codex Committee for Food Additives (CCFA, 2007-2017); chairperson, 1st National Food Safety Risk Assessment Expert Committee (2009-2019); Vice Chair and Chief Scientist, 1st National Food Standard Reviewing Committee (2010-2019); and Co-convenor, UN Inter-agency Coordinating Group on Antimicrobial Resistance (IACG, 2017-2019).

Dr. Chen's research interests include: Food safety risk assessment & risk communication; Food toxicology; Epidemiological studies on diet, nutrition and chronic diseases; Food fortification; and Chronic diseases health management and Exercise is Medicine.

Recently, he was appointed as the Chief Scientist, 2nd China National Food Safety Standard Reviewing Committee; Chair, Advisory Committee, 2nd China National Food Safety Risk Assessment Expert Committee. His other social responsibilities include: Deputy-chair, Expert Committee, Food Safety Committee of China State Council; Honorary President, Chinese Society of Toxicology; Director, Shanghai JS Life Sciences Institute (SJLSI); etc.

COVID-19 and Food Safety

Junshi Chen

China National Centre for Food Safety Risk Assessment



Questions ?

- **Is COVID-19 a food safety issue ?**
 - **Could COVID-19 be transmitted via food ?**
 - **Impacts on food safety ?**
- 

Is COVID-19 a food safety issue ?

- **COVID-19 is not a food borne disease, but a disease of animal origin (WHO).**
 - **COVID-19 is spread mainly from person-to-person through respiratory droplets or in close contact with patients, although SARS-CoV-2 was found in fecal samples of Chinese patients.**
 - **COVID-19 is not a food safety issue.**
- 

Could COVID-19 be transmitted via food ?

- To date, there have not been any reports of transmission of SARS-CoV-2 virus through food and caused human infection (WHO).
 - Same statements were made by US FDA, US CDC, ECDC, EFSA, Canadian government, FSANZ, FSAI, etc.
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WHO: No evidence to show seafood could transmit SARS-CoV-2

On August 13, Mike Ryan, head of the World Health Organization's (WHO) Emergency Programme, said that there was no evidence that coronavirus could be transmitted through food or packaging, and urged people not to be afraid of the virus entering the food chain.

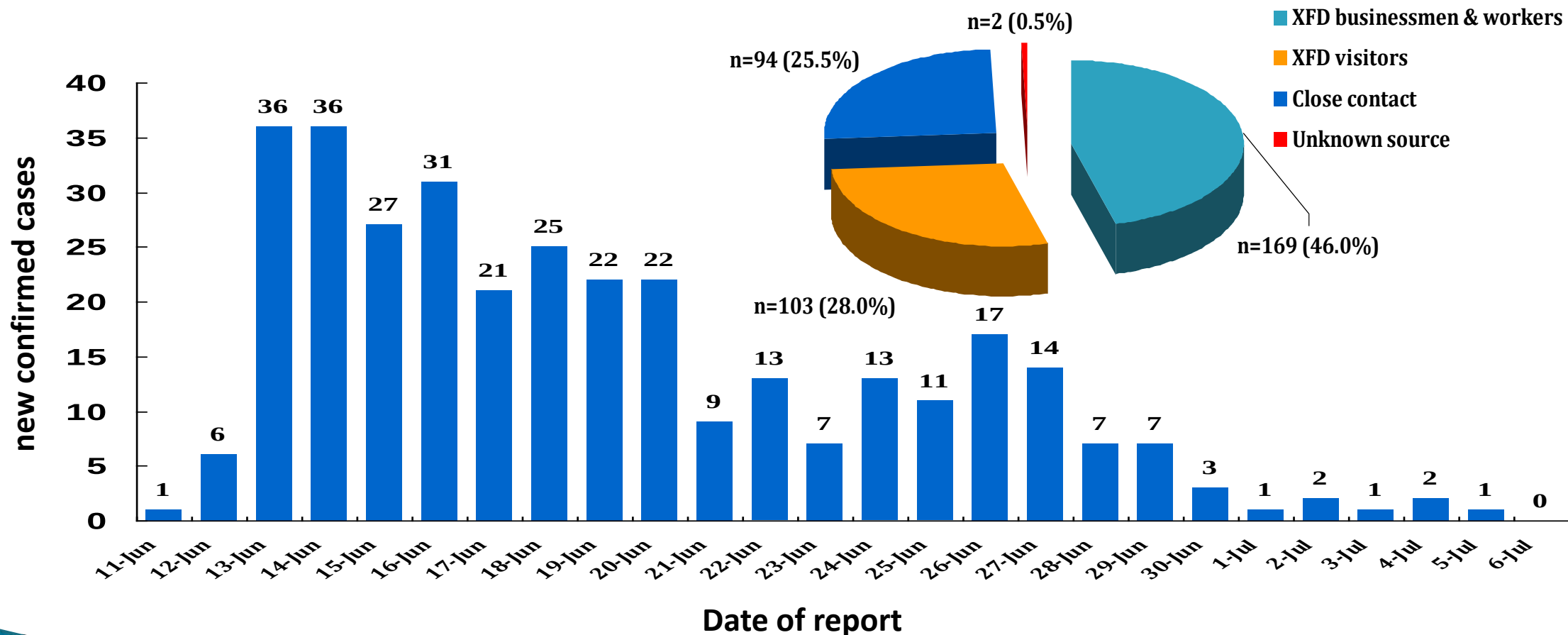
"People should not be afraid of food, nor should they be afraid of food packaging, processing or transportation." He added:

"There is no evidence that food or food chains are involved in the transmission of the virus. People should feel reassured and safe."



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 and analysis

SARS-CoV-2 isolates

- ▶ Strains different from Wuhan or Beijing before April, 2020
- ▶ Highly contagious, significantly more infectious than Wuhan or Beijing strains

Epidemiology – not transmitted by animals

- **Possible Source 1:** Person-to-person transmission, not local (Beijing) origin, based on the WGS 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.

No hard evidence on either source

Regulatory actions and consequences

- **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.**
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COVID-19 outbreak in Dalian

- **Dates** – 23rd July - 10th August
- **Number of confirmed cases** – 134 cases, 98% were related to X seafood company
- **Location** – a large sea food company (importing, processing, storage and marketing)
- **Epidemiology** – 1 dock work infected and transmitted to his wife, worked at processing workshop of X seafood company, then caused series infection in the company and also transmitted to close contacts.
- **Evidence** – Transmission pathway clear, excluded other infection sources; multiple nucleic acid positive samples found in the processing workshop; highly homogeneous in WGS among virus isolated from the first case and other cases; the most likely source of infection of the original case is the nucleic acid positive imported frozen food package, however, live virus was not isolated from the nucleic acid positive sample.

COVID-19 outbreak in Qingdao

- **Dates** – 11th October – 11th November
- **Number of confirmed cases** – 14
- **Location** – X tuberculosis hospital
- **Epidemiology** – Two dock workers infected and admitted to X tuberculosis hospital which caused multiple infection in the hospital, then caused more cases in close contacts, including a taxi driver .
- **Evidence** – Transmission pathway clear, excluded other infection sources; COVID-19 patients shared hospital instruments; high homogeneous in WGS among virus isolated from the 2 original cases and other cases; the most likely source of infection of the 2 original cases is the nucleic acid positive imported frozen food package, because **live SARS-CoV-2 strains were isolated from the nucleic acid positive samples and its WGS is highly homogeneous with the virus isolated from the patients.**

China CDC isolated live SARS-CoV-2 from outer surface of imported frozen food package

Recently, China CDC has isolated live SARS-CoV-2 from nucleic acid positive samples from outside surface of imported frozen cod fish package, during the investigation on Qingdao COVID-19 outbreak. This is the first time that live SARS-CoV-2 was isolated from outside surface of cold chain foods, and it also proved that contact SARS-CoV-2 contaminated surface may infect COVID-19.

- The meaning of isolated live virus from the outside surface of cold chain food package.
- The risk of cold chain foods in China contaminated by SARS-CoV-2 is low.
- **The risk of infection by contact or consume cold chain foods in general public is low.**
- Recommendations for self protection in related food industries.

Source: http://www.chinacdc.cn/yw_9324/202010/t20201017_222144.html

Statement of Acting USDA Secretary Kevin Shea and Acting FDA Commissioner Janet Woodcock, M.D. (WASHINGTON, Feb. 18, 2021)

<https://www.usda.gov/media/press-releases/2021/02/18/covid-19-update-usda-fda-underscore-current-epidemiologic-and>

- **The U.S. Department of Agriculture, the U.S. Food and Drug Administration and the U.S. Centers for Disease Control and Prevention continue to underscore that there is no credible evidence of food or food packaging associated with or as a likely source of SARS-CoV-2 transmission.**
 - **Our confidence in the safety of the U.S. food supply remains steadfast. Consumers should be reassured that the foods they eat and food packaging they touch are highly unlikely to spread SARS-CoV-2.**
- 

WHO-convened Global Study of Origins of SARS-CoV-2: China Part Joint WHO-China Study 14 January-10 February 2021

The consensus was that given the level of evidence, the potential for SARS-CoV-2 introduction via cold/food chain products is considered possible.

Source: <https://www.who.int/publications/i/item/who-convened-global-study-of-origins-of-sars-cov-2-china-part>



Impacts and challenges to food safety

- How to ensure the safety of imported frozen food ?
 - How to deal with nucleic acid positive samples ?
 - How to control possible cross contamination in the whole value chain, including imported frozen food released by the custom.
 - Consumers – how to protect themselves ? **5 keys (WHO)**
 - Proper risk communication.
- 

Multiple imported frozen animal food packages found SARS-CoV-2 nucleic acid on surface samples

In November, 2020, nucleic acid positive samples were found in 8 cities in 3 days

- 12th, Quanzhou city, Fujian province, 4 positive samples
- 12th, Liangshan city, Shandong province, 1 positive samples
- 12th, Wuhan city, Hubei province, 3 positive samples
- 13th, Lanzhou city, Gansu province, 1 positive samples
- 13th, Zhengzhou city, Henan province, 1 positive samples
- 13th, Jinan city, Shandong province, 1 positive samples
- 14th, Sishui city, Shandong province, 1 positive samples
- 14th, Xian city, Shaanxi province, 1 positive samples



Foods involved: shrimp, chicken, beef, pork, fish, etc.

Countries of origin: Ecuador, Brazil, Indonesia, Netherlands, Argentina, Russia, etc.

SARS-CoV-2 contamination in imported frozen Foods – low detection rate and mainly samples from outer packaging

Positive rate of all samples inspected by the Chinese customs **0.15 per 1,000**



November 12, 2020

Positive rate of all samples inspected by nationwide health authorities **0.048 per 1,000**



November 25, 2020

Guidance documents for the control of SARS-CoV-2 contamination in cold chain foods, issued by State Council

[2020]-216	Guidelines on COVID-19 Prevention and Control for Meat Processing Enterprises	2020-07-21
[2020]-221	Technical Guidelines for Novel Environment Monitoring of SARS-CoV-2 in Farmers' Markets	2020-07-30
[2020]-223	Technical Guidelines for COVID-19 Prevention and Control in Farmers' Markets	2020-08-12
[2020]-263	Notice on Further Improvement of Traceability Management of Cold Chain Foods	2020-11-29
[2020]-220	Notice on Strengthening SARS-CoV-2 Detection in Cold Chain Foods	2020-11-09
[2020]-245	Technical Guidelines for Prevention and Control of SARS-CoV-2 Contamination in Cold Chain Foods Technical Guidelines for SARS-CoV-2 Disinfection in Food Manufacturing and Marketing	2020-10-27
[2020]-255	Working Protocol of Comprehensive Preventive Disinfection for Imported Cold Chain Foods	2020-11-09

Conclusions

- **COVID-19 is not a food borne disease and also not a food safety issue.**
 - **COVID-19 could be transmitted via contaminated food packaging (fomite transmission), but the risk is very low and limited to dockers.**
 - **To protect food enterprise workers from COVID-19 infection is a high priority in food industry.**
 - **To prevent cross contamination of SARS-CoV-2 throughout food chain remains a challenge.**
- 

Thank you !

Useful WHO references

- Coronavirus disease 2019 (COVID-19) Situation Report – 32 Feb. 21, 2020 https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200221-sitrep-32-covid-19.pdf?sfvrsn=4802d089_2
- COVID-19 and Food Safety: Guidance for competent authorities responsible for national food safety control systems, Interim guidance 22 April 2020
<https://www.who.int/publications-detail/covid-19-and-food-safety-guidance-for-competent-authorities-responsible-for-national-food-safety-control-systems>
- COVID-19 and food safety: guidance for food businesses, Interim guidance 7 April 2020
<https://www.who.int/publications-detail/covid-19-and-food-safety-guidance-for-food-businesses>



Samuel Godefroy is the former Director General of Health Canada's Food Directorate, Canada's Food Standard Setting body and a former Vice Chair of the FAO/WHO Codex Alimentarius Commission. Samuel is currently Full Professor of Food Risk Analysis and Regulatory Policies in the Department of Food Science, Faculty of Agriculture and Food Sciences, Université Laval, Québec, QC, Canada and is leading the development of a Food Risk Analysis and Regulatory Excellence Platform (FRAREP), hosted by the Institute of Nutrition and Functional Foods (INAF) of Université Laval.

Prof. Godefroy currently serves as a senior food science and regulatory expert on a number of advisory bodies and committees domestically and internationally, including on the International Advisory Committee of the China Centre for Food Safety Risk Assessment (CFSA). Prof. Godefroy also serves as a strategic and operational advisor to international food safety capacity building initiatives focused on regulatory enhancement, implemented by the United Nations Industrial Development Organization (UNIDO) and the Food and Agriculture Organization of the United Nations (FAO).

Prof. Godefroy is the founder and the current president of the Global Food Regulatory Science Society, a non-for-profit organization, aiming to promote food regulatory science disciplines at the international level.

Dr. Godefroy assumed senior food regulatory positions at the executive level with Health Canada for over 15 years.



Impacts of COVID-19 on Food Regulatory Functions : Towards Enhanced Resilience

IAFP Webinar - 21 April 2021

Prof. Samuel Godefroy, Ph.D.

Full Professor, Food Risk Analysis and Regulatory Policies

Food Risk Analysis and Regulatory Excellence Platform (PARERA), Institute of Nutrition & Functional Foods (INAF)

Department of Food Sciences, Faculty of Agriculture and Food Sciences, Université Laval, Québec, QC, Canada

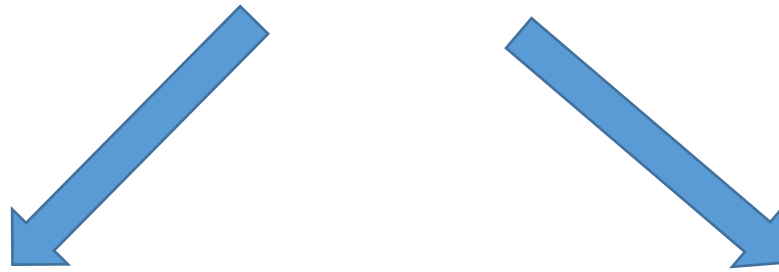
❑ Food Regulators were impacted by the COVID 19 Pandemic:

- As “Work organizations” needing to activate Business Continuity Plans and to adapt to the new “work environment”
- As Competent Authorities with an important Regulatory Mandate, possibly impacted by the new Hazard
- **Resilience of Food Regulatory Functions**



The ability to recover or to adjust easily as a result of drastic and impactful changes

The ability to recover or to adjust easily as a result of drastic and impactful changes



Ability to respond to the Emerging Issue

Maintain Key Food Regulatory Functions

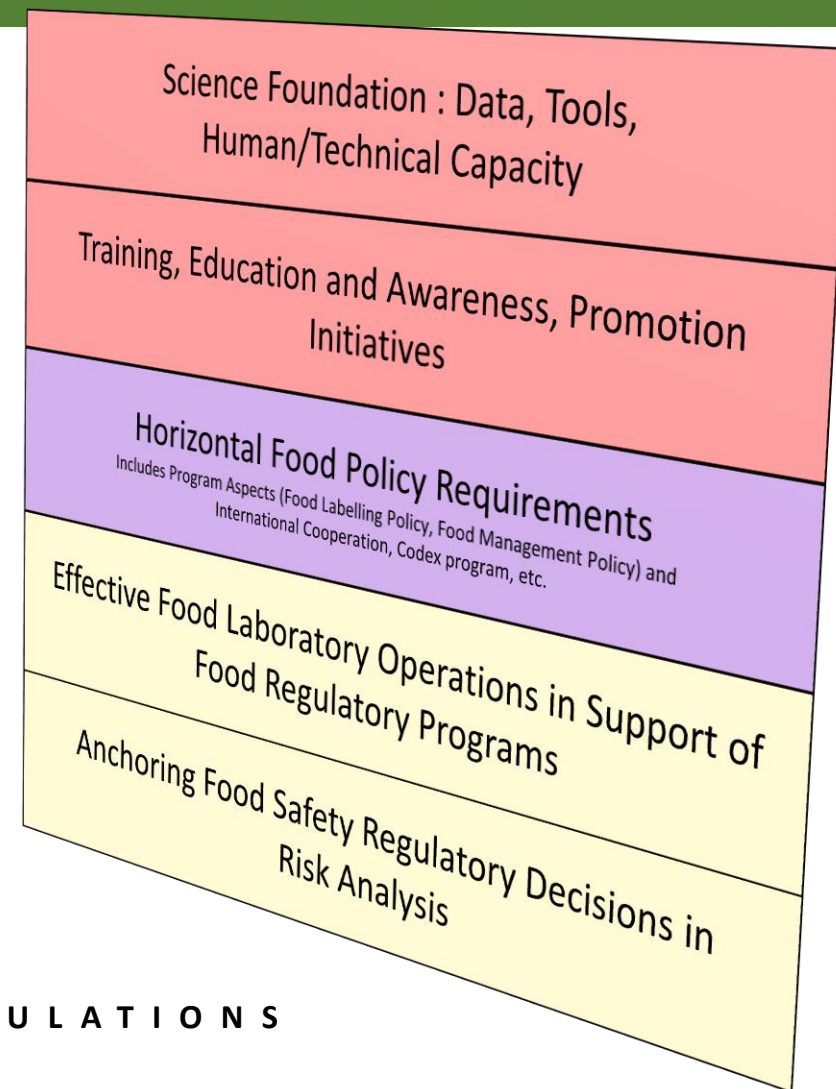
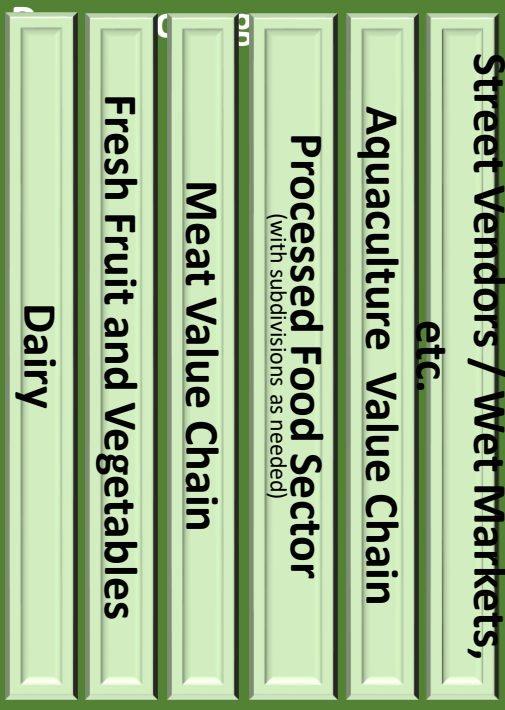


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Commodity Food Regulatory



FOOD LEGISLATION & REGULATIONS



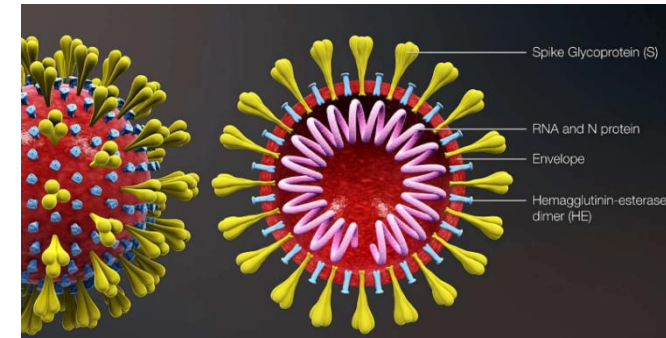
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❑ Address Emerging Risks During the Pandemic.

- Answer the Main Question:
 - Is this hazard relevant for food safety?



❑ The Risk is Not a Food Safety Risk but Rather a Food Security Risk.

- Support the Food Production Sector, Prevent and Mitigate Possible Interruptions in the Food Supply Chain.

❑ Maintain the Integrity of Food Regulatory Functions.

This Is Not a Foodborne Hazard

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❑ Virus Leading to Respiratory Infection:

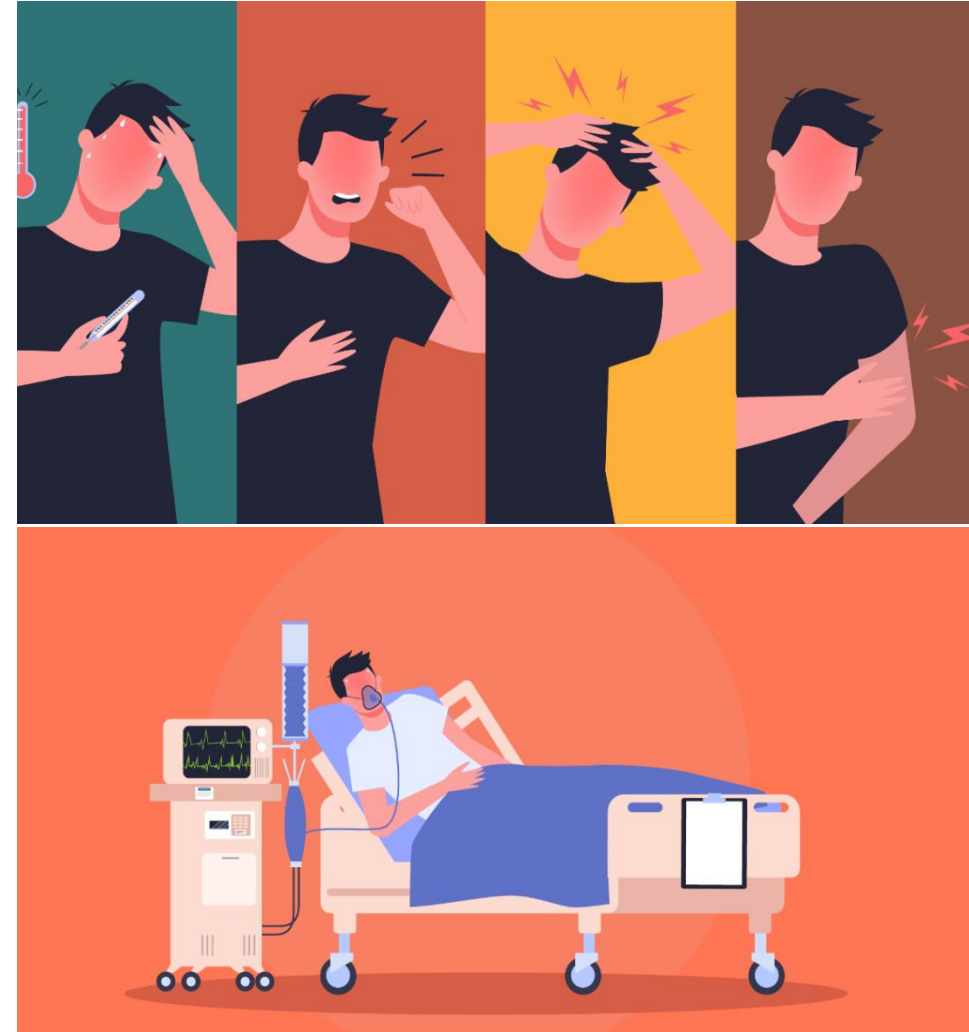
- Fever, cough, headaches, muscular pain, ...

❑ Complications:

- SARS – Severe Acute Respiratory Syndrome.

❑ Food Role in Transmission?

- Very Low Probability.



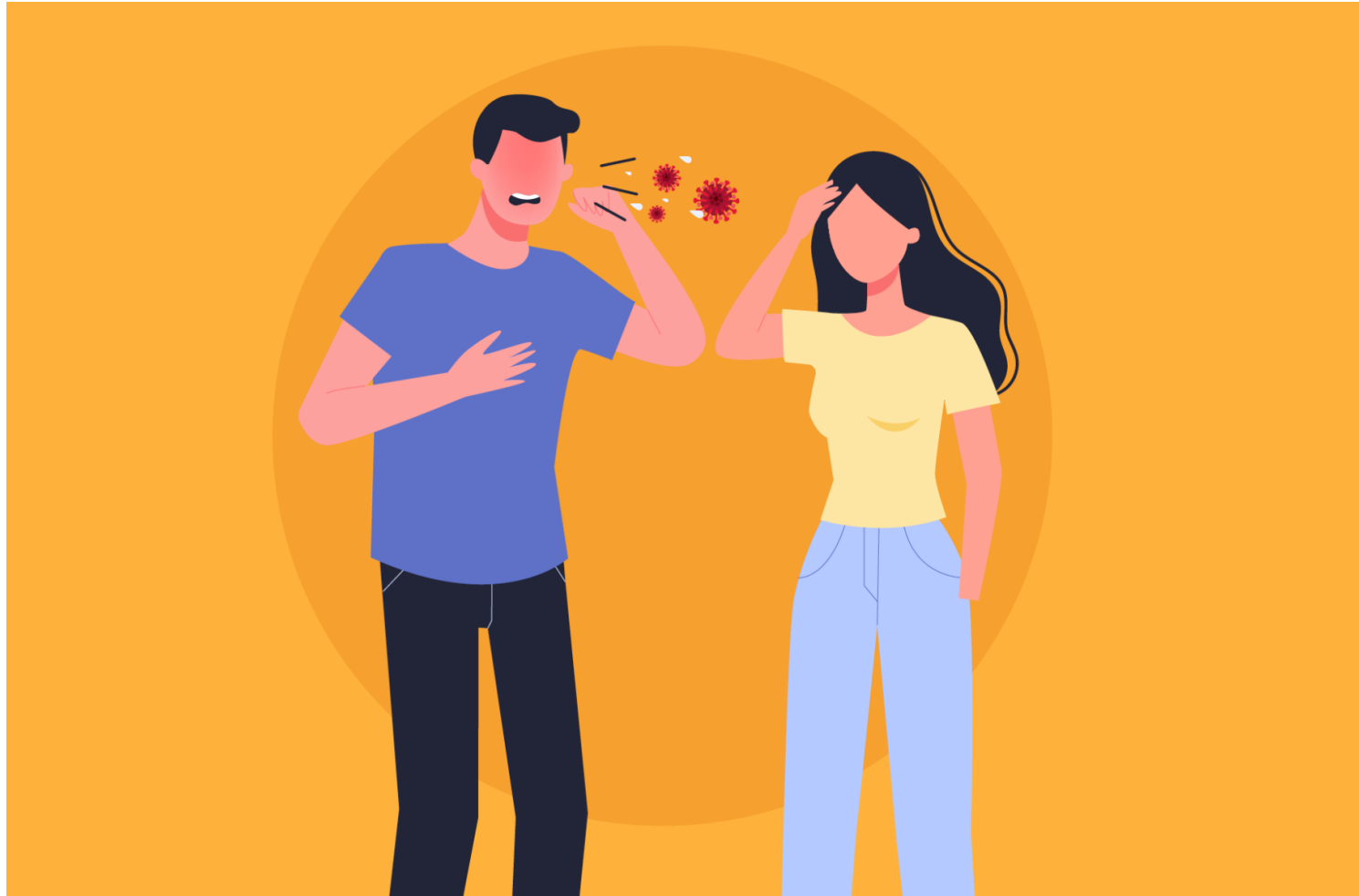
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 **parera**
Food Risk Analysis and Regulatory
Excellence Platform

Direct Transmission

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Transmission through Surfaces



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Food (Including Packaging) Is Unlikely to Contribute to Transmission



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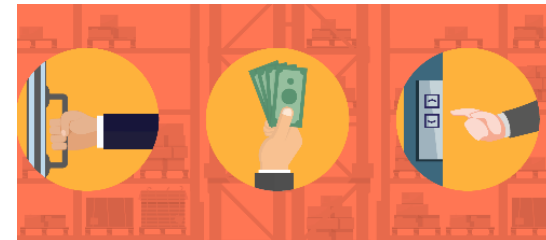
Risk Communication

- ☐ Ability to Review Scientific Information and to Issue Scientific Opinions, Tailored to Various Audiences.
- ☐ Liaise with Partners, Stakeholders and International Organizations.
- ☐ Be Relevant.



Focal Point for the Development of Guidance and Information to the Food Production Sector

- ❑ Contribute to the Development of Guidance (based on FAO/WHO guidance).
- ❑ Support the Adaptation of the Food Production Sector to the Reality of “Living with the Virus”: Prevent and Mitigate Interruption in Food Production.
 - Protect workers.
 - Adapt preventive measures to the realities of COVID-19 management:
 - Prevent introduction of new hazards.
 - Review and update work organization.



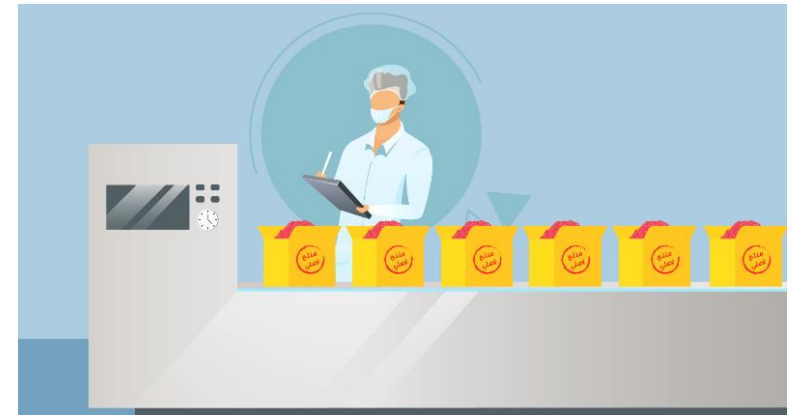
- ❑ Develop Tailored Advice for Key Food Businesses
 - Identify Businesses most at Risk : e.g., Meat Production Establishments

- ❑ In Developing Countries: Adapt Guidance to specific areas of food commerce e.g., small food retail premises

3rd Priority: Maintain Integrity of Food Regulatory Functions

Food Regulator:

- ☐ Activate Food Emergency Response Plan.
- ☐ Activate Business Continuity Plans.
- ☐ Prioritize Food Regulatory Functions.
- ☐ Risk-Based Interventions: Labeling review versus incident management
- ☐ Import Control : Maintain supply
- ☐ Exceptional Measures:
 - License renewals
 - Remote Inspection
- ☐ Digitalization, Remote functions.



On going Challenges

Emerging Issues

- ❑ Resist Temptation to Impose(regulatory) Technical Barriers / Trade Disruptors
- ❑ Some learnings from the Pandemic may lead to new ways of delivering food regulatory functions :
 - Enhanced Risk-Based functions
 - Digitalization
 - Remote functions





DIGITAL PLATFORMS FOR FOOD SAFETY MANAGEMENT

- ▶ **Registration of Businesses Based on Activities**
- ▶ **Registration of Personnel based on Expertise**
- ▶ Product Registration for Food and Materials
- ▶ **Training and Certification Management**
- ▶ Auditing and Certification Framework
- ▶ **Food Transportation Vehicle Certification**
- ▶ **Self Assessment Tools for Food Businesses**
- ▶ Licensing and Permit Management
- ▶ Nutrition Data Management

Food Safety Framework

Compliance

Services

Science Tribune's digital platform development capability covers all aspects of Food Safety management.



DIGITAL PLATFORM FOR FOOD SAFETY COMPLIANCE

► **Multiple Inspection and Compliance Services**

- Remote Inspection Tools
- **Product Traceability Solutions**
- **Remote verification services**
- Equipment Traceability and Calibration
- **Pest Management Service**
- Cleaning and Disinfection Management
- **E-learning Portal**

Food Safety
MANAGEMENT
Compliance

Services

Science Tribune's platform provides multiple compliance management systems that can be customized depending on the needs of the government.

English

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Delayed Inspections

3

View List

Scheduled Inspections

22

View List

Completed Inspections

18

44 this month

Pending Approval

2

13 this month

Complaint Inspections

0

4 this month

Routine Inspections

6

36 this month

Emergency Response

0 this month

Disputed Inspections

6

0 this month

Failed

Inspections

Inspection Details

Last 7 days
completed

Next 7 days
completed

Average per day
completed

Average per day
Schedule



Aureus Registry

- Register any business, locate, connect
- Store basic information

Aureus Learner

- App and web based e-learning tool

Aureus Compliance

- Checklist based compliance checking and scoring system



Aureus Tracer

- Traceability tool for food

Aureus Apps

- General Apps for popular users (pest companies, cleaning companies)

Aureus Regulator

- Platform for regulators to connect, review documents, share

Post-Pandemic Era

- ❑ More Resilient Food Businesses : better management of supply disruption, adaptation of workers' conditions
- ❑ More Resilient Food Regulatory Processes: anchored in risk, supported by digitalized processes
- ❑ Stronger Emphasis on Data –Driven Processes and Decision-making in Food Regulatory Measures



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Questions?

Questions should be submitted to the presenters via the **Questions section** at the right of the screen.



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