



Institute for Food Safety and Nutrition Security

A collage of various dishes including shrimp, salad, soup, and sushi, with hands serving food.

*If it isn't safe, it isn't food:
The case for integrating food safety and nutrition security*

SAFER FOOD. BETTER NUTRITION. ONE HEALTH.

Disclosures

- **Research funding**

- Bill and Melinda Gates Foundation
- United Kingdom Foreign and Commonwealth Organization
- USDA National Institute for Food and Agriculture (NIFA)
via University of Florida and The Ohio State University
- Centers for Disease Control and Prevention
via Franklin County Public Health
- Seattle King County Public Health
- Leafy Greens Marketing Agreement

If it isn't safe, it isn't food

Eat it **safe**

Everyone has a right to safe, healthy and nutritious food



■ **Results in negative health outcomes**

- 600M illnesses, 420K deaths, 33M health life years lost per year
- Associated with long-term health outcomes
- Vulnerable populations bear most of burden

■ **Significant economic impact**

- Medical costs, lost productivity
- Loss of consumer confidence
- Reduced market access
- Increased food loss and waste

Adding Water to the Mix

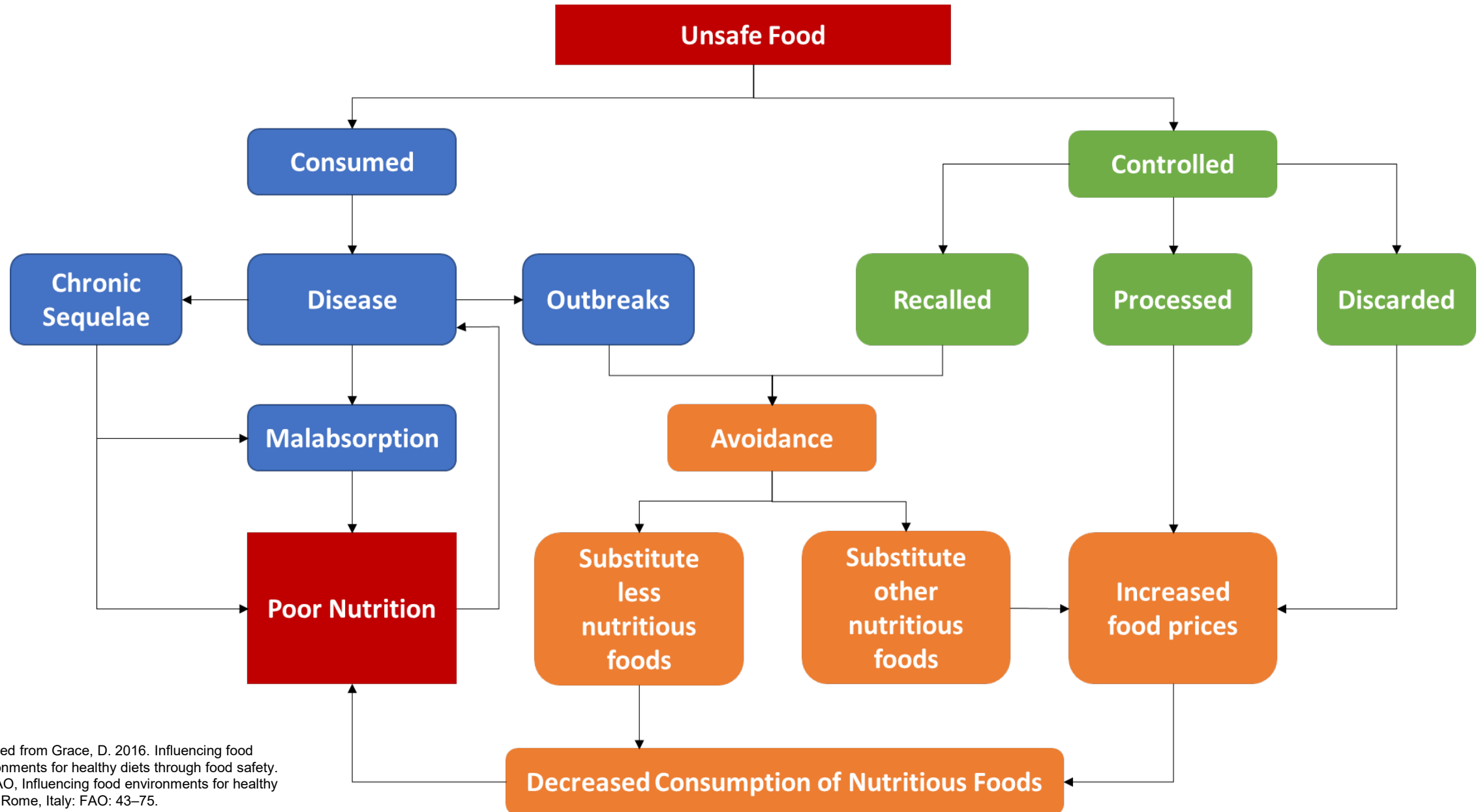


- **Water, sanitation and hygiene (WASH) affects food safety and nutrition**
- **Unsafe WASH increases risk of diarrhea and undernutrition**
- **69% of diarrheal burden**
 - 505K from unsafe drinking water
 - 564K from unsafe sanitation
 - 384K from unsafe hand hygiene
- **10% of undernutrition burden**
- **Clean water and sanitation is Sustainable Development Goal**

More than a Tummyache

Autoimmune Disorders	Reactive Arthritis – associated with many foodborne pathogens; rates vary from 2.3% to 15%. Guillain-Barre Syndrome – <i>Campylobacter</i> is common trigger and accounts for 40% of cases in U.S.
Digestive Disorders	Irritable Bowel Syndrome – associated with many foodborne pathogens; causes estimated 17% of cases. Irritable Bowel Disease – includes Crohn's Disease, Ulcerative Colitis.
Neurological Disorders	Sepsis, Meningitis, Respiratory distress Paralysis, palsies, seizures, epilepsy Cognitive impairment, visual/hearing impairment
Renal Failure & Associated Sequelae	Hemolytic Uremic Syndrome (HUS) – severe, life-threatening illness; leading cause of acute kidney failure in children under age 5 in U.S.; associated with STEC, <i>Shigella</i>. Chronic kidney disease, End stage renal failure, Chronic hypertension, Pancreatitis, Diabetes mellitus – often secondary to HUS.
Emerging Issues	Schizophrenia, psycho-social disorders – recent studies have found increased risk for toxoplasmosis but not well understood. Urinary tract infections

The Interlinkage with Nutrition



Adapted from Grace, D. 2016. Influencing food environments for healthy diets through food safety. IN: FAO, Influencing food environments for healthy diets. Rome, Italy: FAO: 43–75.

What is Nutrition Security?

Consistent and equitable access to
nutritious, **safe**, **affordable** foods
essential to health and well-being.



Nutritious but Risky



- **Fresh produce**

- Consumption associated with reduced risk of chronic diseases
- Recommendation is “Half of Plate”
- Accounts for ~1/2 of foodborne illnesses in U.S.
- Frequently no kill step

- **Animal sourced foods**

- Energy and nutrient rich
- Important source of nutrients (e.g., Vitamin B12)
- Accounts for ~1/3 of foodborne disease burden
- Safe food handling practices can reduce risk

Managing the Risks



- Thousands of food types and components
- Food is grown, processed, and distributed globally.
- Single meal can have ingredients from multiple countries.

Institute of Medicine 2012. Improving Food Safety Through a One Health Approach: Workshop Summary. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13423>

A Multi-Hurdle Approach

Producers



Processors



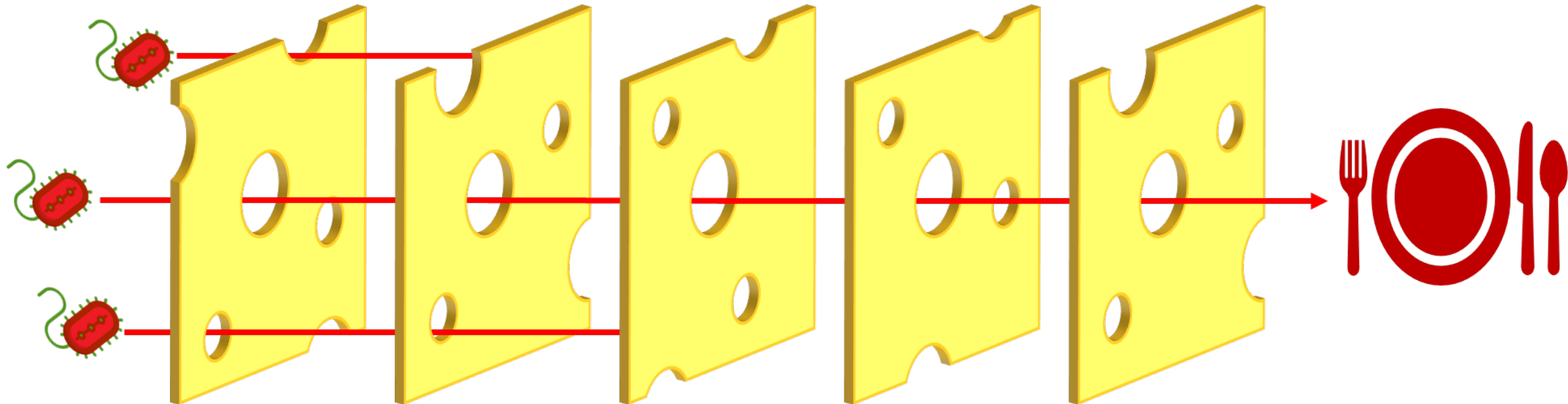
Retailers



Regulators



Consumers



Context Matters

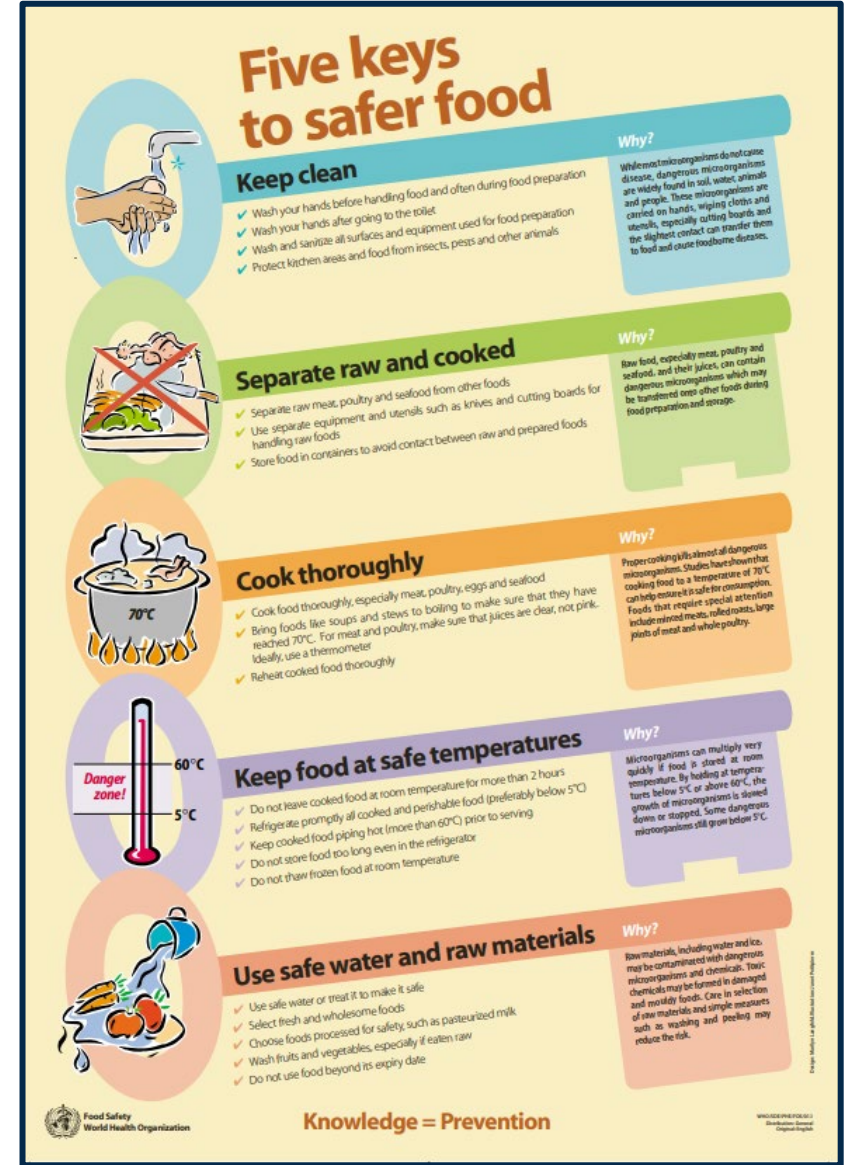
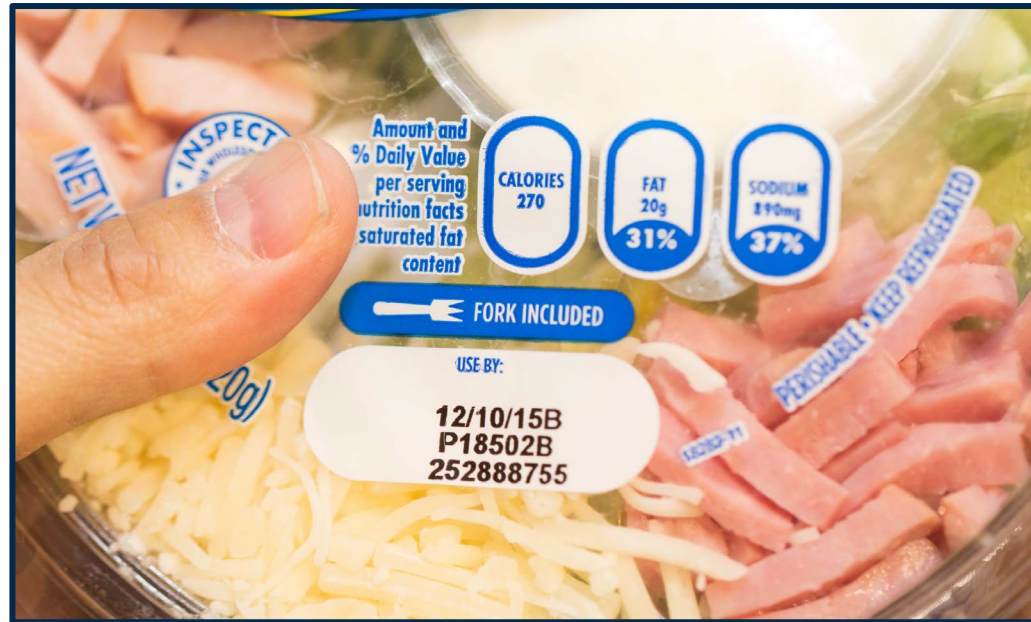
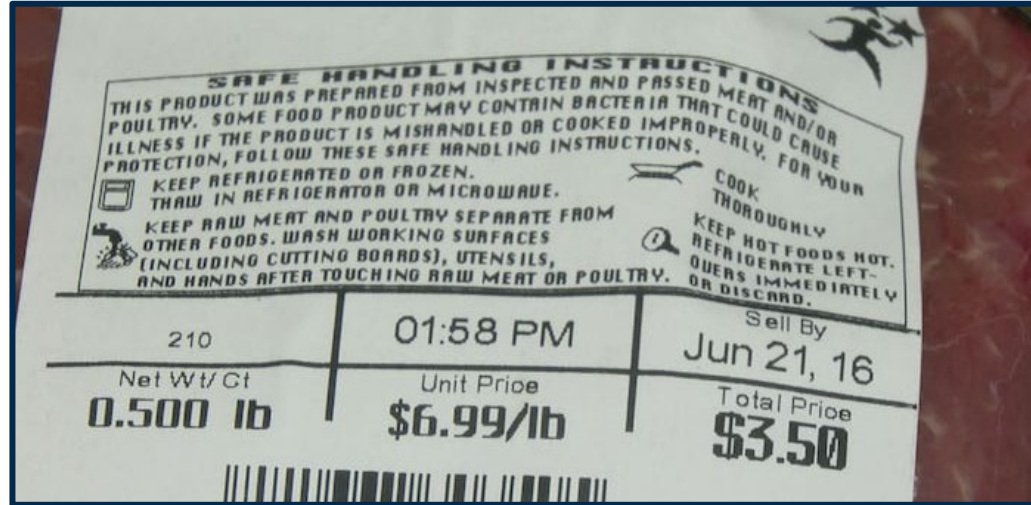


Consumers as Risk Managers

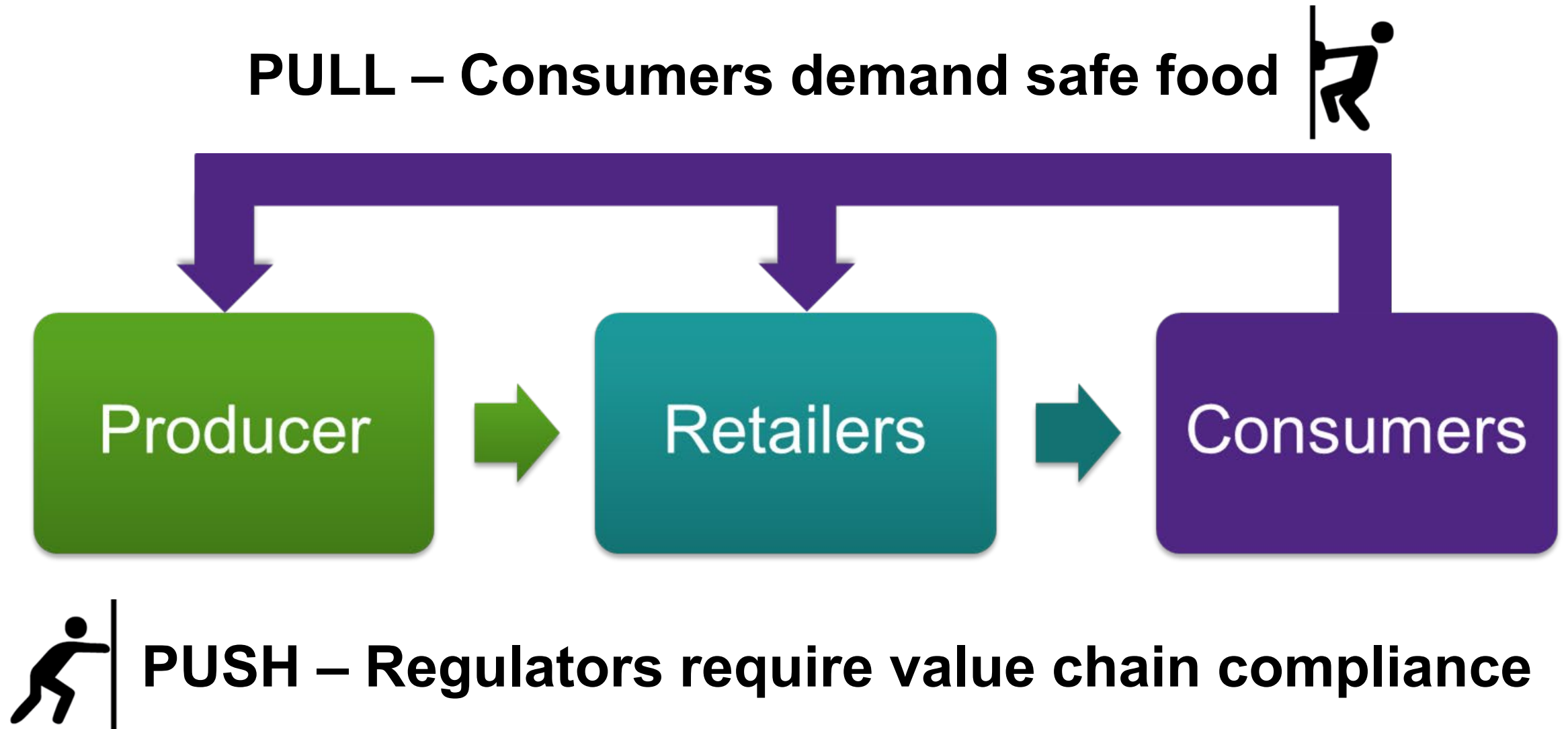


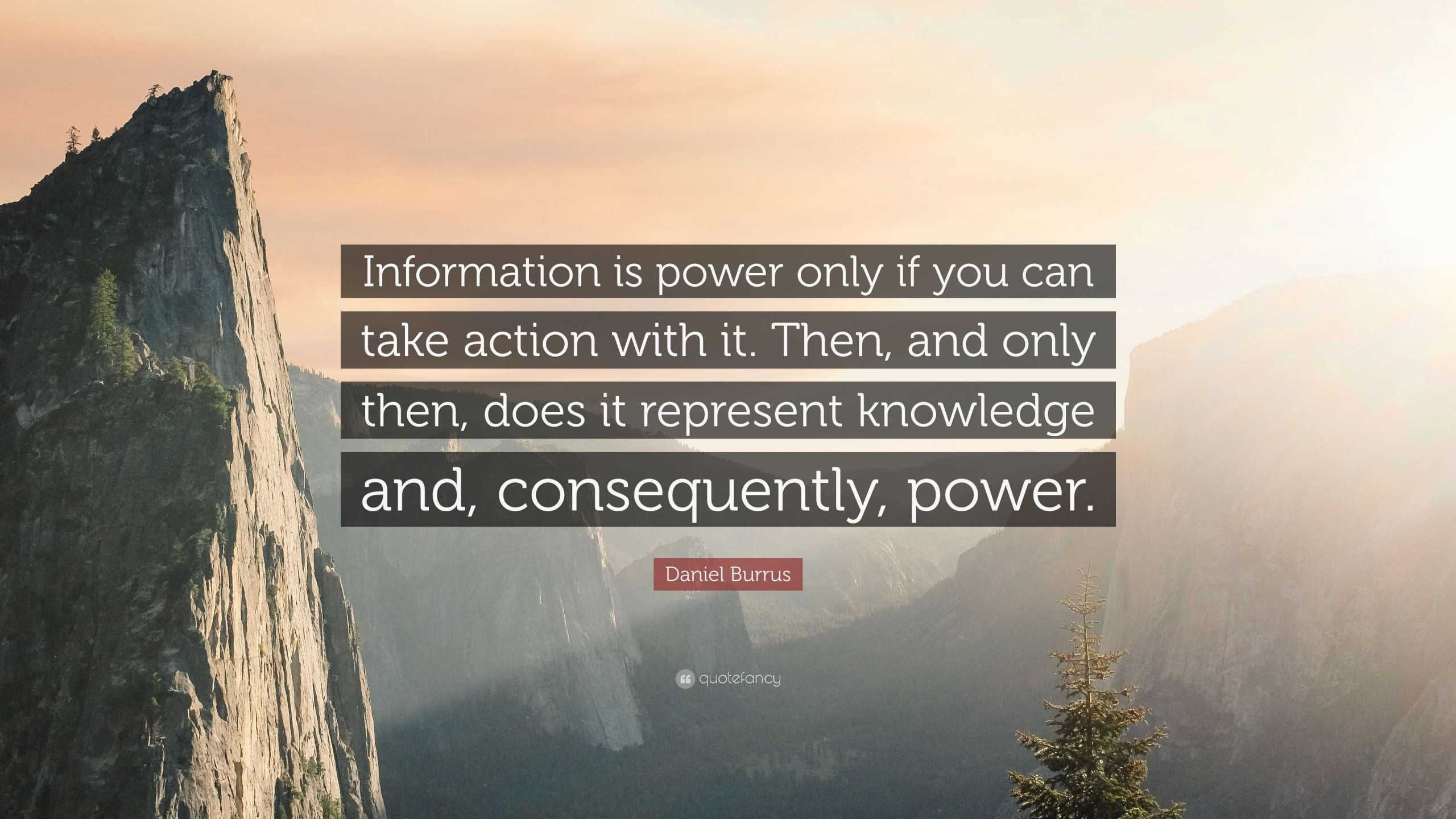
- **Consumers have limited information and knowledge**
- **Food safety considered non-competitive issue**
 - Consumers expect safe food
 - Competing on food safety may undermine consumer confidence
 - Labeling food as more safe implies some are less safe

Risk Management Tools



Another Approach: The Pull – Push Strategy





Information is power only if you can
take action with it. Then, and only
then, does it represent knowledge
and, consequently, power.

Daniel Burrus

A Case Study



Image Credit: Pixabay

■ Benefits

- High in protein
- Contains iron, zinc and vitamin B12
- Convenient, ready-to-eat (RTE)

■ Risks

- High in sodium, saturated fat
- Linked to chronic diseases
- Risk of *Listeria monocytogenes*

Boar's Head Outbreak

Food Safety Alert

Listeria Outbreak Linked to Meats Sliced at Delis

Do not eat recalled deli meats.

- Boar's Head Products with "EST. 12612" or "P-12612"
 - All deli products, including prepackaged deli products, in shelf life
 - See the recall notice for the full list
- Clean your refrigerator if you had recalled products.
- People at higher risk should continue to heat all other deli meats to 165°F or until steaming hot before eating.

[cdc.gov/foodsafety/outbreaks](https://www.cdc.gov/foodsafety/outbreaks)

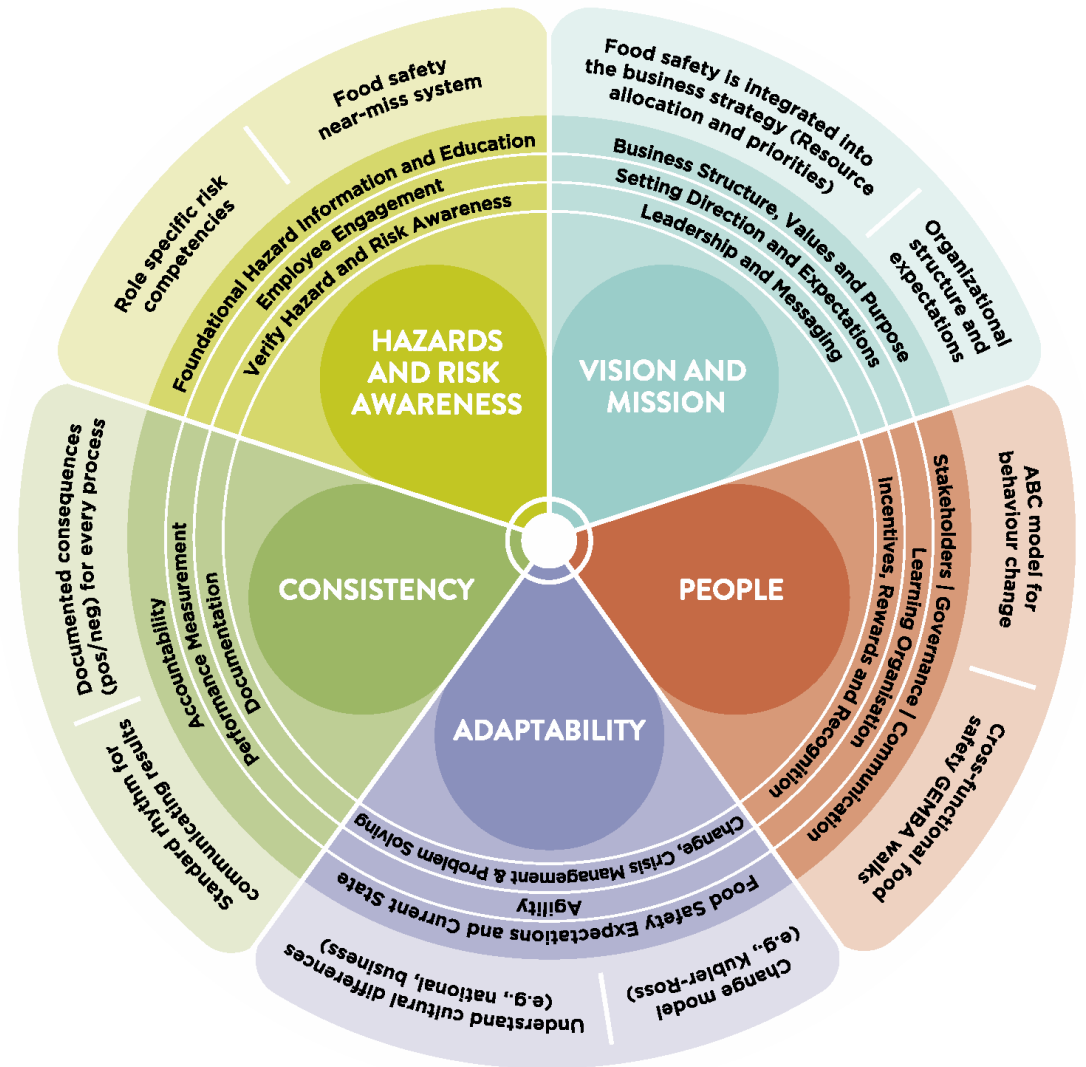
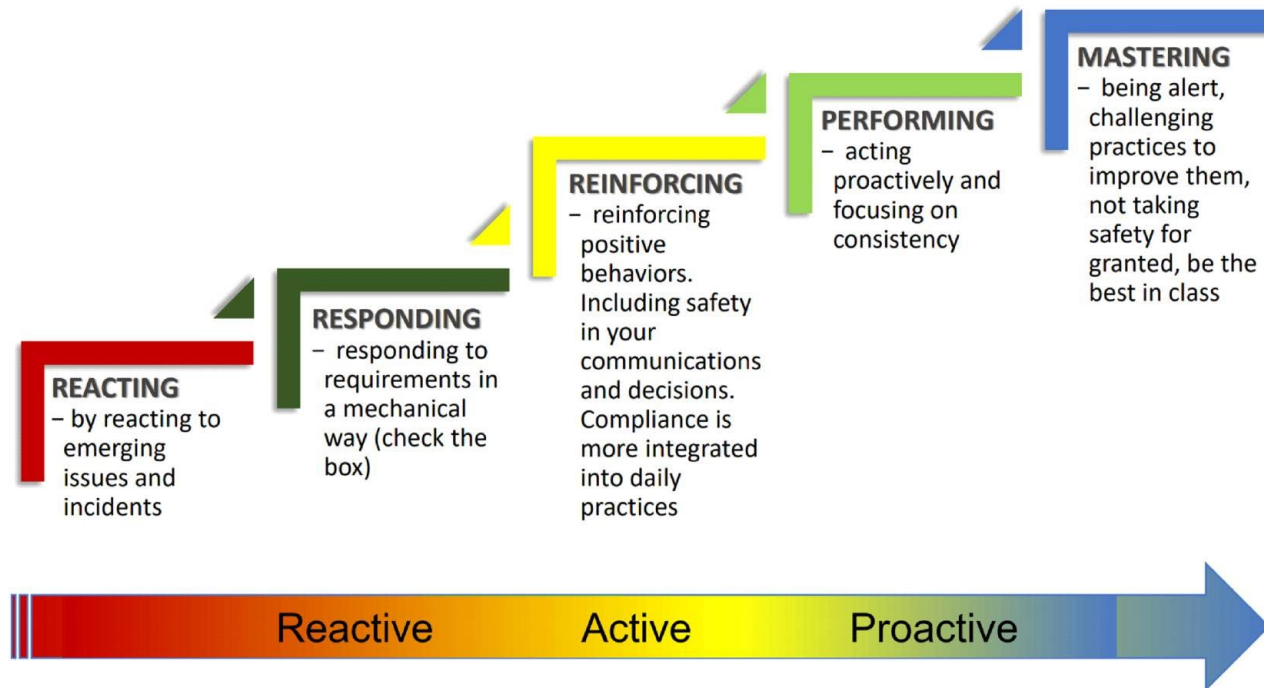
- 9 deaths, 57 hospitalizations in 18 states
- 7M pounds of product recalled
- Sell by dates into October 2024
- Incubation period can be up to 10 weeks

- Family owned, established 1905
- Ongoing legal battle over ownership
- Inspected by Virginia Department of Agriculture and Consumer Services
- Dozens of violations in past year
- Multiple system failures
- Company response

"As a USDA-inspected food producer, the agency has inspectors in our Jarratt, Virginia plant every day and if at any time inspectors identify something that needs to be addressed, our team does so immediately, as was the case with each and every issue raised by USDA in this report."

What It's Really About . . .

Food Safety Culture



Lisa Nicely (2023). What is a Food Safety Culture. *Global Food Safety Consultants*.
<https://globalfoodsafetyconsultants.com/resources/what-is-a-food-safety-culture>

Lone Jespersen, Mike Robach, Mark Beaumont, John Helferich, Sara Mortimore (2018). Company Culture and the Path to Improved Food Safety: Setting the Tone to Support a Strong Food Safety Culture. *Food Safety Magazine*.

Some Recommendations



- **Increase awareness of food safety and interlinkages with nutrition**
- **Integrate food safety and nutrition throughout food system initiatives**
- **Ensure food safety across value chains**
- **Use holistic and risk-based approaches**
- **Strengthen international, regional, national and local food control systems**
- **Enhance food safety and nutrition quality measurements**
- **Promote effective collaboration between different sectors and stakeholders**

A Final Word

- **Consumers have least amount of information and control in system.**
- **Consumers have a right to:**
 - Expect the food they buy is safe
 - Labels that inform decision-making
 - Demand that food safety systems provide meaningful protection
 - Verify that systems are working
 - Express their opinions about food safety standards and interventions
 - Access to information about safety of food (e.g., recalls, outbreaks, inspection records)



“If consumption of fresh animal sourced foods and produce were tripled, without accompanying action to improve food safety, then the burden of FBD would be likely to double or triple too, offsetting the health benefits from improved nutrition.”

Grace, D. 2016. Influencing food environments for healthy diets through food safety. IN: FAO, Influencing food environments for healthy diets. Rome, Italy: FAO: 43–75.



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