

Educational Program for the Control of *Listeria monocytogenes* in Retail and Deli Establishments

Introduction

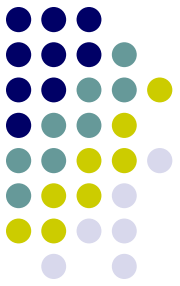
Edna Negrón, PhD, CFSP, CFS

IIAA/CCA/HORT/CITA

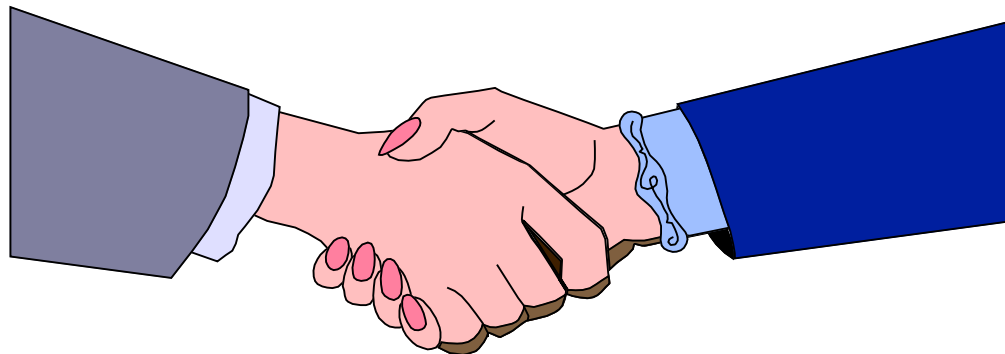
edna.negron1@upr.edu

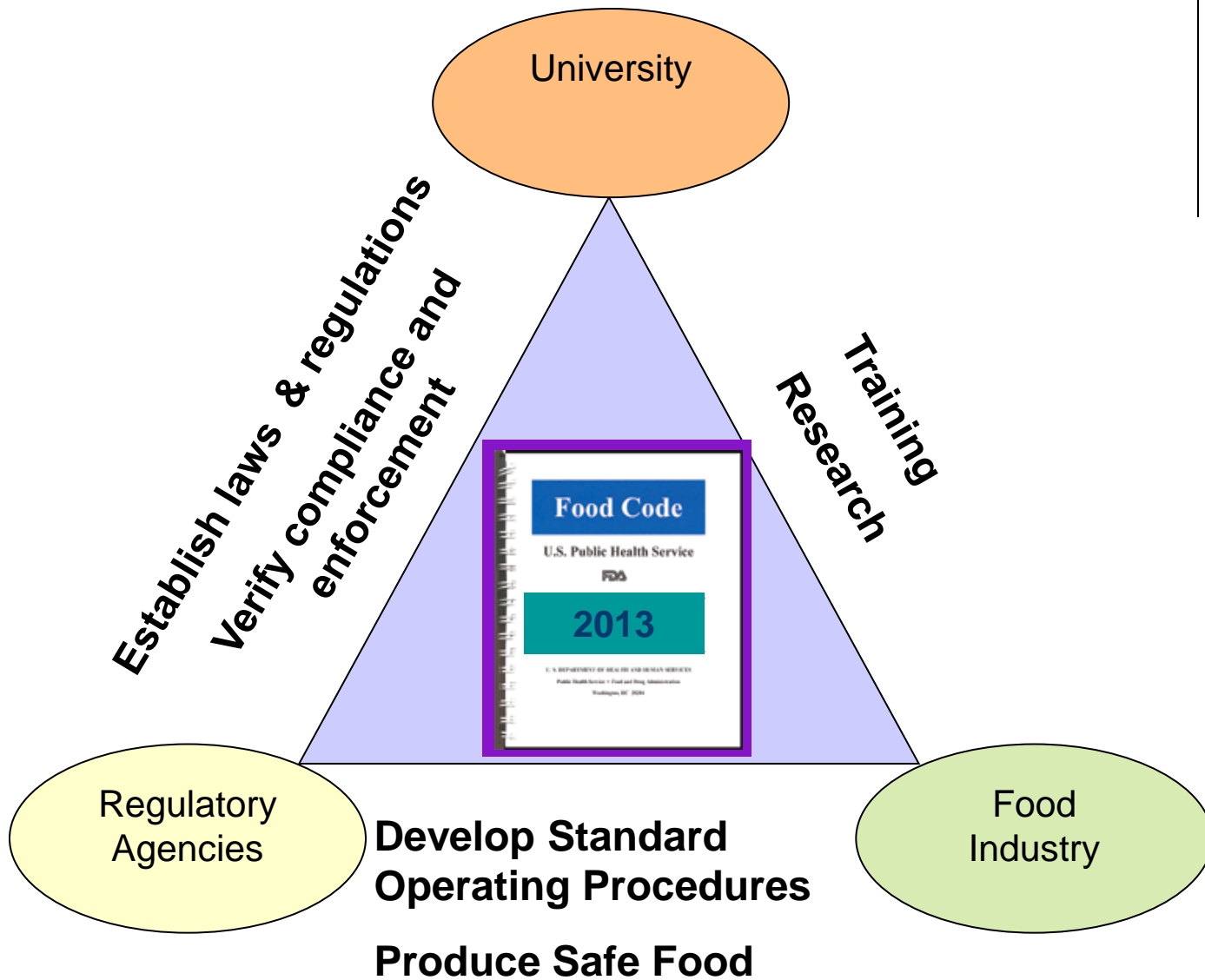
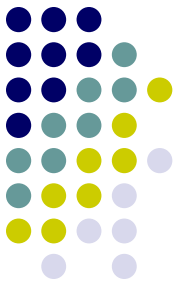


Safe food



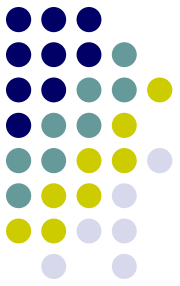
- Is a share responsibility between government, industry, educators and consumer.



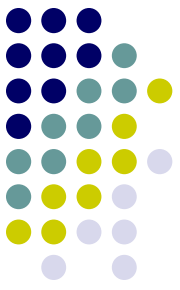


<http://www.cfsan.fda.gov/~dms/foodcode.html>

Consumer responsibility



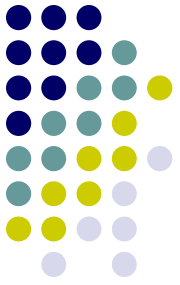
- Must follow food safety labeling instructions and
- Apply adequate safe food handling practices during selection, storage, preparation, and disposing of food.



Safety vs. Defense (Security) vs. Security

- **Food Safety** – food will be safe if it is handled, processed and consumed according to the intentional use (focus in the prevention of non intentional physical, chemical and biological hazards).
- **Food Defense** – the prevention of introduction of **intentional** physical, chemical, biological and radionuclear hazards in processing, manufacture and distribution of food.
- **Food Security**- All persons will have, at any moment, physical and economical access, to safe, nutritious and tasty food in order to have a healthy and active life.

Why should we worry?



Although we have a safe food supply, numbers estimates that there are :

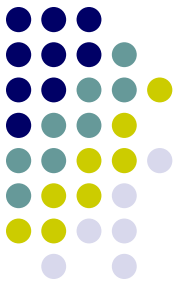
- *48 millions of Food Borne Illness every year*
- *Diarrhea, vomits, cramps, fever*
- *128,000 cases of hospitalization*
- *3,000 deaths*

They are caused by the consumption of food contaminated with microorganisms.



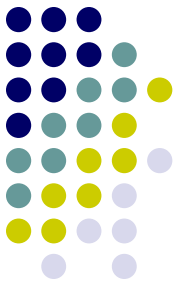
Billions of dollars in costs involved

Estimated annual costs due to FBI



- Hospitalizations more than \$3 billions
- Loss of productivity between \$20-\$40 billions
- Microorganisms might cause chronic illness

Listeriosis



- Accounts for about 2,500 cases illness and approximately \$200 millions in monetary loss in US annually (CDC, 2002).

- Outbreaks

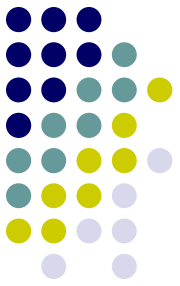
1998-1999	101 cases 21 deaths	Hot dogs and deli meats
-----------	------------------------	-------------------------

2000	29 cases 4 deaths 3 miscarriages	Turkey deli meat
------	--	------------------

2002	46 cases 7 deaths 3 miscarriages	Sliceable turkey deli meat
------	--	----------------------------

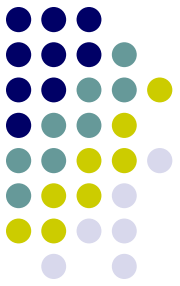
26 millions pounds of turkey meats were recalled in 2002

CDC Statistics



- CDC estimates that approximately 1600 illnesses and 260 deaths due to listeriosis occur annually in the United States¹.
 - In 2013, the average annual incidence of listeriosis in the United States was 0.26 cases per 100,000 individuals.

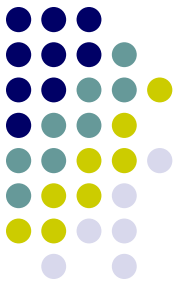
CDC Statistics



3rd *Listeria* is the 3rd leading cause of death from food poisoning.

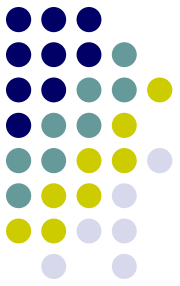
90% At least 90% of people who get *Listeria* infections are either pregnant women and their newborns, people 65 or older, or people with weakened immune system

Outbreaks

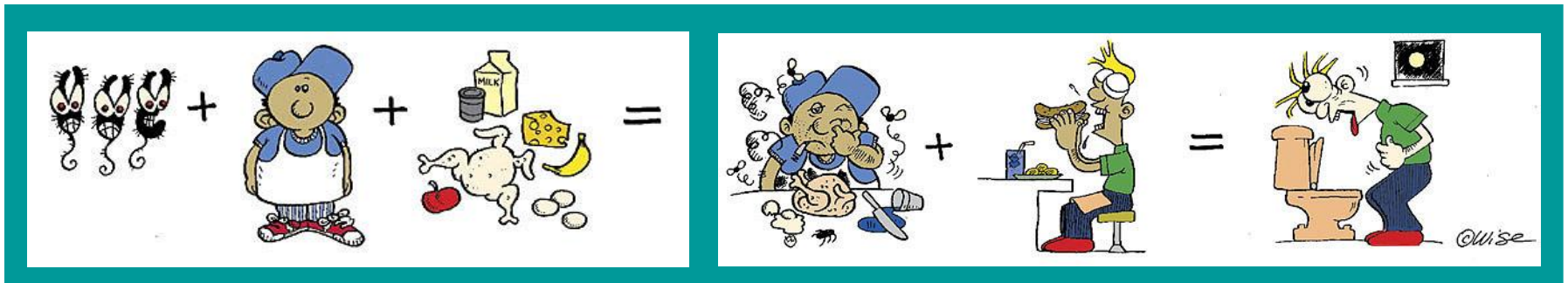


- In 2012, 831 foodborne outbreaks were reported to CDC.⁴ In 2012, there were 4 confirmed outbreaks and 1 suspected outbreak of listeriosis in the United States⁴. The largest listeriosis outbreak in U.S. history occurred in 2011, when 147 illnesses, 33 deaths, and 1 miscarriage occurred among residents of 28 states; the outbreak was associated with consumption of cantaloupe from a single farm.

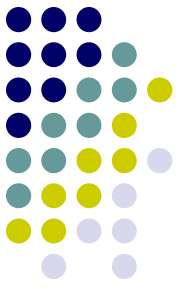
Food Borne Illness (FBI)....



"...when a person gets sick after eating a contaminated food..."



FBI can be caused by sick employees and contaminated food



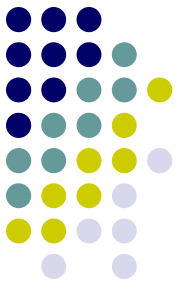
Food Outbreak

Outbreak occurs when two or more persons experience a similar illness after consuming a common food



Challenges / Concerns

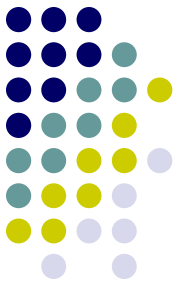
Forces of change



- New technology used in the manufacturing, packing and distribution of food.
- Increase in convenience and ready to eat food.
- Increase in demand for fresh food.
- Poor knowledge in safe food handling procedures during the preparation, storing and distribution.

Challenges / Concerns

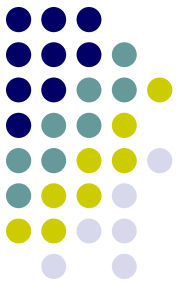
Forces of change



- Lack of adequate food handler training
- High turn around working force
- Better medical reports
- Emerging pathogens
- Increase in high risk population
 - Aged or suppressed immune systems
- Cultural diversity
- Globalization of food supply

Challenges / Concerns

Forces of change



- **Increase in food borne illness cases related to the consumption of fresh fruits and vegetables.**

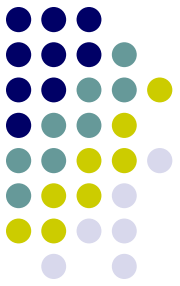


Opportunity for improvement !!!



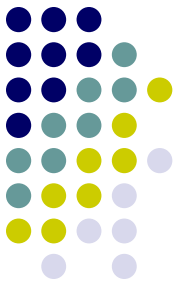
Strategic plan

Healthy people



- Reduce food borne illnesses
- Improve employee hygiene practices
- Improve food handling practices during the preparation, storage and distribution of food
- Improve consumer food handling practices
- Reduce the incidence of *S. enteritidis* and *L. monocytogenes* by 50%
 - *Listeria m.* has diminished in 40%, but still there is work to do

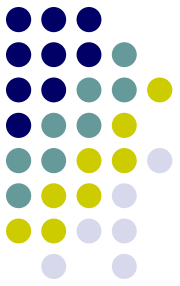
Prevent, Control, Reduce...



- **Education and training is** the best way to prevent, control or reduce the risk of food born illness and guarantee safe food...

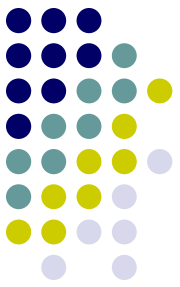
From farmto the table

Federal Food, Drugs and Cosmetic Act (FDCA)

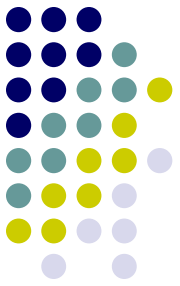


- Only pure, wholesome, safe and produced under sanitary conditions will be offered to the consumer
- Food will be destroyed if they are adulterated, unsafe, dirty, in contact with unsanitary conditions, dishonest presentations, mislabeled, missing information
- We know that hazards can be introduced in many steps through the food chain

Food is considered adulterated if contains ...



- Naturally or man induced toxic substances
- Food exposed to unsanitary conditions
- Food is dirty, decomposed
- Animal is death before slaughter
- Improper use of food and colorants (FDA)
- Improper use of pesticides or pesticides residues in food (EPA)
- Interaction with container
- Irradiation levels above approved doses
- *E. coli* O157:H7 in raw meat
- *Listeria monocytogenes* in ready-to-eat meat products



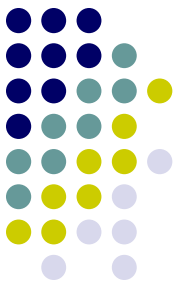
Ready to eat food are

Food that can be consumed without:

- **Washing**
- **Cooking**
- **Additional preparation, such as**
 - **Cheese**
 - **Cold cuts and cooked sausages**
 - **Cut fruits and vegetables**
 - **Bakery products**

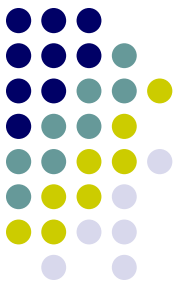


FSIS/USDA steps to control of *Lm* in RTE meat and poultry products



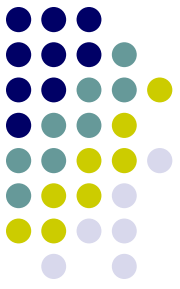
- 1) Regulations for “zero tolerance” policy for ready to eat meat and poultry products
(e.g., No detectable levels of viable pathogens)
- 2) Requirement that establishments consider *Listeria monocytogenes* in their HACCP plans and adopt and follow written Sanitation Standard Operating Procedures (Sanitation SOPs) to reduce the likelihood that harmful bacteria will contaminate the finished product.

FSIS/USDA steps to control of *Lm* in RTE meat and poultry products



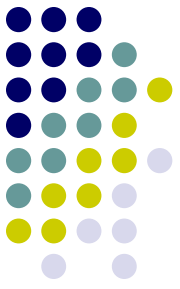
- 3) Establishments must also verify the effectiveness of their SSOP's to control de *Lm* through microbiological testing and sharing the results with FSIS.
- 4) Corrective actions are taken when a food contact surface is positive to a *Listeria* spp.
- 5) Carry out a risk analyses and provide scientific evidence to support the that the established interventions developed in the plant will reduce the risk of *Lm* in RTE meat and poultry products.

FDA Action plan to control *Listeria monocytogenes*....



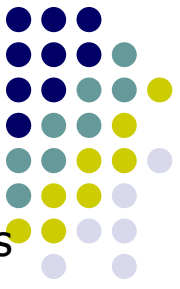
- *Objective 1: Develop and revise guidance for processors that manufacture or prepare ready-to-eat foods and develop or revise guidance for retail and food service and institutional establishments.*
- *Objective 2: Develop and deliver training and technical assistance for industry and food safety regulatory employees.*
- *Objective 3: Enhance consumer and health care provider information and education efforts.*

FDA Action plan to control *Listeria monocytogenes* ...



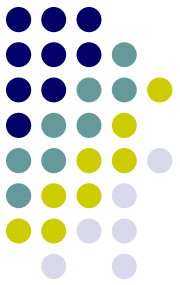
- *Objective 4: Review, redirect, and revise enforcement and regulatory strategies including microbial product sampling and analytical methods.*
- *Objective 5: Enhance Disease Surveillance and Outbreak Response.*
- *Objective 6: Coordinate research activities to refine the Risk Assessment, enhance preventative controls, and support regulatory, enforcement, and educational activities.*

References



- [FSIS] Food Safety and Inspection Service. 2003a. Listeria in ready-to-eat products shows significant decline. Available from <http://www.fsis.usda.gov/OA/news/2003.rtedata.htm>
- [FSIS] Food Safety and Inspection Service. 2003b. FSIS rule designed to reduce *Listeria monocytogenes* in ready-to-eat meat and poultry. Available from http://www.fsis.usda.gov/factsheets/fsis_rule_designed_to_reduce_listeria/indeex.asp
- Gallagher, D.L., Ebel, E.D. and Kause, J. R. 2003. Risk Assessment for *Listeria monocytogenes* in Deli Meats.
- [FSIS]. 2003 FSIS Listeria Risk Assessment, Executive Summary.
- <http://www.fsis.usda.gov/OA/Background/background.htm> - FSIS Rule Designed To Reduce *Listeria monocytogenes* In Ready-To-Eat Meat And Poultry Products
- Interpretive Summary: Quantitative Assessment of the Relative Risk to Public Health from Food borne *Listeria monocytogenes* Among Selected Categories of Ready-to-Eat Foods
- U.S. Department of Health and Human Services (HHS). Healthy People 2000 Progress Review, Food and Drug Safety. Washington, DC: HHS, Public Health Service (PHS), Office of Disease Prevention and Health Promotion (ODPHP), 1995.
- Cutter, C. 2006. Control of *Listeria monocytogenes* in retail establishments. Video
- Zhun, M. et al. 2005. Control of *Listeria Monocytogenes* Contamination in ready to Eat mat Products. Comprehensive Reviews in Food Science and food Safety. Vol. 4, 2005.

References



- Mead, P.S.; Slutsker, L.; Dietz, V.; et al. Food-related illness and death in the United States. *Emerging Infectious Diseases* 5(5):607-625, 1999.
- Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA), and U.S. Environmental Protection Agency (EPA). *Food Safety From Farm to Table: A National Food Safety Initiative. Report to the President, May 1997.* Washington, DC: FDA, USDA, EPA, 1997.
- FDA. 2005. *Food Code. Recommendations of the United States Public Health Service, Food and Drug Administration National Technical Information Service Publication*
<http://www.cfsan.fda.gov/~dms/foodcode.html>
- Kornacki, J. L. Controlling Listeria in the Food Processing Environment. *Food Tech.* Vol 59 (11):05.
- McSwane, D. Linton, r, Rue, N. 2003. *Retail Best Practices to Food Safety and Sanitation. Supervisor's Guide.*