Food Safety Modernization Act (FSMA) Surveillance Working Group

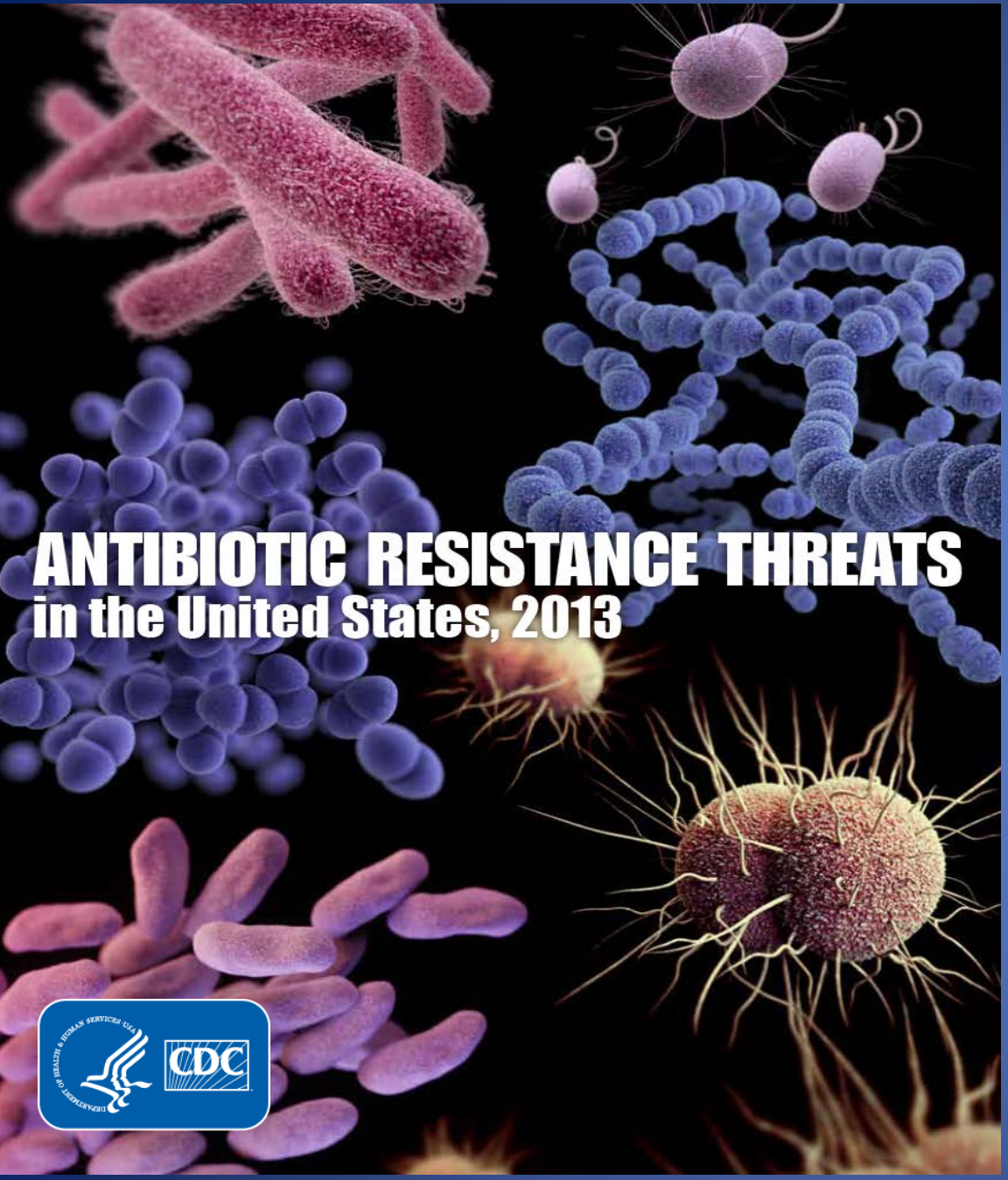
Meeting Summary

May 5-6th

Dr. Harry Chen

May 5-6th Meeting Objectives

- Review and comment on new initiatives to address gaps in foodborne illness surveillance with emphasis on
  - Enhancing antimicrobial resistance surveillance
- Updates from CDC on enhanced surveillance initiatives
  - Culture-independent diagnostics testing
  - Cyclosporiasis



CDC report released September 17, 2013

18 pathogens

Burden

- 2,049,000 illnesses
- 23,000 deaths

Includes 4 Foodborne enteric pathogens

- *Campylobacter*
- *Nontyphoidal Salmonella*
- *Salmonella Typhi*
- *Shigella*

http://www.cdc.gov/drugresistance/threat-report-2013

Importance of Tracking Resistance

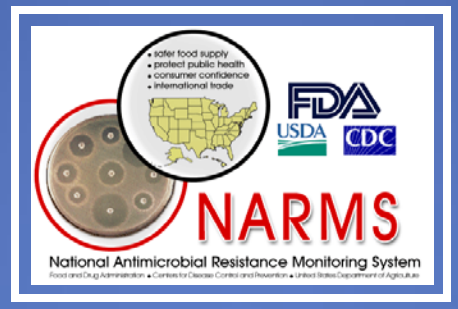
- Track changes in resistance over time
- Detect, investigate, and control outbreaks of resistant infections
- Measure harm from resistance to public health
- Attribute the resistance back to specific sources and reservoirs
- Role of NARMS in the Foster Farms outbreak
  - Demonstrated that 98% of historic isolates matching the outbreak strain were from Foster Farms retail chicken samples

National Antimicrobial Resistance Monitoring System—Enteric Bacteria (NARMS)

Humans

CDC/NCEZID

Isolate Source:
54 Health Departments
(1996)



Animals

USDA/ARS

Isolate Source:
USDA/FSIS
(1997)

Retail Meats

FDA/CVM

Isolate Source:
10 CDC FoodNet Sites, PA, LA, WA, MO
(2002)

Bacteria tracked in NARMS

Humans – CDC

- Non-Typhi *Salmonella* (1996)
- *E. coli* O157:H7 (1996)
- *Campylobacter* (1997)
- *Salmonella* Typhi (1999)
- *Shigella* (1999)
- *Vibrio* other than *V. cholerae*, (2009)

Animals - USDA

- Non-Typhi *Salmonella* (1997)
- *Campylobacter* (1998)
- *E. coli* (2000)
- *Enterococcus* (2003)

Retail meats – FDA (2002)

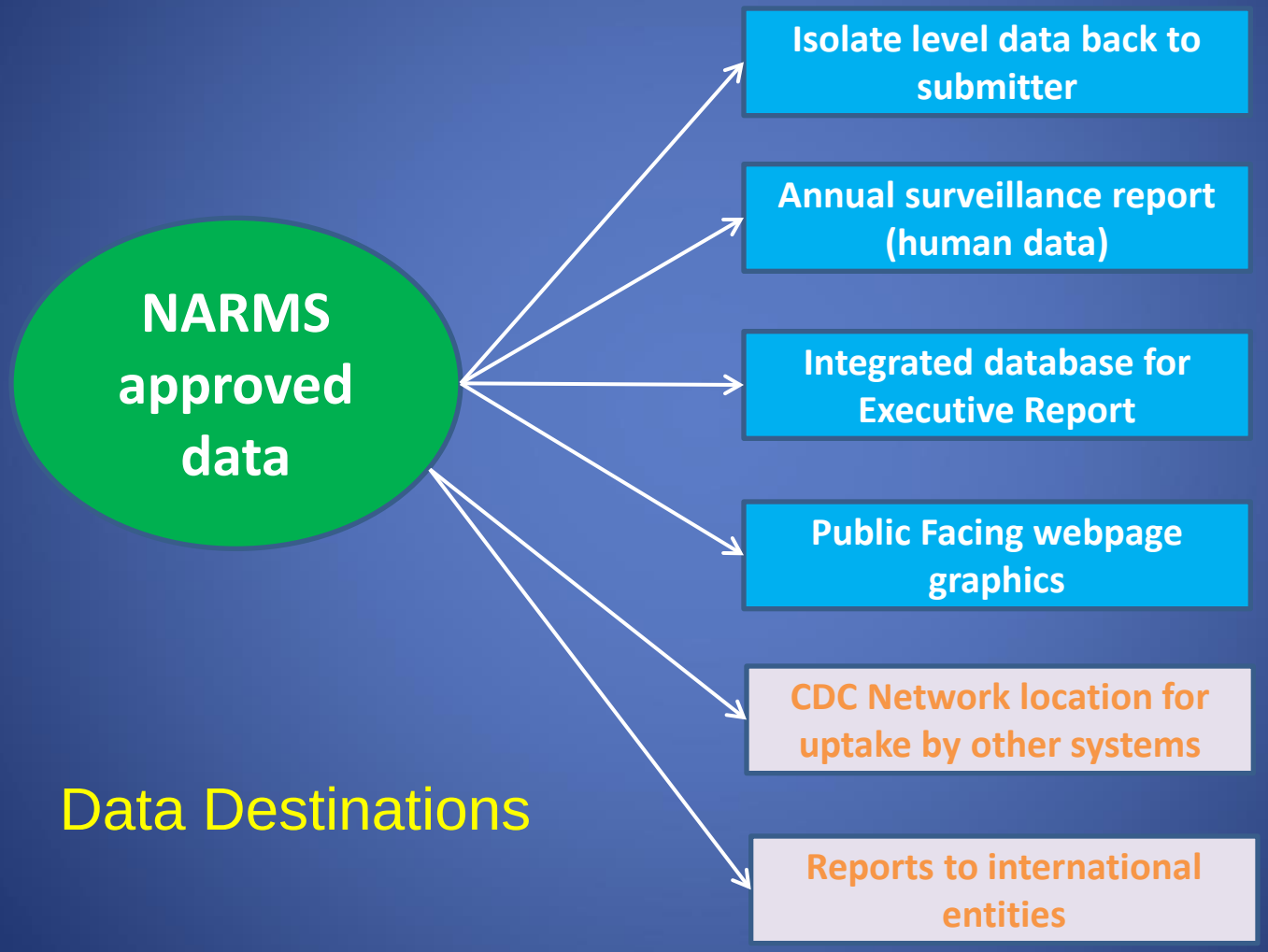
- Non-Typhi *Salmonella*
- *Campylobacter*
- *E. coli*
- *Enterococcus*

All tested with standardized methods and panels of agents

Strengthening NARMS Current Efforts

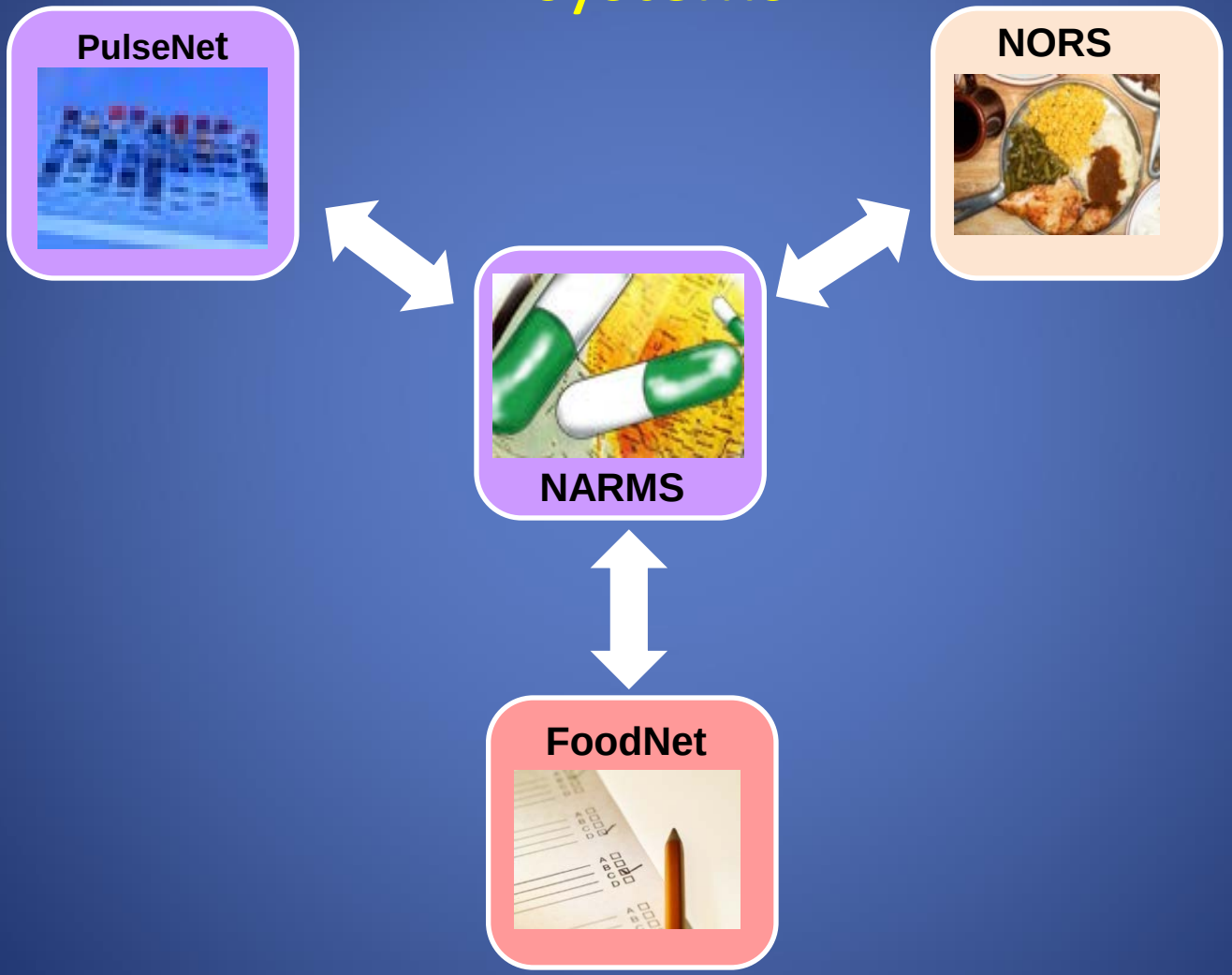
- Systems improvement and rapid reporting
- Data Integration
- Linking surveillance systems
  - Using Antimicrobial Susceptibility Testing Data to Understand Sources of Enteric Infections

System Improvements
Rapid Reporting



Data Destinations

System Improvements connecting outbreak and routine surveillance systems



Discussion Highlights
What is Working Well

NARMS

- Most extensive program for integrated laboratory-based surveillance of bacteria in foods in the world
- Provides critical susceptibility data for managing risks associated with antibiotic use in food animals
- Excellent model for interagency partnerships
- Increased use of NARMS data during outbreaks
  - Progress linking outbreak and routine surveillance data
  - Timely information is critical during outbreaks
- Increasingly innovative uses of NARMS data

Discussion Highlights
Areas for Growth and Improvement

Improve data quantity and quality

- Increase testing and sample size
- Prioritize pathogens
- Test greater variety of sources, including non-food
- Improve timeliness and balance need to “go live”

Discussion Highlights
Areas for Growth and Improvement

Improve interpretation of AR findings

- Understand linkage between virulence and AR
  - Clinical outcomes and treatment failures
  - Clinical risk factors and host susceptibility
  - Hospitalization and deaths
  - Contamination versus pathogen load – organic foods
  - Better utilizing environmental health information

Discussion Highlights
Areas for Growth and Improvement

Increase stakeholder engagement

- Identify key audiences and their information needs
  - States, industry, science and public health, regulators, policymakers/decision makers, consumers, practitioners
  - Conduct needs assessments to target needs
- Develop effective communication tailored to target audiences
  - Make data accessible and easy to understand
  - Ground all messaging to inform decision making

Discussion Highlights
Areas for Growth and Improvement

Further align resources

- Use strategic planning to identify priorities and additional resources

- Identify and utilize other existing data sources
  - Clinical
    - Health information exchanges
    - Electronic Health Records
    - NHSN
    - Claims Data
    - Manage Care Organizations
  - Regulatory
    - ELEXNET
    - Import/Domestic

Discussion Highlights
Future Directions -Whole Genome Sequencing

- WGS has to potential to serve as the single assay of NARMS surveillance and supplant multiple methods
  - Classical serotyping
  - PFGE and other strain typing methods
  - *In vivo* antimicrobial susceptibility testing
  - Piecemeal PCR gene detection and plasmid typing
- And to provide:
  - Genome/nucleotide surveillance
  - Virulence profiles
  - Molecular phage typing
  - Markers for source attribution
  - Better understanding of emerging trends
  - Costs savings

Next Steps

- Prepare FY 14 Annual Report to HHS Secretary using highlights from past 2 meetings
- Develop agenda for FY 15 (Dec 2014, May 2015) Meetings
  - Potential Themes
    - Foodborne outbreak investigation tools
    - Vibrio, toxo, cyclosporiasis, cryptosporiasis
    - Environmental antecedents and contributing factors
    - Updates on progress meeting previous guidance