



# **Use of Subtyping Data by FSIS: A Public Health Based Approach to *Salmonella* Control in Raw Poultry**

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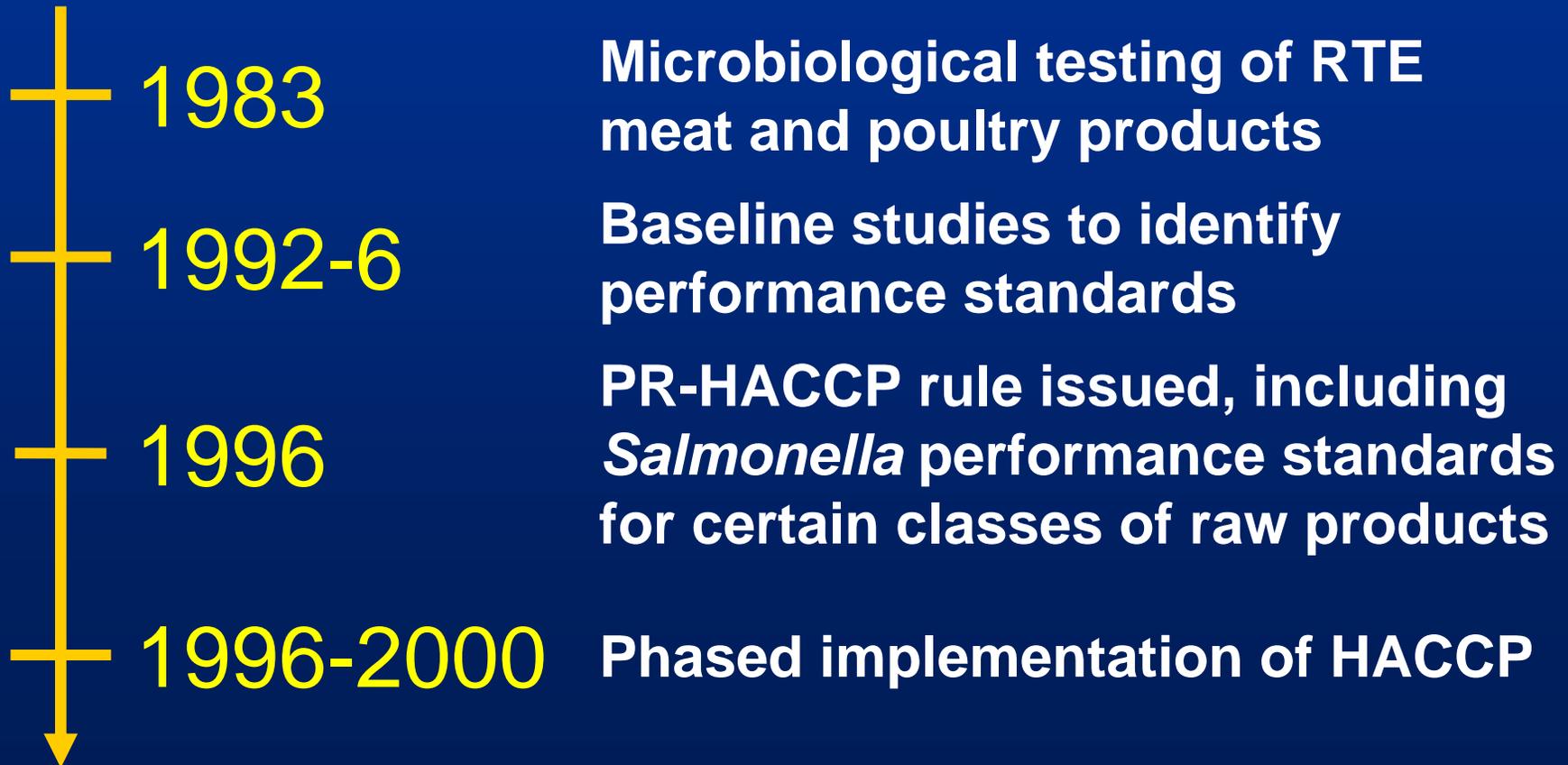
# Agency Public Health Goals

- **Healthy People 2010**
- **Reduce *Salmonella* incidence in PR-HACCP sets**
  - Simply reducing percentage of product with pathogen *should* result in a reduction in disease incidence
  - 2010 goal: 90% of all plants at 50% or less of standard
- **Expanded use of risk assessment**
- **Collect and use relevant and representative data**



# Milestones

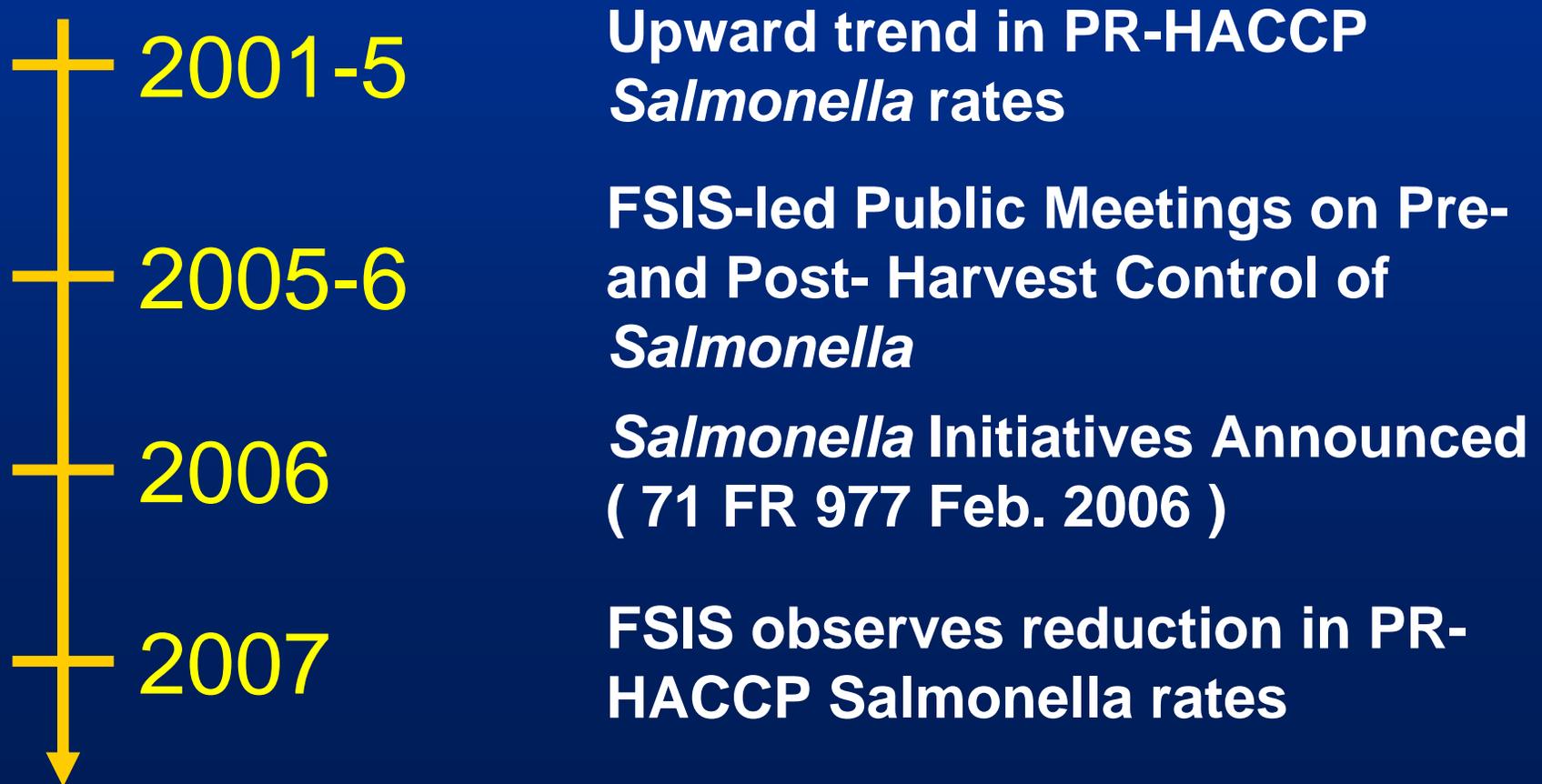
## FSIS *Salmonella* policy





# Milestones

## FSIS *Salmonella* policy





## 2006 Federal Register Notice

- Immediate goals
  - Reverse upward trend in PR-HACCP set *Salmonella* positive rates
  - Encourage industry to take steps to improve process control
  - Further assess process control for pathogens in all classes of raw products
- 11 initiatives announced and discussed at public meeting



## 2006 FRN Initiatives related to subtyping

- Serotype data
  - obtained more quickly
  - Information provided to establishments
  - FSIS will publish aggregate results
- Food Safety Assessments
  - will be performed in establishments that demonstrate poor process control *before* set failure
  - Focus on sample sets containing serotypes that are commonly associated with human illness
- PFGE data
  - Timely sharing with public health partners (CDC, FDA, states)
  - FSIS will develop policies on data use

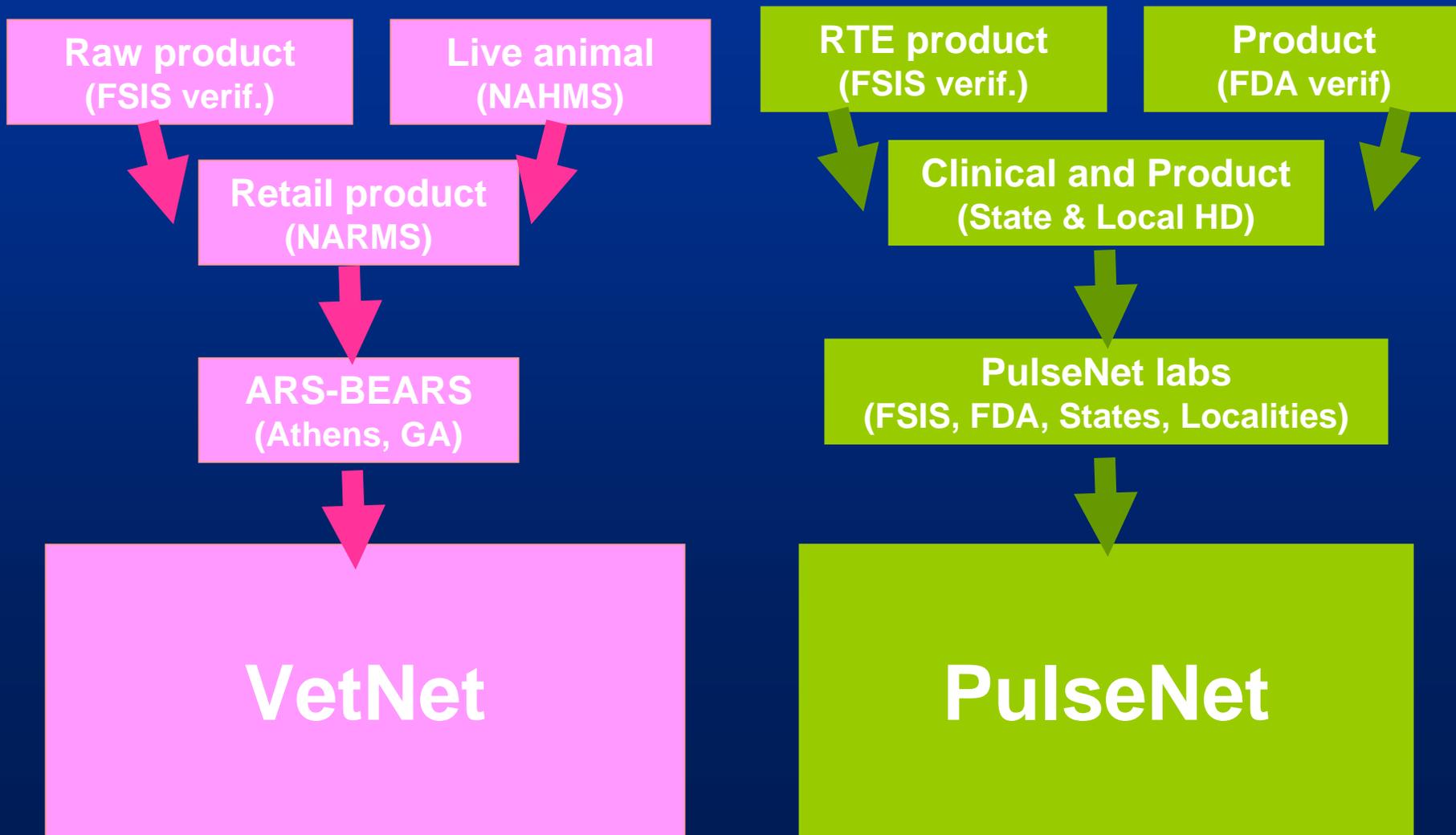


## PFGE Data Sharing FSIS-ARS Memorandum (2007)

- PFGE patterns from all PR-HACCP verification samples are available to FSIS upon generation
- Enables rapid comparison between VetNet and PulseNet databases
  - FSIS provided real-time access to VetNet database
  - FSIS samples assigned VetNet and PulseNet pattern names
- Will assist illness and outbreak investigations associated with FSIS-regulated products

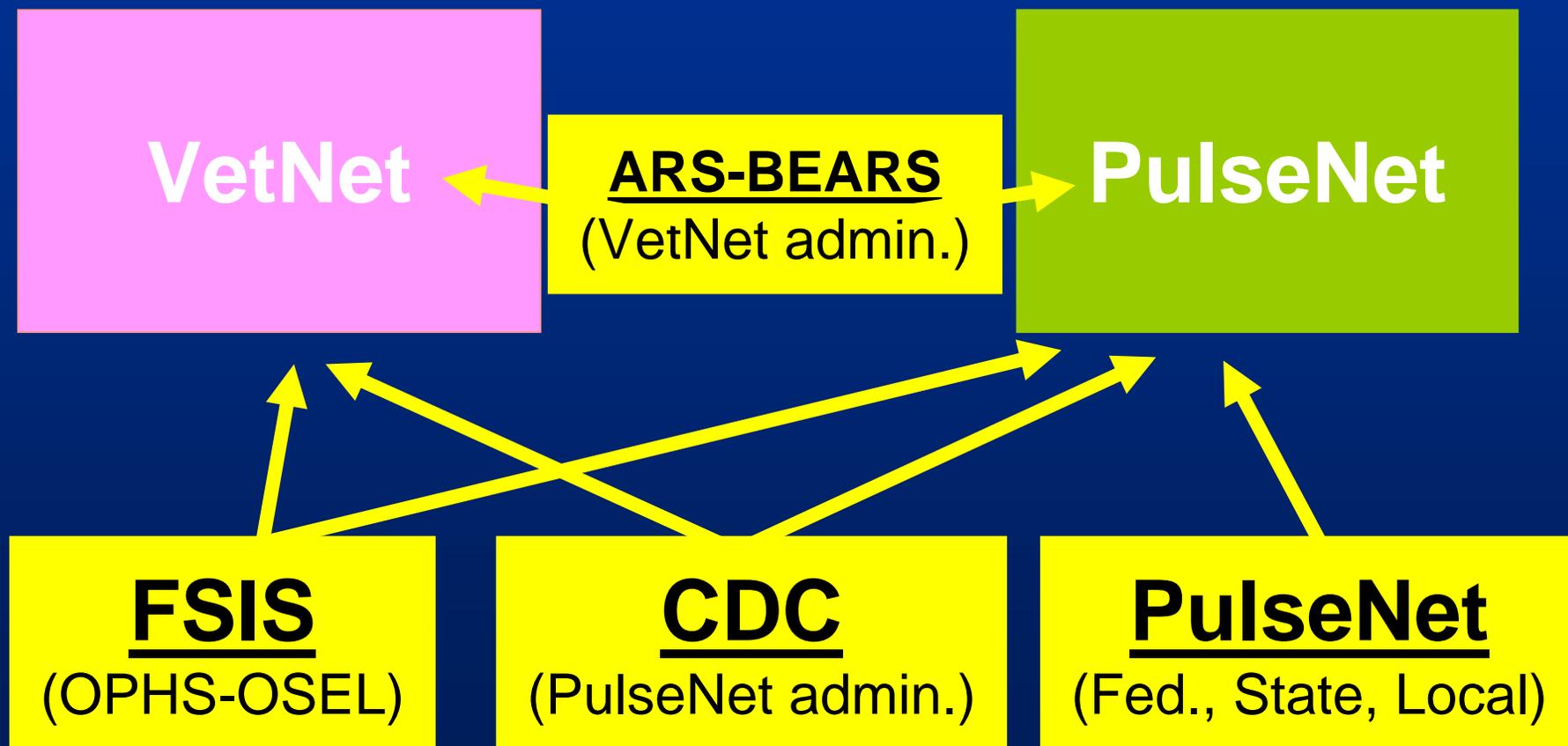


# Public PFGE Databases





# PFGE Database Search Access





## PulseNet / VetNet Database Searches

- PulseNet clusters (pattern match)
  - Pattern match
  - May be under investigation by PN participants
- VetNet frequency, rank and spatial-temporal distribution
  - Analysis of pattern within VN database
- Restricted to recent additions to PN (30-60 days)
- Restricted to additions from establishment



# Possible Public Health Categories\*

Category	PHLIS**	PulseNet	VetNet
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3			<input checked="" type="checkbox"/>

\*Further subcategories

- matches with current cluster
- recent activity in PN or VN
- Historical activity in establishment or region

\*\*PHLIS = Public Health Laboratory Information System.

- Prevalence of Salmonella serotypes in clinical samples



## Sorting PR-HACCP Patterns

- Retrospective analysis, **limited to broiler samples?**
- Establish feasibility of data sorting and ranking
- Establish algorithms for automated sorting
- Establish thresholds and action points



## Sorting PR-HACCP Patterns

- All **broiler?** PR-HACCP isolates in VetNet (1 month period, summer 2007)
- Sort and rank each PFGE pattern (cat 1 > cat 2 > cat 3)

Category	Isolates	% total
<b>1</b>	<b>141</b>	<b>62.7%</b>
<b>2</b>	<b>33</b>	<b>14.7%</b>
<b>3</b>	<b>51</b>	<b>22.7%</b>
<b>total</b>	<b>225</b>	<b>100%</b>



# FSIS Policy Development on PFGE: guiding concepts

- FSIS will develop procedures to make proactive use of PFGE data from PR-HACCP samples
- FSIS, working with PH partners, will use PFGE data to investigate foodborne illness outbreaks:
  - tracing products in commerce
  - in-plant investigation (i.e., Food Safety Assessment)
  - intensified sampling of implicated product
- FSIS is developing a Foodborne Disease Investigation Directive to coordinate Agency resources during outbreak investigations



## FSIS Policy Development on PFGE: guiding concepts, continued

- FSIS, working with industry, will use subtyping data to improve food safety systems
  - PFGE data (i.e. database comparisons) will be shared with individual establishments or corporations
  - PFGE data (and an establishment's reaction to the data) will be considered when assessing food safety systems
- Establishments should use PFGE and other subtyping data to take proactive steps to protect public health
  - Perform in-house investigation or data collection
  - Reassess hazard analysis or HACCP plan
  - Take corrective actions if necessary



# FSIS Policy Development Team

## Salmonella Subtyping

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