

# PulseNet QA/QC: Past, Present, and Future



Jennifer Kincaid  
10<sup>th</sup> Annual PulseNet Update Meeting  
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# PulseNet Certification History

- **1999**
  - Began certification program with *E. coli* O157:H7 set
  - First 3 labs were certified and able to access the *E. coli* national database
- **2000**
  - *Salmonella* certification sets made available
- **2003**
  - *Listeria monocytogenes* and *Shigella* certification sets made available
- **2005**
  - *Campylobacter jejuni* certification sets made available
- **2006**
  - *Y. pestis* and *V. cholerae* sets coming soon

# PulseNet Proficiency Testing (PT) History

## ➤ 2001

- *E. coli* O157:H7 and *Salmonella* PT began
- Divided into two rounds, half of labs performed PT in Fall and the other half in Spring

## ➤ 2003

- *Listeria monocytogenes* was added to the annual PT organisms
- “TIFF sent by CDC” was added to reduce the impact of gel quality variations on analysis of patterns

## ➤ 2005

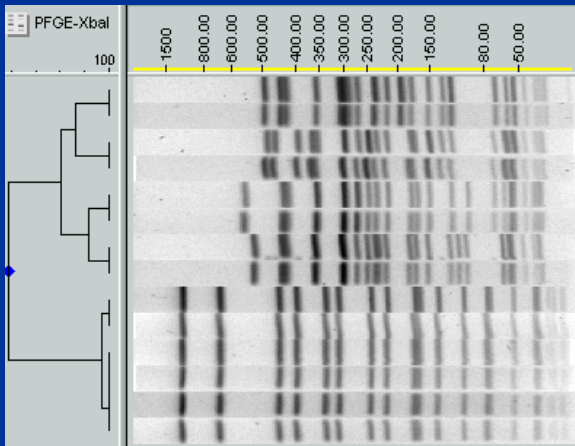
- *Shigella* was added to the annual PT organisms
- PT now divided into two rounds based on organism

## ➤ 2006

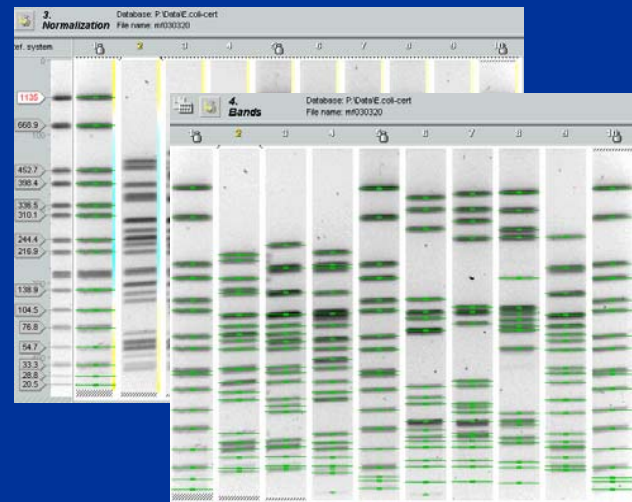
- *Campylobacter jejuni* PT will be conducted in the Spring

# Purpose of Certification and Proficiency Testing (PT)

To allow accurate comparisons within all PulseNet national databases by:

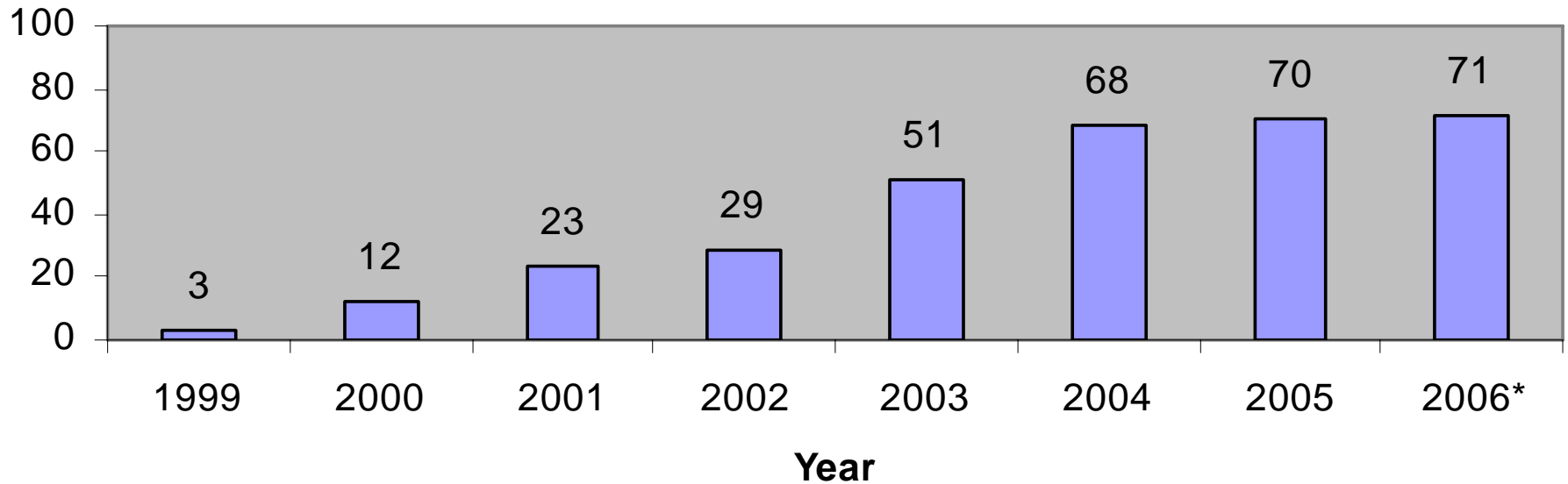


➤ Ensuring TIFFs of all gel images are comparable and are consistently of good/excellent quality



➤ Ensuring correct normalization and consistent band assignment

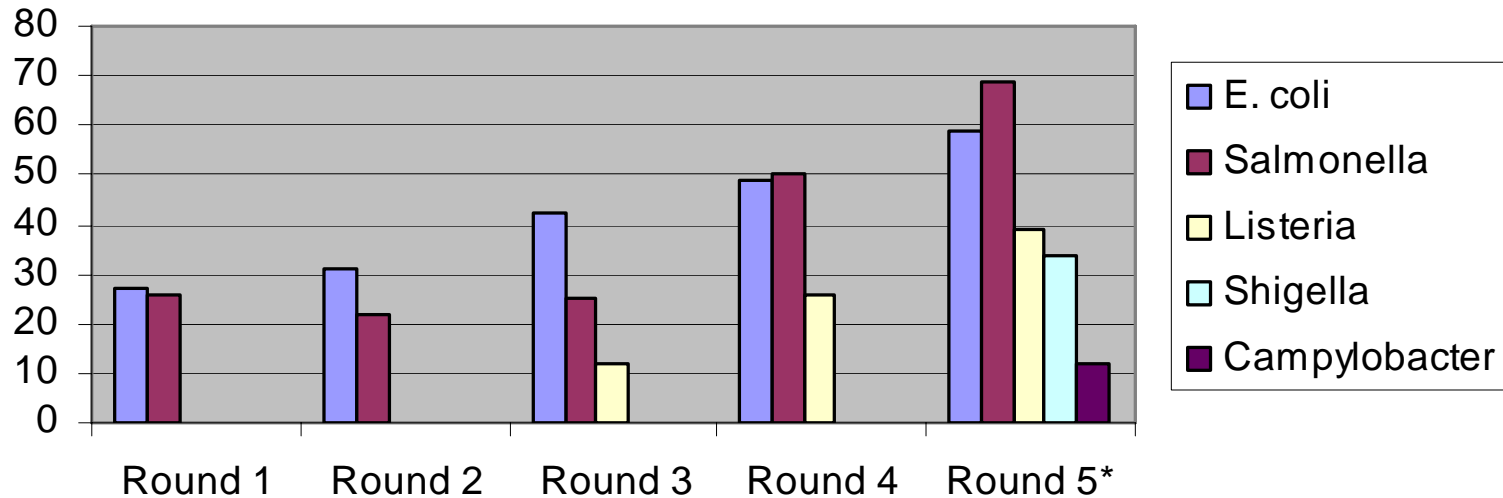
## Total Number of Labs Certified For at Least One Organism



✓ Goal is to have all 84 labs certified (gel and analysis) for at least one organism

\*As of 3/6/2006, includes state/local public health, federal (CDC, USDA, and FDA), and international hub laboratories

## Number of Proficiency Testing Participants 2001-2006



- **Round 1:** Fall 2001 and Spring 2002 (*E. coli* and *Salmonella*)
- **Round 2:** Fall 2002 and Spring 2003 (*E. coli* and *Salmonella*)
- **Round 3:** Fall 2003 and Spring 2004 (*E. coli*, *Salmonella*, and *Listeria*)
- **Round 4:** Fall 2004 (*E. coli*, *Salmonella*, and *Listeria*)
- **Round 5:** Fall 2005 (*E. coli*, *Salmonella*, and *Shigella*) and \*Spring 2006 (*Listeria* and *Campylobacter*)

**\*Expected number of participants for Spring 2006**

# Current Guidelines

- **Salmonella Braenderup strain H9812 determined “Global Standard” for all PulseNet organisms in 2002**
- **Implemented the TIFF Quality and Gel Analysis Guidelines in 2004**
  - Available on WebBoard in the Certification and Proficiency Testing conference (also in the QA/QC Manual and Important PulseNet Documents conferences)
- **QA/QC Manual containing general, laboratory, database, and QA/QC SOPs**
  - Available on WebBoard in the QA/QC Manual conference as of 2005

Conferences  
All Messages | 0 New | 0 Attn

Welcome to CDC PulseNet

- + [2006 PulseNet Update Meeting](#) (23)
- + [2006 Update Meeting Agenda Committee](#) (31)
- + [BioNumerics Server Status](#) (1)
- + [Important PulseNet Documents](#) (36)
- + [General PulseNet Information](#) (14)
- + [Ecoli](#) (188)
- + [Salmonella](#) (705)
- + [Listeria](#) (199)
- + [Shigella](#) (111)
- + [Campylobacter](#) (1)
- + [Tularemia](#) (0)
- + [Yersinia Pestis \(Plague\)](#) (0)
- + [Other Organisms](#) (7)
- + [BioNumerics](#) (1)
- + [Image Acquisition](#) (3)
- + [Troubleshooting PFGE](#) (7)
- + [Proficiency Testing/Certification](#) (7)
- + [Publications & Reports: Subtyping & Food Sa](#)
- + [WebBoard Comments](#) (8)
- [QA/QC Manual](#) (8)
  - Laboratory SOPs (PNL) (Jennifer Kincaid) 12/9/05
  - New 'QA/QC Manual' Conference (Jennifer Kincaid) 6/24/2005
  - + [Complete PulseNet QA/QC Manual](#) (Jennifer Kincaid) 6/24/2005
  - General SOPs (PNG) (Jennifer Kincaid) 6/24/2005
  - Database SOPs (PNB) (Jennifer Kincaid) 6/24/2005
  - QA/QC SOPs (PNQ) (Jennifer Kincaid) 6/24/2005 (2)

TIPS



# Tips and Reminders



- To request certification sets please email [PFGE@cdc.gov](mailto:PFGE@cdc.gov)
  - “*Organism Certification Set Request*” in the subject line
- Use standard file naming system (e.g., **GA06012.tif**)
- Include standard lanes in certification bundle files

# More Tips and Reminders

- In submission email to [PFGE@cdc.gov](mailto:PFGE@cdc.gov), include:
  - Name of organism and “certification” in subject line
  - Name and contact information
  - TIFF and/or bundle file attachments
  - What type of certification (e.g., Gel, Analysis, or Both Gel and Analysis Certification)
- Use [PFGE@cdc.gov](mailto:PFGE@cdc.gov) and **(404) 639-4558** as our contact information
- Don't hesitate to **Ask Questions**



# Proposals for the Future

## ➤ Laboratory Certification

- As opposed to individual certifications

## ➤ Random Proficiency Testing

- As opposed to two scheduled rounds each year



Note: Above items are still being discussed and have not been implemented

# Laboratory Certification

- Laboratory certification would allow those labs with a CDC approved in-house certification program to internally certify new employees
- More discussions/planning necessary
  - How many labs interested
  - Key job assignments (security)
  - Specific instructions

# Laboratory Certification



## Pros:

- Save resources
- One main contact
- Good for labs with high employee turnover
- Good for cross-training employees or backups

## Cons:

- Not beneficial for labs with only one PFGE employee



# Random Proficiency Testing

- Complete evaluations each month for each organism, in alphabetical order by lab
- Look at 3 most recent TIFFs for evaluation
- Criteria: file name, gel quality, standard strain, normalization, band marking, and linking
- Pass/Fail grading
- If fail evaluation, monitored for next three months for improvement



# Randomized Proficiency Testing



## Pros:

- Save resources
- Notice trends for valuable, real-time troubleshooting
- 3 gels instead of 1
- Encourage submission of good or excellent quality gels on a routine basis (not just for certification and/or PT)
- No additional database logins

## Cons:

- Information on who ran and analyzed the gel, equipment and/or enzyme not in database
- Can't tell if the patterns are 'correct'



# Way To Go!

- New labs becoming part of PulseNet
- More labs becoming certified in gels and analysis
- Good PT averages
  - Even with more stringent grading



**Keep Up The Good Work!**