



# MANAGING NEW WORKFLOWS

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NORTH  
**Dakota**  
Be Legendary.™

# OVERVIEW OF EPI/LAB PERSONNEL

- 1 enteric/vectorborne/zoonotic disease epidemiologist
- 1 laboratorian fully trained in PFGE and WGS
- 1 laboratorian fully trained in WGS and for PFGE of *E. coli* O157 gel only

# CASE REPORTING

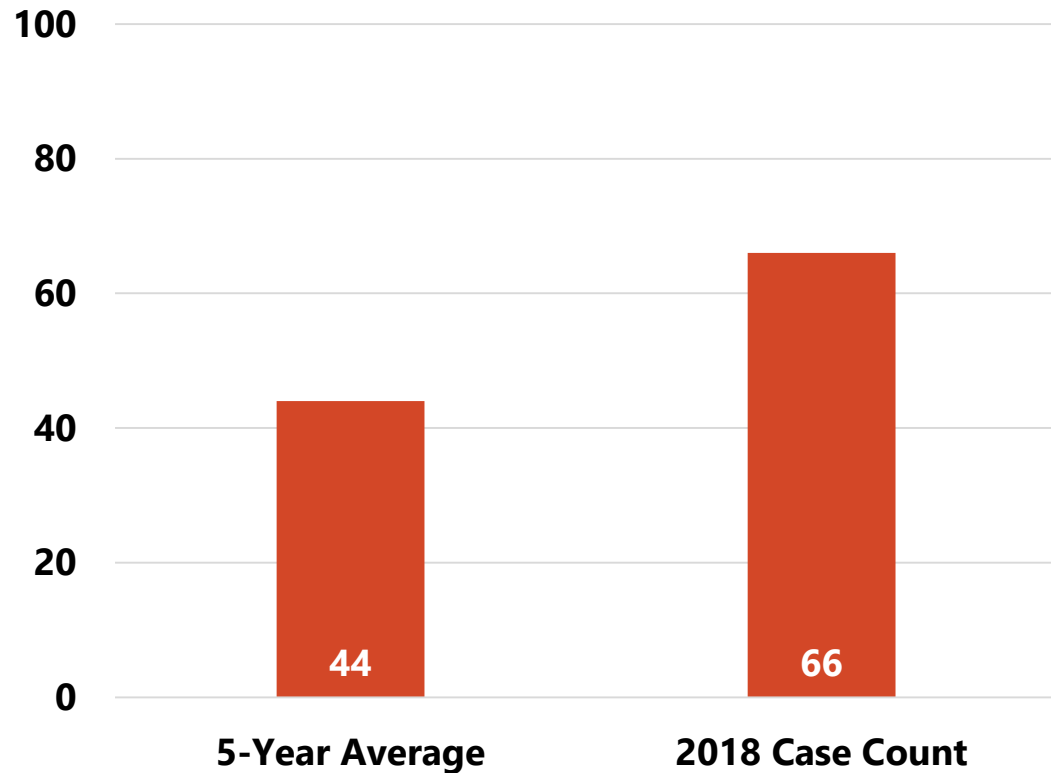
- ELR
  - Some facilities consider CIDT results preliminary, don't report until confirmatory results are received from NDDoH
- Online disease report form
- Calls from physicians/ICNs

# INVESTIGATION PRIORITIES

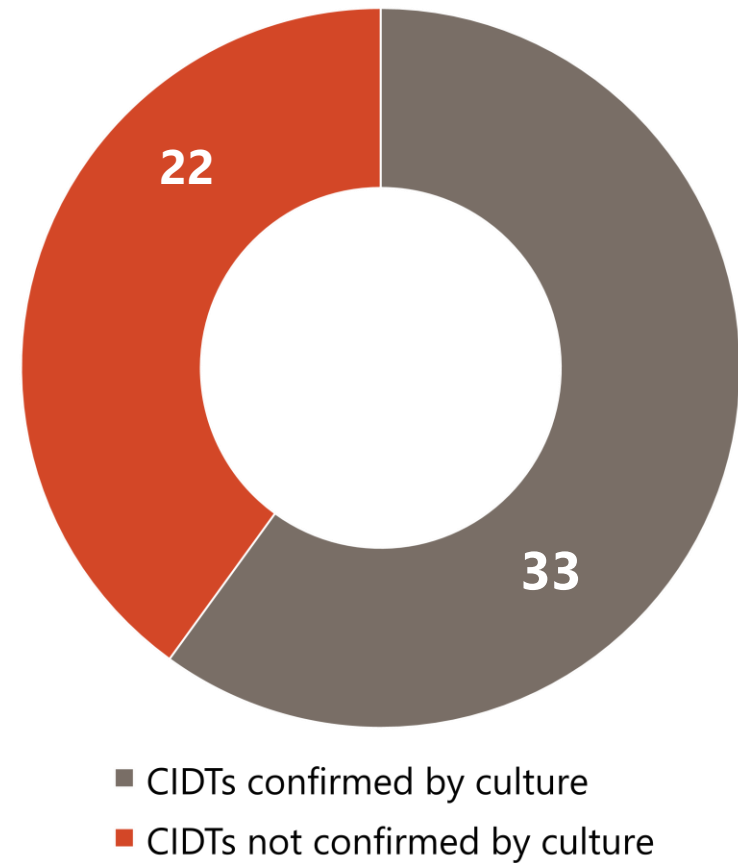
- Immediate priority
  - *Salmonella* Typhi
- First priority (daily)
  - STEC
  - *Listeria*
  - *Shigella*
  - *Vibrio cholera*
- Second priority (weekly)
  - *Campy*
  - *Salmonella*

# SNAPSHOT OF STEC CASES IN ND

## STEC Cases in ND

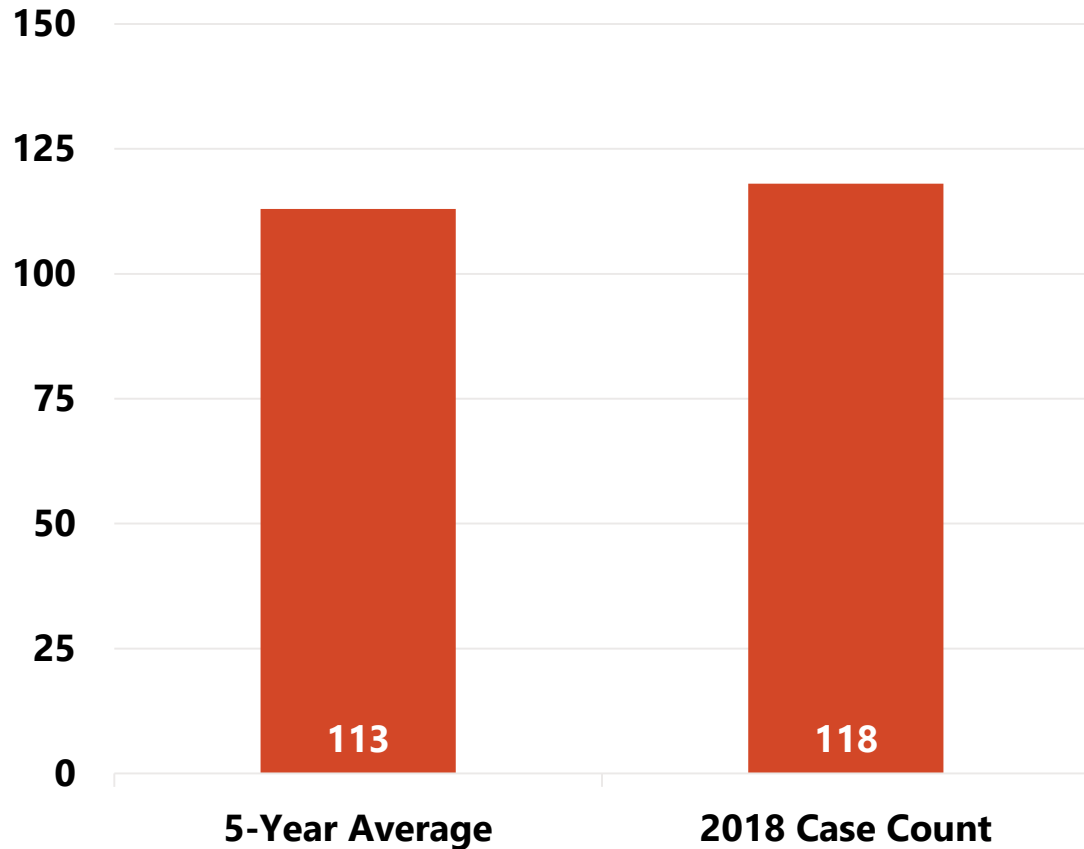


## 2018 Culture Confirmation of STEC CIDTs

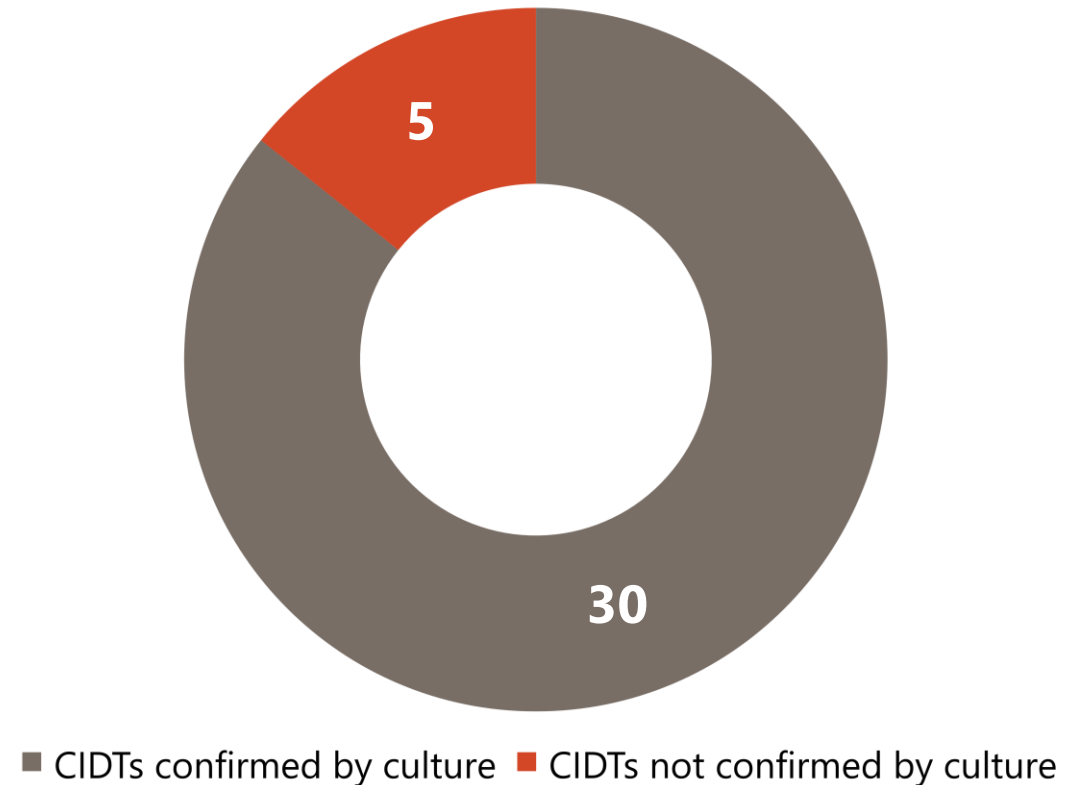


# SNAPSHOT OF SALMONELLOSIS CASES IN ND

## Salmonellosis Cases in ND



## 2018 Culture Confirmation of *Salmonella* CIDTs



# CURRENT CLUSTER DETECTION METHODS

- Epi data

- Analyzing exposure data and reviewing foodborne illness complaints
- Reviewing case locations

- Lab data

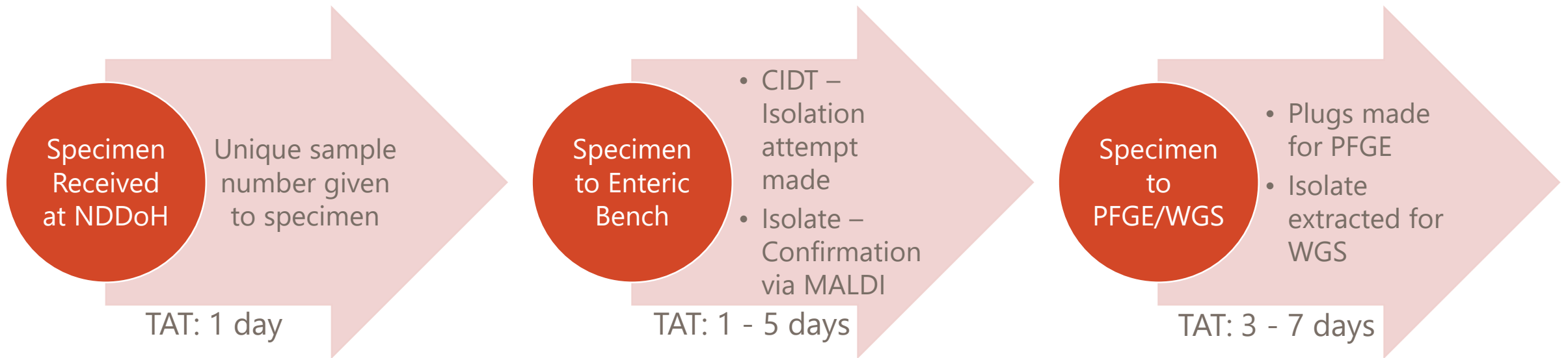
- Reviewing PFGE data in SEDRIC
- Looking up isolates in the NCBI Isolates Browser, searching for related isolates in SEDRIC
- Checking the PulseNet SharePoint message boards

# LAB OVERVIEW

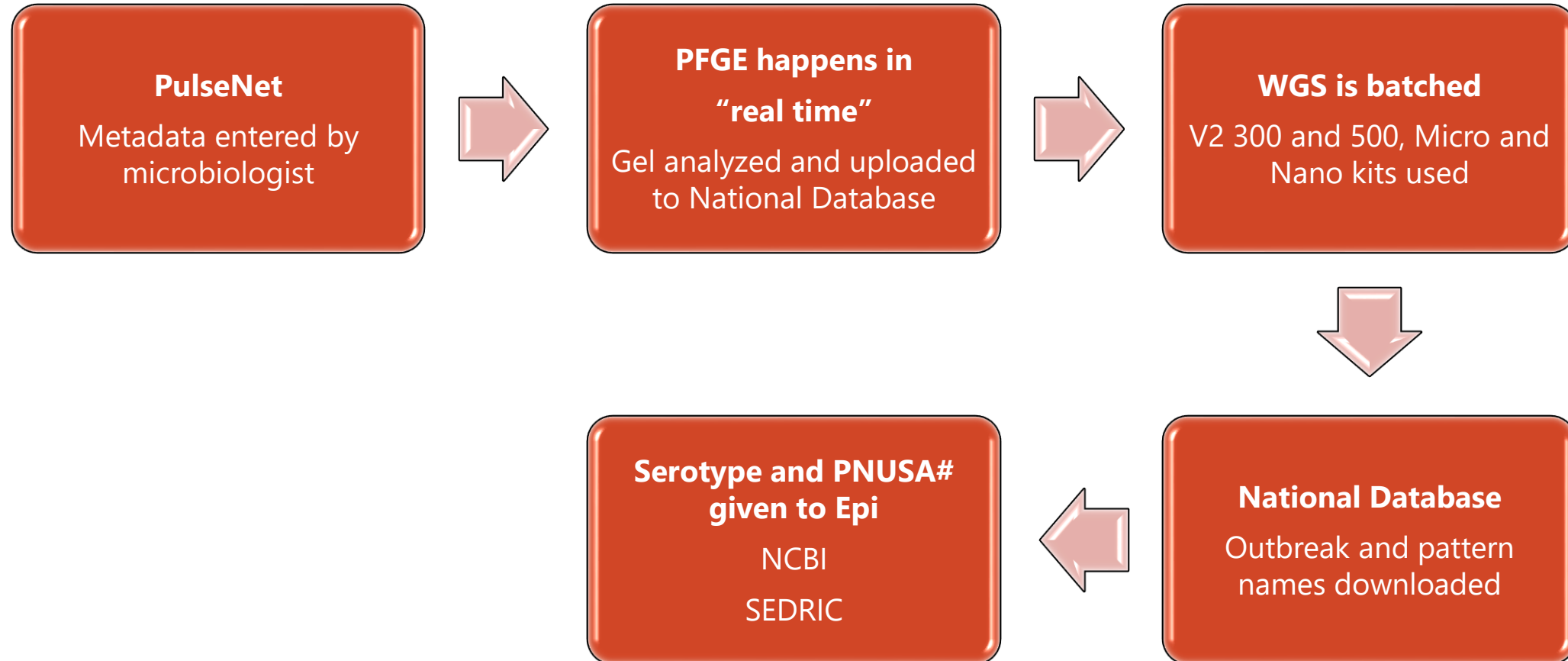
- 1 MiSeq for sequencing
- 2 laboratorians fully trained in WGS
- Average yearly numbers
  - 100 – 150 *Salmonella* species
  - 50 STEC
  - 150 *Campylobacter* species prior to 2018, 50 starting in 2018
  - 0 – 10 *Shigella* species
  - 0 – 5 *Vibrio* species
- Currently sequencing all *Salmonella*, *Shigella*, STEC, *Vibrio*, and *Campylobacter* if we need to fill runs



# ISOLATE RECEIPT AND PROCESSING



# PFGE AND WGS WORKFLOW



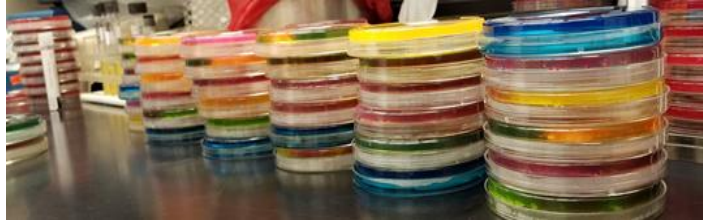
# ISSUES AND CONSIDERATIONS

- CIDT specimens not always sent to PHL
- Communicating results
  - Serotypes are not sent to Disease Control electronically
  - Lag time for specimens to appear in NCBI/SEDRIC
- No fragment analyzer
- Problems meeting coverage with Micro (7 samples) and Nano (2 samples) kits
- Optimal kits are V2 300 (12 samples) and 500 (16 samples)
  - Not ideal for small states because it can take 2-4 weeks to fill a run
  - DNA flex to run STEC on V2 300?

# A FEW SMALL VICTORIES

- Using the NCBI Pathogen Detection Pipeline to link some of our cases to multistate clusters
- Forming an internal epi-lab workgroup
  - Goals
    - To improve the efficiency of lab testing by doing weekly WGS runs
    - To better understand our current workflows and develop a new workflow for cluster detection
    - To improve communication between the lab and epi

# CONTACT INFORMATION



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