



# Thoughts From SD

Chris Carlson



# Meeting with epidemiologists to discuss food borne disease surveillance in world of WGS

Plan going forward...

- Laboratory plans to stop traditional Salmonella serotyping by April 1
- Stop reporting serotype name to providers at that time
- Will continue to provide O group to epidemiologists
- Will keep ability to serotype Typhi
- Validate serotyping with Seqsero in future?
- Leave E. coli, Shigella and Campylobacter the same

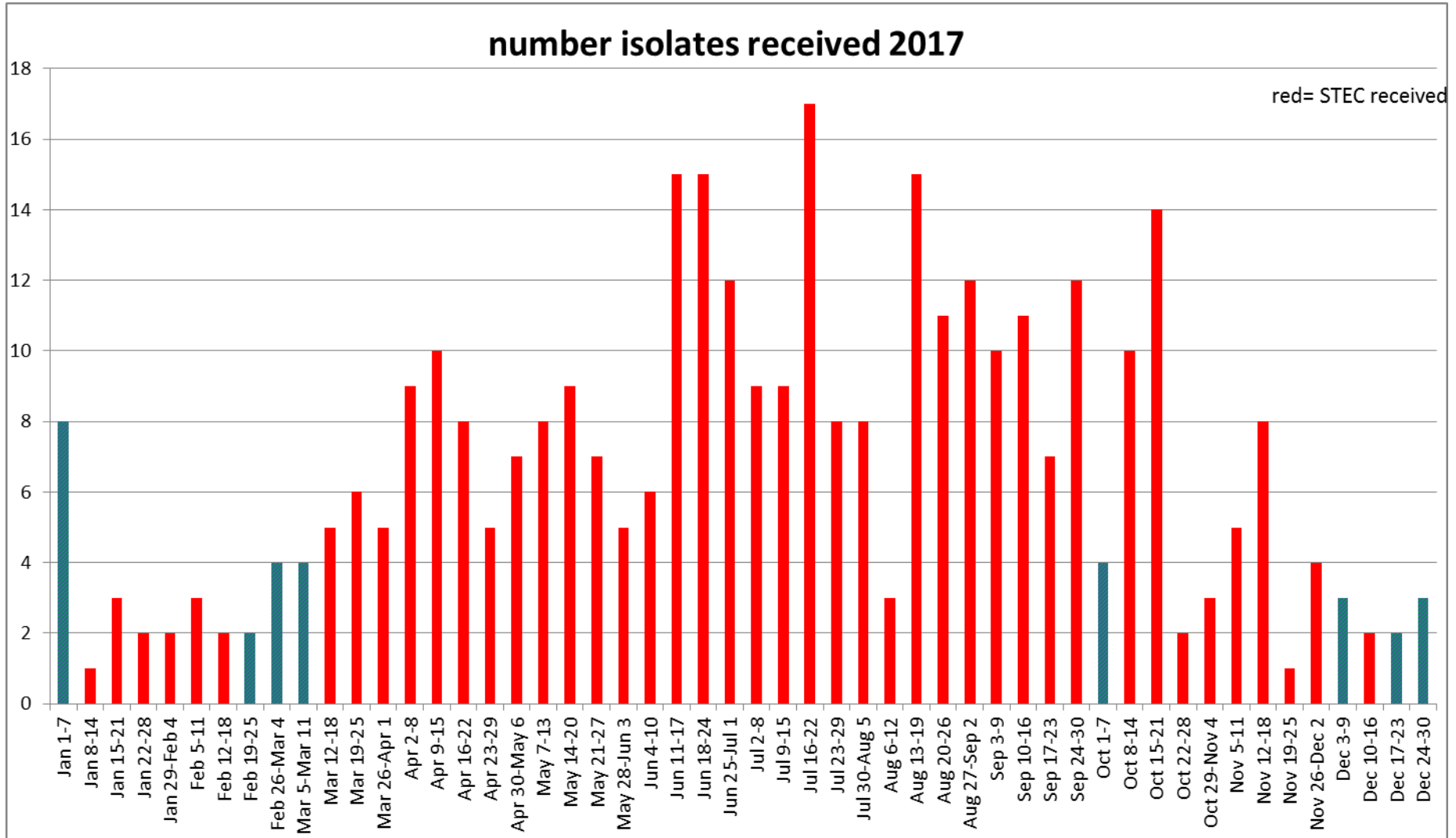


## What information would epi team like for routine surveillance?

- O group, serotype name, and zip code as soon as possible
  - Did not want any of the virulence or resistance in real time
- Possible weekly dendrogram and heat map
- Lab do searches for possible matches and report potential clusters via email(keep PFGE process)



## How to meet 7 day turn around time with low volume





## How to make affordable with 7 day TAT

- SDPHL is a fee for service laboratory
- New test considerations
  - What is per test cost?
    - Applied formula WGS = ~\$300 per test
  - Where to apply this charge?
    - Submitting lab - no
    - DOH program - yes
    - Federal grant – yes
  - Can make it affordable and not lose money?



## Look at portion of 2017

Feb 5-11	3	629.58	1888.74
Feb 12-18	2 use Nano kit so likely \$200+ per sample		
Feb 19-25	2 use Nano kit so likely \$200+ per sample		
Feb 26-Mar 4	4	472.19	1888.74
Mar 5-Mar 11	4	472.19	1888.74
Mar 12-18	5	377.75	1888.74
Mar 19-25	6	314.79	1888.74
Mar 26-Apr 1	5	377.75	1888.74
Apr 2-8	9	209.86	1888.74
Apr 9-15	10	188.87	1888.74
Apr 16-22	8	236.09	1888.74
Apr 23-29	5	377.75	1888.74
Apr 30-May 6	7	269.82	1888.74
May 7-13	8	236.09	1888.74
May 14-20	9	209.86	1888.74



## Potential Options

- Run cartridges not full
- Go freezer diving to fill runs
  - Nobody thought this would be real valuable at local level from current surveillance perspective
- Run other organisms
  - Remember low volume lab so don't have lots of other things either
- Do a DNA share with other low volume labs to try and fill runs
  - Logistics may cause problems



# Future Challenges, Ideas and Ponderings

- No backup MiSeq or budget for one
  - Possibly look at smaller Illumina instrument
  - MiSeq breaks down
    - plan to send DNA somewhere
- Cost and funding will continue to be an issue
  - This technology just does not lend itself very well for low volumes
  - Combination of DOH program funds, ELC and possibly PHEP





# Future Challenges, Ideas and Ponderings

- Sequencing seems to be slower method
  - What will impacts be to outbreaks?
- Nextera Flex kit looks like would allow more flexibility in using the smaller reagent kits
  - Could make meeting 7 day TAT bit easier
  - Doesn't necessarily solve the cost per isolate issue



## PulseNet Oath?

On my honor I will do my best to do my duty to PulseNet and my country and to obey the WGS Protocol: To sequence on time: To keep myself properly trained and mentally all there so I can pipet straight.

Thank You

