



The Future is Here: Managing New Workflows in the OC



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Small County with a Large Population

LA – 10 million people
OC – 3 million people
SDC – 3 million people



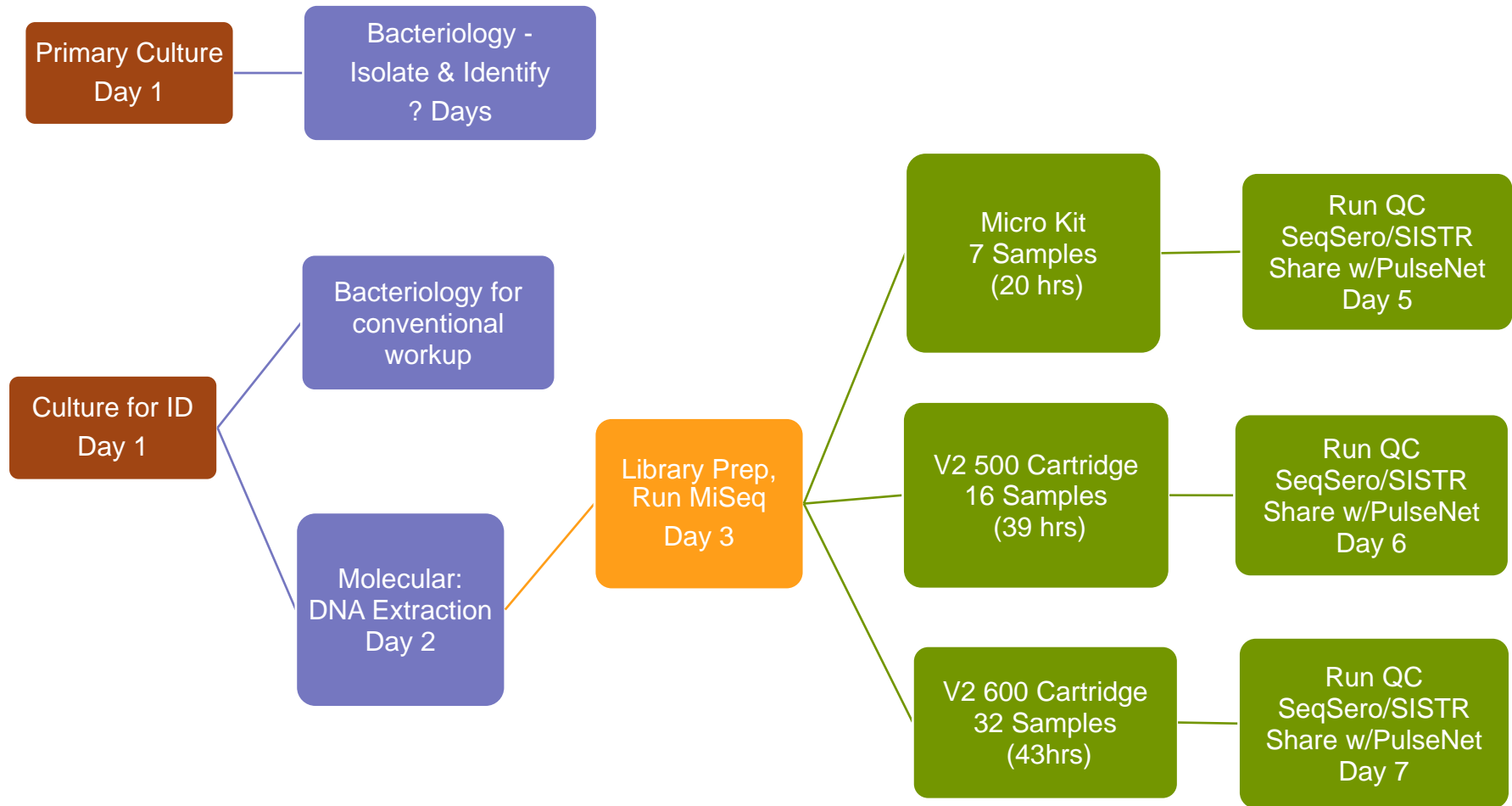
OC is the smallest county in So Cal
(948 mi²)

PFGE and WGS Throughput

2018	Isolates Received	PFGE	WGS
<i>Listeria</i> *	12	6	12
STEC	96	56	65
<i>Shigella</i>	122	114	113
<i>Salmonella</i>	527	423	415
<i>Campylobacter</i> *	7	4	7
<i>Vibrio</i>	13	10	13
TOTAL	777	613	625

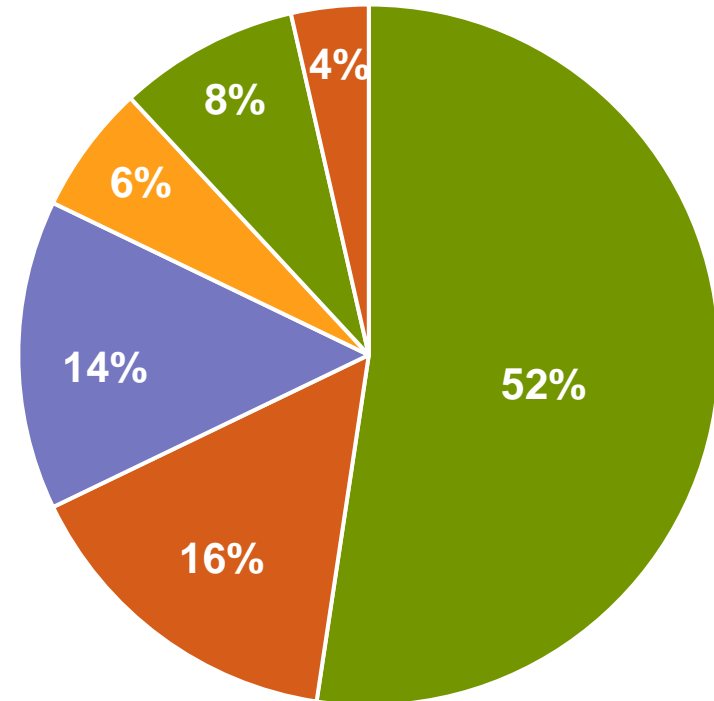
*Stopped PFGE testing

As of 11/1/18, New Workflow for Real-time WGS



Culture ID Specimen Turn-Around-Time (TAT) as of 11/1/18

WGS TAT Culture ID Specimens (n=84)		
Days	Number of isolates	Percent
≤ 7	44	52
8	13	16
9	12	14
10	5	6
11	7	8
12	3	4



Reasons for TAT > 8 – 9 days:

- Some days had < 7 specimens/day
- Micro Kit but can't run Ec/Shigella (must wait for V2 500 Cartridge)

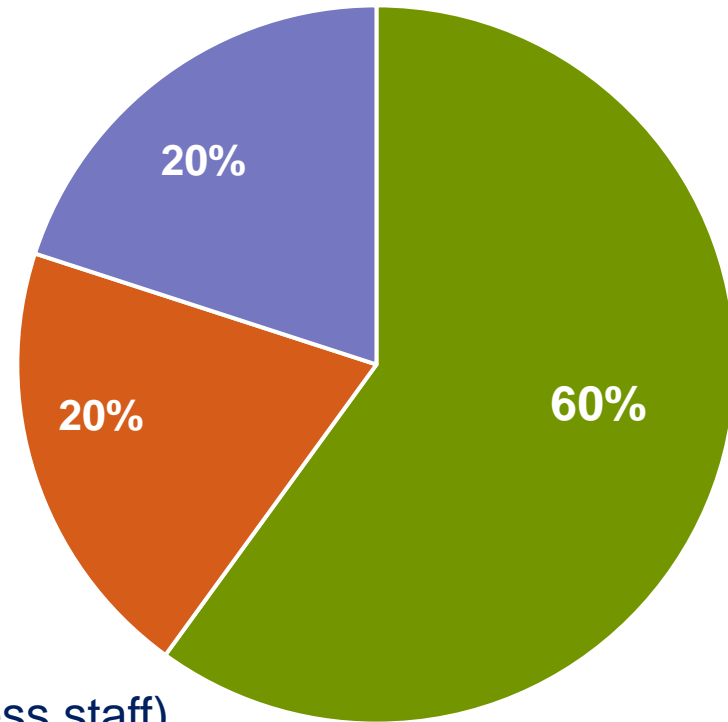
Reasons for TAT >10 days:

- Failed coverage/quality, repeat
- MiSeq instrument issues
- Campy needed to be re-extracted twice

Primary Specimen Turn-Around-Time (TAT) of 11/1/18

as

WGS TAT Primary Specimens (n=5)		
Days	Number of isolates	Percent
≤ 7	3	60
8	1	20
10	1	20



Reasons for TAT > 8 & 10 days:
Veterans Day & Thanksgiving holiday (less staff)

Hurdles with TAT \leq 7 Days

1. Automated DNA extraction:

- QiaCube 2 specimens (min run): 2.5 – 3 hours
12 specimens (full run): 3 – 3.5 hours
- Manual extraction is faster but hands on
- Manual extraction is required for all *Listeria* and *Campy* (at our lab)

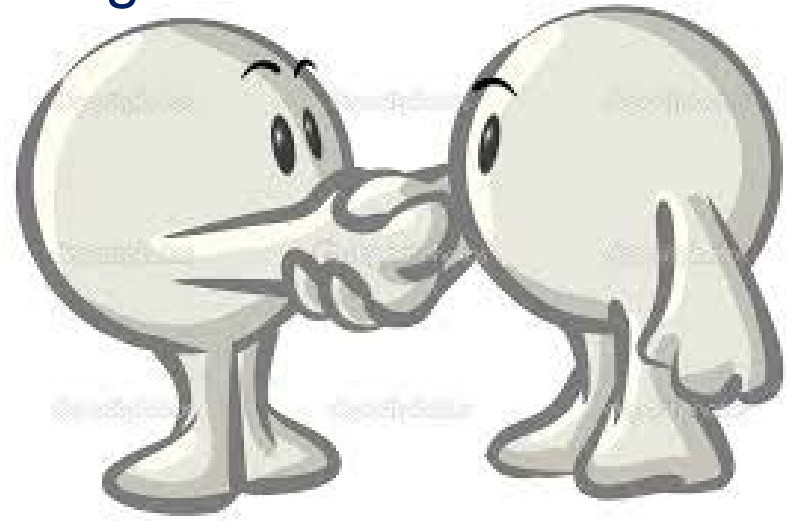
2. Decrease in number of specimen each day:

- Less than 7 isolates on any day - wait to run until we get 7 specimens
- Can't run *E. coli* or *Shigella* with Micro Kit, so wait until we get 16 specimens for the V2 500 Cartridge?

Solution? Flex Library Prep

Together Lab and Epi are Transitioning from PFGE to WGS

- Weekly meetings
- Lab – Epi share drive
- Powerpoint trainings for Epi:
 - How to interpret Listeria zip codes
 - How to interpret hq SNP
- Provided hq SNP analysis using Google VM and CO pipelines by Epi request



Lab

Epi



Thank you

Acknowledgements:

CDPHE: Joel Sevinsky & Logan Fink

**OC Microbiologists: Rina Tjiptahadi, Angelica Torres,
& Karen Nguyen**

OC Epidemiologists

