

# Maximizing the Knowledge Gained from California Senate Bill 27 (SB27)

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# Overview

- George Washington University's Antibiotic Resistance Action Center (ARAC)
  - Foggy Bottom Campus
- 8 weeks (June 10th to August 2nd)
  - 9am to 5pm
- Mostly grad-student run lab

# Introduction

- SB27 is the first of its' kind in the US
- Requires veterinarian's prescription for antibiotic use in livestock
- Bans use of antimicrobial drugs for growth promotion and “routine disease prevention” in livestock
- The Wellcome Project is essential in testing effectiveness of legislation
- Results of our study could influence similar legislation in the rest of US

# Specific aims

- **Aim 1:** Quantify effect of SB27 on *E. coli*, *Salm*, and *Campy* resistance rates from retail meat
- **Aim 2:** Estimate proportion of *E. coli*, *Campy*, and *Salm* infections caused by strains of food origin in CA
- **Aim 3:** Define effect of SB27 on susceptibility of *E. coli*, *Campy*, and *Salm* infections of food origin in CA



# Significance

- Antimicrobial Resistance: ***global health threat***
- UTIs: mostly caused by *E. Coli* (many attributed to contaminated retail meat)
- “Post-Antibiotic Era”



# My Role in the Project





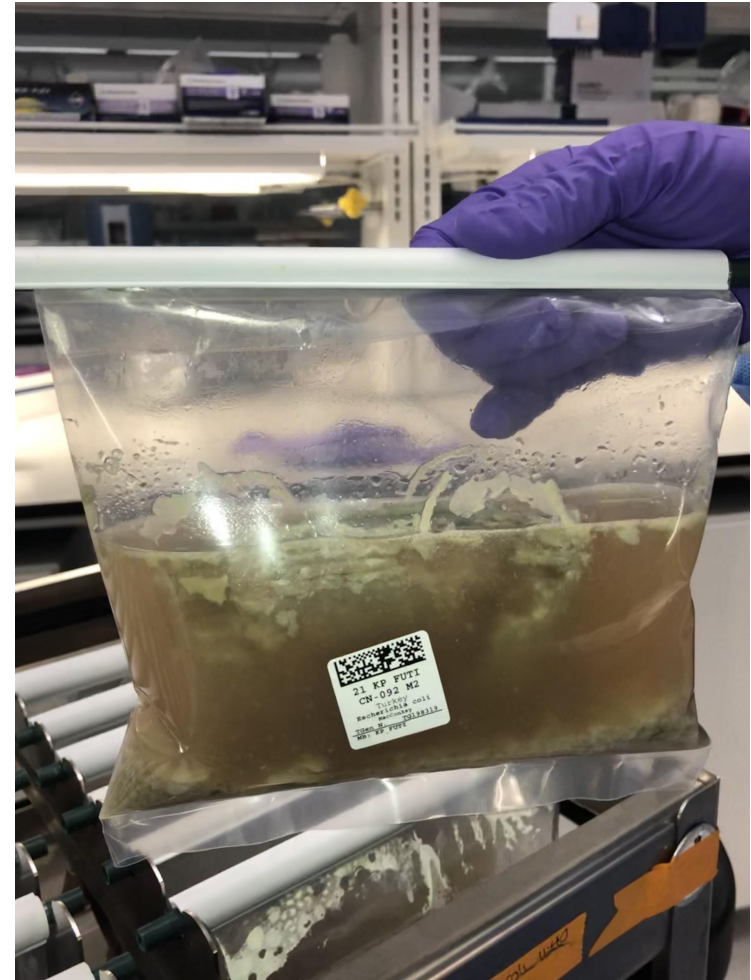
# Procedural Overview

1. Processing
2. Isolation
3. Susceptibility



# Processing

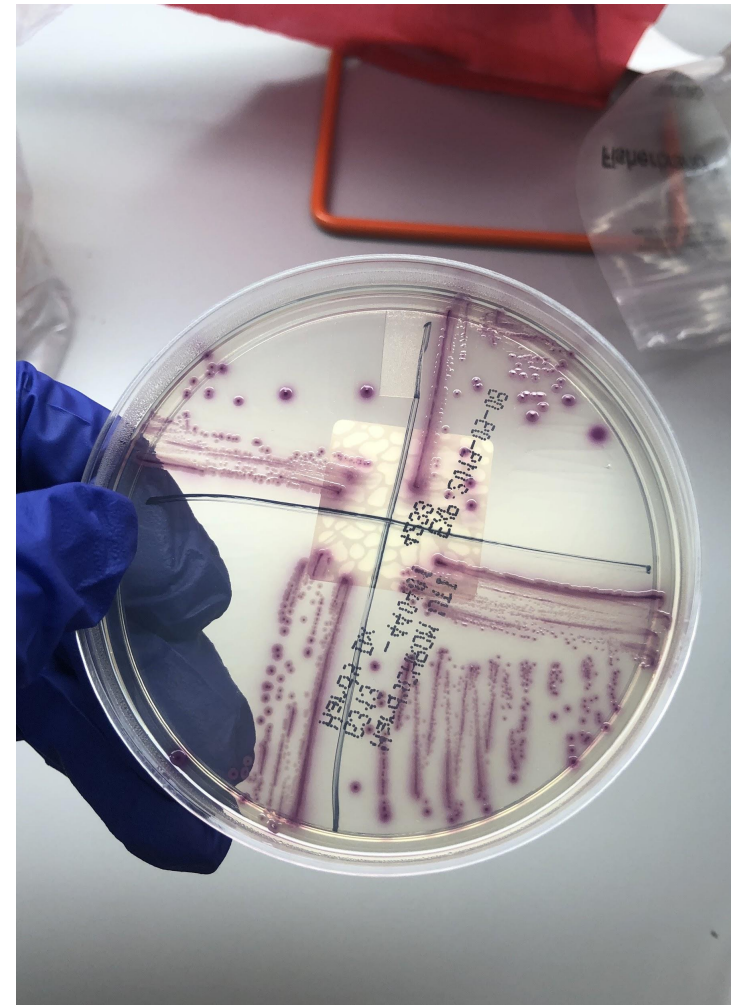
- Receiving meat shipments
- ORGANIZATION AND STICKERING
- Day 1 – Enrichment
- Day 2 – Extraction
- Day 3 – (*Salmonella* rvs & mktn)
  - Freezing \*thawing danger\*





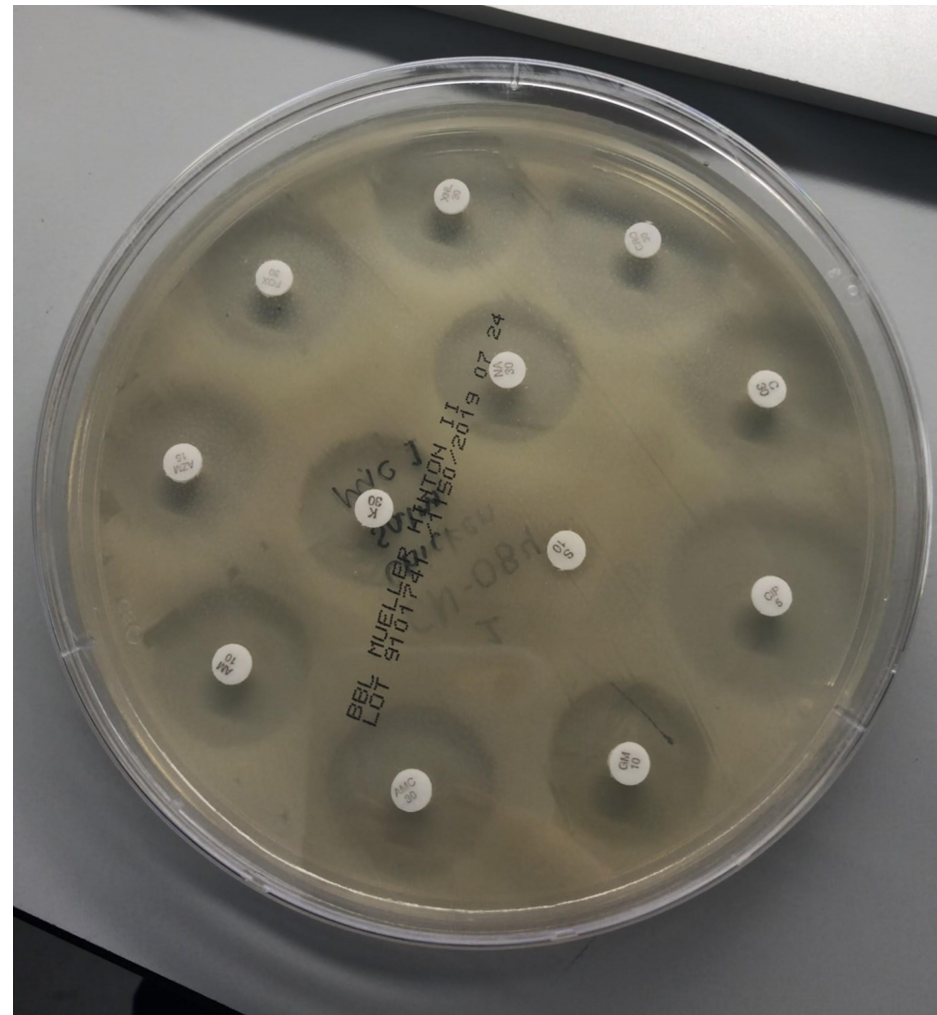
# Isolation

- 4 types of streaks:
  - Isolation streak
  - Half streak
  - Quadrant streak
  - Confluent Streak

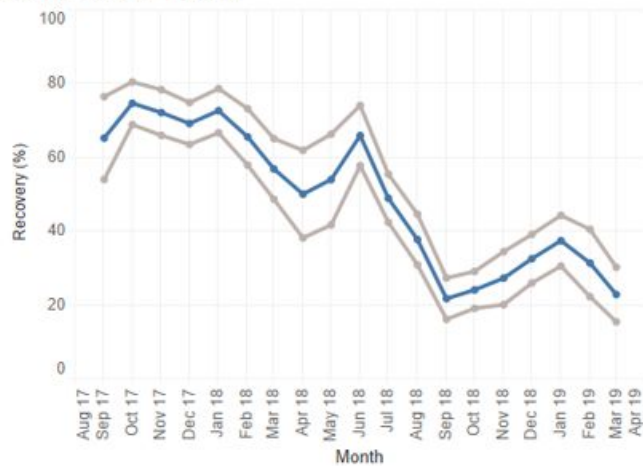


# Susceptibility

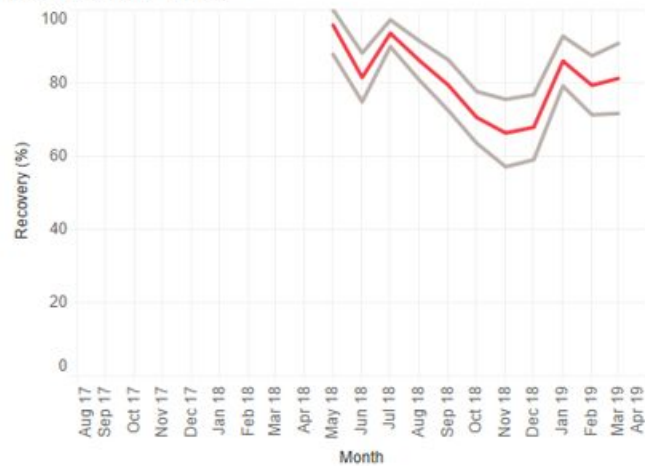
- Streaking for a lawn
- Antibiotic patches
- Scoring



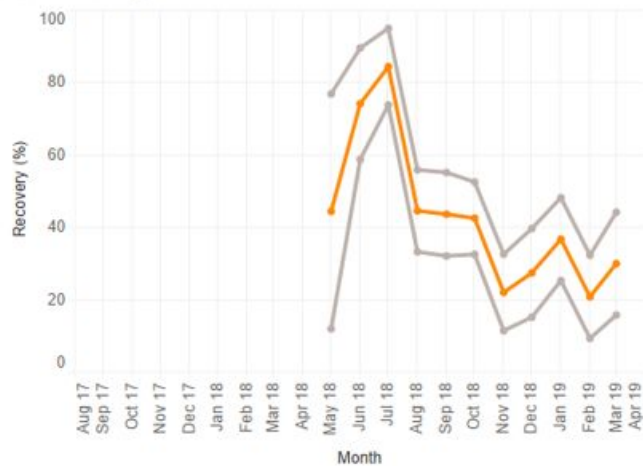
*E.coli* recovery - Chicken



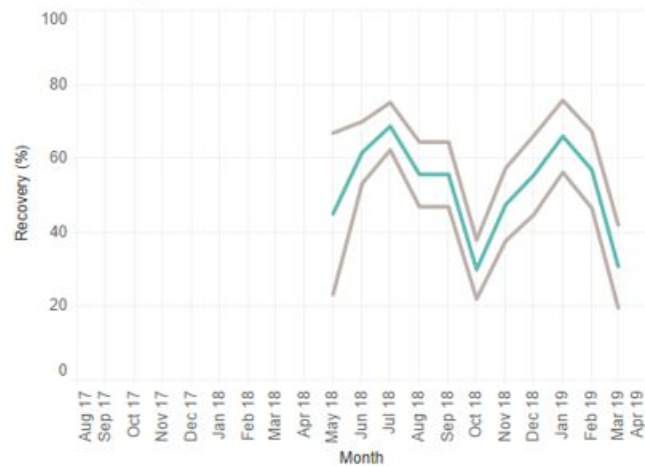
*E.coli* recovery - Turkey



*E.coli* recovery - Pork

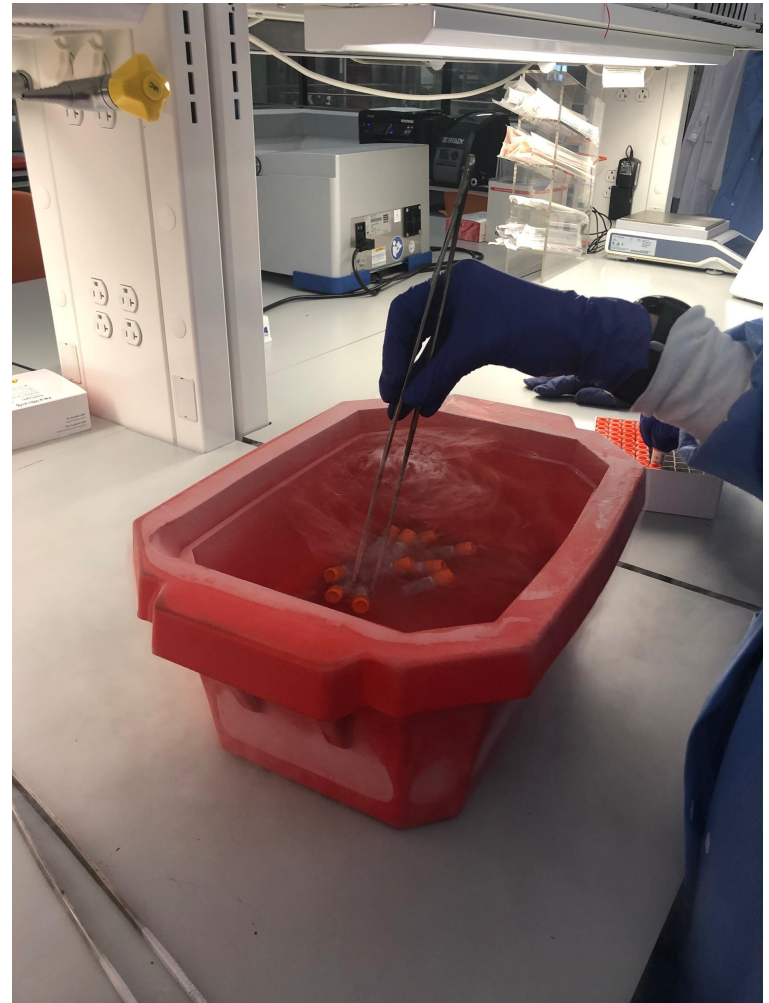


*E.coli* recovery - Beef



# Lessons learned

- Working in a lab is not all experiments
  - Cleaning
  - Sterilizing (Autoclave)
  - Washing Glassware
- Always clarify if unsure
  - Do not be afraid to ask questions
- Adaptation and flexibility
  - New lab--protocol changes



# Acknowledgements

Dr. Price

Dr. Liu

Ms. Murphy

Ms. Rabanes

Ms. Boutte

Ms. Wal

Dr. Krug

Francesca Cetta

Thank you!