

Measuring the Impacts of FDA's Actions to Promote Judicious Antimicrobial Use in Veterinary Medicine

Presented to the National Academies' Committee on the Long-Term
Medical and Economic Effects of Antimicrobial Resistance

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Topics

- Review changes implemented
 - FDA Guidance for Industry #209/213
- Data needed to assess impact of changes
 - On antimicrobial use practices/stewardship?
 - On antimicrobial resistance?
 - On animal health?

Guidance for Industry

#209/213 Initiative

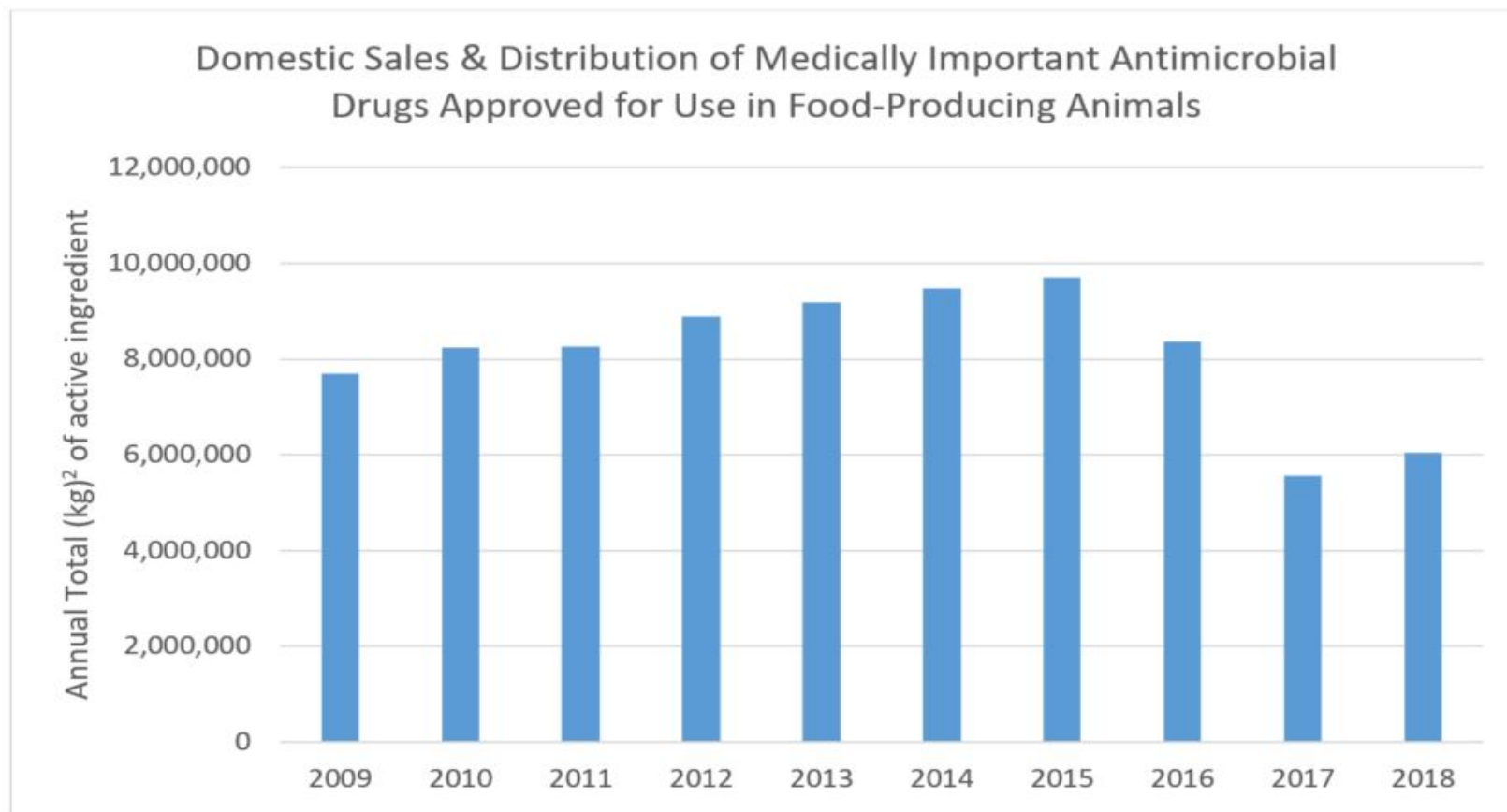


- Implementation plan initiated in 2013 to:
 - **Eliminate production uses** (growth promotion; improved feed efficiency) of medically important antimicrobials administered in feed/water of food-producing animals
 - Change marketing status from **OTC to Rx (for water products) or Veterinary Feed Directive (VFD - for feed products)** for medically important antimicrobials used in food-producing animals
- Implementation timeline:
 - By 10/1/2015 - VFD Final Rule in effect
 - By 1/1/2017 -All **feed and water** uses of medically important antimicrobials in food-producing animals require veterinary oversight and can no longer be legally used for production purposes

Impact of Changes

- **Our primary goal:** Support implementation of judicious antimicrobial use and stewardship practices in veterinary settings
- To assess impact and progress, a broad set of data should be considered
- Currently, we report annual antimicrobial sales data and antimicrobial resistance data (NARMS; Vet-LIRN)
 - Sales do not necessarily reflect actual antimicrobial use
 - Recently observed sales volume reductions do provide an indicator that ongoing efforts to support antimicrobial stewardship are having an impact

Antimicrobial Drug Sales



Domestic sales decreased:

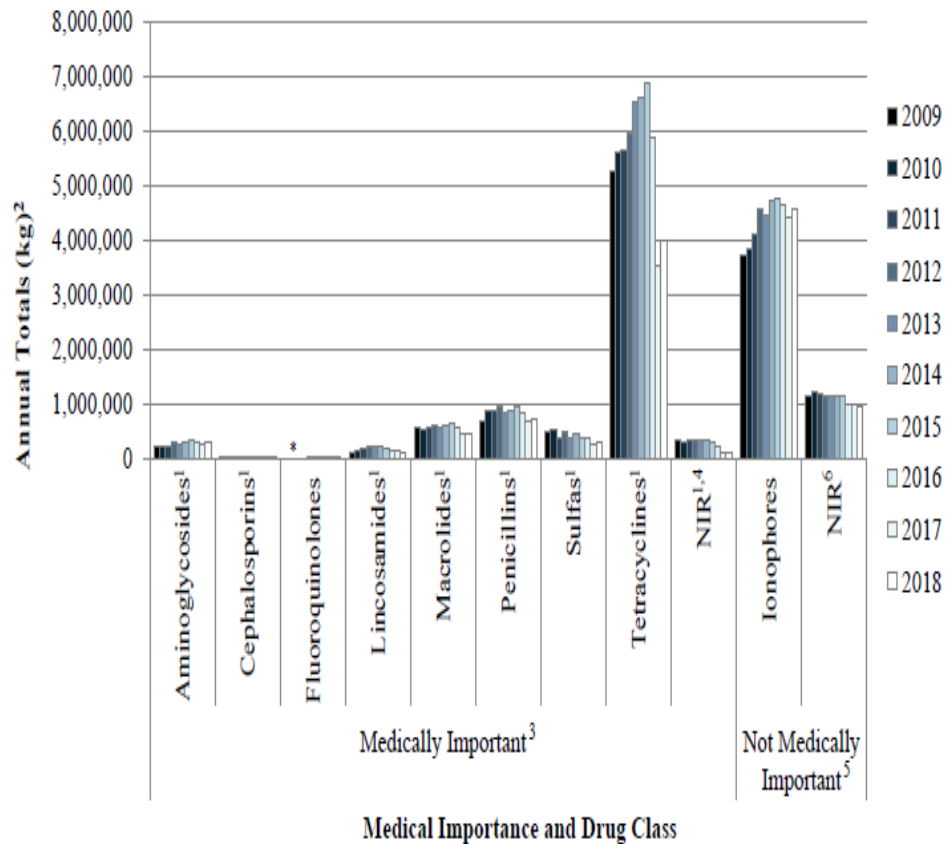
- 33% between years 2016 and 2017
- 38% since 2015 (peak year of sales/distribution)
- 21% since the first year of reported sales in 2009

Domestic sales increased 9% between 2017 and 2018

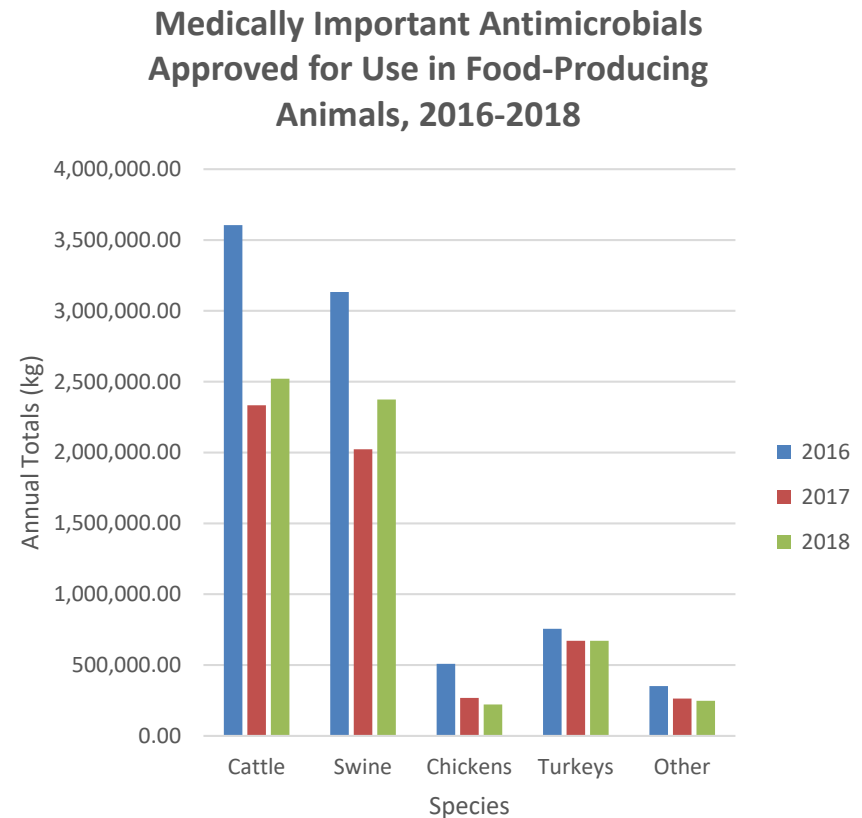
Source: FDA, 2018 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals

Antimicrobial Drug Sales

By Drug Class



By Species (Estimated)



Source: FDA, 2018 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals

Antimicrobial Use



- **USDA APHIS**

- National Animal Health Monitoring System (NAHMS) – periodic surveys
- NAHMS - Antimicrobial Use and Stewardship surveys - for 2016 use on beef feedlots and swine operations

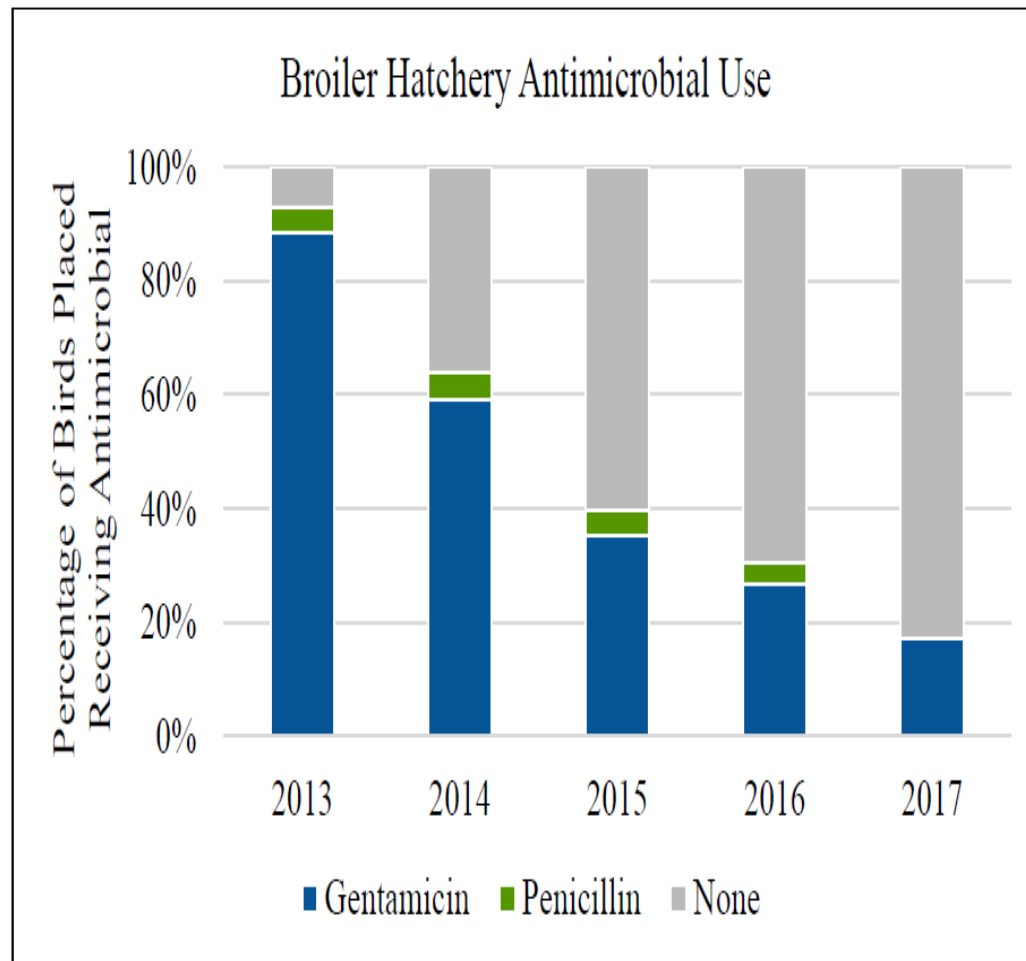
- **FDA CVM**

- Two cooperative agreements (awarded in 2016)
 - **Characteristics of Antimicrobial Use in Beef Feedlots and Dairies** (Kansas State University)
 - **Antimicrobial Use Data Collection in U.S. Poultry and Swine Production** (Mindwalk Consulting/University of Minnesota)
- Two cooperative agreements awarded in 2020 – focus on companion animals (dogs and cats)

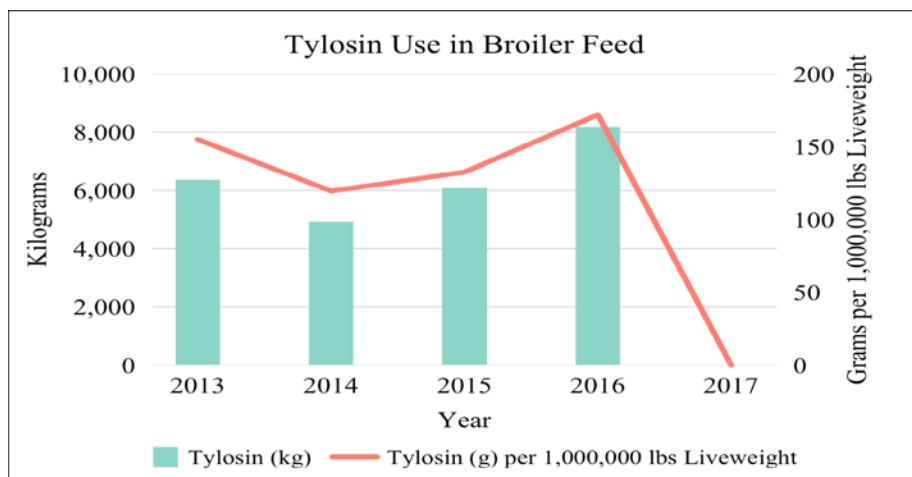
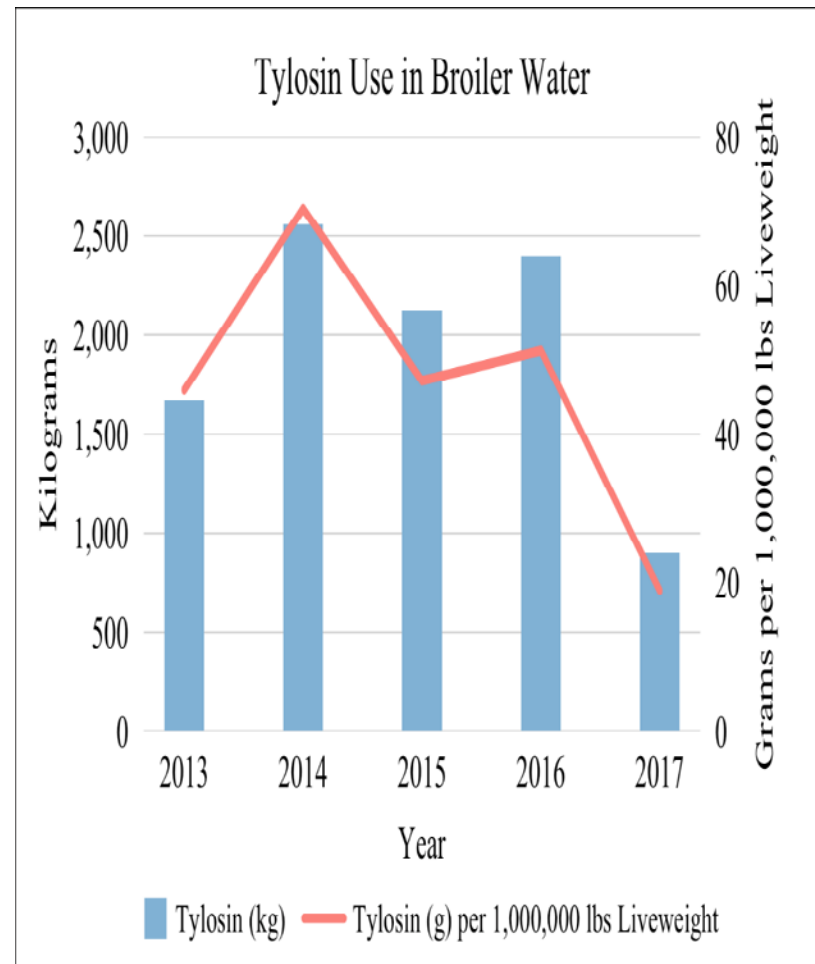
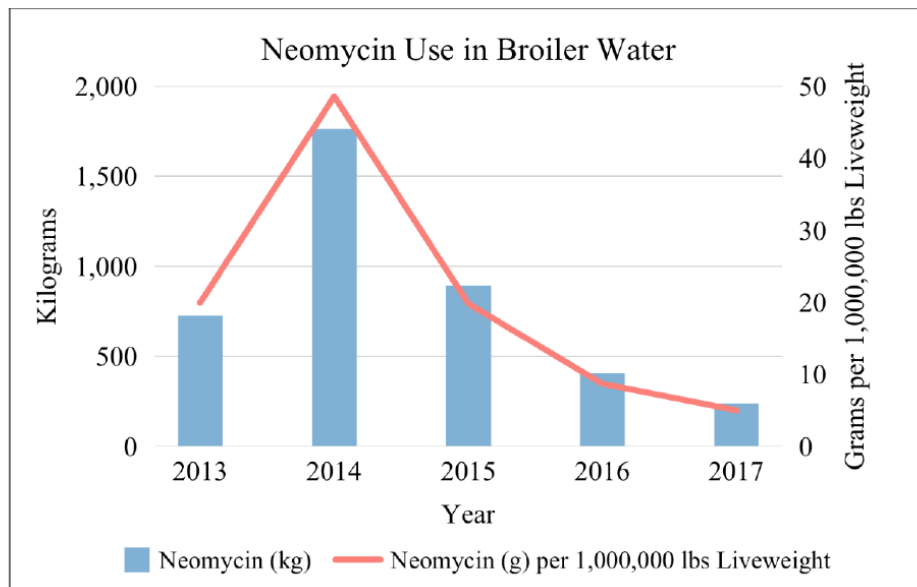
Broiler Hatchery Antimicrobial Use, 2013-2017

- Per 100,000 birds placed, broiler hatchery use of gentamicin decreased ~74% between 2013 and 2017
- Hatchery use of penicillin dropped to 0 in 2017
- The percentage of broiler chicks that received any antimicrobials in the hatchery decreased from ~93% to 17% between 2013 and 2017

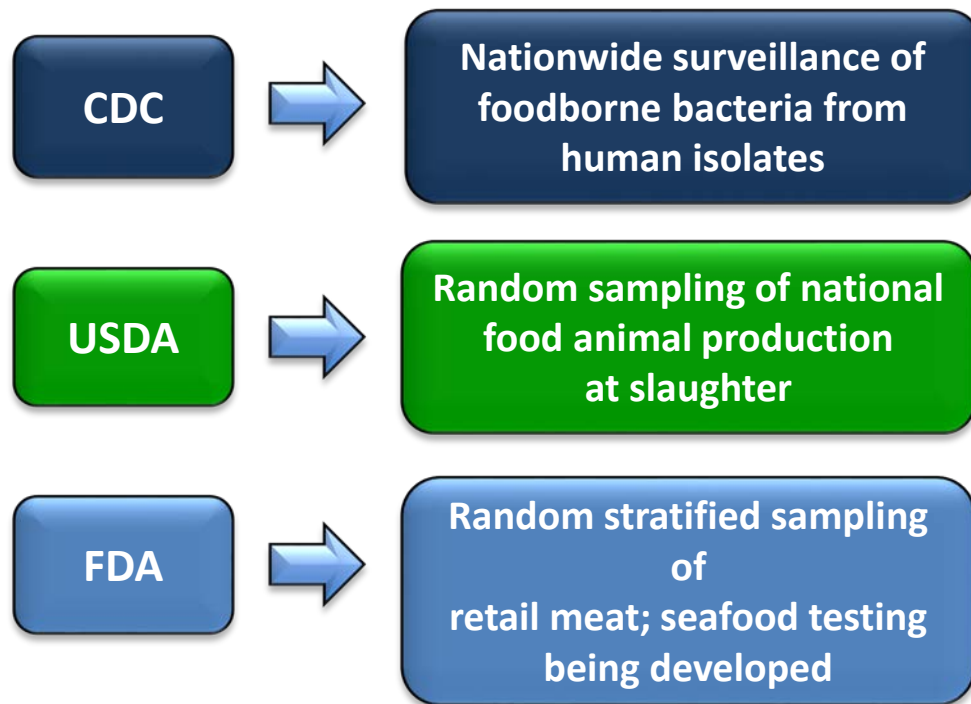
Source: Singer RS and Porter LP
https://mindwalkconsultinggroup.com/wp-content/uploads/2019/08/Poultry_On-Farm_Antimicrobial_Use_Report_2013-2017.pdf



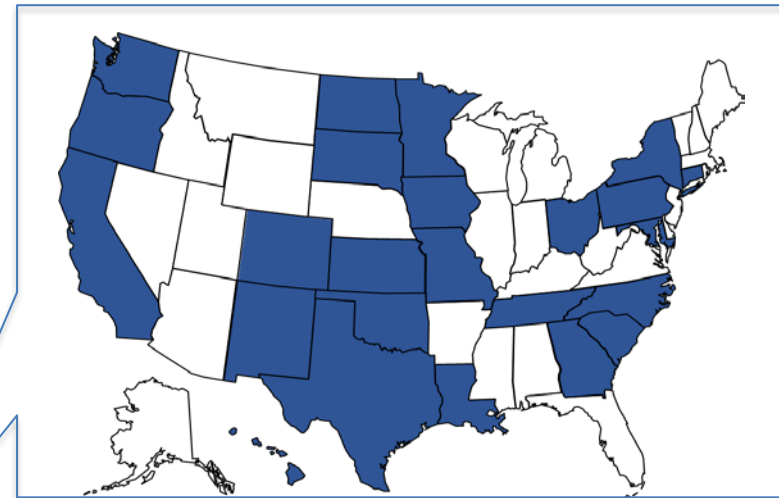
Examples



Antimicrobial Resistance Data



FDA Monitoring of AMR in Retail Meats: 23 States in 2020



Sampling: 49 packages per month

- ✓ 10 retail chicken
- ✓ 10 ground turkey
- ✓ 10 ground beef
- ✓ 10 pork chops
- ✓ 3 salmon
- ✓ 3 shrimp
- ✓ 3 tilapia

Total = 13,524 meats in 2020

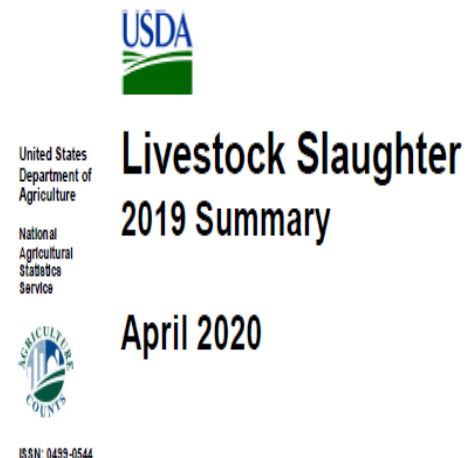
Microbiology

- ✓ Retail meat: *Salmonella*, *Campylobacter*, *E. coli*, *Enterococcus*
- ✓ Seafood: *Vibrio*, CRE, *Aeromonas*

Animal Health/Animal Populations



[Feedlot Health 2021 Study](#)



Assessment Report

- Intent is to describe some of the available information on antimicrobial use and resistance, including:
 - AMU data captured from FDA cooperative agreements
 - USDA AMU survey data
 - Antimicrobial sales data and an appropriate method for applying a denominator to available data
 - Animal population/health data
 - NARMS resistance data
 - AMR in animal pathogens data
- Target for publication: Early 2021

Questions?



