8TH ANNUAL NIAA ANTIBIOTIC SYMPOSIUM
NOVEMBER  13-15, 2018

THE CHALLENGE & OPPORTUNITIES OF
ANTIBIOTIC USE DATA IN ANIMALS

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HOW AMERICA LOST FAITH IN EXPERTISE

“TO REJECT THE ADVICE OF EXPERTS IS TO ASSERT AUTONOMY, A WAY FOR AMERICANS TO DEMONSTRATE THEIR INDEPENDENCE FROM NEFARIOUS ELITES.”

source: www.foreignaffairs.com/articles/united-states/2017-02-13/how-america-lost-faith-expertise
USE OF ANTIBIOTICS IN ANIMALS VS. HUMANS

• USE MANY OF THE SAME DRUGS IN HUMANS AND ANIMALS

• COMBATTING BACTERIAL DISEASES THAT CAN BE SIMILAR (BUT ALSO CAN BE QUITE DIFFERENT)

• DECISIONS TO USE THE MAJORITY OF ANTIBIOTICS IN BOTH HUMAN AND ANIMAL HEALTH HAVE PROFESSIONAL OVERSIGHT

• HEALTH OUTCOME OBJECTIVES ARE SIMILAR

• THERE ARE UNINTENDED CONSEQUENCES OF NOT USING ANTIBIOTICS (HH & AH – HUMAN/ANIMAL SUFFERING & QUALITY OF LIFE; AH – FOOD SAFETY, ETC.)

• RECORD SYSTEMS AND ECONOMICS (ESPECIALLY IN FOOD ANIMALS) ARE RARELY SIMILAR
ANIMAL HEALTH DIVERSITY

• GEOGRAPHIC DIVERSITY AMONG AND WITHIN SPECIES
• AGE DIVERSITY BETWEEN SPECIES
• PRODUCTION SIZE DIVERSITY AMONG AND WITHIN SPECIES
• VETERINARIAN INFLUENCE DIVERSITY – HOW DO THEY FLOURISH IN THEIR PROFESSION
DATA USE AND DATA ACCESS

- HUMAN HEALTH - HOSPITALS AND TREATMENT FACILITIES HAVE MORE DEFINED DATA CAPTURE SYSTEMS AND INCENTIVES TO RECEIVE PAYMENTS (e.g. Medicare/Medicaid)
- ANIMAL HEALTH – AGRICULTURE PROTEIN PRODUCTION SYSTEMS ARE MANAGED AS A HERD/GROUP USING POPULATION MEDICINE DECISIONS
- DATA CAPTURE PROCESSES ARE VERY DIFFERENT WHEN COMPARING AH TO HH.
- INCENTIVES TO CAPTURE INDIVIDUALLY IDENTIFIED ANTIBIOTIC USE DATA ARE IN PLACE IN MOST HOSPITAL SETTINGS GLOBALLY … MUCH LESS SO IN AH!
NARMS
POULTRY INDUSTRY PERSPECTIVE

RANDALL SINGER, DVM, MPVM, PHD
PROFESSOR OF EPIDEMIOLOGY
Why Collect Antibiotic Use Data?

• We need to more accurately characterize how we are using antibiotics and that these uses are responsible
  – This does not mean that we should all be No Antibiotics Ever, but rather there should be transparency regarding usage and indication

• Poultry industry has responded by developing a program to collect industrywide data regarding on-farm antibiotic use
2016 “On-Farm NARMS”

• Goal: collect on-farm samples and antimicrobial use data from broiler farms throughout the U.S.
• Participation is voluntary and anonymous
• Sample kits are sent to each complex for each flock
  – Bootsocks and litter are collected and shipped overnight
  – Culture for *Salmonella* and *Campylobacter*
  – DNA extraction from litter
• 28 complexes from 13 companies
• 115 farms, 334 total samplings
NARMS – General Comments

• Concerns expressed by the poultry industry
  – How will livestock and poultry producers be protected given that NARMS is non-regulatory?
  – How will producer information be blinded and protected?
  – Could cecal isolates be used in outbreak investigations and be subject to regulatory consequences?
APHIS REPORT TO THE
PRESIDENT’S ADVISORY COMMITTEE ON
COMBATING ANTIBIOTIC RESISTANT BACTERIA
PUBLIC MEETING #8
JANUARY 25, 2018

LARRY M. GRANGER D.V.M.
U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
VETERINARY SERVICES
Hallmarks of a NAHMS National Study

- National in scope
- Collaborative
- Voluntary
- Privacy
- Scientifically based and statistically valid
CONFIDENTIAL

Confidential Information Protection and Statistical Efficiency Act (CIPSEA)
Take Home Messages

• Increased record keeping is helping improve stewardship across the industry

• Data at multiple hierarchical levels are needed
  – Ecological and atomistic/individualistic fallacy

• Biomass denominator is unlikely to improve the utility of the sales data
  – Has the potential to be disruptive to ongoing, well-designed, and robust data collection efforts
Take Home Messages

• NARMS program should remain focused on public health and the long-term trends of antibiotic resistance

• Suggest separating NARMS data from other data, as NARMS should not be a data collection effort for regulatory purposes

• Changes to antibiotic administrations in animal agriculture (GFI 209 and 213, VFD) have led to greater veterinary oversight and greatly improved record keeping
  – Helping to improve stewardship across the industry
CONCLUDING REMARKS

1. COLLECTING ANTIBIOTIC USE DATA IN AH INVOLVES MULTIPLE SPECIES WITH DIFFERENT ROUTES OF SALES AND DISTRIBUTION PATHWAYS. THESE ARE NOT DATA LINKED ENTERPRISES AND INVOLVE MANY PRIVACY AND LIABILITY RISK CHALLENGES.

2. MANY ANTIBIOTICS USED IN AH ARE ANTIBIOTICS OF LESSER IMPORTANCE IN HH (e.g. Tetracycline)

3. SOME ANTIBIOTICS USED IN AH CURRENTLY HAVE MINIMAL RECORD KEEPING PATHWAYS (e.g. OTC injectables like penicillin)

4. DECISIONS AND RESOURCES IN AH FOR OPTIMIZED ANTIBIOTIC STEWARDSHIP NEEDS TO FOCUS ON BEST JUSTIFIED DECISIONS FOR USE OF ANTIBIOTICS (NOT JUST ON REDUCED USE).

5. ANTIBIOTIC STEWARDSHIP DECISIONS SHOULD BE SCIENCE BASED AND FOCUSED ON IMPROVING AMR ISSUES IN HH (NOT JUST ACROSS THE BOARD REDUCTION THAT IS HAVING UNINTENDED CONSEQUENCES IN AREAS OF ANIMAL CARE AND WELFARE AND LOSS OF MARKETING OPTIONS).