

# ***Antimicrobial Resistance and One Health: Educational Needs***

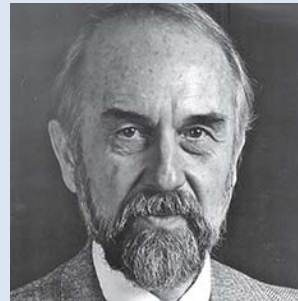


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Associate Professor and Director

# ***Antimicrobial Resistance and One Health: Educational Needs***

## **Education**

- Provides knowledge
- Develops competencies
- Changes awareness, attitudes, and professional behavior



Calvin W. Schwabe  
DVM, MPH, ScD  
UCD SVM Faculty  
1966-1991

*Dr. Calvin Schwabe –  
“One Medicine”*

Modern advocate of One Medicine  
“The practice of veterinary  
medicine is directly related to  
man’s well-being in a number  
of ways.” (1964)

# ANTIBIOTIC RESISTANCE THREATS in the United States, 2013

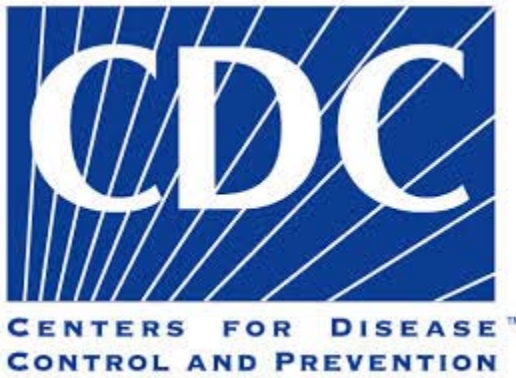


U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention



**UC DAVIS**  
VETERINARY MEDICINE

VETERINARY MEDICINE TEACHING  
and RESEARCH CENTER



## ***The Problem***

- Each year in the U.S.
  - 2 million patients with bacterial infections that are resistant to antimicrobials
  - At least 23,000 deaths
  - \$35 billion in extra health care costs

# ***Antimicrobial Stewardship***

(Educational Goal)

- Refers to the actions veterinarians and other health care professionals take individually and within their professions to *preserve the effectiveness of antimicrobials* through *conscientious oversight* that provides *responsible medical decision-making and management* of our precious antimicrobial resources.

# ***Antimicrobial Stewardship***

- **Related concept:** *Prudent use of antimicrobials*
  - Prudent use should follow after a decision is made to use antimicrobials
- Also referred to as *“judicious use”*
  - *Optimal selection* of drug, dose and duration of **antimicrobial therapy**, along with *reduction of the inappropriate and excessive use (stewardship)* as a means of *slowing the emergence of antimicrobial resistance*

# *Examples of Educational Milestones, Needs, & Opportunities*



AAVMC / APLU National Action Plan to Address Antibiotic Resistance  
Antimicrobial Resistance Core Competencies Working Group

»» AMR LEARNING OUTCOMES



AAVMC / APLU National Action Plan to Address Antibiotic Resistance  
Antimicrobial Resistance Core Competencies Working Group

## »»» AMR LEARNING OUTCOMES

### *Part of the AAVMC/APLU National Action Plan to Address Antibiotic Resistance*

- *6 different categories*
  - *Healthy Animals*
  - *Global Impact*
  - *Antimicrobial Stewardship*
  - *Antimicrobial Drugs and Resistance*
  - *Roles and Relationships*
  - *Critical Analysis*



AAVMC / APLU National Action Plan to Address Antibiotic Resistance  
Antimicrobial Resistance Core Competencies Working Group

## »»» AMR LEARNING OUTCOMES

- ***3 different educational levels***
  - ***Youth (e.g., 4-H, FFA, others)***
  - ***Animal Science undergraduate & graduate students***
  - ***Veterinary medical students***



*Examples of Educational Milestones, Needs, & Opportunities*

## Veterinary Feed Directive –

requires veterinary oversight and authorization for any approved therapeutic uses of medically-important antimicrobials in feed for food-producing animals (Effective January 1, 2017)

“Caution: Federal law restricts medicated feed containing this **veterinary feed directive drug** to use by or on the order of a licensed veterinarian.”

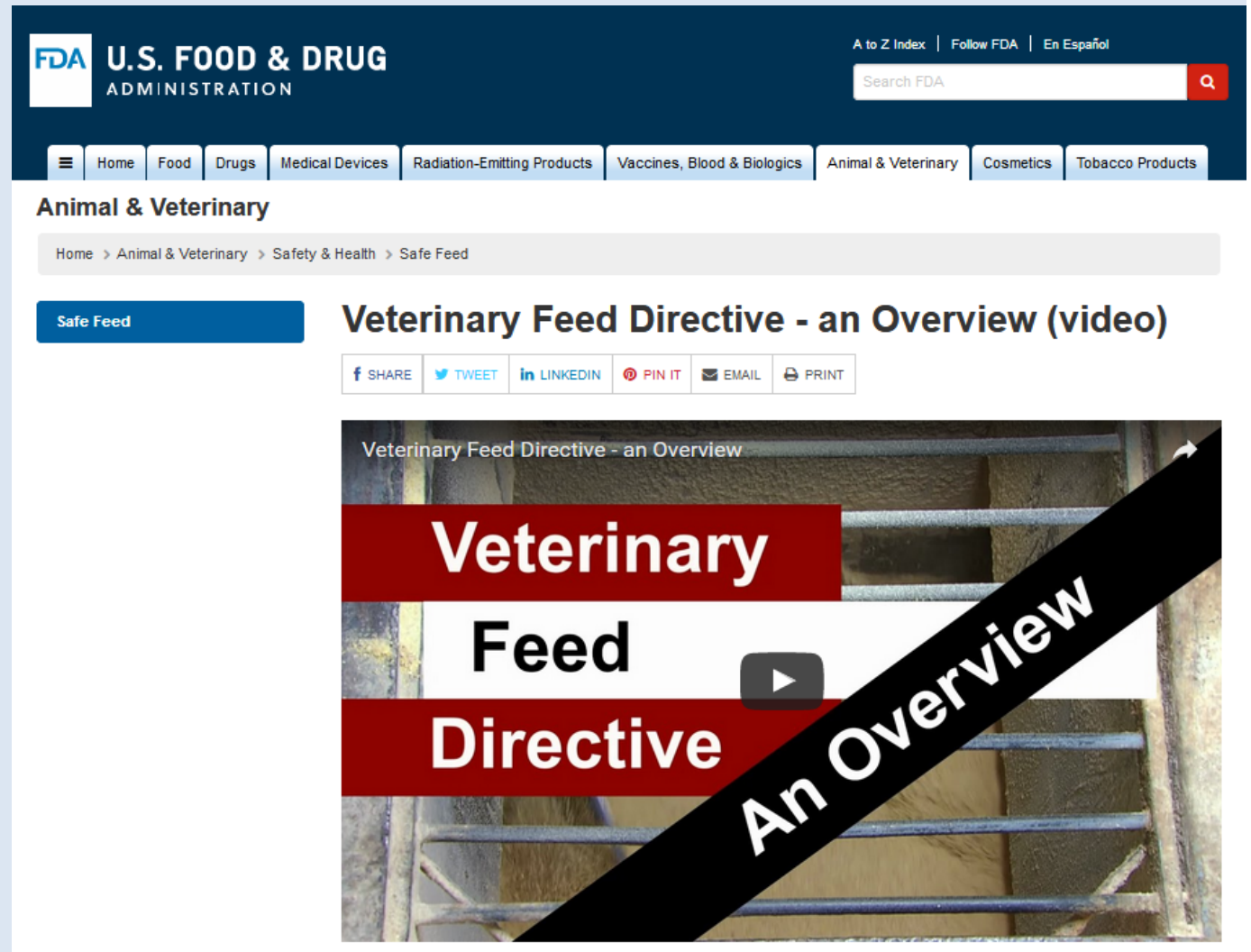
### **Non-therapeutic uses:**

- ❖ **Growth promotion/feed efficiency – No longer permitted by FDA for medically-important antimicrobials**

# Examples of Educational Milestones, Needs, & Opportunities


## Continuing Education Needs:

- Feed mills
- Feed distributors
- Veterinarians
- Animal owners



The screenshot displays the FDA website's navigation and content. At the top, the FDA logo and 'U.S. FOOD & DRUG ADMINISTRATION' are visible. A search bar is located on the right. Below the navigation menu, the 'Animal & Veterinary' section is highlighted. The breadcrumb trail reads 'Home > Animal & Veterinary > Safety & Health > Safe Feed'. A blue button labeled 'Safe Feed' is present. The main heading is 'Veterinary Feed Directive - an Overview (video)'. Below this heading are social sharing options: SHARE, TWEET, LINKEDIN, PIN IT, EMAIL, and PRINT. The video player area shows a play button and a large black diagonal banner with the text 'An Overview' in white. The video title 'Veterinary Feed Directive - an Overview' is also visible at the top of the video frame.

## ***Examples of Educational Milestones, Needs, & Opportunities***



**APHIS**  
Veterinary Services  
Center for Epidemiology and Animal Health

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**Proposed Initiatives from the  
USDA Antimicrobial Resistance  
Action Plan**

- Surveillance studies on antimicrobial usage & resistance
- Needed to inform stakeholders and policy makers
- Has not been funded

- **Address recognized knowledge gaps in AMR and develop effective, practical mitigation strategies to help prolong the effectiveness of antibiotics for animals and humans.**

## ***Examples of Educational Milestones, Needs, & Opportunities***

# **F**ood **A**nimal **R**esidue **A**voidance **D**atabank

(A component of the Food Animal Residue Avoidance & Depletion Program)



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- Provides science-based expert advice to help mitigate unsafe chemical residues (including antimicrobials and other drugs) in products derived from food animals.
  - Supports judicious use of antimicrobials
  - Essential to meet FDA requirements for legal ELDU (extra-label drug use) in food animals for extended withholding intervals
- Collaborative effort: University of California-Davis, University of Florida, Kansas State University and North Carolina State University

# ***Antimicrobial Resistance and One Health: Educational and Outreach***

*... “there will need to be a greater emphasis on stewardship programs, education and training to ensure our efforts to address antibiotic resistance are successful.”*

## **Addressing Antibiotic Resistance**

A REPORT FROM THE JOINT APLU | AAVMC TASK FORCE  
ON ANTIBIOTIC RESISTANCE IN PRODUCTION AGRICULTURE



# ***Antimicrobial Resistance and One Health: Educational and Outreach***

## AAVMC & APLU Legislative Briefing **Antimicrobial Resistance and One Health**

Thursday, March 23, 2017, Noon – 1:30 p.m.  
Russell Senate Office Building, Room 385

Learn more about the looming  
public health threat of antimicrobial  
resistance from leading experts.

MODERATOR: Barbara Ekwall, Senior Liaison  
Officer, Food and Agriculture Organization  
of the United Nations (FAO)

- Dr. Terry Lehenbauer, Associate Professor,  
Population Health and Reproduction, University  
of California, Davis, will discuss how veterinary  
education is responding to the AMR issue.
- Hellen Gelband, Associate Director at the Center  
for Disease Dynamics, Economics and Policy, will  
discuss the public policy implications of AMR.
- Dr. Amelia Woolums, Professor, Department of  
Pathobiology and Population Medicine, Mississippi  
State University, will discuss the research  
that needs to be done in the area of AMR.



**Addressing  
Antibiotic Resistance**

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