

Antimicrobial Use and Regulations

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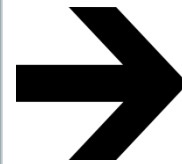
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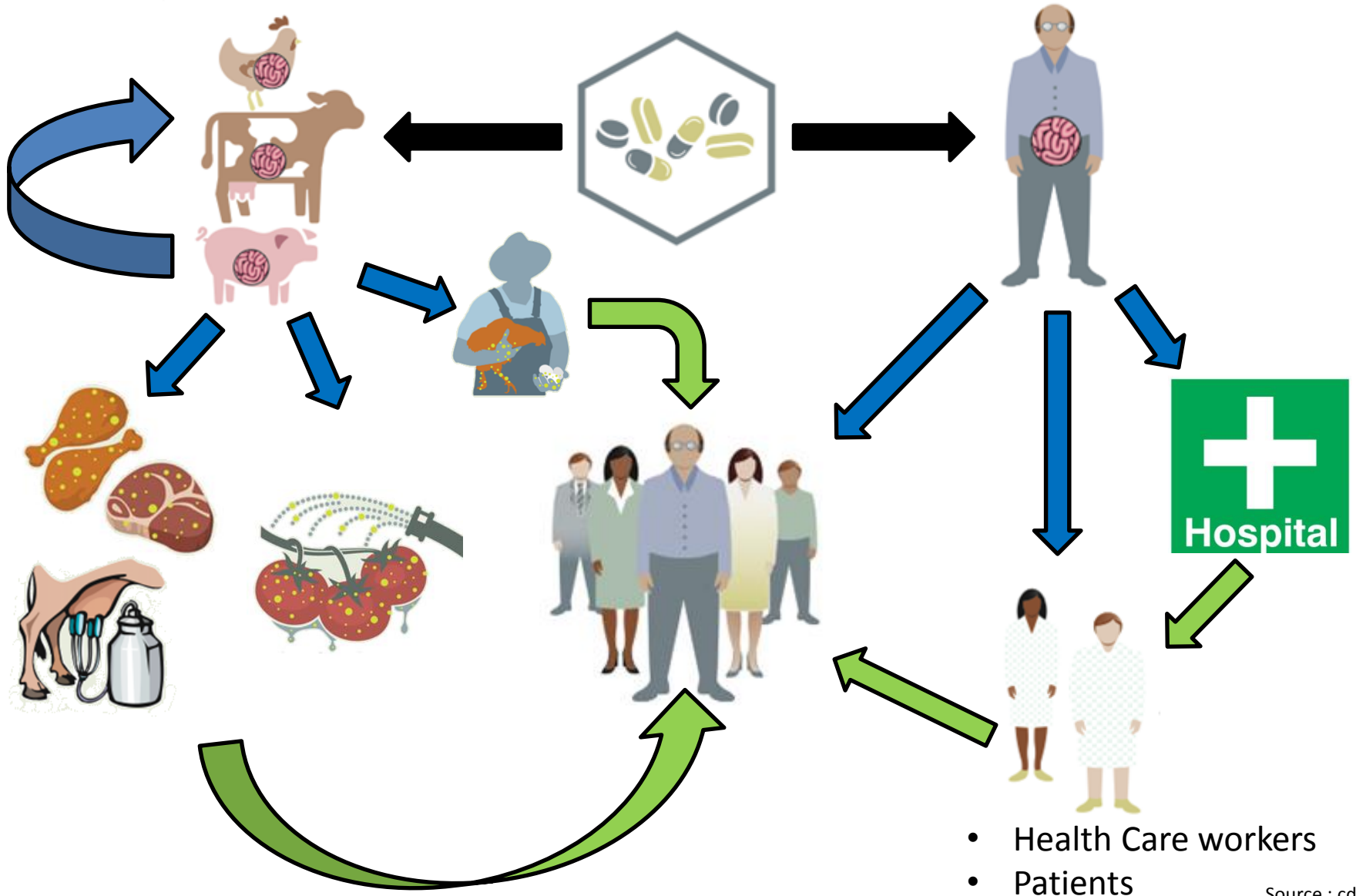


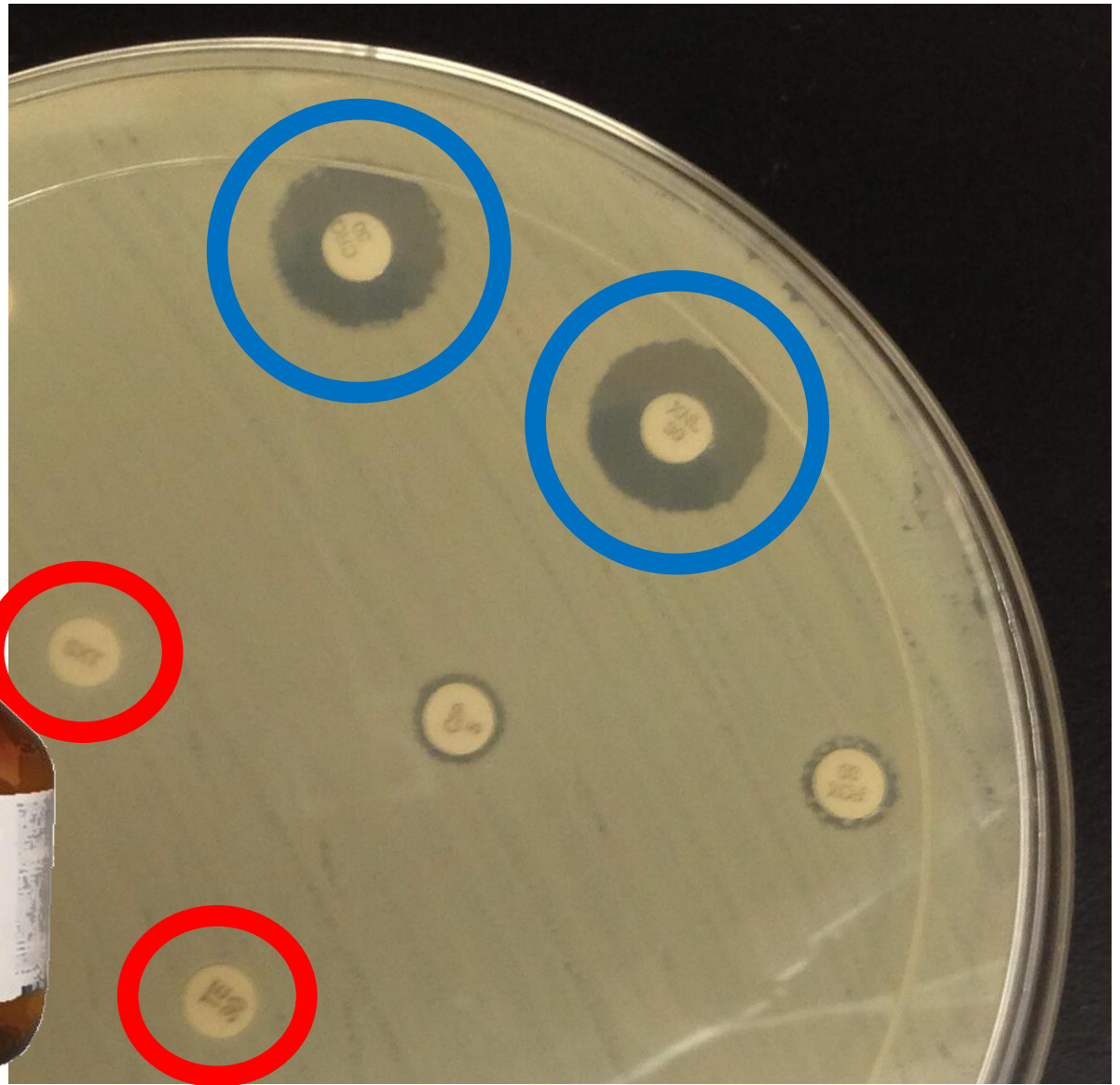
Selection of Antimicrobial Resistance





Antimicrobial Resistance Dissemination



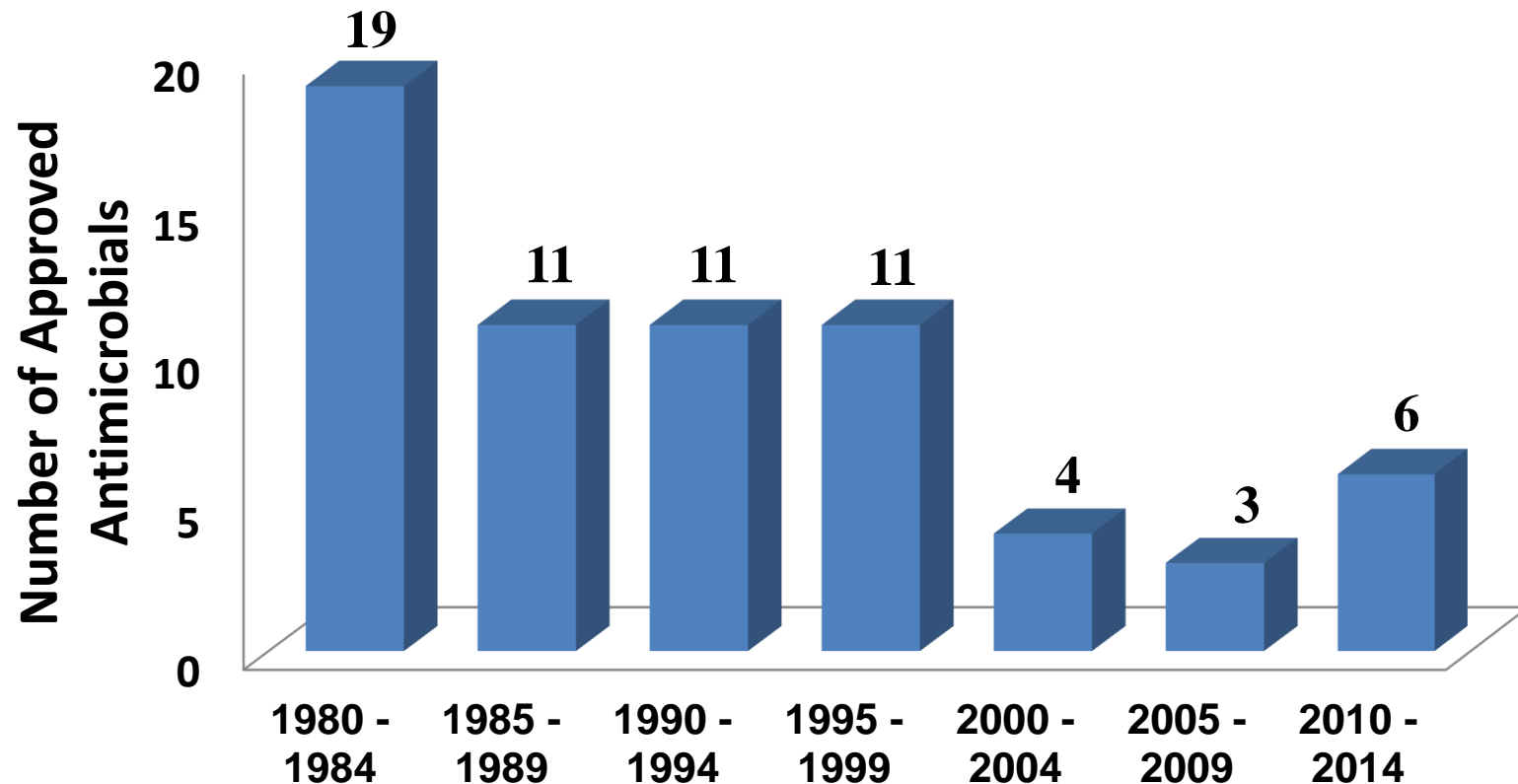


Culture & Sensitivity



Future of Antimicrobial Resistance

New Antimicrobials per 4 year period



(Ventola, C.L., 2015)



Antimicrobial Resistance & Public Concern

Most burger chains fail on annual antibiotics report card

By Naomi Thomas, CNN

🕒 Updated 6:26 AM ET, Thu October 18, 2018

CNN, 18 Oct 2018



PHOTO: GARY/GETTY IMAGES



Antimicrobial Resistance & Public Concern

CHAIN REACTION IV: BURGER EDITION



How Top Restaurants Rate on Reducing
Antibiotic Use in Their Meat Supply Chains
OCTOBER 2018

Friends of the Earth NRDC Consumer Reports CENTER FOR FOOD SAFETY FACT U.S. PIRG

Chain Reaction IV Burger Chain Scorecard

A	SHAKE SHACK 
A-	
B+	
B	
B-	
C+	
C	
D	
D-	
F	                     

“The authors defined a “good” antibiotics use policy as follows: A publicly available company policy that prohibits the use of all antibiotics, or antibiotics in classes used in human medicine, for growth promotion or disease prevention. Treatment of sick animals and temporary use to control an identified disease outbreak are acceptable.”



Antimicrobial Drug Use & Legislation

Antimicrobials USE & Disease:

- **Disease Prevention:** antimicrobial use when a **known disease risk is present**. Drug can be administered even if **none of the animals in the herd are exhibiting clinical signs** of the disease.
- **Disease Control:** antimicrobial use to decrease the spread of disease when a portion of the animals in the herd have **shown signs of disease** and the clinically sick are being treated (usually individually).
- **Disease Treatment:** antimicrobial use to treat animals that are exhibiting signs of disease.



Antimicrobial Drug Use & Legislation

AMU in Livestock - Legislation

New Laws on Drug Use

Veterinary Feed Directive (VFD)

> Whole USA territory

California Senate Bill 27 (SB 27)

➤ California State (California Food and Agriculture Code 14400-14408)



New Antimicrobial Legislation

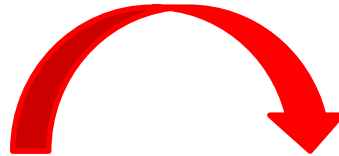
Veterinarian-Client-Patient-Relationship (VCPR)

1. “The client has **authorized** the veterinarian to assume responsibility for making **medical judgments** regarding the health of the animal, including the need for medical treatment.”
2. “The veterinarian **has sufficient knowledge of the animal(s)** to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s).”
3. “The veterinarian has assumed **responsibility** for making medical judgments regarding the health of the animal and has **communicated with the client** a course of treatment appropriate to the circumstance.”



Antimicrobial Drug Use & Legislation

Veterinary Feed Directive (VFD) (21 CFR Parts 514 and 558)



- **Over-the-counter** **VFD - December 2016**

Medically important - Water and Feed

- *“Extralabel use (ELU) of medicated feed, including VFD feed, is prohibited by statute.” - **no allowance for minor species at this time***





Senate Bill 27

Senate Bill 27 (SB 27)

1. Regulate Antimicrobial Use (Jan, 2018)
2. Stewardship Guidelines
3. Surveys and Studies





Senate Bill 27

1. Regulate Antimicrobial Use (in addition to VFD)

- **Over-the-counter** *RX* – January 1, 2018

Injectable, Water, or Feed

Medically important Drug

- Applies to Livestock, but not bees or species kept as pets (dogs, cats, pet birds)
- Limited to medically important antibiotics (GFI 152)
- Veterinary Prescription (RX) through a valid VCPR

ANTIBIOTIC LIVESTOCK DRUGS IN CALIFORNIA

Not Medically Important No prescription required	Medically Important Prescription or VFD required as of January 1, 2018	
<p>Aminocoumarins <i>Novobiocin (only available in combination with a MIAD in California)</i></p> <p>Glycolipids <i>Bambermycins (Gainpro 10, Flavomycin)</i></p> <p>Ionophores <i>Laidlomycin***</i> <i>Lasalocid (Avatec, Bovatec)</i> <i>Monensin (Rumensin, Coban)</i> <i>Narasin (Maxiban, Monteban)</i> <i>Salinomycin (Sacox, Bio-cox)</i></p> <p>Pleuromutilins <i>Tiamulin (Denagard, Triamulox)</i></p> <p>Polypeptides <i>Bacitracin (Pennitracin, BMD)</i></p> <p>Quinoxalines <i>Carbadox (Mecadox)</i></p>	<p>Aminoglycosides <i>Dihydrostreptomycin***</i> <i>Gentamicin** (Garacin, Gen-Gard)</i> <i>Hygromycin B** (Hygromix)</i> <i>Neomycin** (Neo-Sol 50, Neovet)</i> <i>Spectinomycin* (L-S50, Spectlinx-50)</i></p> <p>Amphenicols <i>Florfenicol*** (Nuflor)</i></p> <p>Cephalosporins <i>Ceftiofur*** (Naxcel, Excede, Excenel)</i> <i>Cephapirin (Today, Tomorrow)</i></p> <p>Diaminopyrimidines <i>Ormetoprim (Rofenaid)</i></p> <p>Fluoroquinolones <i>Danofloxacin***</i> <i>Enrofloxacin*** (Baytril)</i></p> <p>Lincosamides <i>Lincomycin** (Lincosol, Lincomix)</i> <i>Pirlimycin***</i></p> <p>Polymyxins <i>Polymyxin B (Terramycin)</i></p>	<p>Macrolides <i>Erythromycin** (Gallimycin)</i> <i>Gamithromycin*** (Zactran)</i> <i>Tildipirosin***</i> <i>Tilmicosin (Pulmotil AC)</i> <i>Tulathromycin*** (Draxxin)</i> <i>Tylosin** (Tylan, Tylovet, Tyloved)</i> <i>Tylvalosin (Aivlosin)</i></p> <p>Penicillins <i>Amoxicillin***</i> <i>Ampicillin*** (Polyflex)</i> <i>Cloxacillin***</i> <i>Penicillin** (Pennchlor, R-Pen, Bactracillin)</i></p> <p>Streptogramins <i>Virginiamycin** (V-max, Stafac)</i></p> <p>Sulfonamides (Sulfas) <i>Sulfadimethoxine** (Salfadived, Albon, Sulfamed)</i> <i>Sulfamerazine** (Poultrysulfa)</i> <i>Sulfamethazine** (Poultrysulfa, Aureo)</i> <i>Sulfaquinoxaline** (Sul-Q-Nox, Poultrysulfa)</i></p> <p>Tetracyclines <i>Chlortetracycline** (ChlorMax, Pennchlor)</i> <i>Oxytetracycline** (LA-200, Duramycin, Bio-Mycin)</i> <i>Tetracycline** (Duramycin, Tetramed)</i></p>

* Feed/water drugs must follow FDA VFD and water prescription requirement as of 1/1/2017.

** May be used in feed

*** Federally labeled as prescription-only (regulatory restrictions unchanged by SB 27)



Senate Bill 27

2. Stewardship Guidelines

- “Best management practices for veterinarians and livestock owners and employees”
- Promote responsible/judicious use of antibiotics
- Limit unnecessary use of antimicrobials
- Antibiotics alternatives that are supported by scientific evidence





- Gather information on management practices (including health outcomes), antibiotic sales and use, and resistance in bacteria
- **Confidentiality protected (SB 27 14407)**





Judicious use of Antimicrobials

Judicious use of antimicrobials in Livestock



Questions / Comments



Resources: cdfa.ca.gov/ahfss/aus/