

Animal Antibiotic Use: History, Battles, Predictions

Maryn McKenna, MSJ

Contributor, National Geographic

*Senior fellow, Schuster Institute for Investigative Journalism,
Brandeis University*

for:

“Antibiotic Resistance: An Emerging Global Threat”

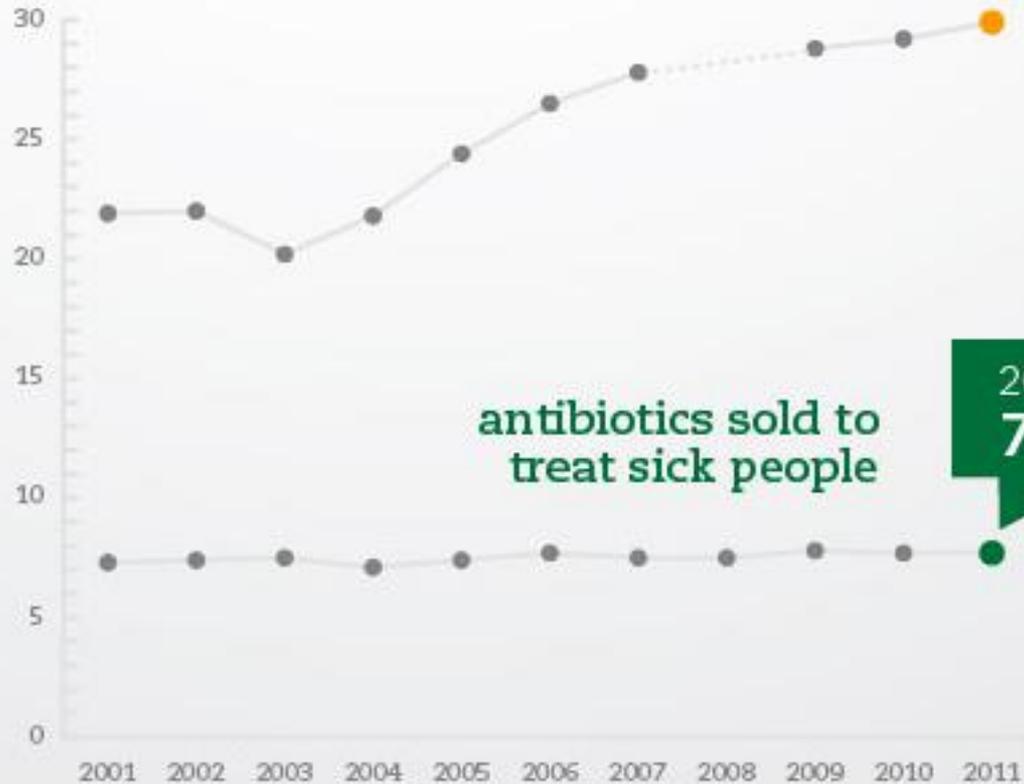
UN Headquarters, 15 June 2015

Antibiotics Sales Infographic

millions of
pounds
sold

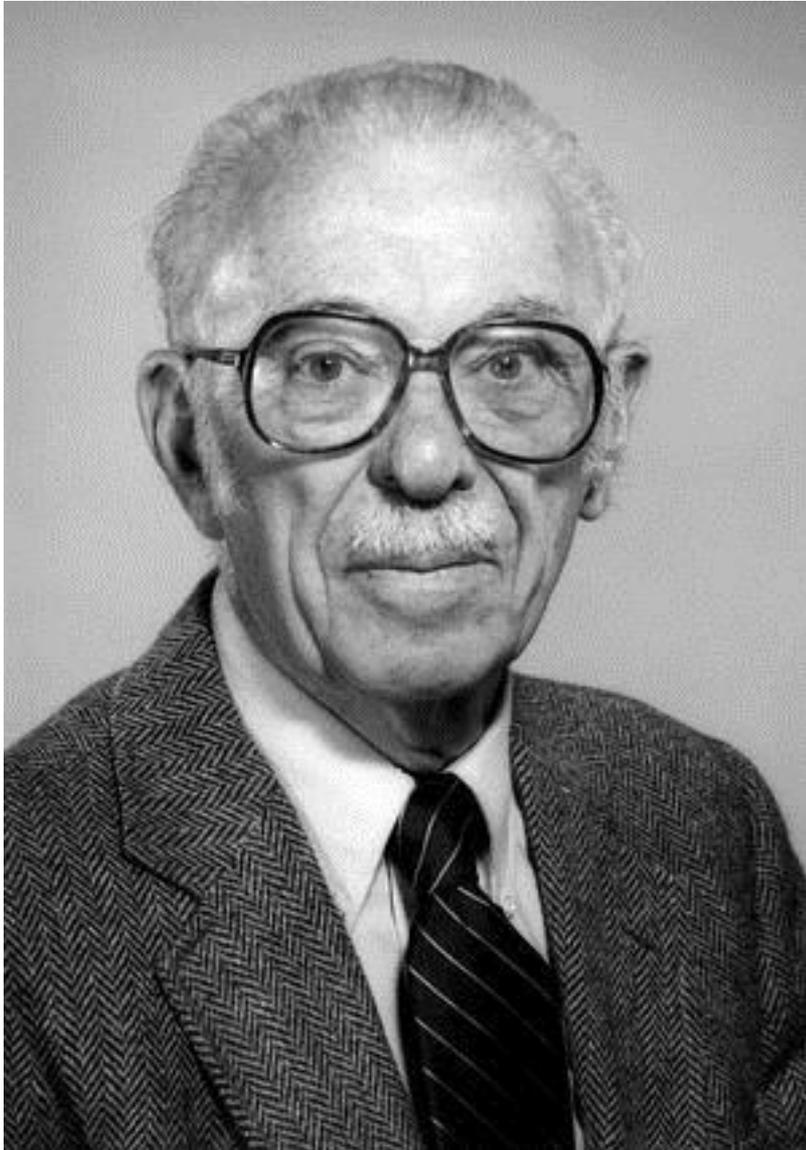
antibiotics sold for meat
and poultry production

2011
29.9M



antibiotics sold to
treat sick people

2011
7.7M



“The chicks receiving aureomycin fermentation grew more rapidly than control chicks receiving liver extract.

“The fermentation residue supplied... an unidentified growth factor that made the chicks grow more rapidly than did a complete diet.”

- *Thomas H. Jukes, inventor of growth promoters; Reviews of Infectious Diseases, 1985*

“Widespread use of antibiotic feed supplements may induce the establishment of strains of organisms resistant to their action.

“The least harmful result would be the loss of efficiency of antibiotics as growth promoters.

“A more disastrous consequence might be the development of resistance in pathogens against which antibiotics are at present the only means of defense.”

- M.E. Coates, Nottingham Easter School in Agricultural Science, 1962

- 1961: milk drinkers develop penicillin allergies
- 1963: dairy farmers say they can no longer make cheese because penicillin in milk kills their bacterial cultures
- 1967: 14 UK children die and 200 are sickened by drug-resistant *E. coli*

“We have concluded that the administration of antibiotics to farm livestock, particularly at sub-therapeutic levels, poses certain hazards to human and animal health.

“We are satisfied that these hazards can largely be avoided and should not therefore be allowed to continue.”

- Swann report, 1969

**DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE**

Food and Drug Administration

[Docket No. 77N-0230]

**DIAMOND SHAMROCK CHEMICAL CO.,
ET AL.**

**Penicillin-Containing Premixes;
Opportunity for Hearing**

AGENCY: Food and Drug Administration.

ACTION: Notice.

SUMMARY: This is a notice of opportunity for a hearing on the proposal by the Director of the Bureau of Veterinary Medicine to withdraw approval of new animal drug applications (NADA's) for all penicillin-containing premixes intended for use in animal feed on the grounds that (1) new evidence shows that the penicillin-containing products have not been shown to safe for sub-therapeutic use as required by section 512(e) (1) (B) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 360b(e) (1))

— *Federal Register*
Aug. 30, 1977

- “livestock MRSA” (*Voss, EID, 2005*)
- ESBLs in meat (*Johnson, EID, 2007; Overdevest, EID, 2011*)
- ExPEC UTIs: 6mm-8mm/year in the US (*Vincent, EID, 2010*)
- AMR hospitalizations/deaths: 1518 deaths, 67,236 hospital days/year in EU (*Collignon, EID, 2013*)

“No conclusive scientific studies have been offered demonstrating the use of antibiotics on farms contributes significantly to an increase in human resistance.”

- *American Feed Institute, American Meat Institute, Animal Health Institute et al. (20 signatories), letter to the White House, Aug. 14, 2009*

- Predicted largest consumption of agricultural antibiotics by 2030:
 - China (30% global antibiotic volume)
 - USA
 - Brazil
 - India
 - Mexico
- Largest increases in agricultural antibiotic use, 2015 to 2030:
 - Myanmar (205% increase)
 - Indonesia (202%)
 - Nigeria (163%)
 - Peru (160%)
 - Vietnam (157%)

PNAS, Van Boeckel, 2015

For more:

- marynmckenna.com
- marynmckenna@gmail.com
- twitter.com/marynmck
- phenomena.nationalgeographic.com/blog/germination/