

FACT SHEET

WORKERS SUFFER WHEN MEAT PRODUCERS OVERUSE ANTIBIOTICS

The meat industry is unnecessarily pumping antibiotics into animals raised for food, even when animals are not sick. The more we use antibiotics, the more likely it is that antibiotic-resistant bacteria will thrive and spread. This means that essential medicines will be increasingly likely to fail when we need them most: to treat serious infections and to guard against pathogens during surgeries and other medical procedures. Hard-to-treat infections also mean longer and more costly hospital stays. Right now, at least two million people contract antibiotic-resistant infections in the United States each year, and more than 160,000 die. Those numbers will grow dramatically if we don't take action.

Antibiotic use in livestock contributes to the problem. While the rise of antibiotic-resistant bacteria puts everyone in danger, **workers on farms that regularly use antibiotics, as well as employees of many facilities that handle meat, face substantially higher risks from antibiotic resistance.**

MEAT INDUSTRY WORKERS ARE MORE LIKELY TO:



**BE "COLONIZED"
BY ANTIBIOTIC-
RESISTANT BACTERIA**



**BE SICKENED
BY ANTIBIOTIC-
RESISTANT BACTERIA**



**CARRY ANTIBIOTIC-
RESISTANT BACTERIA
HOME FROM WORK**

MEAT INDUSTRY WORKERS ARE MORE LIKELY TO BE EXPOSED TO ANTIBIOTIC-RESISTANT BACTERIA AND TO CONTRACT ANTIBIOTIC-RESISTANT INFECTIONS

Meat industry workers are regularly exposed to animals and animal waste, raw meat, and infectious bacteria.¹ Scientists and government agencies routinely find antibiotic-resistant bacteria on animals at the time of slaughter and on raw meat in grocery stores.^{2,3} Those bacteria are likely to be resistant to more than one antibiotic. And some can cause dangerous infections in people. For example, studies have shown:

- Nearly half of industrial pig farm workers carried MRSA, an *S. aureus* strain resistant to multiple antibiotics.⁴
- Pig farm workers were six times more likely to carry MRSA than people not regularly exposed to pigs.⁵

- Certain bacteria carried by slaughterhouse workers were resistant to over 2.5 more classes of antibiotics than the bacteria carried by those workers' neighbors.⁶
- Poultry workers were 32 times more likely to carry resistant *E. coli* than others in their communities.⁷
- People in close proximity to animals and animal waste, such as people living near farms or near fields treated with manure, are more likely to be colonized and infected by antibiotic-resistant bacteria.⁸

This means meat industry workers face higher risks of being colonized with drug-resistant strains of bacteria, as well as being sickened by hard-to-treat infections.

For more information, please contact:

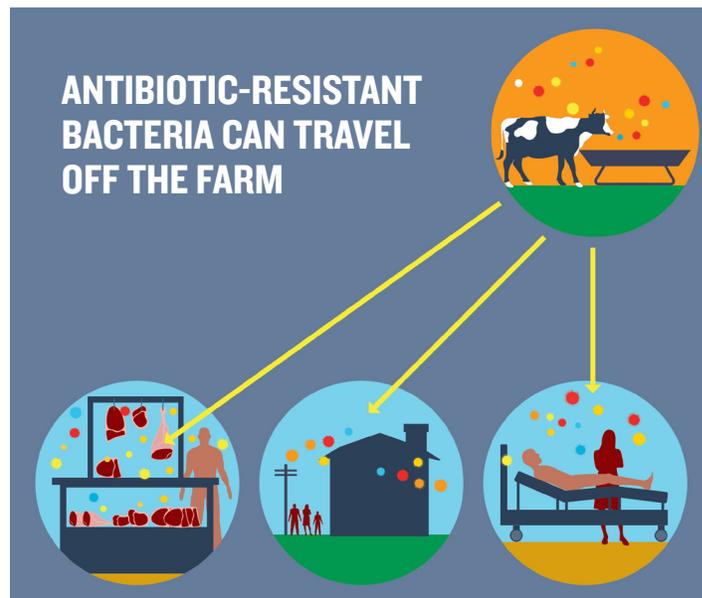
Allison Johnson
aljohnson@nrdc.org

Avi Kar
akar@nrdc.org

www.nrdc.org
www.facebook.com/NRDCFood
www.twitter.com/nrdcfood

MEAT INDUSTRY WORKERS CAN CARRY ANTIBIOTIC-RESISTANT BACTERIA HOME FROM WORK

Antibiotic-resistant bacteria can spread via animals, meat, the environment, and people. They can also “teach” other bacteria to be resistant.⁹ Meat industry workers who have been in contact with antibiotic-resistant bacteria may unwittingly carry and spread antibiotic resistance to their families and communities. For example, pig workers’ children are more highly colonized with MRSA than the general public.^{10,11,12,13} This means that **children of meat industry workers may face increased exposure to antibiotic-resistant bacteria** and be at **greater risk for contracting resistant infections**. This risk is of particular concern because there are fewer safe antibiotic options for children than for adults.¹⁴



Policies that increase transparency about the use of antibiotics in meat production help curb the overuse of antibiotics and promote public health and safety, including for workers in the meat supply chain and their families.

Endnotes

- 1 U.S. Department of Labor, Occupational Safety and Health Administration, “Meatpacking: Hazards and Solutions,” https://www.osha.gov/SLTC/meatpacking/hazards_solutions.html (last accessed May 23, 2019).
- 2 U.S. Department of Agriculture (USDA), National Antimicrobial Resistance Monitoring System, *2011 Annual Animal Report*, 2011, <http://ars.usda.gov/SP2UserFiles/Place/60400520/NARMS/NARMS2011/NARMS%20USDA%202011%20Report.pdf>. T. Alexander et al., “Farm-to-Fork Characterization of *Escherichia coli* Associated With Feedlot Cattle With a Known History of Antimicrobial Use,” *International Journal of Food Microbiology* 137 (2010): 40-48, doi:10.1016/j.ijfoodmicro.2009.11.008. S. Keelara et al., “Longitudinal Study of Distributions of Similar Antimicrobial Resistant *Salmonella serovars* in Pigs and Their Environment in Two Distinct Swine Production Systems,” *Applied and Environmental Microbiology* 17 (2013): 5167-5178, <http://doi:10.1128/AEM.01419-13>.
- 3 U.S. Food and Drug Administration (FDA), National Antimicrobial Resistance Monitoring System, *2011 Retail Meat Report*, 2011, <https://www.fda.gov/media/84889/download>. K. Bhargava and Y. Zhang, “Characterization of Methicillin-Resistant Coagulase-Negative Staphylococci (MRCoNS) in Retail Meat,” *Food Microbiology* 42 (September 2014): 56-60, <http://doi:10.1016/j.fm.2014.02.019>.
- 4 T.C. Smith et al., “Methicillin-Resistant *Staphylococcus aureus* (MRSA) Strain ST398 Is Present in Midwestern U.S. Swine and Swine Workers,” *PLoS One* 4, no. 1 (January 2009): e4258, <http://doi:10.1371/journal.pone.0004258>.
- 5 S.E. Wardyn et al., “Swine Farming Is a Risk Factor for Infection With and High Prevalence of Carriage of Multidrug-Resistant *Staphylococcus aureus*,” *Clinical Infectious Diseases* 61, no. 1 (July 2015): 59-66, <http://doi.org/10.1093/cid/civ234>.
- 6 R.C. Neyra et al., “Multidrug-Resistant and Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Hog Slaughter and Processing Plant Workers and Their Community in North Carolina (USA),” *Environmental Health Perspectives* 122, no. 5 (2014): 471-477, <http://doi.org/10.1289/ehp.1306741>.
- 7 L. Price et al., “Elevated Risk of Carrying Gentamicin-Resistant *Escherichia coli* Among U.S. Poultry Workers,” *Environmental Health Perspectives* 115, no. 12 (December 2007): 1738-1742, <http://doi:10.1289/ehp.10191>.
- 8 J. Casey et al., “High-Density Livestock Operations, Crop Field Application of Manure, and Risk of Community-Associated Methicillin-Resistant *Staphylococcus aureus* Infection in Pennsylvania,” *JAMA Internal Medicine* 173, no. 21 (November 2013): 1980-1990, <http://doi:10.1001/jamainternmed.2013.10408>. M. Carrel et al., “Residential Proximity to Large Numbers of Swine in Feeding Operations Is Associated With Increased Risk of Methicillin-Resistant *Staphylococcus aureus* Colonization at Time of Hospital Admission in Rural Iowa Veterans,” *Infection Control and Hospital Epidemiology* 35, no. 2 (February 2014):190-193, <http://doi:10.1086/674860>.
- 9 Q. Chang et al., “Antibiotics in Agriculture and the Risk to Human Health: How Worried Should We Be?” *Evolutionary Applications* 8, no. 3 (March 2015): 1-8, <http://doi:10.1111/eva.12185>.
- 10 M. Nadimpalli, “Livestock-Associated, Antibiotic-Resistant *Staphylococcus aureus* Nasal Carriage and Recent Skin and Soft Tissue Infection Among Industrial Hog Operation Workers,” *PLoS One* 11, no. 11 (November 2016): e0165713, <http://doi.org/10.1371/journal.pone.0165713>.
- 11 M. Nadimpalli et al., “Persistence of Livestock-Associated Antibiotic-Resistant *Staphylococcus aureus* Among Industrial Hog Operation Workers in North Carolina Over 14 Days,” *Occupational and Environmental Medicine* 72, no. 2 (2015): 90-99, <http://doi.org/10.1136/oemed-2014-102095>.
- 12 A. Morcillo et al., “Prevalence and Characteristics of Methicillin-Resistant *Staphylococcus aureus* in Pigs and Pig Workers in Tenerife, Spain,” *Foodborne Pathogens and Disease* 9, no. 3 (2012): 207-10, doi:10.1089/fpd.2011.0982.
- 13 S.M. Hatcher et al., “The Prevalence of Antibiotic-Resistant *Staphylococcus aureus* Nasal Carriage Among Industrial Hog Operation Workers, Community Residents, and Children Living in Their Households: North Carolina, USA,” *Environ Health Perspectives* 125, no. 4 (April 2017): 560-569, <http://dx.doi.org/10.1289/EHP35>.
- 14 T. Stephenson, “How Children’s Responses to Drugs Differ From Adults,” *British Journal of Clinical Pharmacology* 59, no. 6 (June 2005): 670-673, doi:10.1111/j.1365-2125.2005.02445.x.