GOOD FOR YOU

MEATLESS MONDAY
GLOBAL

GOOD FOR THE PLANET

The Monday Campaigns
The day all health breaks loose.

JOHNS HOPKINS
CENTER *for* A LIVABLE FUTURE

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Introduction

Thanks for your interest in Meatless Monday, a growing global movement that's currently active in 44 countries and over 20 languages.

Reducing meat consumption for just one day a week has a multitude of benefits – for both personal health and the health of our planet.

Diets that include less meat and more vegetables and fruits can reduce the risk of chronic diseases. What's more, reducing meat consumption helps conserve water, energy and lessens the greenhouse gas emissions that are accelerating climate change.

The inspiration for Meatless Monday dates back to World War I when U.S. citizens were asked to reduce consumption of key staples to aid their armed forces. In 2003, it was reintroduced as a public health campaign by our founder, Sid Lerner, a former advertising executive, in collaboration with the Johns Hopkins Bloomberg School of Public Health.

This guide will provide background and information on Meatless Monday as well as tips on how to get it started in your country and community. Additional tools and resources can be found here.

We're always looking for new champions to advance the Meatless Monday cause and we're happy that you're taking steps to expand the movement. Let us know what you're up to and tell us how we can provide support by contacting us at info@meatlessmonday.com.

We all want better health, a more stable climate, and healthier environment. What's one simple approach we can take in working toward these goals? For a growing number of chefs, celebrities, communities, companies, organizations, policymakers, families and schools around the world , the answer is simple —Meatless Monday.

The goal of the **Meatless Monday Campaign** is to encourage people to refrain from eating meat one day a week. Meatless Monday seeks to reduce the prevalence of preventable illnesses and environmental impacts associated with meat production and excessive meat consumption.

Worldwide, people are eating more meat. To some this sounds like progress—but ongoing research shows that the increasing global production of meat has consequences for our health, environment, climate and communities.

High-meat diets, especially those low in vegetables and fruits, are associated with adverse health outcomes such as cancer, heart disease, obesity and type 2 diabetes. In addition, meat production accounts for nearly 15 percent of global greenhouse gas emissions, making it a major driver of climate change, and livestock agriculture uses a disproportionate amount of the world's fresh water, arable land and fossil fuel. The increasing global demand for meat drives the livestock sector, furthering intensive animal confinement and misuse of antibiotics and thus contributing to the growing public health crisis of antibiotic resistance and animal-to-human spread of diseases.

The evidence continues to grow. Reducing the amount of meat we consume globally is necessary —but shifting towards more plant-centric diets will require multiple approaches. In the food service industry, one approach being integrated into schools, hospitals, work sites and restaurants is reducing meat and incorporating more vegetables into menus. Policies that incentivize shifts away from meat production and toward growing fruits and vegetables for human consumption are also a good start. Individual choices can make a difference, too.

Meatless Monday began in 2003 and has grown into a global movement powered by a network of participating individuals, hospitals, schools, worksites and restaurants around the world. The simplicity of the Meatless Monday approach has enabled the campaign to be embraced, talked about and practiced by people in over 40 countries around the world – from Croatia to China and Brazil to Bhutan.

About the Johns Hopkins Center for a Livable Future

The Johns Hopkins Center for a Livable Future (CLF) leverages research, education, policy, and communications to build a healthier, more equitable, and resilient food system. Established in 1996, CLF is the only academic center of its kind, committed to exploring the relationship between the food system and public health.

CLF provides technical assistance and serves as a science advisor to the Meatless Monday Campaign. The Center harnesses expertise from throughout Johns Hopkins University to conduct activities that contribute to the scientific foundation of the campaign. This includes a range of work that builds upon the Center's comparative strengths as an interdisciplinary academic center within a school of public health, and includes: research projects, literature reviews, communication and science translation activities, educational programming, as well as outreach activities that engage selected public health and nutrition science communities.

Global Meatless Monday – for Health and Wellness

Many chronic health problems are associated with higher intake of animal products, particularly red meat and high-fat dairy, as well as lower consumption of vegetables and fruit. As diets shift toward eating more meat around the world, health consequences will continue to rise. Chronic diseases are expensive to treat, adding a significant burden to stressed healthcare systems. Globally, chronic or non-communicable diseases (NCDs) are the leading cause of death, contributing to 67 percent of all deaths.[i] Chronic diseases are not limited to higher income countries; 80 percent of NCD deaths occur in low- and middle-income countries. Roughly a quarter of these deaths are people under the age of 60, part of the active workforce.[ii,iii]

Heart disease

Increased consumption of red and processed meats is associated with an increased risk of heart disease.[iv] Studies have found that a higher consumption of fruit and vegetables lowers risk of mortality, cardiovascular disease and stroke.[v,vi,vii] Overall, consuming less meat and more fruits and vegetables appears to have a favorable effect on cardiovascular disease risk factors such as high blood pressure and cholesterol.[viii]

Obesity

Global obesity has doubled since 1980, and 13 percent of adults were obese in 2014.[ix,x] Several large studies in Europe and the United States have demonstrated that people consuming diets with less meat and a larger volume of vegetables and fruits tend to have a significantly lower body weight and body mass index than others. This may be in part because plant-based diets are often rich in fiber (which is not found in animal products). Fiber contributes to fullness, resulting in lower calorie intake and less overeating.[xi,xii,xiii]

Type II diabetes

The number of adults with diabetes worldwide has quadrupled since 1980, increasing faster in low- and middle-income countries than in high-income countries.[xiv] Research suggests that diets with more vegetables and fruits, and less meat, particularly processed meat, can reduce the risk of type 2 diabetes.[xv,xvi] Eating a diet with less meat and

Why go global?

Reducing our intake of animal products across the world can have positive global impacts: improved health, more stable ecosystems and climate, and safer food. The simple, easy-to-execute message of Meatless Mondays can foster collaboration—and create change—among diverse groups, ranging from nonprofit organizations, local institutions, and influential figures such as chefs, celebrities, and politicians. *Even a small change—like cutting meat from your diet once a week—can make a difference!*

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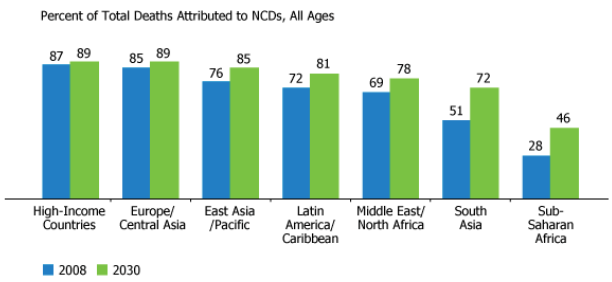
NCDs Account for a Growing Share of Total Deaths, Especially in Developing Regions.



Source: Irina A. Nikolic, Anderson E. Stanciole, and Mikhail Zaydman, "Chronic Emergency: Why NCDs Matter," *World Bank Health, Nutrition and Population Discussion Paper* (2011).

more plant-based foods can also decrease total calorie consumption, which helps with reaching and maintaining a healthy weight, a key component to preventing diabetes.

Cancers

Red meat and processed meat have been classified by the World Health Organization as "carcinogenic to humans," based on evidence for colorectal cancer.[xvii] There is also limited but suggestive evidence that red meat increases the risk of esophageal, lung, stomach, and prostate cancers. In contrast, a diet rich in fruit, vegetables and fiber appears to be protective and decreases the risk of several types of cancers, including mouth, pharynx, larynx, esophagus and stomach.[xviii]

Cost of non-communicable diseases

Not only do NCDs have a huge impact on our health and quality of life, but they also have enormous economic consequences. It is estimated that the cost of NCDs in low- and middle-income in countries will surpass $7 trillion between 2011 and 2025 (an average of $500 billion per year).[xix] Each year in the United States, chronic diseases like heart disease, stroke, cancer and diabetes cause 7 in 10 deaths and account for 75 percent of the $2 trillion spent on medical care.[xx] By reducing our risk for these conditions, we can curtail healthcare spending globally.

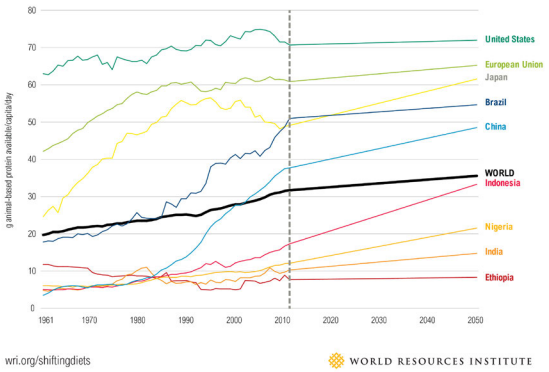
Plant-based meals

Meals that are built around vegetables, beans and grains tend to be cheaper than meals built around meat. This is partly because producing meat requires extra expenses like feed and transportation.[xxi] One study found that a low-cost version of a diet consistent with the United State's MyPlate costs $746.46 more per year than a plant-based diet with olive oil.[xxii,xxiii] Though it can be challenging to serve healthy meals on a budget, going meatless once a week can save money for the purchase of more of fruits and vegetables.

Food security

Animals convert plant protein and energy into meat protein and energy, but they are inefficient. In fact, it can take up to 12 kg of grain to produce 1 kg of beef.[xxiv] Some 800 million people on the planet suffer from hunger or malnutrition, yet an amount of cereal that could feed three times this number of people is fed to cattle, pigs and chickens.[xxv] One study concluded that, "If current crop production used for animal feed and other nonfood uses (including biofuels) were targeted for direct consumption, some 70 percent more calories would become available, potentially providing enough calories to meet the basic needs of an additional 4 billion people."[xxvi]

People Are Consuming More Animal-Based Protein



References

i. 1 WHO. Health Statistics and Information Systems, Cause-Specific Mortality Global Summary Estimates, Estimates for 2010-2012; http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html; Accessed June 24, 2016.

ii. 2 Alwan, Ala et al.; Monitoring and surveillance of chronic non-communicable diseases: progress and capacity in high-burden countries; The Lancet , Volume 376 , Issue 9755 , 1861 - 1868

iii. 3 Nikolic I., Stanciole A., Zaydman M., "Chronic Emergency: Why NCD's Matter," World Bank Health, Nutrition and Population Discussion Paper (2011)

iv. 4 Pan A, Sun Q., Bernstein AM, Schulze MB, Manson JE, Stampfer MJ, Willett WC, Hu FB. Red meat consumption and mortality: results from 2 prospective cohort studies. Arch Intern Med. 2012; 172(7):555-63.

v. 5 Mellen PB, Walsh TF, Herrington DM. Whole grain intake and cardiovascular disease: a meta-analysis. Nutr Metab Cardiovasc Dis. 2008;18:283–290

vi. Wang Xia, Ouyang Yingying, Liu Jun, Zhu Minmin, Zhao Gang, Bao Wei et al. Fruit and vegetable consumption and mortality from all causes, cardiovascular disease, and cancer: systematic review and dose-response meta-analysis of prospective cohort studies. BMJ 2014; 349:g4490

vii. Boeing H, Bechthold A, Bub A, Ellinger S, Haller D, Kroke A et al. Critical review: vegetables and fruit in the prevention of chronic diseases. European Journal of Nutrition. 2012; 51(6):637-63

viii. Hartley L, Igbinedion E, Flowers N, Thorogood M, Clarke A et al. Increased consumption of fruit and vegetables for the primary prevention of cardiovascular diseases. Cochrane Database of Systematic Reviews. 2013; 6:CD009874.

ix. WHO. Obesity and overweight fact sheet. http://www.who.int/mediacentre/factsheets/fs311/en/. Accessed March 11, 2016.

x. Finucane MM, Stevens GA, Cowan MJ, et al. National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants. Lancet. 2011;377:557-67

xi. Ledoux TA, Hingle MD, Baranowski T. Relationship of fruit and vegetable intake with adiposity: a systematic review. Obesity Reviews. 2011; 12(5):e143-50.

xii. Romaguera et al. Adherence to the Mediterranean Diet is Associated with Lower Abdominal Adiposity in European Men and Women. Journal of Nutrition. 2009;139(9):1728-1737.

xiii. Vergnaud et al. Meat consumption and prospective weight change in participants of the EPIC-PANACEA study. Am J Clin Nutr. 2010; 92(2):398-407.

xiv. Trends in adult body-mass index in 200 countries from 1975 to 2014: a pooled analysis of 1698 population-based measurement studies with 19·2 million participants; The Lancet , Volume 387 , Issue 10026 , 1377 - 1396

xv. Cooper AJ, Forouhi NG, Ye Z, Buijsse B, Arriola L, Balkau B et al. Fruit and vegetable intake and type 2 diabetes: EPIC-InterAct prospective study and meta-analysis. European Journal of Clinical Nutrition. 2012; 66(10):1082-92.

xvi. Pan A, Sun Q, Bernstein AM, Manson JE, Willett WC, Hu FB. *Changes in Red Meat Consumption and Subsequent Risk of Type 2 Diabetes Mellitus: Three Cohorts of US Men and Women*. JAMA Intern Med. 2013;173(14):1328-1335. doi:10.1001/jamainternmed.2013.6633.

xvii. Bouvard, Véronique et al. Carcinogenicity of consumption of red and processed meat. The Lancet Oncology. 2015; 16(16):1599 - 1600.

xviii. World Cancer Research Fund/American Institute for Cancer Research. Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective. Washington DC: AICR, 2007.

xix. WHO. From Burden to "Best Buys:" Reducing the Economic Impact of Non-Communicable Diseases in Low- and Middle-Income Countries. 2011.

xx. Centers for Disease Control and Prevention. *Chronic diseases: the power to prevent, the call to control, at-a-glance. 2009*. Atlanta, GA: U.S. Department of Health and Human Services, 2009.

xxi. Lusk JL, Norwood, FB. Some Economic Benefits and Costs of Vegetarianism. Agricultural and Resource Economics Review. 2009; 38(2):109-124.

xxii. Flynn MM, Schiff AR. Economical Healthy Diets (2012): Including Lean Animal Protein Costs More Than Using Extra Virgin Olive Oil. Journal of Hunger & Environmental Nutrition. 2015; 10(4):467-482. DOI: 10.1080/19320248.2015.1045675

xxiii. Mayo Clinic staff. "Meatless meals: the benefits of eating less meat." The Mayo Clinic. http://www.mayoclinic.com/health/meatless-meals/my00752 Accessed 3/14/16

xxiv. Pimentel D., Pimentel M.; *Sustainability of meat-based and plant-based diets and the environment;* Am J Clin Nutr., September 2003; vol. 78 no. 3 660S-663S

xxv. Foley, J.A., Ramankutty, N., et al. Solutions for a cultivated planet. Nature 2011: 478 337-342

xxvi. West, P.C. et al., *"Leverage Points for Improving Global Food Security and the Environment,"* Science 345 (2014): 325–28.

Global Meatless Monday – for the Environment

The United Nations 2015 Climate Change Conference (COP21) set the goal of limiting 2050 global temperatures to less than two degrees Celsius above pre-industrial averages, a target widely recognized as inadequate for avoiding some severe consequences. But even with successful changes from energy and transportation sectors, this moderate goal cannot be met—unless we also decrease meat consumption. Along with many other environmental impacts, nearly 15 percent of global greenhouse gas (GHG) emissions are due to production of meat, dairy and eggs. In many countries, meat consumption is an indicator of wealth; consequently, as incomes rise, the intake of meat and dairy is also rising across the globe.

Greenhouse gases and climate

Meat production creates GHGs that contribute to climate change. These gases include methane production from animals, carbon dioxide from deforestation, and nitrous oxide from fertilizers. Livestock production contributes an estimated 14.5 percent of global greenhouse gas emissions from human activities, which is more than the entire transportation sector.[i] Ruminant animals, including cattle, produce methane (CH4) as part of their digestion. In fact, this process alone represents almost one third of the emissions from the agriculture sector. Reductions in meat consumption can have a profound effect on greenhouse gas emissions. Globally, eliminating meat for one day per week, for example, could reduce emissions by an estimated 1.0 Gigaton (Gt)[ii] to 1.3 Gt [iii,iv] per year relative to predicted scenarios based on current consumption patterns. Reducing emissions by 1.3 Gt would be equivalent to taking 273 million cars off the road, based on typical U.S. passenger vehicles.[v]

Fossil fuels

Producing meat uses more fossil fuels than producing plant-based proteins. The average global fossil energy input for all the animal protein production systems is 25 kilocalories (kcal) fossil energy input per 1 kcal of protein produced. This energy input is more than 11 times

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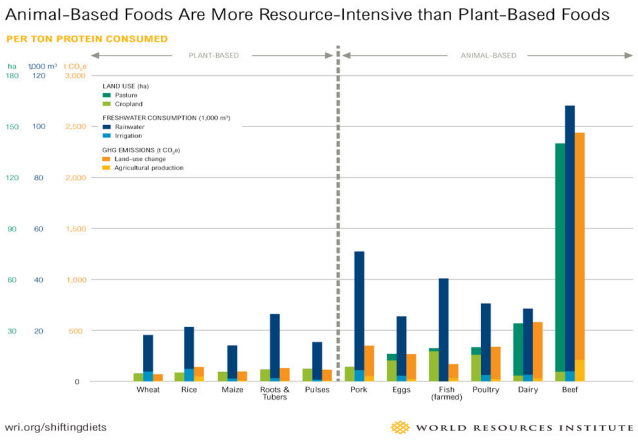

greater than that for grain protein production. Beef production alone requires 40 kcal for 1 kcal of protein produced.[vi]

Water

The agriculture sector withdraws 70 percent of all fresh water globally, making it the largest water user, with livestock accounting for most of that use. The demand for water will continue to increase as diets in many developing countries shift from predominantly starch-based foods to more meat and dairy in response to economic growth. Water is used in all stages of meat production from feed to care to processing. Based on one study, producing 1 kg of rice requires about 3,500 liters of water. In contrast, 1 kg of beef requires about 15,000 liters.[vii]

Water contamination

In developing countries, 90-95 percent of public wastewater and 70 percent of industrial wastes are discharged into surface water without treatment.[viii] In many cities within low- and middle-income countries untreated wastewater and polluted water are used for agriculture in urban and peri-urban areas.[ix] Manure also contributes to water quality degradation in many countries due to over-application and runoff from rain. Livestock excreta contains pollution in the form of nutrients (nitrogen, phosphorous, potassium), drug residues, heavy metals and pathogens. Runoff from the fertilizers and pesticides used to grow feed also contributes to water pollution.[x]

Land Use and degradation

Livestock is the world's largest human-related land user, taking up 30 percent of the Earth's entire land surface, including 33 percent of the global arable land for animal feed production. The global demand for meat increases the pressure to clear forests and valuable land for raising livestock and growing food, thus contributing to land degradation, deforestation and the accelerated loss of rainforests.[xi] A dietary shift toward less meat and more plants along with other strategies globally could double food production while greatly reducing the environmental impacts of agriculture.[xii]

References

i. Gerber PJ, Steinfeld H, Henderson B, et al. *Tackling Climate Change through Livestock – A Global Assessment of Emissions and Mitigation Opportunities*. Rome: Food and Agriculture Organization of the United Nations; 2013.

ii. Stehfest E, Bouwman L, Vuuren DP van, Elzen MGJ den, Eickhout B, Kabat P. *Climate Benefits of Changing Diet.* Clim Change. 2009;95:83-102

iii. Tilman D, Clark M. *Global diets link environmental sustainability and human health.* Nature. 2014;515(7528):518-522. doi:http://www.nature.com/nature/journal/v515/n7528/full/nature13959.html.

iv. Hedenus F, Wirsenius S, Johansson DJA. *The importance of reduced meat and dairy consumption for meeting stringent climate change targets*. *Clim Change*. 2014;124(1-2):79-91. doi:10.1007/s10584-014-1104-5.

v. EPA. Greenhouse Gas Equivalencies Calculator. 2014. http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.

vi. Pimentel D., Pimentel M., *Sustainability of meat-based and plant-based diets and the environment.* Am J Clin Nutr September 2003 vol. 78 no. 3 660S-663S

vii. Hoekstra, A. Y. and Chapagain, A. K. (2007) Index, in *Globalization of Water: Sharing the Planet's Freshwater Resources,* Blackwell Publishing Ltd, Oxford, UK. doi: 10.1002/9780470696224.index

viii. Corcoran, E., C. Nellemann, E. Baker, R. Bos, D. Osborn, H. Savelli (eds). 2010. *Sick Water? The central role of waste-water management in sustainable development.A Rapid Response Assessment*. United Nations Environment Pro-gramme; 2010. http://www.unep.org/pdf/SickWater_screen.pdf

ix. Raschid-Sally, L.; Jayakody, P. 2008. *Drivers and characteristics of wastewater agriculture in developing countries: Results from a global assessment.* Colombo, Sri Lanka: International Water Management Institute. 35p. (IWMI Research Report 127)

x. *Livestock's Long Shadow – Environmental Issues and Options*. Food and Agriculture Organization. 2006. Chapt. 2. ISBN 92-5-105571-8. ftp://ftp.fao.org/docrep/fao/010/A0701E/A0701E00.pdf

xi. *Livestock's Long Shadow – Environmental Issues and Options*. Food and Agriculture Organization. 2006. Chapt. 2. ISBN 92-5-105571-8. ftp://ftp.fao.org/docrep/fao/010/A0701E/A0701E00.pdf

xii. Foley, J. et al, *Solutions for a cultivated planet*; Nature 478, 337–342 (20 October 2011) doi:10.1038/nature10452

Global Meatless Monday – for Food Safety and Community Health

Changes in food animal production have resulted in the proliferation of industrial scale, and densely populated animal production operations. In fact, much of the world's animal protein comes from such operations. While these operations may increase the outputs of animal protein as compared to other production methods, producing animals under such conditions has been shown to be responsible for numerous public health concerns for consumers of animal products and for people living in rural communities where animals are produced.

Among the many public health concerns related to high density livestock production, the generation and transmission of harmful pathogens from animal production sites is an important public health problem. In addition, people who live near animal production sites may face an array of exposures to hazardous pollutants.

Background

When industrial food animal production methods are used, large numbers of animals are raised in close proximity under unhygienic conditions, a situation that has been well-documented to be an ideal breeding ground for bacterial and viral pathogens. To make matters worse, it is common for these operations to rely upon the regular use of antibiotics (and other antimicrobials), in part to compensate for unhygienic production methods. When these drugs are used, bacteria present in animals and in the production environment may become antibiotic-resistant, which means that infections caused by these bacteria will become difficult or impossible to treat with antibiotics.

Transport of antibiotic-resistant bacteria

Scientific research has demonstrated that bacteria from animal production sites leave through a variety of channels and can come into contact with people and cause infections. The most common means by which people come into contact with these bacteria is through contact with contaminated meat. Less commonly considered, however, are occupational, fenceline and community exposures to resistant bacteria from animal production sites.

Why go global?

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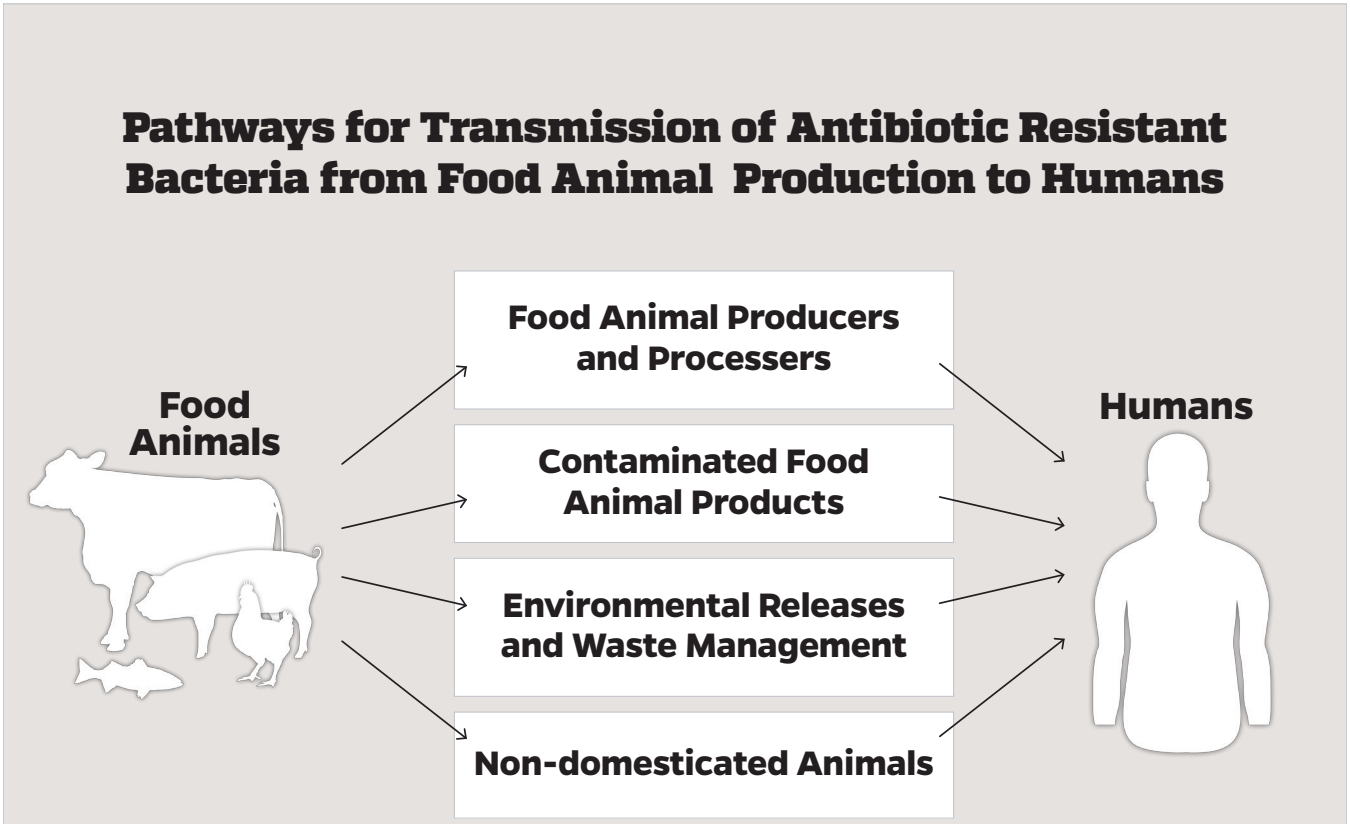
Resistant bacteria on animal products

In the U.S., meat from the grocery store has been shown through university research and government surveillance programs to carry antibiotic-resistant bacteria. When animal products carry resistant bacteria, people can be exposed when they mishandle or undercook meats or when they do not properly sanitize food preparation surfaces used for preparation of raw animal products. According to the United States Centers for Disease Control and Prevention (CDC), one-third of the twelve resistant pathogens categorized as a "serious" threat to public health are found in food, and 22 percent of the antibiotic-resistant infections in the U.S. every year are linked to foodborne pathogens.[i]

Transmission of pathogens into surrounding communities

Research has shown that antibiotic-resistant bacteria and other harmful pollution can be spread from animal production sites, affecting workers, fence-line neighbors, and residents of rural communities that are home to industrial food animal production. Industrial food animal production provides the ideal conditions for animal-to-human spread of an array of pathogens, including influenza, Q-fever, methicillin-resistant *Staphylococcus aureus* (MRSA), and *E.coli*, all of which have important consequences for public health. At greatest risk for exposure are animal production site workers, their families and those living close by who may come into contact with contaminated animals, soil, water and manure and other animal waste products.[ii,iii,iv]

Beyond infectious disease concerns, these operations have been shown to elicit health concerns related to respiratory illnesses, stress and other sicknesses among nearby residents of industrial food animal production operations. There is also evidence of reports of poorer quality of life for those individuals.[v] Biological contaminants that can make people sick, such as endotoxins and cow allergens emitted from industrial farms have been found in



outdoor and indoor dust samples of homes as far as three miles away from industrial food animal production facilities.[vi] Additionally, there have been health concerns with contaminated drinking water near industrial food animal production (IFAP) sites due to large amounts of manure being spread in small areas that may leach into the ground water and be transported by runoff into surface waters. Communities living near or downstream from IFAP operations may be exposed to a range of water-borne contaminants from the manure, including nitrates, bacterial and viral pathogens, veterinary pharmaceuticals, heavy metals, and hormones. Peope may be exposed from drinking contaminated ground water and from contact with contaminated surface waters.

Health consequences and societal burden of infections with resistant bacteria

Antibiotic-resistant infections are more expensive and challenging to treat. They are more likely to result in longer hospital stays and increased likelihood of various illnesses and death compared to infections that are susceptible or respond to antibiotics. It is estimated that a large percent of the global use of antimicrobial drugs is in the animal sector. In the U.S., for example, nearly 70 percent of all medically-important antimicrobials sold in 2012 were for animal use.[vii] This may suggest that food animal antibiotic use is responsible for a significant fraction of the overall burden of drug-resistant infections, which have been predicted to reach an estimated 10 million deaths/year and a cumulative cost of $100 trillion by 2050. [viii]

References

i. *Antibiotic resistance threats in the United States, 2013*. Centers for Disease Control. September 2013

ii. Graham, J. P., Leibler, J. H., Price, L. B., Otte, J. M., Pfeiffer, D. U., Tiensin, T., & Silbergeld, E. K. (2008). *The Animal-Human Interface and Infectious Disease in Industrial Food Animal Production: Rethinking Biosecurity and Biocontainment*. *Public Health Reports*, *123*(3), 282–299.

iii. Understanding and Managing Zoonotic Risk in the New Livestock Industries*; Environ Health Perspect* 121:873—877 (2013). http://dx.doi.org/10.1289/ehp.1206001

iv. Adapted from So A., Shah T., Roach S., Ling Chee Y., Nachman K.; *An Integrated Systems Approach is Needed to Ensure the Sustainaibility of Antibiotic Effectiveness for Both Humans and Animals*; Journal of Law, Medicine & Ethics; Special Issue: SYMPOSIUM: Antibiotic Resistance, Volume 43, Issue S3, pages 38–45, Summer 2015

v. Casey JA, Kim BF, Larsen J, Price LB, Nachman KE. *Industrial Food Animal Production and Community Health.* Curr Environ Health Rep. 2015 Sep;2(3):259-71. doi: 10.1007/s40572-015-0061-0. Review. PMID: 26231503

vi. Williams, D., Mc Cormack M., et al., Cow allergen (Bos d2) and endotoxin concentrations are higher in the settled dust of homes proximate to industrial-scale dairy operations, *Journal of Exposure Science and Environmental Epidemiology* (2016) ***26,*** 42–47; doi:10.1038/jes.2014.57; published online 20 August 2014

vii. 2012 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Animal Production. Food and Drug Administration, Department of Health and Human Services, September, 2014 http://www.fda.gov/downloads/ForIndustry/UserFees/AnimalDrugUserFeeActADUFA/UCM416983.pdf. Accessed July 1, 2016

viii. Review on Antimicrobial Resistance. Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations. 2014; https://amr-review.org/sites/default/files/AMR%20Review%20Paper%20-%20Tackling%20a%20crisis%20for%20the%20health%20and%20wealth%20of%20nations_1.pdf, Accessed June 27, 2016

Join the Movement

Help Spread the Global Meatless Monday Movement!

Please join us in helping to promote Meatless Monday in your country. You'll be part of a growing movement that includes 44 nations, from Croatia to Costa Rica, Brazil to Bhutan. Here are some simple steps to help you get started:

1. Reach out and connect with other meat reduction groups and non-governmental organizations in your area that share a common goal of healthy eating and sustainable living.

Sir Paul McCartney founded Meat Free Monday in the UK in 2009 and continues to travel the world advocating for less meat consumption.

2. Set up a website and use social networks, such as Facebook, Twitter, Pinterest and Instagram, to get the message out. Build a following of like-minded individuals and work together to organize events and recruit new members. Feature interesting and relevant content such as meatless recipes, environmental benefits an campaign news.

In Brazil, Segunda Sem Carne was founded in 2009 by the Brazilian Vegetarian Society. It's supported by celebrities who wear logoed t-shirts and share the meatless campaign on social media.

3. Get in touch with the media and suggest stories on Meatless Monday, such as your favorite recipes, local restaurants serving a Meatless Monday menu or the many health and environmental benefits of reducing meat consumption

Ghana recently launched a Meatless Monday campaign, organizing cooking demonstrations, public education events and a monthly healthy lifestyle variety show.

4. Meet with restaurant owners and chefs to let them know all the advantages of participating in Meatless Monday. Generally, the food costs are lower, the dishes take less time to prepare and customers appreciate a flavorful change of pace. Meatless Monday is known to help fill tables on a typically slow day. Plus, chefs love to get creative with seasonal vegetables!

In Israel, nearly 21% of their popuation supports Meatless Monday. It was launched in 2012 at a Café chain with nearly 140 branches nationwide.

5. Contact your nearby schools, universities and corporate cafeterias and explain how Meatless Monday not only gives their patrons a delicious alternative choice, but also helps preserve our natural resources. Getting large institutions to offer meatless options one day a week can have a significant impact on our environment.

Schools and companies in Germany go meatless on "Donnerstag ist Veggietag" (Thursday Veggie Day). Over 40 cities participate throughout the country.

Stay in Touch!

Stay in Touch with Meatless Monday

We greatly appreciate your interest and greatly value your participation.

Once you have started your campaign, please send us your contact information so we can keep in touch, learn about your efforts and add you as a global partner on our website. We'll let you know our latest news, recent global successes, and keep you up to date on promotional materials that are available to use for free.

We look forward to hearing and working with you. Together, we can do a world of good.

Sincerely,
Meatless Monday Team
info@meatlessmonday.com

For more ideas and promotional tools, please visit our free resources page:
meatlessmonday.com/start-a-campaign