Keeping foods safe leads to healthier people, livestock and environment

People are healthier when their food is nutritious, safe from germs and chemicals, and is handled in clean environments.

Key Messages

Nutritious, safe food is paramount to people and to development. Foods from animals are critical for good nutrition in poor countries as livestock products are the most efficient way for people to acquire the proteins and vital micronutrients they need, especially children and women of reproductive age.

However, foods like milk, meat, eggs and fish – and vegetables too – are good environments for disease-causing bacteria and other microbes (pathogens) to thrive. Some of the pathogens that contaminate vegetables can also come from animals, such as when vegetable fields are fertilized with manure from livestock.

Throughout Asia and Africa most livestock products and fresh produce are often sold by women in traditional, informal markets that can be difficult to keep clean and risk free. Facilities and workplaces for livestock testing, inspection, slaughter and processing can also be risky – not just for the food but also for the people handling it and the environments receiving the waste. Frequently, food safety checks are a barrier for producers, resulting in riskier products being sold directly through unchecked channels.

The good news is that the practices that spread hazards and diseases are well known. Investments accompanied by appropriate incentives in simple solutions have been shown to be successful. These include: promoting food safety awareness, strengthening capacities of those producing and selling foods, and investing in equipment and facility upgrades.

Investments need to be made all along food supply chains (the routes from ‘farm to fork’ and boat to throat) to ensure inclusive and incentive-based policies, effective inspection and disposal (or alternate use) of unsafe food, and good cold chains and hygiene throughout from livestock production, to slaughter, processing, transport, selling and preparation.

To succeed, a joint effort is needed at different levels by veterinary, environment and public health experts, and policy makers, food business operators (formal and informal) and consumers. Coordination through a One Health approach will foster the collaboration required (see brief 1).

Best estimates

- Around half a million people die and more than 600 million people fall ill every year from eating unsafe foods. The human health burden from foodborne diseases is comparable to that of malaria, HIV/AIDS or tuberculosis.
- Most foodborne diseases occur in poor countries, where they cost around USD 110 billion a year in lost productivity and medical expenses.
- Children under five years of age carry 40% of the foodborne disease burden, with at least 125,000 deaths of under-fives every year.
- Animal-source foods contaminated with harmful bacteria and other microbes are a leading cause of foodborne diseases.
- Food spoilage is related to foodborne disease and food waste, which increases the environmental footprint of food production.

Annual costs of foodborne illness, compared to malaria

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<tr>
<th>DEATHS</th>
<th>GLOBAL INVESTMENT IN CONTROL</th>
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<tr>
<td>409,000 malaria</td>
<td>USD 2.7 bn</td>
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<td>475,000 foodborne illnesses</td>
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COST TO POORER COUNTRIES USD 110 bn
Food safety challenges

Consumers are at risk of illness when they eat or drink animal products infected or contaminated with pathogens that can transmit from animals to people (zoonoses). These pathogens can sometimes be transmitted from person to person. Everybody who works in the food supply system, from input suppliers and farmers to slaughterhouse workers to food sellers, handlers and waste managers, is at risk from zoonotic diseases (see brief 2). Zoonotic foodborne illnesses include diarrhoeal disease caused by common bacteria such as *Salmonella*, *Campylobacter* spp. and toxigenic *Escherichia coli*.

Chemical hazards transmitted by animal-source foods are also One Health challenges, including dioxins (milk is an important source), heavy metals (particularly lead, arsenic, cadmium), farm chemicals such as cleaning agents etc. Also important are allergens and substances causing food intolerances.

As food supply chains – the routes from ‘farm to fork’ – get longer and more complex, opportunities for the spread of zoonotic foodborne disease increase and the harder it can be to identify the source of disease outbreaks.”

Environmental burdens

As well as risking people’s health through consumption, producing animal-source foods can cause environmental harm and damage public health (see brief 6). Risks include air and water pollution, including from production and processing waste spilling into local environments. Food safety often focuses on end products and consumers, but a whole ‘farm to fork’ approach needs to look at safe outcomes for people, animals and environments.

Why gender matters

Gender-based differences in activities along the supply chain are context dependent. However, they have significant bearings on food safety. Differences in hazard exposure between women and men derive primarily from gender-based differences in their work activities. There are also differences in the patterns and practices of food consumed by women and men that result in differing food safety risks (see brief 7).
What can be done

1. Improve the safety of foods sold in traditional markets
   • Employ locally relevant approaches and interventions to improve livestock food safety at places where food is sold.
   • Encourage good hygiene, help build local capacity to implement improved food safety practices, and introduce practical new technologies to enhance food safety in markets as well as the safety of food sellers themselves.
   • Support governments to adopt risk-based approaches to food safety. This consists of strengthening areas around risk assessment, risk management and risk communication.
   • Enhance government capacity to monitor and support food safety in markets.
   • Help de-risk markets through reducing the mix of animal species and the number of live animals on market sites, increasing awareness of diseases acquired from eating wild animal products and strengthening regulation.
   • Develop and pilot incentive- and market- based interventions to improve food safety.

2. Improve handling and production of animals and their products
   Investments should focus less on regulations and more on improved infrastructure, training, and incentives to reduce the risks of animal diseases spreading and of bacterial and chemical contamination of livestock foods. Investments include:
   • Improve awareness of food safety risks and safe practices among everybody involved in food production as well as among consumers.
   • Improve hygiene, biosecurity and animal welfare practices in livestock farming, transportation and slaughter.
   • Strengthen training and incentives and build capacity of everybody in food supply chains to handle food hygienically and sell and consume safe food.
   • Leverage the growing demand from consumers for safer foods to incentivize people in smallholder livestock supply chains to adopt good food safety practices.

3. Reduce waste and environmental impacts from animal-source foods
   • Improve the use of chemicals employed in livestock food production to enhance human and environmental health alike.
   • Invest in better recycling and reuse of food waste.
   • Provide the means and knowledge to handle livestock excreta safely.

References
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Investing in One Health directly tackles the wicked problems facing our health and the health of the animals and planet around us. One Health integrates and guides the collaborative efforts of multiple disciplines working locally, nationally and globally to attain optimal health for people, animals and our environment. This series of briefs provides evidence-based information on how One Health can support development efforts.

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