

MEDIA RELEASE

World Food Safety Day: UP expert on what you need to know about food-borne risks

PRETORIA – Unsafe food that contains harmful bacteria, viruses, parasites or chemical substances causes more than 200 diseases. World Food Safety Day on 7 June is an opportunity for consumers to familiarise themselves with the risks that can arise from what they eat.

Every year, an estimated 600 million people (almost one in 10 globally) fall ill after eating contaminated food and about 420 000 die, explains Professor Elna Buys, Head of the Department of Consumer and Food Sciences at the University of Pretoria (UP). Also, about US\$110 billion is lost each year in productivity and medical expenses in low- and middle-income countries as a result of unsafe food.

“Food safety, nutrition and food security are linked,” says Prof Buys. “The cycle of disease and malnutrition is enhanced by unsafe food, and affects infants, young children, the elderly and the sick in particular. Food-borne diseases also impede socioeconomic development by straining healthcare systems and affecting economies, tourism and trade. Food supply chains now cross national borders, and we ensure food safety through collaboration among governments, producers and consumers.”

Food safety is of particular concern in developing countries, not only because of the high prevalence of food-borne illness and other hazards associated with food, but because of economic and social deficiencies that may exist. For example, a child that contracts diarrhoea from consuming contaminated food might not be able to gain access to the required medical care and could suffer more adverse consequences as a result. The devastating listeriosis outbreak in South Africa, during which 1 038 confirmed cases and 208 deaths were reported between January 2017 and May 2018, further highlights the need for good food safety practices.

“In an Africa-Australia Universities Network project between UP and Curtin University, we established that there is potential for food-borne illnesses among South African consumers due to their mishandling of chicken meat and lack of knowledge about factors affecting the safety of chicken,” Prof Buys explains.

“While smell, use-by dates and colour are good indicators of the quality of this meat, they do not reflect the presence or levels of bacterial pathogens that can cause food-borne illnesses, even when the meat is unspoiled. Because human pathogenic bacteria are almost always present in raw chicken, knowledge about microbial risks and safe handling practices needs to be communicated effectively to reduce or eliminate the risks of pathogenic bacteria at the consumer level. Consumer education on the correct interpretation of date labels is also recommended.” Prof Buys adds that their findings suggest that food legislators can contribute by monitoring product labels to protect consumers from misleading claims.

“The information from our recent research can assist public health authorities design targeted food safety awareness programmes and the chicken industry to meet consumer expectations,” Prof Buys says. “The limitation of the study was that consumers who purchase chicken from street vendors were probably underrepresented, so the results may not accurately reveal their perceptions. This is a sector that is hugely underrepresented in food safety research and education.”

Prevalent food-borne illnesses

Salmonella (associated with eggs, poultry and other products of animal origin), *Campylobacter* (raw milk, raw or undercooked poultry, and contaminated drinking water) and *Enterohaemorrhagic Escherichia coli* (unpasteurised milk and undercooked meat) are among the most common food-borne pathogens that affect millions of people annually, sometimes with severe or fatal outcomes. Symptoms include fever, headache, nausea, vomiting, abdominal pain and diarrhoea.

Listeria is found in unpasteurised dairy products and various ready-to-eat foods and can grow at refrigeration temperatures. *Listeria* infection could lead to miscarriage in pregnant women or the death of new-born babies. Although disease occurrence is relatively low, *listeria's* severe and sometimes fatal health consequences – particularly among infants, children and the elderly – counts it among the most serious food-borne pathogens.

Vibrio cholerae, which causes cholera, infects people through contaminated water or food. Symptoms include abdominal pain, vomiting and profuse watery diarrhoea, which may lead to severe dehydration and possibly death. Rice, vegetables, millet gruel and various types of seafood have been implicated in cholera outbreaks.

Industry implements Food Safety Management Systems (FSMS) to prevent food-borne illness from farm to fork, by controlling food safety hazards within a food-related business, explains Prof Buys. Food safety regulations are also in place. “But the challenge arises among informal food vendors and small food businesses. Much more should be done to assist this sector in terms of food safety education, and the implementation of basic food hygiene.”

Greatest concerns

Globalisation has triggered growing consumer demand for a wider variety of foods, resulting in an increasingly complex and longer global food chain, explains Prof Buys. “As the world’s population grows, the intensification and industrialisation of agriculture and animal production to meet the increasing demand for food create both opportunities and challenges for food safety.”

Climate change is also predicted to impact food safety. “These challenges put greater responsibility on food producers and handlers to ensure food safety,” adds Prof Buys. “Local incidents can quickly evolve into international emergencies due to the speed and range of product distribution. Serious food-borne disease outbreaks have occurred on every continent over the past decade, often amplified by globalised trade.”

The COVID-19 pandemic has had several effects on the food industry, too. Initial concerns over possible contamination of packaging materials caused changes in consumer and retail food systems. On the consumer side, the need for social distancing, shelter-in-place orders and restaurant closures changed the way people buy food, with many making fewer frequent trips to the grocery stores, buying shelf-stable pantry items in bulk and preparing more meals at home. With these changes in consumer patterns, grocery stores have had to deal with increased patronage while enforcing social distancing measures and coming up with ways to protect both staff and customers.

On the food processing side, changes have been driven by a need for increased sanitation, social distancing and face coverings, while outbreaks have caused the closure of meat processing and other food manufacturing facilities.

Possible solutions

Policymakers can build and maintain adequate food systems and infrastructure to respond to and manage food safety risks along the entire food chain; foster multi-sectoral collaboration among public health, animal health, agricultural and other sectors for better communication and joint action; integrate food safety into

broader food policies and programmes; think globally and act locally to ensure that food produced domestically remains safe when imported internationally.

Consumers and food handlers should read labels on packages and become familiar with common food hazards, as well as handle and prepare food safely.

Media enquiries

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ABOUT THE UNIVERSITY OF PRETORIA

The University of Pretoria (UP) is one of the largest contact and residential universities in South Africa, with its administration offices located on the Hatfield Campus, Pretoria. This 112-year-old institution is also the largest producer of research in South Africa.

Spread over seven campuses, it has nine faculties and a business school, the Gordon Institute of Business Science (GIBS). It is the only university in the country that has a Faculty of Veterinary Science which is ranked top in Africa, and overall has 120 academic departments, as well as 92 centres and institutes, accommodating more than 55 000 students and offering about 1 100 study programmes.

UP is one of the top five universities in South Africa, according to the 2019-2020 rankings by the Center for World University Rankings. It is also ranked among the top 100 universities worldwide in three fields of study (veterinary science, theology and law), and among the top 1% in eight fields of study (agricultural sciences, clinical medicine, engineering, environment/ecology, immunology, microbiology, plant and animal sciences and social sciences).

In May 2020, the annual UK Financial Times Executive Education Rankings once again ranked GIBS as the top South African and African business school. The University also has an extensive community engagement programme with approximately 33 000 students involved in community upliftment. Furthermore, UP is building considerable capacities and strengths for the Fourth Industrial Revolution by preparing students for the world beyond university and offering work-readiness and entrepreneurship training to its students.

As one of South Africa's research-intensive universities, UP launched the *Future Africa Campus* in March 2019 as a hub for inter- and transdisciplinary research networks within UP and the global research community to maximise 4IR innovation and address the challenges and stresses our continent and world is facing. In addition UP also launched the Javett Art Centre in September 2019 as a driver of transdisciplinary research development between the Humanities and other faculties. In November 2020 UP launched Engineering 4.0. as a hub not only for Smart Cities and Transport, but also to link the vast resources in technology and data sciences to other faculties via Future Africa. These initiatives are stimulating new thinking at the frontier of 'science for transformation'.

For more information, go to www.up.ac.za