Student identifies pragmatic approach to safer local milk in Senegal

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A scholarship student from India has identified methods that could lead to safer milk for Senegalese people, currently at risk from drinking raw milk.

The methods respect traditional practices and are feasible in Senegal’s resource-challenged context – both barriers to promoting safer milk in the country.

Bhagya Chengat, a veterinary epidemiologist, was one of 16 ZELS-AS PhD students working with the ZELS programme, in her case a project considering dairy production in West and Central Africa. She undertook her fieldwork in Senegal, a country with a developing dairy sector as urbanisation and growing wealth lead to an increase in demand for milk and milk products. Most of this demand is met through imported milk powder from Europe, however, the numbers of milk-producing farms are growing, particularly on the outskirts of towns.

The aim of Bhagya’s studies was to identify feasible interventions to ensure safety of milk and milk products and she began with a cross-sectional study to better understand dairy farming, milk selling and milk consumption practices in Senegal. From this, it became evident that milk is crucial in local people’s diet – but also that people prefer to consume raw rather than boiled milk, with possibly significant impacts for food safety.

Boiling kills nearly all harmful bacteria that may be present in raw milk and is a generally accepted food-safety intervention. There is limited data on milk-borne infections in Senegal, but according to the World Health Organization most foodborne illnesses globally are suffered by people in south-east Asian and African countries. Consuming raw milk can lead to a range of illnesses, from nausea and vomiting to kidney failure.

During Bhagya’s fieldwork, it became clear that the usual tools to study the incidence, distribution and control of diseases, such as closed-ended questionnaires, may not fully capture the motivations behind local people’s milk processing techniques. She decided to use social science tools, such as focus groups and interviews, to provide deeper insights into people’s behaviours and preferences.

Bhagya found that the reluctance to boil is deep-rooted in the local food culture. Dairy farmers, especially those from rural areas, believe that boiling milk before consumption and processing will lead to mastitis in cows.

Bhagya used the findings from the focus groups, as well as the results of microbiological analysis of milk samples from Senegal, to conduct quantitative risk assessment to simulate different interventions. The aim: to identify the most effective, locally acceptable intervention. This was particularly important as she also found that cow’s milk is given to babies as a breast milk substitute, and to pregnant women – two groups vulnerable to milk-borne infections.

One of the interventions recommended from Bhagya’s research is implementing better farm management practices such as teat dipping, washing and drying udders prior to milking, inspecting milk for mastitis, maintaining the cleanliness of milking equipment and the environment, and waste management. This would not only increase milk production, improve animal welfare and reduce mastitis – a disease that also increases microbial load – but also would ensure the microbial safety of milk and improve food safety.

Establishment of a multi-sectoral strategy for the control of brucellosis in the main peri-urban dairy production zones of West and Central Africa

Principal Investigator: Professor Javier Guitian, Royal Veterinary College, UK

Partners:
- Royal Veterinary College, UK (lead)
- Animal and Plant Health Agency, UK
- Global Alliance for Livestock Veterinary Medicine (GALVmed), UK
- Interstate School of Veterinary Science and Medicine, Senegal
- London School of Hygiene and Tropical Medicine, UK

“With the growth in milk production in Africa, it is important to study milk-borne infections so that governments can make evidence-based food safety decisions and prioritise limited resources. My studies highlighted the advantages of a multidisciplinary approach where I could gain different skills and perspectives and produce outcomes with deeper insights.”

Dr Bhagya Chengat, former ZELS-AS student