

## Extend existing food safety systems to the global wildlife trade



The suspected role of the wildlife trade in the COVID-19 pandemic and the risk of new emerging infectious diseases in humans have received widespread attention since the emergence of COVID-19.<sup>1-3</sup> A range of measures to prevent future pandemics have been suggested, from a global ban of commercial trade in wildlife to bans of wild animals for human consumption. Although emergency bans that enable rapid responses and adaptation can be a component of risk management, questions persist regarding the appropriateness of broad international bans in the context of zoonosis and pathogenic risks emerging from human consumption and use of wildlife.<sup>1,2,4</sup>

Due to uncertainties around the risk posed by wildlife in this context, concerns have been raised about the effectiveness and sustainability of broad bans.<sup>1</sup> Additionally, for livelihood and cultural reasons and buy in from supply chain participants, mechanisms are required to adequately understand and manage the disease risks for the safe trade and consumption of wildlife.<sup>1,4</sup> We argue that safe trade and consumption of wildlife could align with existing global food safety regulations in agreement with the precautionary principle and in support of the UN Sustainable Development Goals. Indeed, the risk of foodborne diseases from domestic animals has resulted in a long-standing global effort to manage food safety.<sup>5,6</sup>

International systems for food safety are based on identifying hazards and associated risks along a food supply chain. Hazards are “a biological, chemical or physical agent in, or condition of, food with the potential to cause harm”, and risks are “the estimated probability and severity of adverse health effects in exposed populations consequential to hazards” (in this case, food).<sup>7</sup> The Hazard Analysis and Critical Control Points System (HACCP) identifies hazards and their risks to human health.<sup>7</sup> HACCP developed from the 1960s onwards and is now endorsed by the Food and Agricultural Organisation, World Organisation for Animal Health, WHO, and, at the national level, by organisations such as the US Food and Drug Administration.<sup>8,9</sup> HACCP is the principle management method for reducing the risk of foodborne illness.<sup>8</sup> It

incorporates risk analysis of hazards (ie, agents and diseases), current practices, processes, and actors to identify critical control points along a supply chain.<sup>8</sup> Auditing of standards, guidelines, and the way that they are implemented in different local contexts is done through the assessment and management of critical control points.<sup>6</sup> This integration of supply chain analysis with epidemiology and risk analysis has been widely applied to the international livestock trade (eg, HACCP has been used to control foot and mouth disease in cattle in a way that allows for greater local participation and ensures that health standards are met while accounting for livelihood and socioeconomic concerns).<sup>6</sup>

The HACCP approach could be adapted for and extended to wildlife trade and consumption. Indeed, the trade and ultimate consumption of kangaroo meat from Australia<sup>10</sup> has an HACCP-based risk management system in place for international export and domestic consumption. HACCP and HACCP-based systems can be used as a basis and extended to other wildlife products as appropriate for different species and supply chains.

Targeted bans of trade in some species and practices can have an important role in emergency responses to disease risk, but they are only part of the policy and management response that is required. HACCP and HACCP-based systems present a way in which wildlife trade supply chains can be secured to exclude practices that pose high health risks and to increase compliance with existing legal systems and criteria. Stronger scrutiny, controls, and resourcing to manage health risks from wildlife trade will have the added benefit of enhancing efforts targeting illegal and unsustainable practices. The necessary policy attention and resourcing for researching, scoping, and piloting ways in which HACCP can be applied broadly to the wildlife trade is urgently needed. These investigations should include examining the contexts in which HACCP is likely to work for the wildlife trade and the types of investments that are required, especially in low-income countries.

We declare no competing interests. Gavin Thomson, unfortunately, passed away during the writing of this paper following a long battle with cancer. He had an extraordinary critical intellect and a highly productive career in veterinary science and virology. Gavin was recognised for his remarkable innovation, rising through the ranks of a global policy influencer in animal food systems and on key health questions, especially as they related to the interface between wildlife

and livestock sectors. Gavin represented Africa courageously in this field to overturn colonial and eurocentric perspectives on livestock. Gavin introduced commodity-based trade principles and contributed significantly to the final eradication of rinderpest. Perhaps his most lasting legacy is debunking myths on foot and mouth disease, especially in southern Africa. Through these efforts, Gavin was at the vanguard of overturning the tariffs and barriers faced by traditional and smallholder-livestock producers and wildlife conservation.

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