

Urban Livestock: A Growing but Ignored Public-Health Challenge

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Introduction

Urbanisation is often portrayed as a clean separation between cities and agriculture. In reality, livestock remain deeply embedded in urban life, particularly in low- and middle-income countries. Dairy cattle, goats, pigs and backyard poultry are commonly kept within city limits or in peri-urban zones, supplying fresh animal-source foods and supporting livelihoods. While urban livestock contributes to food security and income generation, its implications for public health receive far less attention than they deserve. Globally, the public-health relevance of animals is well established. The World Health Organisation estimates that over 60% of human infectious diseases and nearly 75% of emerging infectious diseases are zoonotic, meaning they originate in animals (WHO, 2020). When livestock and humans live in proximity, as is typical in urban settings, the risk of disease transmission increases, particularly where hygiene, surveillance and veterinary oversight are inadequate.

Why livestock persists in cities

Urban livestock rearing is driven by multiple socioeconomic factors. Rapid rural-to-urban migration, rising demand for fresh milk, meat and eggs, and the perishability of these products encourage production close to consumers. For low-income households, keeping livestock is often a survival strategy that provides regular income, nutrition and resilience against economic shocks. Recent evidence confirms the scale of this

phenomenon. A multi-country study across Asia reported that more than 10% of urban households in India keep livestock, with poultry being the most common species due to low space and investment requirements (Ushimaru et al., 2024). These animals are frequently housed close to living spaces, increasing daily contact between humans, animals and the environment.

Zoonotic diseases at the urban interface

Close human-animal interaction in urban settings creates favourable conditions for zoonotic disease transmission. Livestock can act as reservoirs for pathogens such as *Salmonella*, *Campylobacter*, *Brucella* and *Leptospira*, which may infect humans through direct contact, contaminated food, water or environmental exposure. Peri-urban and urban systems are particularly vulnerable because animals are often kept informally, outside routine veterinary surveillance. A review of zoonotic risks in peri-urban India highlighted that informal livestock systems can become hotspots for disease transmission, especially where sanitation, waste disposal and access to animal health services are limited (Aggarwal et al., 2020). These risks are frequently underestimated because zoonotic infections are underdiagnosed and under-reported, especially in low-resource urban communities.

Food safety concerns in informal supply chains

Urban residents depend heavily on informal food markets for fresh animal products. While these markets improve access and affordability, they often operate with

minimal food-safety oversight. The Food and Agriculture Organisation has repeatedly warned that informal milk and meat value chains are associated with higher risks of food-borne illness due to poor hygiene, lack of inspection and inadequate cold storage (FAO, 2011). Milk contamination is a particular concern. Poor milking hygiene, unclean utensils and contaminated water can introduce pathogens, while improper storage encourages bacterial growth. Informal slaughtering and meat handling may bypass inspection altogether, allowing diseased animals or contaminated carcasses to enter the food chain. These practices contribute to outbreaks of gastrointestinal illness and increase the burden on already stretched urban health systems.

Antimicrobial resistance: an emerging urban threat

Another important but less visible risk is antimicrobial resistance (AMR). In many urban livestock systems, antibiotics are used without veterinary supervision for disease prevention or growth promotion. Drug residues in milk and meat, and the spread of resistant bacteria through food and the environment, pose serious risks to human health. AMR is recognised globally as a major public-health challenge, and livestock production is a key contributor when antibiotics are misused (WHO, 2017). In urban settings, where animal waste and food products circulate rapidly among dense populations, resistant pathogens can spread quickly, undermining the effectiveness of commonly used medicines.

Occupational exposure and vulnerable populations

Urban livestock-associated risks extend beyond animal owners and consumers. Workers involved in milk collection, slaughtering, meat processing, waste handling and transport are routinely exposed to animal blood, secretions and waste. Without protective equipment or regular health screening, these workers face elevated risks of zoonotic infections such as bovine tuberculosis and leptospirosis. Evidence from India shows that zoonotic diseases impose significant economic and productivity losses,

particularly among occupationally exposed groups (Bose et al., 2025). However, because many of these workers operate in the informal sector, their health problems often remain invisible in official records.

Environmental contamination and urban sanitation

Poor management of animal waste is another critical public-health issue. Dung, urine, slaughter waste and carcasses are frequently disposed of in open areas, drains or water bodies. This contaminates soil and water, promotes vector breeding and facilitates indirect disease transmission. In densely populated urban settlements, environmental contamination does not remain confined to livestock keepers. It affects entire communities through polluted water sources, unsafe food preparation environments and increased exposure to disease-carrying insects and rodents. Thus, livestock health becomes inseparable from broader urban sanitation and environmental health concerns.

Why is urban livestock neglected in policy?

Despite these risks, urban livestock often falls outside formal public-health planning. Human health, veterinary services and municipal governance typically function in silos, with limited coordination or data sharing. Livestock keeping is frequently perceived as a rural issue, even when animals are present within city limits. Regulatory responses, when they exist, often focus on restrictions or bans rather than risk-based management. Such approaches may push livestock keeping further into informality, reducing oversight and increasing public-health risks rather than mitigating them.

The need for a One Health approach

Addressing urban livestock-related health challenges requires a One Health approach, which recognises the interdependence of human, animal and environmental health. Integrating veterinary services into urban public-health systems, strengthening food-safety monitoring, educating communities on safe livestock



practices and improving waste management are essential interventions. Evidence from global One Health initiatives shows that early surveillance and cross-sector collaboration are more effective and less costly than outbreak-driven responses (Ahmed, 2025). Applying these principles in urban settings can reduce zoonotic risk while preserving the nutritional and economic benefits of urban livestock.

Conclusion

Urban livestock is neither an outdated practice nor an urban nuisance; it is a reality shaped by food demand, livelihoods and social structures. Ignoring its public-health implications leaves cities vulnerable to preventable disease risks. Recognising urban livestock as part of the urban ecosystem, and managing it through coordinated, evidence-based strategies, is essential for healthier, more resilient cities.

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