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Putting the “A” into WaSH: a call for integrated management of Water, Animals, Sanitation and Hygiene

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Water, Sanitation and Hygiene (WaSH) are foundational public health interventions for infectious disease control. Renewed efforts to end open defecation and provide universal

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access to safe drinking water, sanitation and hygiene by 2030 are being enacted through the Sustainable Development Goals¹. However, results from recent trials question the efficacy of conventional rural WaSH approaches in low-income and middle-income countries (LMICs). Randomised trials in Bangladesh, Kenya and Zimbabwe, which introduced household pit latrines, hand-washing with soap, and point-of-use water chlorination, found no impact on child growth, and two of the three trials found no reductions in child diarrhoea². We have therefore called for “transformative” WaSH approaches, to more effectively reduce pathogen burden and promote child health and growth in LMICs². However, it currently remains uncertain what transformative WaSH entails.

We hypothesise that exposure to animal faeces is a currently under-recognised threat to human health. Recent estimates have highlighted the scale of animal faecal hazards³, which are not explicitly addressed by conventional WaSH strategies. Globally, 80% of the faecal load is estimated to come from livestock animals, including two-thirds of faeces at the household level³. There is a scarcity of research addressing the impact of domestic and wild animal faeces on WaSH effectiveness^{4,5} and insufficient collaboration between the WaSH, public health and animal health sectors in LMICs⁴. As an interdisciplinary group of researchers, policymakers and practitioners in One Health, epidemiology, veterinary medicine, child health, microbiology, geography, social science, WaSH, and animal ecology, we recently met to focus attention on the neglected burden of domestic and wild animal faecal exposure among rural households in LMICs. We contend that without adding safe management of animal faeces to current programmes focused solely on human waste, rural WaSH programmes will insufficiently reduce faecal exposure from all sources to the extent needed to improve child health. To emphasise this, we propose a paradigm shift in WaSH terminology, by upgrading the currently diminutive and redundant “a” to “A” – Water, Animals, Sanitation and Hygiene – highlighting that reducing exposure to animals and their faeces also needs to be central to WASH approaches. Current programmes focus on containment of human faeces and so fail to avert two-thirds of potential faecal hazards³, meaning they are unlikely to achieve the large-scale reductions in microbial exposure that we believe are necessary².

There are many unknowns in how best to maximise the benefits and minimise the risks of animal ownership⁵. Livestock are critical to rural livelihoods, contributing to household economic and socio-cultural wellbeing, and providing animal-source foods, transport and manure for fertiliser and fuel. However, the message that animal faeces should be considered potentially hazardous, just as human faeces are, needs to be central to WASH programming, with safe management of animal faeces added to the global WASH agenda. While some trials have attempted to reduce zoonotic transmission of enteropathogens by providing tools to separate livestock from children^{2,6,7}, this is not always feasible, financially viable (for example, penned chickens require feeding), beneficial to animal health and welfare, or viewed favourably by local community members. Instead, we argue for a more holistic One Health approach to WASH, which considers the interconnection between the health of people, animals, and our shared environment.⁸ A One Health approach encourages collaboration across multiple disciplines and sectors with the ultimate goal of achieving optimal health outcomes for all, rather than a singular focus on human health as the endpoint. This would provide an opportunity to devise and test integrated programmes that

are mindful of the numerous competing and interdependent priorities for households, while considering livestock production, welfare, and social value; soil health and crop yields; and water and air quality, in addition to human health. Indeed, such a comprehensive approach may yield greater gains to all sectors than individually focused projects alone.

Recent negative trial results from conventional WaSH interventions indicate that it has never been more important to seek transformative, community-driven, integrated approaches². The first step – putting the “A” into WASH – is to shift the paradigm to accelerate progress towards transformative WASH by considering pathways of enteropathogen transmission that are not currently central to WaSH strategies. We believe more substantial reductions in household and environmental faecal contamination are possible through concerted efforts to collectively improve the health of animals, humans, and the environment, while maintaining the benefits of livestock ownership. There is a pressing need to test new intervention approaches that will tackle all household faecal exposure through a combined focus on Water, Animals, Sanitation and Hygiene to yield greater gains from WASH.

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