

Animal Waste, Water Quality and Human Health

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More than 85% of the world's faecal waste is from domestic animals such as poultry, cattle, sheep and pigs. These animals harbor zoonotic pathogens that are transported in the environment by water, especially runoff. However, little information exists on health effects associated with exposure to this potential hazard, and water standards focused on control of human fecal contamination reflect the contribution of non-human fecal contamination to risk.

Do current monitoring practices using microbial indicators protect against animal and bird sources of fecal contamination?

Prepared by a group of international experts, this book considers microbial contamination from domestic animal and bird sources and explores the health hazards and protection:

• Credible waterborne zoonotic pathogens are discussed and ranked according to their potential hazard level. Each pathogen is described with regard to their sources, reservoirs, and infectivity.



• Faecal production rates of various domestic animals are discussed, alongside pathogen transmission in animal populations, pathogen prevalence in animals and "supershedders".

- Transport of fecal indicator organisms and their episodic occurrence in catchments.
- . Interventions for improving food safety and reducing production losses.

• The impact of interventions, e.g. enhanced attenuation and storage to prevent spills; benchmarking against best management practices to reduce diffuse source contamination.

• Models to inform design of farm-scale best management practices and the effectiveness of best management practices for attenuating pathogen transport within catchments.

• The complex nature of human exposure to zoonotic waterborne pathogens; including the relationships among livestock waste contamination, water impairment, zoonotic pathogens, and human infection and illness.

• Human exposure interventions include case studies that discuss eradicating disease in discharging populations, adding filtration to minimal treated water to reduce Cryptosporidium occurrence and UV disinfection of beach waters to reduce beach postings.

Indicators, sanitary surveys and source attribution techniques; risk assessment of exposure to zoonotic pathogens, including an interactive risk comparison approach.

• A review of epidemiological studies that address the relationship between swimmer illness and exposure to waters contaminated by nonhuman fecal wastes.

• Economic evaluation of the costs and benefits associated with animal waste management and human health.

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