

Pathogens and risk factors associated with freshwater-exposure outbreaks: A systematic review

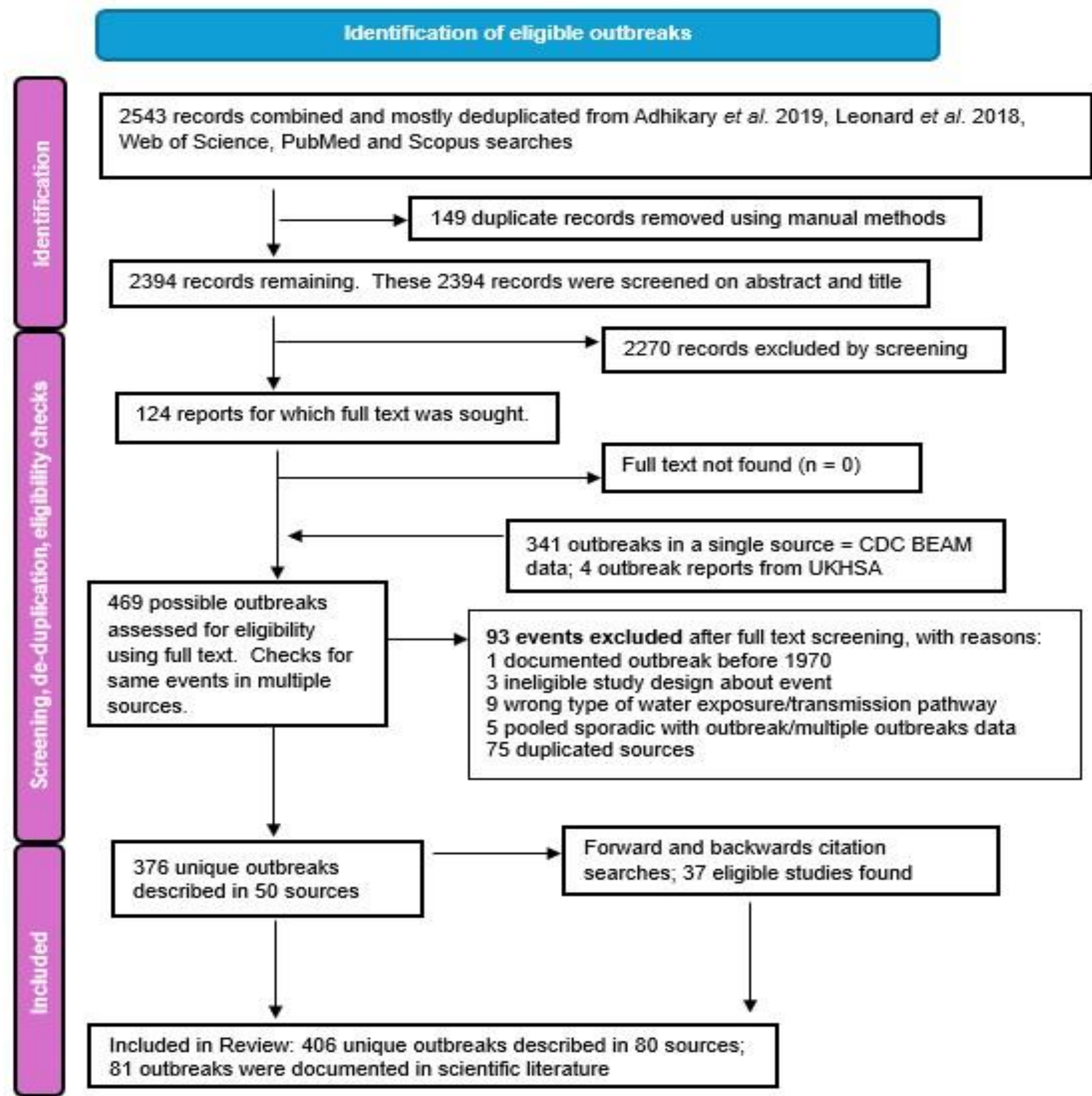
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Context: There is widespread concern about microbiological hazards in freshwater bodies, especially when accessed for recreational bathing.

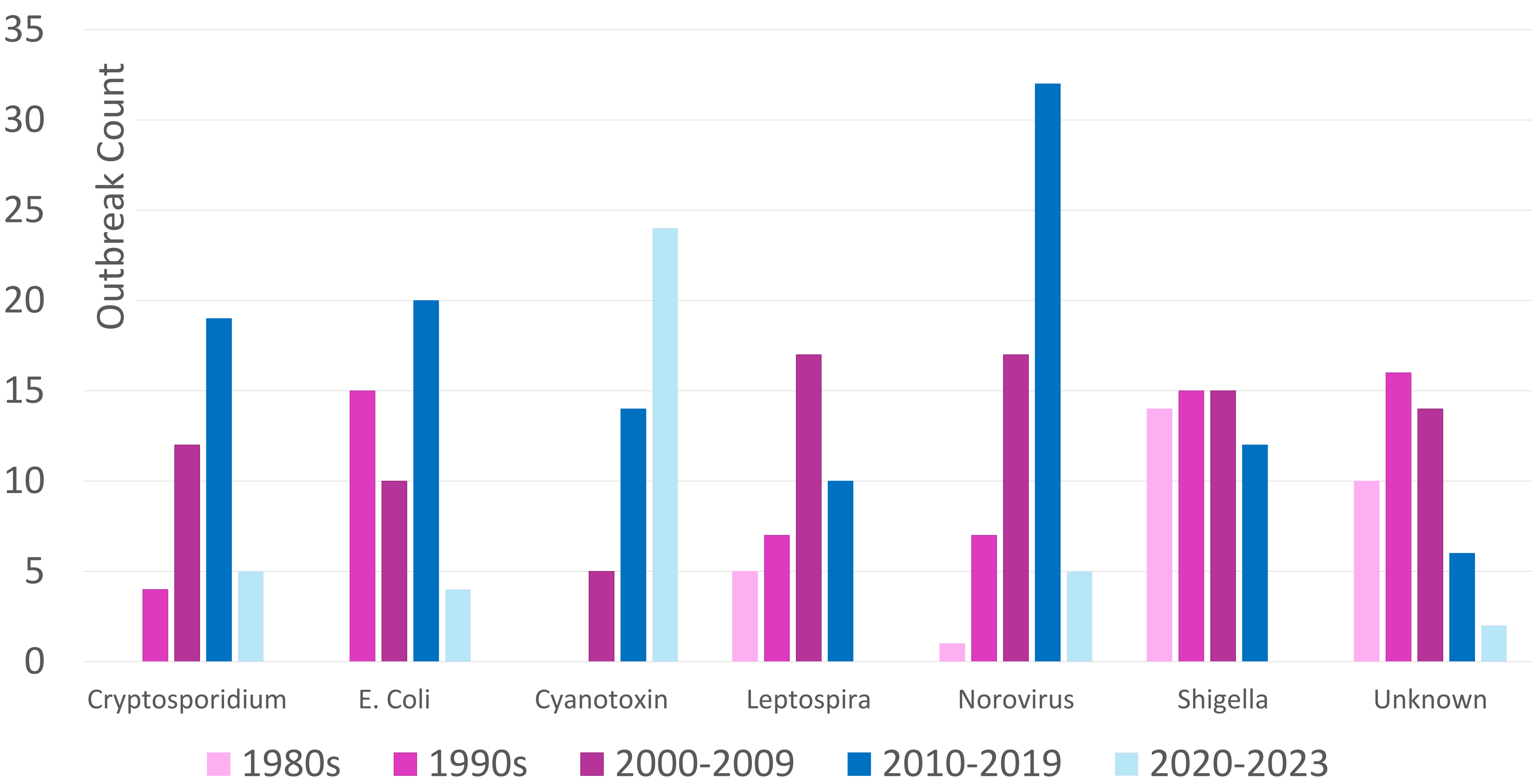
Research Objective : Identify and characterise disease outbreaks linked to contact with outdoor freshwater bodies, using scientific reports, grey literature and government datasets.

Design: Systematic review with descriptive summary and frequency counts. Focus on gastrointestinal (GI) illness in humans.



Results: 406 unique outbreaks documented in 80 sources.

Pathogens: Viruses, bacteria or protozoa. Six pathogens (on below chart) were linked to 71% of the 406 outbreaks.



Inclusion criteria and units of analysis: Disease outbreaks thought to be caused by exposure to untreated outdoor freshwater bodies

Data sources: 1 US government dataset describing 341 events, 4 UK government records, 75 scientific reports.

The most consistent risk factor evidence was: Risk of GI illness was often higher after facial contact with lake/river water, especially if water entered the mouth.

Information gaps : Most potential risk factors for GI illness were only considered in a single study, and there was often missing information about whether commonly collected attributes such as age or gender could be associated with risk of illness.