

FACT SHEET: CHOLERA RISKS IN OCCUPATIONAL SETTINGS

INTRODUCTION

Cholera is a highly infectious and severe diarrheal disease characterised by profuse watery diarrhoea, vomiting, and dehydration. This illness is caused by *Vibrio cholerae* (*V. cholerae*), a gram-negative, comma-shaped bacterium that thrives in water environments, particularly fresh warm, and brackish waters. The bacterium frequently causes outbreaks globally, particularly in areas with inadequate water, sanitation, and hygiene (WASH) services. This fact sheet provides an overview of *V. cholerae* and highlights the occupational health risks associated with this pathogen.

TRANSMISSION

Vibrio cholerae is spread through faecal-oral routes, including consumption of faecally contaminated food and water, transmission from contaminated environmental surfaces, and contact with cholera cases. However, this pathogen may be associated with a workplace or occupational setting, and specific work activities may predispose the worker to exposure if infection control measures are inadequate, resulting in an occupational infection.

SYMPTOMS

About 1 in 10 people with cholera may experience severe symptoms, which, in the early stages, include profuse watery diarrhoea, sometimes described as "rice-water stools", thirst, extensive vomiting, leg cramps and restlessness or irritability. People with severe cholera can develop severe dehydration, which may lead to kidney failure. If left untreated, severe dehydration can lead to shock, coma, and death within hours.

OCCUPATIONAL HEALTH RISKS

Certain occupational groups may be at increased risk of exposure to *V. cholerae* due to their work environments and activities. These include but are not limited to:

Healthcare Workers: Healthcare workers (HCWs) treating cholera patients are at high risk of exposure to *V. cholerae* through direct contact with faecal matter or surfaces contaminated with patient faecal matter and/or other bodily fluids. Improper infection control practices, inadequate personal protective equipment (PPE), and poor sanitation and hygiene measures can further increase the risk of infection among HCWs.

Sanitation Workers: Workers involved in the sanitation management/value chain (collection, disposal, and treatment of human faecal waste) may encounter *V. cholerae* while handling contaminated human excreta. Exposure can occur during routine maintenance, repairs, or handling of wastewater without appropriate protective measures. Waste collection workers in both the formal and informal economies are also vulnerable to health risks such as cholera. Exposure may arise from touching contaminated waste material without proper PPE.



Researchers and Laboratory Personnel: Laboratory workers studying *V. cholerae* or conducting experiments involving the bacterium may be at risk of exposure. Workers involved in detecting and identifying *V. cholerae* in diagnostic laboratories are also at risk of infection. Accidental spills, splashes, or improper handling of samples contaminated with the bacterium in a laboratory setting can lead to exposure.

Fishermen and Aquaculture Workers: Workers involved in fishing, shellfish harvesting, and other aquaculture activities may be at risk of *V. cholerae* infection as the bacterium can grow and reproduce in aquaculture water and small aquatic animals. Contact with contaminated water, seafood, or handling of infected aquatic species can lead to exposure and potential infection.

Disaster Response and Humanitarian Aid Workers: Workers providing emergency relief and aid in post-disaster areas (e.g. floods) and areas affected by cholera outbreaks may face an increased risk of *V. cholerae* infection. These workers often operate in resource-limited settings with compromised water and sanitation infrastructure, leading to a higher likelihood of exposure.

Food Handlers: Food handlers (street food vendors and restaurants) working in settings with poor hygiene practices and contaminated water sources may inadvertently contaminate food with *V. cholerae*. Consumption of contaminated food can lead to the spread of cholera among consumers and themselves.

TESTING WATER SAMPLES FOR V.CHOLERAE

The preferred method for sampling drinking water and other open water supplies is the collection of at least 1 Litre per sample to increase the chance of isolating *V. cholerae*, using sterile containers following aseptic techniques to prevent cross-contamination. Make use of sterile gloves during the collection of the sample. Alternatively, wash hands with soap and water before sample collection or sanitise with 70% alcohol-based hand sanitiser. When sampling treated water supplies, sodium-thiosulphate should be added to containers to inactivate the oxidising agents (incl. chlorine). Because *V. cholerae* survives better in specimens held at 4°C than in frozen samples, specimens should be transported in an insulated box with ice packs (not loose ice as you risk contaminating the samples if the ice melts). Samples should be transported immediately to the laboratory, preferably within 24 hours. Submersion of samples in ice should also be avoided to prevent partial freezing of the samples. Contact the testing laboratory before sending specimens to confirm sample collection, transport and testing capacity.

PREVENTIVE MEASURES

The preventive measures should be implemented based on a comprehensive risk assessment and in conjunction with local guidelines, regulations, and occupational health and safety standards. Regular training, monitoring, and evaluation should be conducted to ensure compliance and to effectively prevent *V. cholerae* exposure in at-risk occupations. See Table 1 for preventive and control measures that may contribute to reducing workplace exposure.

CONCLUSION

Occupational exposure to *V. cholerae* can pose significant health risks for some occupations. By implementing appropriate preventive measures, such as infection control protocols, water treatment, and food safety practices, the risks of *V. cholerae* infection can be minimised. Employers, workers, and regulatory bodies must work together to promote a safe working environment and protect the health of those at risk of *V. cholerae* exposure.

Table 1 Preventive and control measures for selected high risk occupations							
Controls	Description of prevention and control measures	Healthcare facilities	Sanitation	Laboratories	Fishing & Aquaculture	Disaster Response & Humanitarian Aid	Food handlers
Elimination	Water treatment plants should employ effective disinfection methods to eliminate <i>V. cholerae</i> from the water supply.		•				
Substitution	Researchers should consider using suitable surrogate strains or attenuated strains for experiments.			٠			
Engineering	Use of appropriate containment measures (e.g. biosafety cabinets)			٠			
Administrative							
Standards, guidelines and protocols:	 Standard precautions and specific guidelines for handling cholera patients, including isolation protocols 	•					
	 Health & safety protocols and procedures including infection prevention and control 	•	•	•	•	•	•
	 Procedure for handling and appropriate storage of products (e.g. cultures, food, aquatic life etc) 			•	•		•
Training:	 Cholera prevention, transmission and signs and symptoms of the disease 	•	•	•	•	•	•
	 Infection prevention and control, and emergency response training (where relevant) 	•	•			•	
	 Hand hygiene and sanitation education and awareness. 	•	•	•	•	•	•
	 Laboratory safety, including spill response and decontamination procedures 			•			
	 Correct selection and use of personal protective equipment (PPE). 	•	•	•	•	•	•
	 Conduct public health education and training initiatives to raise awareness in the informal economy. 		•				
Hand hygiene &	Provide access to safe drinking water and adequate sanitation	•	•	•	•	•	•
Waste disposal:	Ensure correct handling and disposal of contaminated						
	cholerae).	•					
РРЕ	Employers should provide appropriate PPE (e.g. gloves, respirators, goggles, waterproof boots) where relevant based	•	•	•	•	•	•
	on a comprehensive risk assessment.						
Behaviour and Practices	Practice good hand hygiene and sanitation practices, including regular handwashing with soap and clean water.	•	•	•	•	•	•
	Practice safe handling of potentially contaminated materials.	•	•	•	•	•	•
	Use safe and potable water for food preparation, cooking and cleaning utensils.						٠
	Ensure proper cooking temperatures to eliminate <i>V. cholerae</i> . Store food at safe temperatures and avoid cross-contamination						٠
	between raw and cooked food.						
	Encouraged to seek medical attention when displaying symptoms.	•	•	٠	•	•	٠

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