

ROYAL HOLLOWAY, UNIVERSITY OF LONDON

Geography Department

Guidance for staff and students who may potentially be exposed to raw sewage during fieldwork

(Adapted from the H&S office document "The Health Hazards for Estate Services (FM) workers exposed to Sewage")

Following inspection of laboratories and risk assessment documentation by the biological safety officer in 2012 it was identified that Geography staff and students engaged in water or soil sampling may be exposed to potential health hazards from sewage or sewage traces.

The aim of this document is to place the potential hazards of sewage into context with the type of field or laboratory activities taking place in the Geography department, and to help fieldworkers, supervisors and the department as a whole make a suitable risk assessment of the exposure, identify suitable control measures and understand appropriate levels of occupational health surveillance when required.

Definition of Sewage

Sewage is a material that finds its way into the sewage system and includes:

- Water
- Micro-organisms
- Faecal matter
- Industrial / agricultural effluent
- Radioactive materials
- Degradation products / hazardous gases / vapours
- Floating material including condoms, sanitary towels, syringes, needles, etc.

There are 3 main effects from exposure to sewage

- 1) Infections called by bacteria, parasites or viruses
- 2) Allergies caused by proteins in microorganisms
- 3) Poisoning or harmful effects caused by harmful gases or chemicals

Potentially, exposure to sewage can cause acute gastroenteritis, skin infections, tetanus, polio, hepatitis, eye infections, Weil's disease and respiratory illness.

These guidelines below are in addition to implementing the specific precautions or control measures as listed in the tables below pp 3-8.

Remember that clothing, footwear and PPE in use during your work may have become contaminated. It is safest to presume it is. Therefore taking a few simple precautions will prevent a spread of infection and keep those around you safe too.

Prior to fieldwork:

Pack a spare set of clean clothes and shoes/boots to take to the field.

Take a polythene bag or similar to allow safe storage of these items away from other clothing, equipment or food until they can be washed.

Before leaving the field site/travelling home:

Remove your outer layers of clothing after fieldwork and before travelling home or to your accommodation.

Wash your hands, face and other exposed skin well with antibacterial wash following your work at the earliest possible opportunity.

Following fieldwork:

Wash contaminated clothing and footwear properly on your return home. Whether they are waterproofs, outer layers or boots where you can, machine wash with detergent on at least a 60°C wash (or the hottest temperature permitted on the care label.)

REMEMBER to tell the person (if it is not you) washing the items, they MUST be washed separately from non-contaminated items.

Monitor your general well-being following your work and contact your GP if you have any symptoms of the conditions detailed below.

Infection / Illness type	Method of protection	Control measures that MUST be in place prior to field work	Working practices that MUST be adhered to throughout fieldwork	Further actions required
<p>Tetanus <i>is a serious infection affecting nerves and can be fatal.</i></p> <p><i>Tetanus is caused by infection with Clostridium tetani bacteria. These bacteria can enter your body through a wound or cut in your skin. They are often found in soil, manure and human waste. Once inside, they multiply and release a powerful type of poison, known as a neurotoxin.</i></p> <p><i>Even a small wound such as a prick from a thorn can cause tetanus which takes up to 21 days to develop, sometimes more. You may have a higher risk of being infected with tetanus if the wound: is deep, gets dirty with soil or manure.</i></p>	<p>Ensure tetanus vaccination is up-to-date. Minimise exposure to potential sources through safe work practices and use of personal protective equipment.</p> <p><i>If you're not sure how many doses of the tetanus vaccination you've received, you may need a booster dose after an injury that breaks your skin.</i></p> <p><i>If you've definitely received five doses of the tetanus vaccine, you are fully vaccinated and don't need a booster dose.</i></p>	<p>Ensure you are up-to-date with your tetanus inoculation BEFORE commencing work.</p> <p>First aid kit: Ensure all wounds or skin abrasions are well covered with a secure waterproof dressing prior to beginning work. Ensure you have a bottle of sterile saline solution or individual ampoules with you. If you do not have access to clean uncontaminated water with which to rinse cuts, perforations or abrasions that may occur during your work.</p>	<p>If you do get a cut or wound, clean it thoroughly as soon as possible to prevent infection. As long as you're fully vaccinated, you won't need another tetanus jab. If you don't know whether you're fully vaccinated, see your GP as you may need a booster dose.</p>	<p>Report any illness or health condition arising from fieldwork to your project supervisor, manager or employer (via the departmental health and safety coordinator.)</p> <p><i>Symptoms of tetanus:</i></p> <p><i>Stiffness in the jaw muscles, this is usually the first symptom of tetanus to develop. Muscle spasms and stiffness spread from your jaw into your neck and limbs over 24 to 72 hours.</i></p> <p><i>High temperature (fever) of 38°C (100.4F) or above</i></p> <p><i>Sweating</i></p> <p><i>Rapid heartbeat (tachycardia)</i></p> <p><i>high blood pressure (hypertension)</i></p>

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<p>Leptospirosis OR Weil's disease.</p> <p><i>This is a rare condition with a low infection rate but can be dangerous if not treated correctly or in time. The Leptospira bacteria are carried by rats which excrete the organism in urine. If the urine enters areas of freshwater lakes, streams and rivers (or sewage works pipes) then it is able to infect humans.</i></p> <p><i>The bacteria enter through cuts in the skin and via the lining of the nose, throat and gut. The incubation period for the disease can last from 3-15 days.</i></p> <p><i>There is no medical screening for this condition. Everyone with the potential to be at risk must be issued with details of the condition and what they should do if they are concerned they may have contracted the condition</i></p>	<p>To significantly reduce the risk of infection minimise exposure to potential sources through high levels of personal hygiene, safe work practices and use of personal protective equipment.</p> <p>There is no immunisation against the illness. It is essential to prevent rather than treat exposure to the source.</p>	<p>First aid kit: Ensure all wounds or skin abrasions are securely protected with a waterproof dressing prior to beginning work.</p> <p>Nitrile/latex or similar protective gloves. Remember to include these on field equipment request form with sufficient spares. Consider use of equipment to retrieve samples with minimum contact exposure to contaminated materials – such as sampling poles.</p> <p>*Quick reference cards with information on the causes, preventions, symptoms and information for medical staff are available from Elaine Turton, health and safety co-ordinator for Geography. Please collect one of these when preparing for fieldwork. It might just save your life.</p>	<p>If you suspect you may have contracted the disease seek medical advice immediately explaining the potential for exposure to Weils's disease.</p> <p>Always check wound dressings remain secure during work. Replace wound dressings or coverings if they become contaminated during work.</p> <p>Always wear nitrile/latex or similar protective gloves, replace these immediately if they become damaged during use</p> <p>Always wash hands with antibacterial hand wash after handling any samples and prior to eating, drinking or smoking, rubbing eyes etc.</p>	<p>Remember to report any illness or health condition arising from fieldwork to your project supervisor, manager or employer (via the departmental health and safety coordinator.) Even after seeking medical help.</p> <p>Each worker with the potential of contracting Leptospirosis must carry information of the condition, what they should do if they are concerned they may have contracted the condition and must seek medical advice immediately, explaining their potential for exposure to Weil's disease. (*see control measures)</p> <p>Ensure on completion of fieldwork that hands are thoroughly washed using antibacterial hand wash and use a nail brush to clean nails of contaminated material.</p>

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<p>Gastroenteritis</p> <p><i>Most types of gastroenteritis are highly infectious. The condition is spread when bacteria found in faeces are transferred to your mouth.</i></p> <p><i>Bacteria are transferred through poor hygiene. If you touch a contaminated object /liquid and then touch your face, you may become infected by the virus or bacteria. Once infected, you will have the symptoms of gastroenteritis, such as vomiting and diarrhoea.</i></p>	<p>Minimise exposure to potential sources through safe work practices and use of personal protective equipment.</p>	<p>Nitrile/latex or similar protective gloves. Remember to include these on field equipment request form with sufficient spares.</p> <p>Equipment to sample with minimum contact exposure to contaminated materials – such as sampling poles.</p> <p>Antibacterial hand wash and water available.</p> <p>Antibacterial gel to EN1500.</p>	<p>Always wear nitrile/latex or similar protective gloves, replace these immediately if they become damaged during use</p> <p>Always wash hands with antibacterial hand wash after handling any samples and prior to eating, drinking or smoking, rubbing eyes etc.</p> <p>Always keep food and drink away from the sampling area to avoid contamination.</p>	<p>Report any illness or health condition arising from fieldwork to your project supervisor, manager or employer (via the departmental health and safety coordinator.)</p> <p>Ensure on completion of fieldwork that hands are thoroughly washed using antibacterial hand wash and use a nail brush to clean nails of contaminated material.</p> <p><i>Most people with gastroenteritis only have mild symptoms and the infection passes after a few days without the need for treatment.</i></p> <p><i>However, you may need treatment in hospital if your symptoms are severe, or if you are vulnerable because of your age or another illness. This is because diarrhoea can quickly cause dehydration which, if severe, can be fatal.</i></p>

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<p>Skin Infections</p> <p><i>Some organisms may infect open wounds and infection can occur when a wound is uncovered or an injury has occurred to the skin causing it to lose its integrity</i></p>	<p>Minimise exposure to potential sources through safe work practices and use of personal protective equipment.</p>	<p>First aid kit: Ensure all wounds or skin abrasions are well covered with a waterproof dressing prior to beginning work.</p> <p>Nitrile/latex or similar protective gloves. Remember to include these on field equipment request form with sufficient spares. Consider use of equipment to retrieve samples with minimum contact exposure to contaminated materials – such as sampling poles.</p> <p>Antibacterial hand wash and water.</p>	<p>Always wear nitrile/latex or similar protective gloves, replace these immediately if they become damaged during use.</p> <p>Always wash hands with antibacterial hand wash after handling any samples and prior to eating, drinking or smoking, rubbing eyes etc.</p> <p>Replace wound dressings or coverings if they become contaminated during work.</p>	<p>Report any skin infections arising from fieldwork to your project supervisor, manager or employer (via the departmental health and safety coordinator.)</p> <p>Ensure on completion of fieldwork that hands are thoroughly washed using antibacterial hand wash and use a nail brush to clean nails of contaminated material.</p> <p>Replace all wound dressings and coverings.</p>

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Eye Infections	Minimise exposure to potential sources through safe work practices and use of personal protective equipment	<p>First aid kit: Ensure you have a bottle of sterile saline solution or individual ampoules with you. If you do not have access to clean, water with which to rinse eyes thoroughly in the event of accidental splashing.</p> <p>Nitrile/latex or similar protective gloves. Wearing these not only protects you from the above but can help remind you NOT to touch your eyes with contaminated hands during your work.</p> <p>Safety goggles remember to include these on field equipment request form.</p>	Always wash hands with antibacterial hand wash after handling any samples and prior to eating, drinking or smoking.	Report any eye infections arising from fieldwork to your project supervisor, manager or employer (via the departmental health and safety coordinator.)

The information below is provided for information only.

The diseases listed are very unlikely to be encountered in the type of work and with the vaccination programmes in the UK today. However if you are unsure whether the requisite vaccinations have been received please see advice from your GP prior to fieldwork taking place.

Infection / Illness type	Method of protection
<p>Polio</p> <p><i>Polio no longer exists naturally in the UK, largely because of the NHS vaccination programme.</i></p> <p><i>If you believe you haven't received routine vaccination seek advice from your GP prior to fieldwork.</i></p>	<p>Polio is prevented in the UK by the DTaP/IPV/Hib (five-in-one) vaccine, which also protects against the following illnesses: Diphtheria, Tetanus, Whooping cough and HiB (Haemophilus influenza) type B.</p> <p>This is usually given to babies in the U.K. as a routine vaccination at 8, 12 and 16 weeks of age.</p>
<p>Hepatitis A</p> <p><i>There is no consistent evidence that workers dealing with sewage are more likely to catch Hepatitis A than members of the public.</i></p>	<p>This is currently offered at GPs surgeries.</p> <p>In the past vaccination against Hepatitis A (and B) was also offered to sewage workers, however, due to the reduction in Hepatitis A in the United Kingdom over the last 20 years, routine immunisation against hepatitis A is no longer recommended.</p>
<p>Hepatitis B</p> <p><i>The virus does not survive in raw sewage Bodily fluids would need to be ingested or injected for there to be a risk of infection.</i></p>	<p>The Hepatitis B virus is able to survive outside the body in dried blood for up to one month and can be a risk to workers who may come into contact with syringes or needles with the live virus in them.</p> <p>The decision to immunise against Hepatitis B should be made on the basis of risk assessment, taking into account the likelihood that workers may come into contact with used syringes or needles.</p> <p>The most effective method of preventing Hepatitis B is the prevention of needle-stick injuries.</p>

If you have any questions or concerns relating to your work, not just those relating to health and safety, then you should discuss them with your line-manager or supervisor as soon as possible.