

Health Surveillance Process

What is health surveillance?

Health surveillance is a process used to systematically assess and detect early signs of adverse health effects of workers who may be exposed to certain hazards in the course of their employment. Primarily it is used to identify potential problems before they fully develop and help identify the need for additional control measures or changes in working practices. Various strategies and methods are used depending on the nature of the hazards associated with the work being undertaken and the working environment.

Health surveillance involves systematically monitoring for early signs of work-related ill health in employees who are exposed to certain health hazards. Robust procedures are required to achieve this and it is a requirement by law, where there is a detectable disease associated with a particular type of work.

Examples of health surveillance procedures include:

- Simple methods which can be carried out by trained workers, such as looking for skin damage or dermatitis on hands and arms caused by regular handling of certain chemicals
- Technical checks on employees carried out by occupational health specialists, such as hearing or lung function tests
- More in-depth specialist medical examinations required for specific hazards e.g. work with ionising radiation or vibrating equipment.

Objectives of a health surveillance programme

Health surveillance programmes have very specific objectives which usually include:

- Protecting the health of individual employees by the early detection of adverse health effects which may be caused by significant exposure to hazardous activities or substances
- Identifying and implementing specific **health surveillance requirements** for employees liable to be exposed to certain substances and/or working in potentially hazardous processes
- Evaluation of **existing control measures** and identification of areas where improvements may be required
- Collect, maintain and use results and information to assist in determining and evaluating hazards to health
- **Demonstrate compliance** against both regulatory and University standards

Health Surveillance Considerations

Health needs based risk assessment

The **FIRST** stage of any health surveillance programme is to identify potential hazards to health by completing a **RISK ASSESSMENT**. If the hazard cannot be completely controlled or eliminated by engineering controls or the use of suitable protective equipment then further steps should be undertaken to protect employee health. One of the key steps in protecting employee health is to consider the need for health surveillance.

To undertake a health needs based risk assessment (i.e. to identify work activities requiring health surveillance) the following steps are taken:

- Find out what the hazards are
- Identify who might be at risk from exposure to those hazards and how
- Decide what to do to prevent harm to health, for example:
 - Remove the hazard altogether
 - Reduce the risk by changing the way work is done or use other controls (e.g. local exhaust ventilation)
 - Provide personal protective equipment
- Provide health surveillance to any individuals who may still receive an exposure to certain substances or conditions

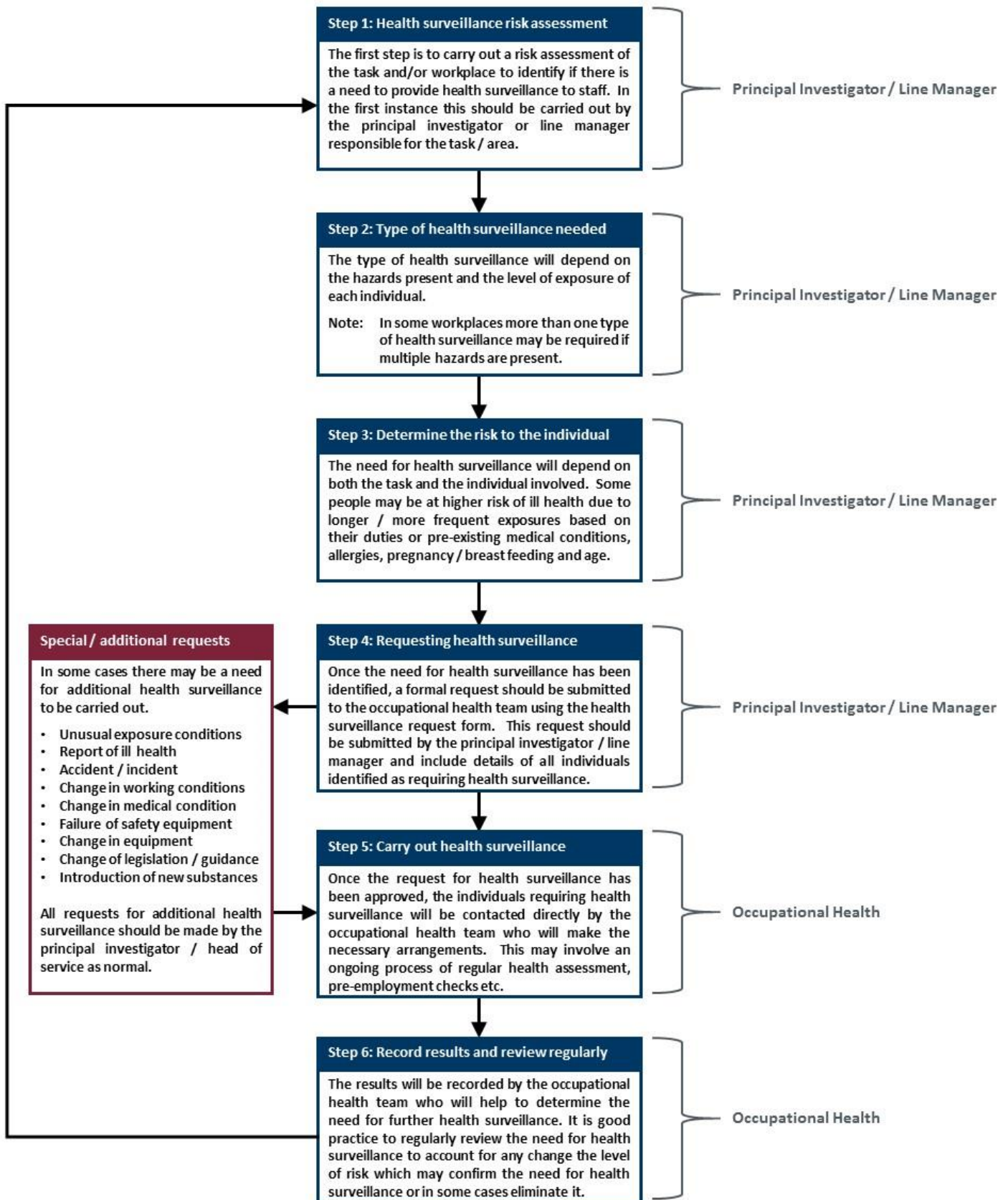
What types of work may require Health Surveillance?

There are many types of work where health surveillance may be appropriate but in general they all include significant exposure to one or more of the following:

- Work involving exposure to respiratory (or skin) sensitisers
- Significant exposure to particular substances or chemical agents
- Work with vibrating tools
- Work in a noisy environment
- Wet work
- Work with ionising radiation
- Work **in** compressed gas atmospheres (e.g. mineworkers, divers)

The process for assessing the need for health surveillance, identifying those at risk and arranging for surveillance to take place is summarised in the diagram overleaf.

Health Surveillance Process



When is health surveillance appropriate?

In assessing the appropriateness of health surveillance based on the likelihood that an identifiable disease or adverse health effect will result from (or may be related to) certain exposure the following factors are considered:

- Type and extent of exposure
- Assessment of current scientific knowledge such as:
 - Available epidemiology (study of human illness in populations)
 - Information on human exposure
 - Human and animal toxicological data
 - Extrapolation of possible health effects from information about similar substances or situations

Identified health surveillance techniques need to be sufficiently sensitive and specific to detect abnormalities related to the type and level of exposure concerned. The defined surveillance programme aims to ease execution with preferably a non-invasive approach that is acceptable and fully understood by employees.

Other factors to consider:

- Is there a statutory requirement to undertake health surveillance?
- Have there been previous cases of work related ill health associated with the activity/substance, either at The University of Glasgow or elsewhere?
- Has an employee declared ill health symptoms they attribute to their work?

On completion of this health needs based assessment any additional health surveillance needs will be communicated to relevant Institute/School/Service employees.

A flow diagram to help you with the risk assessment process and Tables indicating substances that may cause occupational asthma and occupational dermatitis is shown overleaf:

Carry Out Initial Risk Assessment

1. Identify hazardous tasks, areas and substances in use
2. Apply all relevant control measures (including procedural controls, engineering solutions and PPE)
3. Consider the level of exposure after control measures have been applied
4. Consider any known medical / health issues or allergies of persons likely to be involved in the task
5. Identify the need for health surveillance by categorising the substance / task using the guidance below



High Hazard Exposure

Exposure of an individual to certain high risk substances and / or situations at work including:

- Asbestos / lead containing materials
- Ionising radiation (>6mSv/year)
- Noise ($\geq 85\text{db(A)}$ $L_{EP,D}$ normalised to 8h period)
- Vibration (WBV or HAV at action level averaged over 8h)
- Work in pressurised atmosphere (e.g. diving, tunnelling)

Skin / Respiratory (Residual / Infrequent Exposure)

Where the level of exposure is well controlled and therefore very low or the exposure is infrequent (and below the occupational exposure levels set out in EH40) but there is still likely to be some small exposure to the substance in question.

Skin / Respiratory (No Exposure)

Where exposure has been fully controlled by engineering controls such as the use of sealed systems, glove boxes, local exhaust ventilation, personal protective equipment or other robust control measures therefore ensuring that people do not come into contact with the substance.

Substances listed in CoSHH Schedule 6*

Exposure to any substances used in processes specified in Schedule 6 of the CoSHH Regulations 2002:

- Vinyl chloride monomer
- Nitro/amino derivatives of phenol or benzene
- Potassium/sodium chromates or dichromates
- Ortho-tolidine, dianisidine, dichlorobenzidine and salts
- Auramine / magenta
- Pitch (as binder in manufacture of blocks of fuel)
- Carbon disulphide, disulphur dichloride, benzene (including benzol), carbon tetrachloride, trichloroethylene

Skin / Respiratory (Sensitive Individual)

Where the level of exposure is well controlled and therefore very low or the exposure is infrequent (and below the occupational exposure levels set out in EH40) but an individual is deemed to be particularly sensitive e.g. young persons, pre-existing health conditions, prior sensitivity, women who are pregnant or breastfeeding.




Harmless Substance

Where the properties of a substance have been comprehensively investigated and the substance is known to present no risk of skin or respiratory ill health to exposed individuals.

Skin / Respiratory (Uncontrolled Exposure)*

Regular exposure to any of the substances or processes listed in tables 1 or 2 either by direct skin contact or inhalation or substances in any form. Note that in most cases health surveillance is only required in cases where there is regular exposure of unprotected individuals to the substance.

Colour Key

-  Health surveillance will generally be required
-  Health surveillance should be considered on an individual basis
-  Health surveillance unlikely to be required

*Note: If an uncontrolled exposure is identified the risk assessment should be reviewed and additional control measures introduced where practical

Table 1: Substances that may cause occupational Dermatitis (not exhaustive)

Exposure (i.e. physical contact) with any of the following substances may cause dermatitis, in some cases skin may become sensitive to certain substances over time meaning that exposure to even a small amount may cause a serious reaction. Note that while this list gives a good indication of the types of substance that may cause occupational dermatitis it is not exhaustive.

- Epoxy resins
- Latex (including the use of latex gloves)
- Rubber chemicals
- Soaps, detergents and cleaning chemicals
- Metalworking Fluids
- Cement
- Enzymes
- Wood and wood dusts
- All substances classified as skin irritant or corrosive
- All substances classified as skin sensitisers*
- Solvents (especially degreasers) may lead to an increased risk of dermatitis
- Wet working**
- Prolonged use of protective gloves (including vinyl and nitrile gloves)

* Usually noted on safety data sheet or by “Sk” notification in EH40

** Prolonged or frequent skin contact with water (more than 20 hand washes or 2 hours of contact)

Table 2: Substances that may cause occupational Asthma (not exhaustive)

Exposure (i.e. inhalation) with any of the following substances can lead to the development of occupational asthma. In some cases regular exposure to a substance may lead to sensitisation meaning that even a small exposure can trigger adverse health effects. Note that while this list gives a good indication of the types of substance that may cause occupational asthma it is not exhaustive.

- Isocyanate compounds (including two-pack spray paints)
- Flour dust
- Grain dust
- Wood dust
- Glutaraldehyde
- Latex (including powdered natural rubber latex)
- Rosin-cored solder fume
- Laboratory animals (including insects and birds) and associated equipment / products e.g. animal feed, clean and soiled bedding, insect scales etc.)
- Glues and resins
- All substances classified as respiratory sensitisers*

* Usually noted on safety data sheet or by “Sen” notification in EH40. A useful list of respiratory sensitisers can also be found in the HSE publication “Asthmagens”.

Specific health surveillance requirements

Control of Substances Hazardous to Health (CoSHH)

Statutory health surveillance where a CoSHH risk assessment indicates it is necessary to ensure the maintenance of adequate control of exposure of employees to substances hazardous to health. It is otherwise requisite for protecting the health of the employee who have significant exposure to:

- **Respiratory sensitisers including significant exposure to**
 - Small laboratory animals
 - Wood dust
 - Agricultural and horticultural grains and dusts
 - Natural rubber latex
 - Allergenic small molecules (isocyanates, formaldehyde, glutaraldehyde etc.)
 - Allergenic organic molecules (penicillin, enzymes etc.)
- **Significant exposure to substances and chemical agents with serious long term effects low levels of exposure or where there is significant risk from skin exposure**
 - Chronic toxins (for example toxic heavy metals and organometals)
 - Potent steroids
 - Cytotoxic anti-cancer drugs
 - Toxic pesticides
- **Significant exposure to carcinogens, mutagens etc**
- **Significant risk from biological agents**
- **Exposure to substances where Schedule 6 of CoSHH Regulations specifically applies**

Worked examples of health surveillance considerations are shown overleaf:

Example: Workplace Noise

A technician working for a specialist research group is required to operate a piece of equipment in a noisy plant room for long periods of time. The noise level has been measured and is in the region of 86db(A) when normalised to an 8 hour period. The technician has previously suffered some hearing loss during previous employment and generally wears hearing protection to reduce the level to a safe level whenever working in the plant room.

In this case health surveillance in the form of audiometry would be required for two reasons, firstly the noise level is above the upper exposure action value of 85db(A) $L_{EP,D}$ secondly, the technician has already suffered some hearing loss and could be classed as a vulnerable individual and any further loss of hearing should be closely monitored.

Example: Chemical Exposure

A research assistant working in the school of chemistry periodically carries out experiments using chromium (VI) salts which are irritant substances listed in EH40 as respiratory sensitisers. The compounds are supplied in the form of fine powders which easily become airborne and up to 10g are used in each process. To help control exposure the substances are handled in a fume cupboard and the researcher is required to wear nitrile gloves, safety glasses and a lab coat.

In this example health surveillance is unlikely to be required, while the substances are respiratory sensitisers, the use of the fume cupboard means the individual shouldn't be exposed in significant quantities.

Example: Exposure to Animals

A visiting researcher is involved in a series of experiments which require long term observation of mice which have been genetically modified to identify any health effects arising from the modification. This generally involves checking the animals twice a day for a period of ten minutes. The mice are housed in a dedicated room containing twenty animals with each housed in a separate (non-ventilated) cage.

In this example health surveillance would be recommended, although the duration of each individual visit to the animal house is very short, several visits are made. Animal bedding, skin and other by-products are highly allergenic and the HSE recommend respiratory health surveillance for anyone with regular contact with laboratory animal, cages or bedding.

Example: Latex Gloves

A senior lecturer is involved in demonstrating techniques for solvent cleaning of textile samples of historical significance to students undertaking research projects in the area. Due to the nature of the solvents and the samples it is necessary to use powder-free latex gloves for the procedure which can take several hours to complete correctly. The solvent used is extracted using a local exhaust ventilation system and does not penetrate the gloves.

In this example health surveillance would be recommended due to the use of latex gloves which are likely to be worn for a considerable period of time. Many people are allergic to latex which is a skin sensitiser and can cause occupational dermatitis. In this case the most likely form of health surveillance would be regular skin checks by a competent person.

The '**health surveillance risk assessment form**' will help you in deciding if health surveillance is required for your staff and is available from the Quick Links on the [SEPS Health Surveillance webpage](#).

Having identified the hazards, the criteria applied for conducting such health surveillance will be:

- Is the activity or substance associated with an identifiable disease or other identifiable adverse health outcome?
- Is there a validated technique for detecting indications of the disease or health effects? Health surveillance is only worthwhile where it can reliably show that damage to health is starting to happen or likely to happen.
- Is the validated technique specific to the disease or health effect to be identified and is it safe and practicable in the work setting.
- Is there a reasonable likelihood that the disease or health effect may occur under the existing circumstances?
- Is health surveillance likely to benefit the employee?

Following the risk assessment process, **staff identified as requiring health surveillance**, should be referred to the Occupational Health Unit using the request form available on the [SEPS Health Surveillance webpage](#).

ALL referrals to Occupational Health MUST be accompanied by a copy of the relevant risk assessment. Occupational Health are unable to act on referrals without this information.

Further Information

For more information about specific issues of health surveillance in the workplace, see these factsheets covering some of the more commonly encountered work related health issues:

- [Advice for Employees Attending Health Surveillance](#)
- [Breathe Freely](#)
- [Hand Arm Vibration Leaflet](#)
- [Protect Your Hearing](#)
- [Sun Protection](#)
- [Work-related Dermatitis](#)
- [University of Glasgow Wet Workers Policy](#)