HKU Med LKS Faculty of Medicine
Centre for Comparative Medicine Research
香港大學比較醫學研究中心

Medical Surveillance and Respiratory Protection Program for Laboratory Animal Workers

1. Purpose:

The University of Hong Kong is committed in providing a healthy working environment for all personnel, including those handling laboratory animals. An occupational health program, aiming at laboratory animal allergies, zoonotic disease prevention, and protection from hazardous chemical exposure has been established for all animal workers.

The occupational health program for laboratory animal workers includes the following: pre-employment / pre-placement medical surveillance; periodic surveillance; vaccinations; medical review; management on bites and scratches; management of needle-stick injury; recording and reporting system; personal protective equipment and advice on manual handling.

Animal workers are staff and students, working in the animal facility and whose work involve contacting or handling animals and / or their excreta or contaminated plant or equipment.

Those with incidental or infrequent access to animal facilities but no direct contact with animals or hazards (e.g. contractors or visitors) are provided with necessary PPE and are asked to take an allergy questionnaire and are briefed on animal allergen risks and other hazards within animal areas but no further medical evaluation is provided.

All HKU staff and students have access to the University Health Service (UHS) and all CULATR projects have a risk assessment conducted by University Safety Office (USO) for work with hazardous agents.

UHS keeps a record of the pre-employment medical surveillance and ongoing surveillance of high-risk categories (e.g. those with potential exposure to carcinogens or hazardous agents or dirty bedding dumping). All personnel that undergo annual allergy questionnaire are issued with a confirmation of completion, which is used to grant access to CCMR animal facilities. All work-related injuries and accidents are reported to the USO and the Department Heads. Department Heads keep records of all work-related injuries and accidents in animal workers (including all bites and scratches, near miss injuries as well as investigation & follow-up procedures taken).

2. Pre-employment / Pre-placement Medical Surveillance for Laboratory Animal Workers:

All animal workers, i.e. those whose work involve contacting or handling animals and / or their excreta or contaminated plant or equipment are requested to undergo medical surveillance.

Department Chairperson/School Directors will notify UHS before an employee starts working as an animal worker. UHS uses a Pre-employment Medical Surveillance Questionnaire and Job Hazard Evaluation form to identify those who would be more vulnerable to develop or have already developed allergy to laboratory animal (ALA), perform hazardous work duties, provide baseline data for later periodic screening, raise awareness of the disease and inform individuals where confidential medical advice can be sought if ALA symptoms develop, and determine vaccination status and requirements.

All animal workers are offered vaccination against tetanus during pre-employment evaluation. Vaccination against rabies is suggested for those animal workers in contact with in-quarantine ferrets. Department Heads contact UHS for the appropriate arrangement when necessary. All animal workers with exposure to poultry, domestic or non-domestic birds are offered influenza vaccination every year for personal protection.

Laboratory animal workers are urged to seek UHS medical review when they develop allergy, observe a change in health status such as change of an existing medical condition or immune system, are pregnant or planning a pregnancy, suffer from long-term illness or cancer, develop any health concerns related to animal exposure or suffer wounds (e.g. needle-stick injury, animal bite or scratches) at work.

Those with symptoms of allergy are urged to seek further assessment and treatment by USO and UHS. If occupational asthma is likely to happen, prevention of further exposure by appropriate use of Respiratory Protective Equipment or job redeployment may be recommended.

Prior to initial access to all animal facilities, an animal allergen questionnaire must be completed, with personnel identified at higher risk referred to the UHS or medical practitioner for follow up. All CULATR members, maintenance workers that may also have periodic visits to animal areas are also invited to undergo allergen questionnaire.

3. Periodic Medical Surveillance

The purpose of periodic medical surveillance is to detect any early signs of occupational diseases so that any corrective actions can be started early to stop the progression.

a) Allergy Surveillance

All animal workers that have daily and prolonged contact with laboratory animals (e.g. CCMR staff and researchers) are required to undergo allergy surveillance each year. Other workers or those with incidental contact (e.g. CULATR members) with less frequent contact are requested and reminded to undergo periodic medical surveillance approximately each year:

- Allergy surveillance is by confidential online questionnaire.
- Those with symptoms of allergy or at higher risk will be recommended to seek further assessment.
- Symptoms of allergy are advised to be treated by the UHS/ medical professional with advice, medication and further investigations as appropriate.
- All animal workers, including those with incidental contact, are reminded to report to UHS/medical professional whenever symptoms of allergy develop. Posters are prominently displayed at all entrances to animal areas.
- If occupational asthma develops, besides giving medical treatment, prevention of further exposure by the appropriate use of Respiratory Protective Equipment or job redeployment will be recommended
- Evidence of completion of the allergy questionnaire within the last year will be a pre-requisite for access to CCMR facilities for animal workers.

Personnel who have pre-existing rodent allergies (Allergies to Laboratory Animals, or ALA) are much more likely to worsen with continued exposure to these allergens. Engineering controls are the first line of defence in areas where there may be exposure to animal allergens. However, particularly where engineering controls are not feasible, the use of powered air purifying respirators (PAPR) along with other required personal protective equipment (PPE) are necessary to protect the health of those personnel with pre-existing ALA, or those with increased risks, e.g. when dumping soiled cages without engineering controls.

b) Work with Hazardous Agents

All personnel undergoing work with hazardous agents will have a risk assessment conducted by the University Safety Office (USO). Based on the risk assessment, personnel may be requested to undergo medical evaluation or surveillance prior to work beginning e.g. when using carcinogenic substances, radiation or microorganisms or when involved with bedding dumping and cage cleaning. Further details can be found at: http://www.safety.hku.hk/homepage/bio.html

4. Personnel Protection

As a default, engineering controls are used as a primary method of personnel protection e.g. use of biosafety cabinet, dump station, high air change frequency etc., and supplemented with the use of standard PPE that includes, surgical mask, hair net, gown and shoe covers. In cases where risk assessment deems necessary additional respiratory protection may be provided.

a) Selection of Respirators

Powered Air Purifying Respirators (PAPR) are provided for respiratory protection for those staff members with pre-existing ALA or at higher risk of acquiring a ALA due to the job nature, or when needed for hazardous chemicals or substances use. (e.g. H_2O_2fumigation, ClO_2 fogging etc.)

The filter type is selected based on the type of work encountered. HEPA filter cartridges are used for work with animals, animal bedding or infectious agents, whereas chemical filters are used for use of hazardous disinfectant agents.

N95 or other disposable respirators (e.g. FFP2, KN95) are not generally used within animal facilities for the purpose of allergy prevention or personnel protection as surgical masks are adequate due to engineering controls. In the rare instances should N95 (or respirator) wearing be required for work purposes, to ensure occupational health and safety, fit testing by a qualified person and medical evaluation by a health care professional is required and will be provided.

However, per OSHA Guidelines, personnel choosing to wear respirators when not required by the institution do not require fit testing e.g. staff choosing to wear an FFP2 mask during Covid-19.

Staff voluntarily choosing to wear their own respirator or one provided for voluntary use by the institution should:

Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.

Ensure that the respirator does not limit their ability to freely breathe, and seek medical advice or evaluation from UHS if unsure of suitability to voluntarily wear such a respirator.

b) Use of PAPR

Personnel who are strongly recommended by UHS or USO to wear a PAPR to prevent worsening ALA, or when at high risk e.g. soiled bedding dumping or chemical fogging of rooms without use of engineering controls, shall have training prior to initial use, and the training documented.

Personnel may opt out of wearing a PAPR to prevent worsening ALA and this shall be documented in their record.

Personnel must wear the PAPR in the manner in which they were trained and in accordance with manufacturer recommendations.

Personnel should inform UHS of the need for medical re-evaluation if they are having worsening allergy symptoms, significant changes in health status, significant weight gain or loss.

c) Personnel Training on PAPR

All personnel will be individually trained on how to use and check the PAPR. Maintenance and storage of PAPR will also be reviewed during training.

Training will be provided by a competent person to each staff member. This shall include, but not be limited to:

Reasons for respiratory protection and why a particular type of respirator is being used

Explanation of operation, capabilities and limitation of the PAPR chosen for personnel

Training on donning, doffing, wearing, checking the PAPR

d) Maintenance of PAPR

Proper maintenance of PAPR is the responsibility of each personnel issued a PAPR.

PAPR should be maintained and cleaned properly; personnel are trained according to manufacturer recommendations. PAPR are generally assigned to one individual. In certain situations, PAPR may be used by multiple people. In this case, PAPR must be cleaned and disinfected after each use.

PAPR should be inspected prior to use to make sure that all parts are working properly; there is adequate battery; any defective pieces should be replaced and if not possible to be replaced, a new PAPR should be used.

PAPR use, maintenance and cleaning should be accomplished according to the manufacturer instructions.

5. References

1. University Safety Office Health and Safety Information for those Working with Animals in the University of Hong Kong http://www.safety.hku.hk/homepage/pdf/AWHS.pdf
2. OSHA 1910.134 App D - (Mandatory) Information for Employees Using Respirators When not Required Under the Standard. https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134AppD

Reviewed and Approved by the CCMR Safety Committee on:

13/9/2022
Date:

Jennifer Go
Dr. Jennifer Go – Chairperson

Endorsed by:

13/9/2022
Date:

Dr. Dewi Rowlands – Director