Background

Occupational health surveillance is often called "medical surveillance", because employee health parameters that correspond to specific occupational risks are evaluated and monitored.

For example, if an employee has an occupational exposure to formaldehyde or formalin, either through laboratory use, or field work, their respirator or other exposure protection measures may fail and they may experience an overexposure. This overexposure may be unapparent, even though it's potentially hazardous to their health. They should be a participant in medical surveillance to monitor that exposure risk through baseline and annual medical evaluations. Also, a half-face negative-pressure respirator places a cardiovascular stress on individuals, thus presenting a potential negative health impact if they have any known or unknown underlying medical conditions. A medical evaluation, abbreviated just for this risk, will verify that the employee is physically qualified and cleared to perform their work while wearing a respirator. This medical evaluation includes a health history review and pulmonary function testing to verify the employee’s heart and lungs are healthy, and can provide enough oxygen under work and respirator use stresses. These are just two examples of a number of occupational health surveillance protocols designed to address the specific work conditions and potential risks of various occupations at Montana State University. The medical evaluation process is provided by a contracted occupational medicine provider, through the Occupational Health Surveillance Program.

Introduction

The purpose of the Occupational Health Surveillance Program is to provide services related to workplace risk factors, employee health, and to ensure the work environment is not adversely affecting health and wellbeing. Scheduled health surveillance and early detection of changes in employee health are critical to providing associated medical care and addressing occupational risks. Montana State University (MSU) is committed to providing a safe working environment for all personnel.

The program requirements have been adopted from the Occupational Safety & Health Administration (OSHA), Centers for Disease Control (CDC), National Institute of Occupational Safety & Health (NIOSH), and National Institutes of Health (NIH) requirements. MSU staff must therefore comply with processes and procedures related to occupational risk identification and exposure control measures such as: engineering, administrative, and personal protective equipment. Participation in the occupational health surveillance program is determined by workplace job description and risk assessment.

MSU has partnered with Bridger Occupational Health (BOH) to provide occupational medicine services. Baseline and annual follow-up health surveillance services are offered as determined by workplace risk assessments. Scheduling and coordination of services related to staff occupational health surveillance is managed through MSU Safety & Risk Mgmt. (SRM). Medical services are provided as deemed appropriate by risk assessment and the BOH medical providers, the costs of which are covered by MSU.

An outline of workplace risk factors and programs at MSU that trigger participation in occupational health surveillance is outlined in the MSU Occupational Health Surveillance Services Matrix. SRM and the Office of Research Compliance (ORC) can assist in evaluating potential exposures to workplace health hazards and help identify specific health surveillance requirements and recommendations as appropriate. Medical surveillance is either recommended or required after giving consideration to factors such as: regulatory standards, work activities, the duration of the task(s), the material(s) being used, and the potential for employee exposure to meet or exceed occupational exposure criteria. Participating employees will undergo a baseline and annual medical evaluations by a licensed medical provider at BOH.
**Requirements**

The following regulatory standards require occupational health surveillance:

**OSHA 29 CFR 1910.95 Occupational Noise Exposure**
Employees exposed at or above the action level.

**OSHA 29 CFR 1910.134 Respiratory Protection**
Employees required to wear a half or full face respirator.

**OSHA 29 CFR 1910.1001 Asbestos**
Employees exposed to asbestos at or above the permissible limit or excursion limit for 30 days/year; perform Class 1, 2, or 3 asbestos work for 30 days/year.

**OSHA 29 CFR 1910.1025 Lead**
Employees exposed to lead (metallic or inorganic lead) at or above the action level for more than 30 days/year.

**OSHA 29 CFR 1910.1030 Bloodborne Pathogens**
Employees potentially exposed to human blood or other potentially infectious materials (OPIM).

**OSHA 29 CFR 1910.1048 Formaldehyde**
Employees exposed to formaldehyde at or above the action level.

**OSHA 29 CFR 1910.1450 Laboratory Standard**
Medical consults and evaluations will be provided when an employee develops signs or symptoms associated with a chemical to which the employee may have been exposed in the laboratory; or when exposure monitoring reveals an exposure is routinely at or above the action level or PEL of an OSHA regulated substance; or whenever there is a likelihood that an employee was exposed as a result of an accidental spill or release.

**OSHA - Known or Suspected Human Carcinogens**
Workplace use of the following substances:
- 4-Nitrobiphenyl
- Alpha-Naphthylamine
- Methyl Chloromethyl Ether
- 3,3 Dichlorobenzine (and its salt)
- Bis-Chloromethyl Ether
- Beta-Naphthylamine
- Benzidine
- 4-Aminodiphenyl
- Ethyleneamine
- Beta-Propiolactone
- 2-Acetylamino Fluorine
- 4-Dimethylaminoazobenzine
- N-Nitrosodimethylamine
OSHA – Other Hazardous Substances
Workplace use of the following substances:
- Vinyl chloride exposures at or above the action level.
- Inorganic arsenic exposures at or above the action level for at least 30 days/year.
- Benzene exposures at above the action level for greater than 30 days/year.
- Acrylonitrile exposures at or above the action level.
- Ethylene Oxide exposures at or above the action for at least 30 days/year.
- Methylenedianiline exposures greater than or equal to the action level for 30 days/year.
- Cadmium exposures greater than or equal to the action level for 30 days/year.
- Organophosphate at any exposure level.
- Significant and prolonged use of mercury, chlorinated solvents, heavy metals, or other solids and liquids with chronic toxicity whereas: enclosure and local exhaust ventilation are not available or ineffective, prolonged glove contact is necessary and material is capable of rapid absorption through the skin, or oral ingestion is possible from contaminated surfaces and the material is a systemic poison.

Radiation & Thermal Hazards
- Radioactive material usage as determined by the MSU Radiation Safety Program.
- Lasers - Class 3b and 4 as determined by the MSU Radiation Safety Program.

DOT 49 CFR 391.41 Commercial Driver’s License
Employees required to have a commercial driver’s license to perform their work duties. The purpose of the health history review and evaluation is to detect the presence of factors that can affect the individual’s ability to operate motor vehicles that require a commercial driving license.

Animal Handling & Biological Agents
Employees working with animals and biological organisms require specialized medical surveillance due to the unique aspects and potential hazards of these constituents.

Animal-based work activities must submit a protocol to either the Institutional Animal Care & Use Committee (IACUC) or Agriculture Animal Care & Use Committee (AACUC) before commencing activities. The protocol shall include the following as it correlates with occupational health and safety issues:
- description of precautions necessary to prevent occupational exposure issues related to animals, chemicals, or biological organisms
- specific safety trainings completed by staff
- what actions to take in the event of exposures

Zoonoses are diseases that can be transmitted from animals to humans. These are generally not well known to general medical providers and thus communications regarding specific organisms that are potential exposure concerns for employees must be evaluated and monitored. Work practice protocols and exposure control factors are to be reviewed, and specific education provided to assist employees potentially exposed to zoonoses such as:
- Tetanus
- Q Fever
- Herpes B Virus
- Brucellosis
- Other naturally occurring small or large animal diseases.

Individuals who have a prior health history or a familial history of allergies may be at risk for developing work-related animal allergies. As with zoonoses, general medical providers awareness of work-related animal allergies are generally not well known. Thus communications regarding development of allergic symptoms and encouraging employees to self-report potential exposure concerns is vital to early detection and treatment through the Occupational Health Surveillance Program.
Studies have shown that the incidence of animal allergies among animal handlers may be as high as 30%. It can take a few months, or up to several years of animal handling work for allergic symptoms to potentially develop. Continual monitoring and education is provided to assist employees.

Work activities involving biological agents must submit a protocol to the Institutional Biosafety Committee (IBC) before commencing activities. This protocol shall include the following as it correlates with occupational health and safety issues:
- description of precautions necessary to prevent occupational exposure to the biological agent(s)
- specific safety trainings completed by staff
- what actions to take in the event of exposures

**SURVEILLANCE PROGRAM ELEMENTS**

Medical related questionnaires and evaluations are to be confidential and completed during the employee's normal working hours or at a time and place convenient to the employee. Employees are provided an opportunity to discuss any uncertainties or concerns regarding the questionnaires with MOH and SRM.

The following forms and/or information are to be collected from employees on an annual basis to identify changes in work activities, potential exposures, and health status:
- Occupational Health & Safety Risk Assessment
- Medical/Health History

Individuals at increased risk of acquiring illnesses or for whom an occupational exposure may have unusually serious consequences, are to be informed of their increased risk and are only permitted to work in specific campus locations at the discretion of BOH, SRM, ORC, supervisors, and other pertinent MSU officials.

Baseline and annual medical surveillance evaluations entail identifying possible work related unknown and asymptomatic exposures or potential exposures, and can include but are not limited to:
- Interim medical and health history with emphasis on immunological health, acute or chronic illnesses, fevers, possible exposures, work related issues.
- Discussion of occupational exposures, prevention, reporting, review of symptoms related to exposures.
- Occupational Health & Safety Risk Assessment
- Animal Allergy Questionnaire
- OSHA Respiratory Questionnaire
- Pulmonary Function Test (1 or 5 year intervals or as indicated)
- Chest X-Ray (1, 5, 10 year intervals or as indicated)
- Audiogram (as indicated)
- Urinalysis (as indicated)
- Complete blood chemistries and metabolic panels (as indicated)
- Vaccines and recommendations for immunizations (as indicated)
- DOT specific evaluation for Commercial Driver’s License

**Respiratory Protection**

Respiratory protection places a unique physiological burden on individuals. Therefore the utilization of negative pressure respiratory protection (half or full face filter cartridge respirators), prior to completion of a baseline occupational evaluation is not permitted. The baseline occupational health evaluation provides medical clearance and authorization to wear such equipment based on the OSHA respiratory protection standard. After receiving medical clearance/authorization, SRM will provide respiratory protection safety training, fit testing, and issue appropriate equipment. (See MSU’s Respiratory Protection Program for additional reference: [http://www.montana.edu/srm/occupational/respiratoryprotection.html](http://www.montana.edu/srm/occupational/respiratoryprotection.html))
MSU provides additional respirator-based occupational health evaluations if:
- An employee reports medical signs or symptoms that are related to workplace exposure and/or respirator usage;
- BOH, SRM, or the supervisor informs MSU that an employee needs to be reevaluated;
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

**Notification of Changes in Employee Health Status**
Any changes noted during employee occupational health evaluations relevant to occupational qualifications, restrictions, or exposures, are to be communicated to the affected employees by BOH and SRM. SRM will also communicate relevant information to MSU personnel that have supervisory and management responsibilities in relation to the affected employee.

**Recordkeeping**
Medical information collected as a result of occupational health evaluations and testing is maintained by BOH. SRM and campus Departments maintain copies of medical qualifications and any restrictions regarding work activities that result from employee occupational health evaluations. The aforementioned information is updated annually and retained for the duration of each employee’s employment, plus an additional 30 years post-employment. Employee medical records are provided upon request of the employee or to anyone having written consent of the employee within 15 working days. Such requests shall be sent to BOH.

The following documentation is generated from occupational health evaluations:
- Occupational surveillance testing conducted & results.
- Health education regarding work practices.
- Occupational exposure information.
- Immunizations administered or declined.
- Medical qualifications and restrictions to perform work duties.

**Responsibilities**

**Departments**
- Review and update position descriptions prior to posting and hiring, to assure they accurately reflect the elements of the job including potential exposures and hazards, personal protective equipment, physical requirements, etc.
- Provide training and guidance for supervisors and employees on the requirements of the occupational health surveillance program.
- Encourage employees to self-identify to SRM or BOH any medical concerns involving occupational exposure risks.
- Maintain files of employee medical clearance or restrictions forms as provided by BOH and employee supervisors.

**Supervisors**
- Inform SRM of new hires and assist employees with completing the Occupational Safety & Health (OSH) Risk Assessment Form within the first six months of employment. (Forms and additional information can be obtained through SRM and online: [http://www.montana.edu/srm/occupationalhealth.html](http://www.montana.edu/srm/occupationalhealth.html))
- Update position descriptions as needed to accurately reflect the elements of the job including exposures, personal protective equipment, physical requirements, etc.
- Review employee job tasks against the required medical surveillance criteria.
- Coordinate enrollment with SRM and BOH when medical surveillance is indicated for an employee.
▪ Assist with scheduling medical surveillance evaluations as required or recommended for affected employees.
▪ Encourage employees to self-identify to SRM or BOH any medical concerns involving occupational exposure risks.
▪ Obtain copies of medical clearance or restrictions forms from employees as provided by MOH.

Employees
▪ Complete the Occupational Safety & Health (OSH) Risk Assessment Form within the first six months of employment. (Forms and additional information can be obtained through SRM and online: http://www.montana.edu/srm/occupationalhealth.html )
▪ Work with supervisor to review content and accuracy of the position description and compare to the medical surveillance criteria.
▪ Participate in an initial and on-going occupational health surveillance program based upon the position description or as determined following a review of the employee job tasks against the medical surveillance criteria.
▪ Provide copies of medical clearance or restrictions forms to supervisors as provided by MOH
▪ Following an exposure, potential exposure, or other adverse event, notify supervisor.
▪ Following any exposure or adverse event, complete a First Report of Injury or Occupational Disease report. (Forms and additional information can be obtained through SRM and online: http://www.montana.edu/srm/insurance/WorkersCompensation.html )

SRM
▪ Serve as program administrator and coordinate the campus Occupational Health Surveillance Program.
▪ Assist Departments and Supervisors in evaluating positions with job elements potentially meeting the medical surveillance criteria.
▪ Coordinate services and information exchange with the occupational medicine provider.
▪ Provide exposure evaluations when deemed necessary.
▪ Assist Departments and Supervisors with occupational health surveillance clearance or restriction criteria.
▪ Encourage employees to self-identify to SRM or BOH any medical concerns involving occupational exposure risks.
▪ Monitor the incoming First Report of Injury or Occupational Disease reports and evaluate factors related to employee exposures, accidents, and illnesses.

Occupational Medicine Provider
▪ Administer the medical surveillance program following best practices
▪ Provide medical surveillance evaluations for employees based upon the position description or as determined following a review of the employee job tasks against the medical surveillance criteria.
▪ Make recommendations based on the evaluation results and provide completed medical clearance or restriction forms to employee and SRM.
▪ Assist with review and development of campus workplace procedures/guidelines that may present potential exposures to employees.
▪ Maintain medical records and make them available to employees upon request.
▪ Encourage employees to self-identify to SRM or BOH any medical concerns involving occupational exposure risks.
▪ Provide post-exposure follow-up, communications, and referrals as needed.
▪ Review the literature on various and specific components related to MSU’s Occupational Health Surveillance Program.
▪ Participate in continuing education opportunities and maintain certifications in the occupational medicine field.
▪ Make recommendations and changes to the baseline and annual medical evaluations based on current information.
▪ Administration – tracking surveillance needs and scheduling of appointments.
**OCCUPATIONAL SAFETY TRAINING**

Workplace safety training is available to all staff, and shall be renewed as prescribed by the corresponding regulatory requirements. Safety training program information can be obtained from SRM and online [http://www.montana.edu/srm/training/index.html](http://www.montana.edu/srm/training/index.html) Examples of applicable training subject matter that may be required are:

- Hazard Communication
- Laboratory Safety
- Respiratory Protection
- Hearing Conservation
- Personal Protective Equipment
- Bloodborne Pathogens
- Biosafety

**EXPOSURE INCIDENTS & INJURY REPORTING**

Employees experiencing any known, suspected, or potential occupational exposures, must inform their supervisor immediately. Employees may seek medical attention through the Workers' Compensation Program via the following providers: Bridger Occupational Health (406) 586-5694 from 8am to 6pm Monday through Friday or 9am to 5pm Saturday and Sunday, Bozeman Deaconess Hospital Emergency Room (406) 585-1000 24 hours a day, or a medical provider of their choice. Following the incident and/or after initial medical treatment, the supervisor shall assist the employee in completing a First Report of Injury or Occupational Disease form online within 24 hours of the incident to begin the workers’ compensation process: [http://www.montana.edu/srm/insurance/WorkersCompensation.html](http://www.montana.edu/srm/insurance/WorkersCompensation.html)

A follow-up investigation may be initiated by SRM and/or ORC as to determining the circumstances of the event, and examine potential options to prevent future occurrences.

**PROGRAM CONTACTS**

The following personnel and providers are available for assistance:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Additional Info</th>
</tr>
</thead>
<tbody>
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<td>461-8666</td>
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<td>Phil Merta</td>
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<tr>
<td></td>
<td>Office of Research Compliance</td>
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<tr>
<td>Bridger</td>
<td>Occupational Health</td>
<td>3406 Laramie Dr., Bozeman</td>
<td>586-5694</td>
</tr>
<tr>
<td>Deaconess Hospital</td>
<td>Emergency Room</td>
<td>915 Highland Blvd., Bozeman</td>
<td>585-1000</td>
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Medical Provider Surveillance Services

INTRODUCTION

Medical surveillance is the examination of employee health information to:

➢ Detect potential and actual exposure issues occurring in the workplace.
➢ Target exposure and hazard identification, analysis, prevention, and treatment.
➢ Identify at-risk employees via job descriptions, risk assessments, and health histories.
➢ Assist employees and supervisors in recognizing and understanding signs and symptoms of potential exposures.

Surveillance may be based on a single case or sentinel event, but more typically uses screening results from a group of employees being evaluated to look for abnormal trends in health status. Surveillance can also be conducted on a single employee over time.

OCCUPATIONAL MEDICINE PROVIDER

Overview

▪ Dedicated medical staff available during regular business hours and on-call as needed for afterhours consultation.
▪ Establish a relationship with the hospital emergency room staff who are available after hours for emergencies.
▪ Consult with hospital’s infectious disease specialist to address specific instances in which exposure to a biological agent or toxin may have occurred. Also utilize his/her expertise in establishing treatment protocols for medical staff to follow.
▪ Ongoing development of medical evaluation criteria and protocols based upon current information.
▪ Communicate (verbally and written) to employees regarding results of medical evaluations and arranging follow-ups.
▪ Availability for consults and questions from employees, supervisors, or other pertinent MSU officials.

On-Site Orientation and Visits

▪ The medical providers are to initially visit specific campus areas to meet with supervisors and their staff.
▪ Routine walkthroughs shall be scheduled to assist in making health and safety observations and recommendations.
▪ Establish and modify medical treatment protocols based on on-site walkthroughs.
▪ Attend campus committee meetings such as the IACUC and IBC to help stay informed of campus animal and biological based research activities.

Education on Work Practices & Behavior

▪ Medical staff will provide specific education during baseline evaluations according to the individual’s risk assessment and potential exposures. Additional education provided annually and/or as needed, particularly if work activities change.
▪ Ongoing development of written information to address specific behaviors and exposure potentials.
▪ Develop written health and exposure information in the form of employee handouts.
▪ Offer educational consults and presentations based on need and interest with a proactive focus on preventing occupational injuries and illnesses.

Assistance with Research Protocol Development

▪ Establish medical protocols for exposures to specific biological organisms, toxins, and chemical agents. This requires a comprehensive literature review and discussions with subject matter experts.
SURVEILLANCE – GENERAL PARAMETERS

Baseline Evaluation
1. Health History Review
2. Work Tasks & Risk Assessment Review
3. Bloodwork
   ▪ Determined By Risk Assessment
   ▪ Detection of Immunocompromised, Pre-Existing, and Other Underlying Health Conditions
4. Vaccination Status
   ▪ Immunizations Offered & Titers Evaluated - Determined By Risk Assessment
5. Pulmonary Function Test
   ▪ Determined By Risk Assessment, i.e. Facilities Trades & Certain Research Activities
6. Chest X-Ray
   ▪ Dependent Upon Risk Assessment, i.e. Facilities Trades & Certain Research Activities
7. Eye Exam
8. Urinalysis
   ▪ Offered - Detection of Immunocompromised, Pre-Existing, and Other Underlying Health Conditions
9. Audiogram
   ▪ Determined By Risk Assessment
   ▪ Detection of Pre-Existing and Other Underlying Health Conditions

Annual Evaluation
1. Health History Review
2. Work Tasks & Risk Assessment Review
3. Vaccination Status
   ▪ Immunizations Offered & Titers Evaluated
4. Eye Exam
5. Urinalysis
   ▪ Offered - Detection of Immunocompromised, Pre-Existing, and Other Underlying Health Conditions
6. Pulmonary Function Test – 1 or 5 Year Intervals
   ▪ Determined By Risk Assessment, i.e. Facilities Trades & Certain Research Activities
7. Audiogram
   ▪ Determined By Risk Assessment
   ▪ Detection of Pre-Existing and Other Underlying Health Conditions

Exit Evaluation (Desired If Baseline or Annual Comparison Needed or Required)
1. Health History Review
2. Bloodwork
3. Pulmonary Function Test
4. Chest X-Ray
5. Eye Exam
6. Urinalysis
7. Audiogram

PROGRAM SPECIFIC SURVEILLANCE

The following surveillance programs are provided in addition to the Baseline, Annual, and Exit Evaluations according to job description and risk assessment:

Asbestos
Pulmonary Function Test
Chest X-Ray – 1, 5, 10 Year Intervals (Interval Dependent on Pulmonary Function Test Results)

Bloodborne Pathogens
Hepatitis B Vaccination Status – Immunization Offered & Titers Evaluated
**Biosafety Level 2**
Research Organism & Animal Specific Evaluations & Education
Research Organism & Animal Immunization Status – Vaccinations Offered & Titers Evaluated
Pulmonary Function Test

**Biosafety Level 3**
Research Organism Specific Evaluations & Education
Research Organism Immunization Status – Titers Evaluated
Pulmonary Function Test

**Laboratory Animal & Animal Biosafety Level 2**
Research Organism & Animal Specific Evaluations & Education
Research Organism & Animal Immunization Status – Vaccinations Offered & Titers Evaluated
Animal Allergy Questionnaire & Evaluation
Pulmonary Function Test

**Non-Human Primates**
Herpes B Education
Tuberculosis Evaluation
Immunization Status – Vaccinations Offered & Titers Evaluated

**Large Animal & Animal Biosafety Level 2**
Research Organism & Animal Specific Evaluations & Education
Research Organism & Animal Immunization Status – Vaccinations Offered & Titers Evaluated
Animal Allergy Questionnaire & Evaluation
Pulmonary Function Test

**Field Research**
Research Organism & Animal Specific Evaluations & Education
Immunization Status – Vaccinations Offered & Titers Evaluated (Research or Public Health Related)
Pulmonary Function Test – Respiratory Protection Dependent

**Carcinogen & OSHA Specific Substances**
Bloodwork (Specific to Substance Exposure)
Urinalysis (Specific to Substance Exposure)
Pulmonary Function Test (Specific to Substance Exposure)

**Hearing Conservation**
Hearing Questionnaire & Evaluation
Audiogram
Hearing Conservation Education

**Lead Based Paint**
Bloodwork - Specific to Lead Exposure (Interval Dependent on Baseline Results & Correlation with Exposure)

**Respiratory Protection**
OSHA Questionnaire & Evaluation
Pulmonary Function Test

**Commercial Driver’s License**
DOT Questionnaire & Evaluation