

Appendix B

Lead Medical Surveillance

UM-EHS Physical Examination Program EHS Physical Examination Policy #07c

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Policy

All employees who are exposed to lead above the action level in their work environment will have a medical surveillance program available. Procedures for administration, evaluation and follow-up of lead surveillance shall be in compliance with the MIOSHA Lead Regulations for General Industry and Construction (herein referred to as the regulations).

Medical Surveillance Procedure

1. Prior to placement in a job that has the potential to have lead exposure above the action level of 30 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$); employees will be provided with a physical examination. The examination will include at a minimum:
 - A detailed medical and work history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurologic problems;
 - A complete physical examination, with emphasis on the teeth, gums, hematologic, gastrointestinal, renal, cardiovascular and neurologic systems;
 - Pulmonary status should be evaluated if respiratory protection is to be used;
 - Blood pressure measurements;
 - A blood sample analysis to determine: blood lead level, hemoglobin and hematocrit, red cell indices and examination of peripheral smear morphology, zinc protoporphyrin (ZPP), blood urea nitrogen, and serum creatinine;
 - A routine urinalysis with microscopic examination;
 - Any other tests deemed appropriate by the examining physician by sound medical practice.

If employees may be exposed to lead at or above the action level of 30 $\mu\text{g}/\text{m}^3$ for more than 30 days in any consecutive 12 months, blood sampling and analysis for lead and ZPP levels shall be made available every 2 months for the first 6 months and every 6 months thereafter.

2. [U-M Occupational Health Services](#) will administer the medical surveillance program.
3. Medical examinations shall be made available at least annually for employees in this program.
4. Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95%) within plus or minus 15%, or 6 $\mu\text{g}/100\text{ml}$, whichever is greater, and shall be conducted by a laboratory licensed by the Centers for Disease Control (CDC), United States Department of Health, Education and Welfare or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.
5. Information provided to the examining physician by EHS shall include:
 - Copies of the lead standards and appendices.
 - A description of the employee's duties in relation to the exposure.
 - The anticipated exposure level to lead and any other toxic substance.

- A description of any personal protective and respiratory equipment used.
 - Prior blood lead determinations.
 - All prior written medical opinions concerning the employee in the University's possession or control.
6. U-M Occupational Health Services will submit to EHS the "physician's written opinion" from the examining physician which includes the following:
- The physician's opinion as to whether the employee has any detected medical condition that would place the employee at increased risk of health impairment from exposure to lead.
 - Any recommended special protective measures to be provided to the employee, or limitations to be placed on the employee's exposure to lead.
 - Any recommended limitation of the employee's respirator use.
 - The results of the blood lead determinations.
7. Follow-up surveillance:
- When the employee's blood lead level is between **10 – 15 µg/dl**, the employee should be called in for repeat lead testing. No ZPP is needed. If the repeat level is greater or equal to **10 µg/dl**, the employee should be scheduled for an appointment in the clinic to discuss potential sources of exposure.
 - When the employee's blood lead level is greater than **15 µg/dl**, the employee should be scheduled for an appointment in the clinic to repeat testing (no ZPP) and to discuss potential sources of exposure.
 - When the employee's blood lead level is at or above **40 µg/dl**, U-M Occupational Health Services will evaluate the employee in the clinic for potential sources of exposure, and will schedule the employee for follow-up blood sampling for lead and ZPP every two months. Follow-up testing will continue until two consecutive blood samples indicate a blood lead level below **40 µg/dl**.
 - When the employee's blood lead level is at or above **50 µg/dl**, U-M Occupational Health Services will schedule the employee for follow-up blood sampling for lead and ZPP once per month. Follow-up will continue until two consecutive blood lead samples indicate a blood lead level below **40 µg/dl**.
 - When the only abnormality is a ZPP above **50 µg/dl**, the employee will be asked to return to U-M Occupational Health Services one month from testing to repeat the lead and ZPP and to draw a CBC, which may explain the elevated ZPP. ZPPs over the lab normal of **35 µg/dl** but less than **50 µg/dl** will be reported as normal, as the literature considers these normal values and there would be an extremely low yield in looking for a "cause" for these values.
8. U-M Occupational Health Services shall not reveal to the University in the written opinion or in any other manner the specific findings or diagnoses unrelated to occupational exposure to lead.
9. The physician shall advise the employee of any medical condition, occupational or non-occupational, which dictates further medical treatment.
10. EHS will provide the employee with a copy of the physician's written opinion within five days after receipt or five days upon receipt.