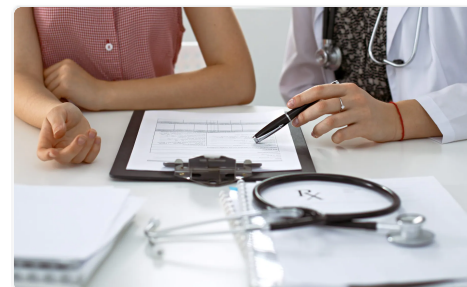


Blood Lead Level Guidance

KEY POINTS

- Blood lead tests are used to check a person's blood lead level to ensure workers are protected from lead exposure.
- Any amount of lead in the blood means a person was exposed to lead.
- There are several regulations/recommendations related to blood lead testing, blood lead levels, and lead exposure in the workplace.



About blood lead levels (BLLs)

Workplace safety and health professionals use BLLs to ensure workers are protected from lead exposure. Healthcare providers can measure your BLL by taking a blood sample. A lab tests the sample for lead.

Any amount of lead in the blood means a person was exposed to lead. Healthcare providers will decide on the best treatment based on the amount of lead in the blood.

Regulations and recommendations

The Occupational Safety and Health Administration (OSHA) and a few state agencies **regulate** BLLs in workers. Other government agencies and non-government groups offer **recommended** lead exposure limits.

The following table presents a range of BLLs along with related information and documented regulatory and recommended actions associated with each level. BLLs are in units of micrograms per deciliter ($\mu\text{g}/\text{dL}$).

0.855 $\mu\text{g}/\text{dL}$

- In 2017-2018, this was the typical BLL among adults in the United States. [\[1\]](#)

<p>3.5 µg/dL</p>	<ul style="list-style-type: none"> • The Council of State and Territorial Epidemiologists' (CSTE) blood lead reference value is 3.5 µg/dL. This value is used to identify adults and children whose blood lead levels are high than the 97.5th percentile of adults and children nationwide. [3] • The California Department of Public Health (CDPH) recommends that, if the BLL is between 3.5 to 9 µg/dL, the B test be repeated every 3 months for adults until their BLL is less than 3.5 µg/dL. [4] [5] • The American College of Occupational and Environmental Medicine (ACOEM) states it is advisable for women who are or may become pregnant to avoid occupational lead exposure that would elevate the BLL greater than or equal to 3.5 µg/dL. [6]
<p>5 µg/dL</p>	<ul style="list-style-type: none"> • The ABLES program uses 5 µg/dL to indicate an elevated BLL for surveillance purposes. • If pregnant, you should not exceed 5 µg/dL. The National Toxicology Program (NTP) concluded that people who are pregnant with BLLs even lower than 5 µg/dL can result in reduced fetal growth. [7]
<p>10 µg/dL</p>	<ul style="list-style-type: none"> • Below 10µg/dL, the NTP concluded lead increases blood pressure, the risk of hypertension, and the incidence of essential tremor. [7] • ACOEM and CDPH recommend repeat BLL tests every two months if a person's BLL results are between 10 to 19 µg/dL. [6]
<p>15 µg/dL</p>	<ul style="list-style-type: none"> • Michigan Occupational Safety and Health Administration (MIOSHA) requires BLL testing every 2 months for employee found to have a BLL of 15 µg/dL or higher [8]. Employees can return to work when they have 2 consecutive BLL tests below 15 µg/dL. • ACOEM believes workers should not return to work until the BLL is below 15 µg/dL and after a physician assessment of the worker's health and work status. [6]

<p>20 µg/dL</p>	<ul style="list-style-type: none"> • ACOEM and CDPH recommend medical removal if a worker has two consecutive BLLs between 20-29 µg/dL. [5] [6] • The American Conference of Governmental Industrial Hygienists (ACGIH®) guideline states that the typical worker can experience a BLL of 20 µg/dL without adverse health effect. [5] This guideline is intended for use in the practice of industrial hygiene, but others may wish to use these guidelines as supplements to occupational safety and health programs.
<p>25 µg/dL</p>	<ul style="list-style-type: none"> • ACOEM and CDPH recommend medical removal if a worker has two consecutive BLLs between 20-29 µg/dL. [5] [6] • The Occupational Safety and Health Administration (OSHA) considers a BLL of 25 µg/dL as serious and must be handled in inspection. This determination was based on OSHA's National Emphasis Program (NEP) for Lead [7], which was released to protect the health and safety of workers in industries determined to pose a higher risk to people and the environment.
<p>30 µg/dL</p>	<ul style="list-style-type: none"> • MIOSHA requires medical removal at 30 µg/dL. [8] • The Association of Occupational and Environmental Clinics (AOEC), ACOEM, and CDPH recommend that workers be medically removed from work with lead exposure if one BLL exceeds 30 µg/dL. [7] [6] [10] • ACOEM, CDPH, and MIOSHA have issued more stringent and health protective limits than other federal and state-based regulatory groups.
<p>40 µg/dL</p>	<ul style="list-style-type: none"> • If an employee has been medically removed from work based on a previously high BLL, OSHA permits the employee to return to work once 2 consecutive BLLs are measured below 40 µg/dL. [11]
<p>50-60 µg/dL</p>	<ul style="list-style-type: none"> • At a BLL of 50-60 µg/dL, OSHA requires medical removal. [11] • The employer must remove any employees exposed to lead in the workplace if their BLL is 50 µg/dL or more for workers in construction, or 60 µg/dL or more for workers in general industry.

SOURCES

CONTENT SOURCE:

[National Institute for Occupational Safety and Health](#)

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