

Blood and urine are the most common biological fluids utilised for analysis in the process of evaluating mercury exposures

GENERAL	Investigation of suspected Hg exposures (interpreting concentrations in biological fluids)		
	Suspected source	Test	Interpretation
<p>A urine or blood Hg concentration more than 500 nmol/L (100 ug/L) suggests significant Hg exposure and should be investigated</p> <ul style="list-style-type: none"> - Hg concentrations in blood and urine vary significantly amongst healthy individuals - There is poor correlation between blood / urine Hg concentration and degree of clinical toxicity - Regular seafood ingestion may lead to mild elevated blood Hg concentrations - Chelation assisted provocative urine mercury testing has no role in the management of Hg exposures and should not be utilised 	Seafood (fish) (Methylmercury – Organic Hg)	Whole blood (preferred test)	<ul style="list-style-type: none"> • There is no need to discontinue seafood intake prior to whole blood Hg measurement. • Blood Hg concentration of less than 25 nmol/L (5 ug/L): 95% of unexposed population • Up to 250 nmol/L (50 ug/L): possible with excessive predatory fish intake • More than 500 nmol/L (100 ug/L): Overt neurological toxicity usually observed.
	Vapour from broken thermometers, fluorescent lamps, industrial processes (Elemental Hg)	Spot urine (preferred test)	<ul style="list-style-type: none"> • Urine Hg concentrations lag weeks – months behind blood following chronic exposures (and therefore may under-estimate exposure) • Blood sampled within hours of exposure may overestimate body burden of Hg. • Blood Hg concentration of less than 25 nmol/L (5 ug/L): found in 95% of unexposed population. • Creatinine corrected spot urine concentration of less than 1.4 nmol/mmol creatinine (2.5 ug/g creatinine): found in 95% of unexposed population. • Blood or urine (non-creatinine corrected) Hg concentration more than 500 nmol/L (100 ug/L): significant neurological toxicity usually observed. • Subtle adverse effects may be apparent at lower Hg concentrations in chronic exposures. • An elevated spot urine Hg concentration may confirm exposure.
	Ayurvedic remedies, skin lightening creams, some industrial processes (Inorganic Hg)	Whole blood	
	RADIOLOGY <ul style="list-style-type: none"> - Plain films may be useful to estimate the body burden of injected or inhaled elemental Hg - CXR / CT may demonstrate alveolar damage following exposure to elemental Hg vapour - MRI brain may be useful in suspected organic Hg toxicity 	Subcutaneous injection or large ingestion (with aspiration) of elemental Hg	Spot urine Whole blood
Vaccines (ethylmercury – inorganic Hg) Dental amalgam (elemental Hg)		Generally, not indicated	<ul style="list-style-type: none"> • Ethylmercury containing vaccinations have been endorsed as safe by WHO. • Patients with extensive dental amalgam may have higher blood/urine Hg concentrations compared to the general population, there is no published evidence demonstrating that this cause adverse health outcomes
<p>- In significant inorganic and elemental Hg poisoning, 24-hour urine analysis may inform the response to chelation</p>			