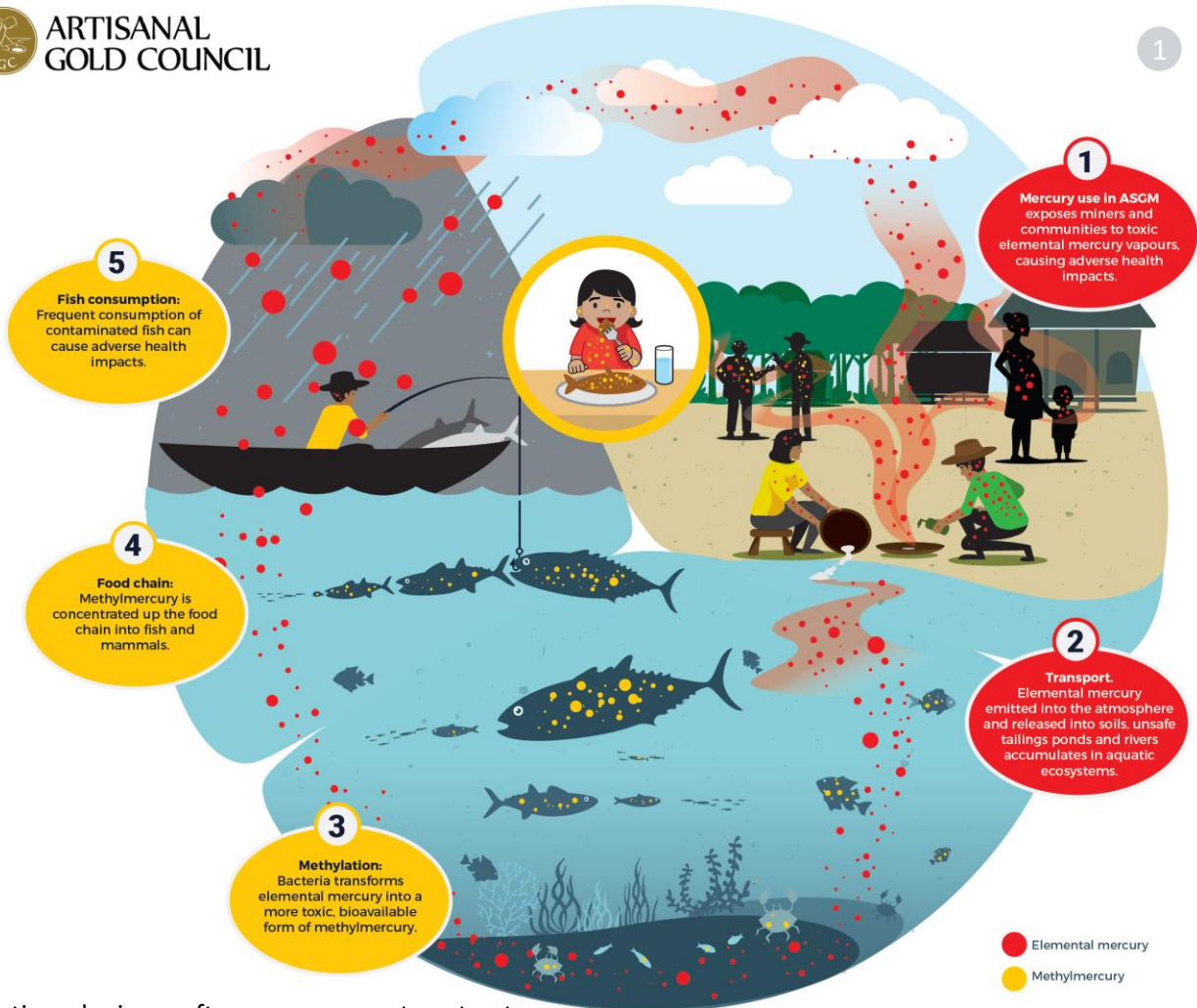


# Mercury use in artisanal gold mining

## How are we exposed to mercury?



ARTISANAL  
GOLD  
COUNCIL



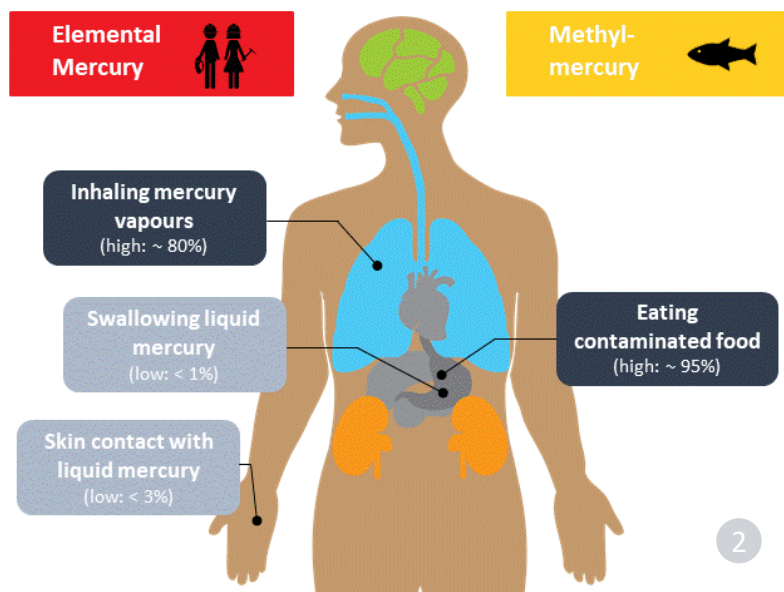
Artisanal miners often use mercury to extract gold from the ore (Figure 1, step 1). During this process, they come in contact with elemental mercury, a liquid silver. Elemental mercury is the only heavy metal that gives off an odourless, toxic vapour, even at room temperatures. Those vapours can also stick to cloths, tools or the walls.

The most dangerous step in producing the gold is burning the gold-mercury amalgam as miners and bystanders inhale the toxic vapours. Our lungs absorb around 80% of the mercury (Figure 2), which enters our blood stream and is distributed to different organs, mainly the brain and the kidneys.

The mercury released into the environment can accumulate in fish (Figure 1, step 2-4). If people eat contaminated fish, around 95% of the methylmercury is absorbed by our stomach, enters our bloodstream and mainly affects the brain and the heart.



## Mercury - How it gets into our body



# Mercury use in artisanal gold mining

## How does it affect our health?



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## Elemental mercury - How does it affect our health?

**High, acute exposure**



**Respiratory system:** A high, single dose of elemental mercury vapours entering the lungs can initially start within a few hours after exposure with an irritation or burning sensation of mouth, lips, gums and lungs. It can continue with chest pain and shortness of breath. Very high exposure can cause a chemical pneumonitis, which can be fatal.

**Stomach:** Initial symptoms also include nausea, diarrhoea and vomiting.

Other symptoms can include: Excessive salivation, fever, chills, headache, weakness, high blood pressure, irritation of eyes and skin

**Low, chronic exposure**



**Brain:** Regular exposure to elemental mercury, even in small amounts, causes mercury to accumulate in the brain. Effects can be felt weeks to years after exposure, and include for example memory issues or tremors.

**Kidneys:** Elemental mercury leaves the body through the urine, first passing the kidneys. Damage to the kidneys can be difficult to observe and symptoms such as swollen feet or hands often appear at a late stage.

The impact of elemental mercury use in artisanal mining depends on how often and how much people are exposed to it.

A single exposure to high amounts mainly affects the respiratory system (lungs) (Figure 3); in survivors, most symptoms resolve, but mercury can accumulate in the body, causing chronic symptoms.

The repeated exposure to small amounts of mercury, even just from a retort stored at home, can impact our brain and the kidneys (Figure 3 & 4).

The severity of the symptoms (Figure 4) depends on various factors:

- ▶ The frequency and dose of mercury exposure,
- ▶ Age: the unborn fetus in the mothers womb, infants and children are most vulnerable as their organs are still developing,
- ▶ Other medical conditions (e.g., kidney disease), and
- ▶ Genetic factors.

Symptoms from long-term exposure can occur soon after exposure, or even 5 to 10 years later. Some of the symptoms such as tremors in our hands can be reversible if the exposure to mercury stops. However, there is no medical treatment for chronic mercury intoxication!

Symptoms for poisoning from methylmercury (e.g., through contaminated fish) are similar as shown in Figure 4. However, methylmercury does not affect the kidneys, but the heart. High exposure can cause high blood pressure, damage to our coronary arteries, and even heart attack.

## Frequent Symptoms of Chronic Elemental Mercury Intoxication

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