
Research Article

Deadly Mass Methanol Poisoning in Laos, 2024

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Abstract

In mid-November 2024, news broke of a suspected methanol poisoning incident in the South East Asian country Laos, affecting tourists in the town of Vang Vieng. A local hostel was immediately implicated as the potential source where the affected tourists had been staying that were unwell. Over nine days, six fatalities were recorded, with Australian, Dutch, British and one American national as the victims, and reportedly another 11 were affected with the mass poisoning event reaching 17 casualties. A police investigation identified an illegal factory outside the capital producing contaminated spirits. The site was shut down, and its owners were arrested. However, the Lao Government never formally acknowledged the alcohol being produced at the illegal factory was the culprit behind the mass poisoning. Global poisonings occur a few times a year across the world with many occurring in South East Asian countries, including Thailand, India and Indonesia. But mass poisonings have also been reported in South Africa, Türkiye and the Russian Federation over the last decade. However, to date, there is no public early warning surveillance system capturing global methanol poisonings and alerting public health officials to investigate and implement public health measures. Given the widespread problem, it would be timely to consider establishing such a system.

Keywords: Methanol, ethanol, bootleg liquor, poisoning, Laos

Laos mass poisoning

In November 2024, news broke of a suspected methanol poisoning event in the South East Asian country Laos affecting tourists in the town Vang Vieng (1). A town once synonymous for alcohol and drug-fuelled parties, re-branded as an ecological tourism destination. Initial reporting was scarce with foreign media outlets providing media coverage after two 19-year-old Australian females had fallen ill on 13 November (2). The women were part of a larger group of tourists staying at the ‘Nana Backpacker Hostel’, which was suspected to be serving contaminated alcohol. However, the hotel owner denied the allegations and consumed the alcohol on camera to demonstrate its safety (3). The hostel reportedly gave backpackers over 100 shots of Tiger Vodka and Tiger Whiskey, which were the presumed link in the poisoning chain. Table 1 summarises the timeline of events and outcomes of the mass poisoning event, detailing the affected individuals by sex, nationality, age, date last seen well, date deceased and location of death. The total number of people affected in the mass poisoning event reached 17, including the six fatalities with a further 11 hospitalised (4).

Shortly after international media outlets began reporting on the tragedy, the Laotian Government began conducting investigations into the incident on 19 November (8). Police informed every hostel and

hotel in Vang Vieng to cease trading alcohol and were investigating the ‘Nana Backpacker Hostel’, which reportedly gave guests free shots of Lao Tiger vodka (9). By 26 November, eight staff at the hostel were arrested, including the manager, as part of the ongoing investigation (10). Police then identified an illegal factory outside Vientiane where the suspected tainted Lao Tiger vodka and whisky were being produced and arrested the owner on 1 December (11). The site was then shut down after authorities that they discovered “contamination that may pose a risk to public health and safety (12). A further three staff from the hostel were also arrested on the same day in connection with the deadly poisoning (13). Subsequently, Tiger Vodka and Tiger Whiskey have been banned from sale across the country. However, the Lao Government never formally acknowledged that the Tiger Vodka and Tiger Whisky brand was the culprit behind the mass poisoning, nor were any liquor samples produced to confirm the contamination.

Global poisonings

Several other poisonings have occurred in South-East Asian countries recently. Notably, 44 people were affected by a deadly methanol poisoning event in Bangkok in August 2024, where, eight fatalities were recorded (14). Another poisoning in India in June

2024 led to 57 deaths from methanol-laced bootleg liquor (15). In Indonesia in 2018, bootleg alcohol killed 45, with reportedly 100 affected (16). Raids were conducted, and many were arrested for the black-market operation.

However, poisonings are not isolated to South-East Asia. In October 2024, 26 people died from alcohol poisoning in Iran after drinking alcoholic beverages that were laced with methanol (17). In South Africa in 2022, 21 teenagers mysteriously died in a nightclub and toxicology reports found traces of methanol in their bodies (18). Three separate mass poisonings have occurred in Türkiye in recent years. In 2021 in Türkiye, bootleg alcohol led to the death of 25 people while 16 others were hospitalised (19). In 2024, another 22 people died and 24 received treatment after drinking tainted alcohol, police seized 410 litres of ethanol and methanol and 165 contraband alcohol bottles during a raid after this event (19). In 2020, 40 people died from alcohol poisonings (19). In 2011, four Russian nationals died and over 20 were sickened after drinking tainted whisky on a yacht (4).

Health consequences

Research has shown that no amount of alcohol (containing ethanol) is considered safe for your health (20), and consumption of alcohol is linked to several cancers and cardiovascular diseases (21) whilst also contributing to motor vehicle crashes, violence and suicide (22). Yet, methanol (methyl alcohol) can be found in bootleg or counterfeit products, which are a cheap alternative to ethanol, especially in Asia, but is highly toxic and often fatal.

Methanol is not intended for human consumption; it is a toxic chemical found in household and industrial products, but if ingested, it can cause liver damage, blindness and death if not treated quickly (23). Methanol is also naturally found in many fruits, vegetables, fermented food products and alcoholic beverages (24). When ingested or absorbed (through prolonged exposure to methanol in vapor of liquid form), methyl alcohol is metabolised generating formaldehyde and formic acid, which are highly toxic to humans (25). Formaldehyde formation in the retina leads to blindness and formic acid can lead to a state of severe acidosis (26).

Fatality number	Sex	Nationality	Age (years)	Date last seen well	Date deceased	Location of death
1	Female	Australian	19	12 November	21 November	Hospital (5)
2	Female	Australian	19	12 November	22 November	Hospital (5)
3	Female	Danish	20	Unknown	13 November	Hostel (6)
4	Female	Danish	21	Unknown	13 November	Hostel (6)
5	Female	British	28	Unknown	21 November	Hostel (7)
6	Male	American	57	Unknown	Unknown	Hostel (4)

Table 1: Demographics of fatalities in the 2024 Laos mass methanol poisoning event

The symptoms can be masked in the context of drinking alcohol as early symptoms resemble intoxication. Consuming as little as 25 millilitres is extremely dangerous (27). With 10 millilitres enough to cause blindness (28). Early symptom recognition of methanol poisoning is crucial in the pre-hospital setting to improve patient outcomes. Symptoms such as hyperventilation, chest pain, vomiting, abdominal pain can be misdiagnosed and should be considered if the affected person had consumed alcohol. Early intervention, including the use of the antidote fomepizole (29) (or ethanol as a second line) can

reverse the effects if diagnosed within 10-30 hours after ingestion (27).

Bootleg alcohol

Under normal conditions during the fermentation process of alcohol, methanol is generated as a byproduct through pectin degradation and is retained in very low concentrations in alcoholic beverages (24). During the distillation process of alcohol and bootleg alcohol, methanol will not normally evaporate and the distiller must separate ethanol and methanol (25). When this does not occur, the alcohol will be

contaminated whether knowingly or not. In many countries where home production or artisanal small-scale production of alcoholic beverages is traditional, this distillation process can lead to dangerous bootleg alcohol being produced. Clandestine breweries, however, produce alcoholic beverages to avoid taxation whilst conserving costs and extending their profits. Some clandestine distillers or brewers introduce methanol artificially into alcoholic beverages known as adulteration by illegal addition of the pure compound (24). This can lead to significant morbidity and mortality.

Counterfeit alcohol

In Australia, alcohol is rigorously regulated; therefore, adulterated beverages are rarely sold or consumed. However, earlier in 2024 Victoria Police uncovered a massive underground bootleg alcohol operation worth over \$1 billion that was supplying 80 licensed Victorian businesses (30). In 2018, an ABC investigation uncovered fake scotch and tequila being sold in liquor stores (31). But in many other parts of the world such as Southeast Asia counterfeit or bootleg alcohol is commonplace and a significant public health concern (32).

Counterfeit alcohol is a growing concern in today's society. The increasing costs of producing legitimate alcohol often leads producers to cut corners to distil alcohol more cheaply and quickly by adding water and methanol. The packaging of counterfeit alcohol closely resembles legitimate alcoholic beverages, making it hard for the consumer to really know what they are buying if the business is not reputable.

Despite the lost revenue for businesses, travel advisors such as DFAT in Australia often issues travel advisories due to the risk of tainted alcohol in some countries (33). Similar warnings are often made for other countries in South-East Asia including Cambodia, Vietnam, Malaysia, Thailand, Indonesia and the Philippines (34).

It is estimated that 25-40% of total alcoholic spirits consumed globally are counterfeit (35). The global trade of counterfeit alcohol is a growing problem, with

at least three billion euros lost in revenue per year due to the illegal trade (35). In 2018, the Scottish Universities Environmental Research Centre (SUERC) tested 55 bottles of Scotch Whisky that were old and considered rare, obtained from private collectors, auctions, and retail. Of these, 21 (38%) were counterfeit (35). In September 2024, 1,300 bottles of fake liquor disguised as reputable brands were seized in Hong Kong worth \$2.9 million, marking the largest haul in two decades (36). Also in September, a batch of vodka produced in Scotland was found to contain a deadly industrial solvent, isopropyl alcohol, which was not intended for human consumption (37). On a smaller scale in South Africa, 958 counterfeit Jameson Irish whiskey and Smirnoff Vodka bottles were found to be counterfeit in August (38). Recently in Abuja, Nigeria, the National Agency for Food and Drug Administration and Control (NAFDAC) shut down a counterfeit alcohol factory in their attempt to dismantle illicit alcohol production in the country (39).

Surveillance

Médecins Sans Frontières (MSF) in collaboration with Oslo University Hospital operates the Methanol Poisoning Initiative (MPI) to conduct routine surveillance on methanol poisoning events (28). However, to date there is no public early warning surveillance system capturing global methanol poisonings and alerting public health officials to investigate and implement public health measures. Given the widespread problem, it would be timely to consider establishing such a system.

Ethics approval statement

No ethics application was required for this study.

Conflicts of interest

No conflicts of interest have been declared.

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