



IS04

Pesticide suicide: a global health crisis

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Learning outcomes:

- An understanding of the global burden of pesticide suicide, particularly across Asia
- The impact of pesticide bans on suicide rates
- Why pesticide bans are an effective way to prevent deaths
- The importance of clinical toxicology data for policy engagement and regulatory action

Aim and objectives:

Pesticide self-poisoning is a major global health problem, responsible for approximately 14 million deaths since the Green Revolution in the 1960s. An estimated 150,000 people die every year, the majority in low and middle-income countries. This is a particular problem in rural farming communities in South Asia, where vulnerable people have easy access to acutely toxic highly hazardous pesticides.

Poisoning from acutely toxic pesticides is difficult to treat and many patients die before even reaching hospital. Evidence suggests that the most effective way to prevent deaths is through bans on lethal pesticides. However, regulatory action requires toxicology data on pesticide poisoning cases. Through data collection, we aim to establish the global burden of pesticide suicide, identify the pesticides responsible, and measure the effectiveness of bans to inform pesticide suicide prevention strategies.

Methodology:

Working with local clinicians, health officials, police and other authorities, data have been collected on pesticide poisoning cases in countries across Asia. These data were analyzed to identify the pesticides responsible for deaths. Through continued data collection on poisoning cases and suicide rates, we have examined how successful pesticide bans have been in reducing deaths.

Results:

Pesticide self-poisoning is a major problem in countries across Asia, including India, Pakistan, Sri Lanka, Bangladesh and Nepal. However, official data on pesticide poisoning and suicide are often underreported. Many countries lack the capacity to collect data due to immature surveillance systems. Deaths may also be underreported due to stigma and criminalization of suicide.



After the introduction of HHPs into small-scale rural agricultural practice in the 1960s, the suicide rate in Sri Lanka increased from 5/100,000 people older than 8 years to 57/100,000 in 1995. Taking note, the Pesticide Registration Authorities progressively banned parathion and methyl parathion in 1984 and then all WHO Class I toxicity

pesticides in 1995. There was a sudden, rapid fall in total suicides from that time. Subsequent bans of WHO Toxicity Class II pesticides endosulfan (in 1998), dimethoate, fenthion, and paraquat (in 2008-2011) have led to further major reductions in case-fatality for pesticide poisoning and suicides. The overall suicide rate is now 17 per 100,000 - a 70% reduction over 20 years - and continues to fall. In Sri Lanka, this approach saved an estimated 93,000 lives at the remarkable cost of \$50 per life and <\$2 per disability-adjusted life year (DALY).

Pesticide regulation is the most effective way to save lives. Evidence from countries that have implemented bans on highly hazardous pesticides, including Sri Lanka, Bangladesh, South Korea and China, has shown a reduction in the suicide rate with no adverse impact on agriculture.

Conclusions:

Implementation of pesticide bans has led to a marked reduction in deaths across Asia. Official data is often underreported due to stigma around self-harm and suicide and immature surveillance systems. As regulatory action is dependent on robust data and evidence, continued collection and monitoring of toxicology data is needed to inform policy decisions.