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### Fatal Intentional Pesticide Poisoning in Nepal: Its Burden and Opportunities for Improvement

Rakesh Ghimire<sup>1</sup>, Leah Utyasheva<sup>2</sup>, Pratap Narayan Prasad<sup>1</sup>, Sangha Ratna Bajracharya<sup>1</sup>, Bhupendra Basnet<sup>3</sup>, Nandu Kumar Pathak<sup>4</sup>, Madan Prasad Baral<sup>5</sup>, Birendra Chaudhary<sup>6</sup>, Rajan Pande<sup>7</sup>, Pramod Paudel<sup>8</sup>, Janak Thapa<sup>9</sup>, Dilli Ram Sharma<sup>10</sup>, Mahesh Maskey<sup>9</sup>, Michael Eddleston<sup>2</sup>

1. Maharjgunj Medical Campus, Tribhuvan University Teaching Hospital, Kathmandu, Nepal
2. Centre for Pesticide Suicide Prevention, University of Edinburgh, UK
3. BIR Hospital, Kathmandu, Nepal
4. Lumbini Zonal Hospital, Rupandehi, Nepal
5. Pokhara Academy of Health Sciences, Western Regional hospital, Pokhara, Nepal
6. Nepal Forensic Science Laboratory, Kathmandu, Nepal
7. Bheri Zonal Hospital, Nepalgunj, Nepal
8. Bharatpur Hospital, Chitwan, Nepal
9. Nepal Public Health Foundation, Kathmandu, Nepal
10. Plant Quarantine and Pesticide Management Centre, Ministry of Agriculture and Livestock Development, Nepal

**BACKGROUND:** Intentional pesticide poisoning is a major clinical and public health problem in agricultural communities in LMICs like Nepal. The objective of the HOPE GRID study conducted by the Centre for Pesticide Suicide Prevention is to identify the burden of pesticide poisoning and the highly hazardous pesticides (HHP) currently responsible for the majority of pesticide suicides from the selected hospitals and toxicology laboratories of Nepal.

**METHODS:** We reviewed one-year's data (Apr 2017-Apr 2018) on all pesticide-poisoning patients admitted to seven major hospitals. Two-year's data (2016-2018) were reviewed from the two Nepalese toxicology laboratories (the National and Central Police Forensic Science Laboratories). The poison was identified from the history, referral note, clinical toxidrome and/or laboratory analysis (although the police toxicology lab reported only the pesticide group, not compound). Data on demographics, poison, and patient outcome were recorded on a data collection sheet. Simple descriptive analysis was done.

**RESULTS:** Of 1,145 pesticide-poisoning patients admitted to hospital, case fatality was 4.36%. Aluminium phosphide (30%) was the key identified pesticide; however, in 46% of fatal cases, the pesticides were unknown. There were more men (56%) than women. The outcome was missing in 33% cases; 52% had intentionally poisoned themselves. Toxicology laboratories reported 1,883 fatal cases positive for pesticide poisoning. The most important pesticides were organophosphorus insecticides (55%), phosphine gas (from aluminium phosphide, 21%) and organochlorine insecticides (17%). Where identified, the most common organophosphorus insecticide was dichlorvos (35.5%).

**CONCLUSIONS:** Organophosphorus insecticides and aluminium phosphide were responsible for most pesticide suicides in Nepal. There may be opportunities to improve the management of poisoned patients if the poison is identified on admission. Encouraging toxicology laboratories to identify the individual pesticide compound can provide improved data that can be used to guide further pesticide regulation.