Michael Eddleston

I am Professor of Clinical Toxicology in the Pharmacology, Toxicology and Therapeutics Unit of the University of Edinburgh, and Consultant Physician at the National Poisons Information Service, Royal Infirmary of Edinburgh. I trained in medicine at Cambridge and Oxford, with an intercalated PhD at the Scripps Research Institute in La Jolla.

My primary research aim is to reduce deaths from pesticide and plant self-poisoning in rural Asia, a cause of as many as 200,000 premature deaths each year and the number two global means of suicide. To do this, I perform clinical trials in South Asian district hospitals to better understand the pharmacology & effectiveness of antidotes and community-based controlled trials to identify effective public health interventions. This work is complemented by translational studies of antidotes in porcine models of poisoning in the Wellcome Critical Care Laboratory for Large Animals in Edinburgh. I have recently established the Centre for Pesticide Suicide Prevention at the University of Edinburgh to drive research into and implementation of pesticide regulation (www.centrepsp.org). Two studies are now in the set up stage - an RCT in 4 Bangladeshi tertiary hospitals testing the effectiveness of calcium channel blockade in acute organophosphorus insecticide poisoning and a step-wedge cluster RCT in the North Central Province of Sri Lanka to test a gatekeeper approach in pesticide vendors to reduce sales of pesticides to people who then drink them.

Prevention of Pesticide Related Suicide Deaths in South Asia

Michael Eddleston, University of Edinburgh

Pesticide self-poisoning kills at least 150,000 people every year, many of them in rural Asia. Over 14 million people are estimated to have unnecessarily died since the Green Revolution brought highly hazardous pesticides into people's houses in the 1950s. Prevention will need to work at multiple levels, with patients, with communities, and with governments. Clinical studies over the last 20 years has clarified effective treatments for OP insecticide poisoning while high-quality supportive care is likely most effective for poisoning with the majority of other pesticides. Unfortunately, inappropriate treatment of patients with non-OP or carbamate poisoning has resulted in increased patients costs and deaths. Therefore, clinical assessment of poisoned patients must be highlighted as an important area for education. Improved storage of pesticides is unlikely to prevent many deaths; studies are currently underway to assess whether working with pesticide vendors may be an effective approach. Data from Sri Lanka, Bangladesh and China have shown clearly that banning the most highly hazardous pesticides is an effective approach because more people survive self-poisoning attempts and go on to obtain support from their family and community. This approach has reduced total suicides in Sri Lanka by 70% over 20 years and been involved in reducing Chinese pesticide suicides from 175,000 per year to 50,000. A multi-faceted global campaign has the potential to markedly reduce the number of pesticide suicides occurring each year.