

Suicide, suicide attempts and pesticides: a major hidden public health problem

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In addition to its specific focus on self-directed violence, the paper by Eddleston et al. in this issue of the *Bulletin* highlights how intersectoral collaboration can be crucial to furthering the cause of public health.¹ With nearly 900 000 deaths from suicide every year, worldwide,² suicide takes more lives than homicides and wars combined; it is commonly acknowledged that this figure is an underestimation and that the real magnitude can barely be guessed. Added to these deaths are the many non-fatal suicide attempts, some of which are addressed by Eddleston et al.

In the absence of national registries or reliable hospital-based systems for recording suicide attempts, a large-scale study was conducted by the WHO Regional Office for Europe to estimate the number of suicide attempts in several European cities of various sizes.³ The findings were compared with corresponding national rates for completed suicides, and showed suicide attempt rates to be 10–40 times higher than rates for completed suicides. Projecting these figures to the global total of completed suicides would give the mind-boggling worldwide estimate of between 9–36 million suicide attempts every year. Whatever the real numbers, self-directed violence clearly constitutes a major public health challenge that health planners, policy-makers and practitioners simply cannot afford to ignore.

Imprecision in recording efforts does not only affect the figures for suicide. For every real case of suicide that is misrecorded as something else (e.g. accident, stroke or cardiac arrest), another mortality category will be unduly inflated, thus distorting the entire system of mortality records. Individual studies on the reliability of suicide mortality recording have indicated that numbers of deaths may be underestimated by 30–200%.^{W4} Reliable information on suicide mortality and suicide attempts is therefore not only useful for better planning and delivery of suicide

prevention programmes, but will also help to provide a clearer picture of the mortality attributable to other causes, particularly those indicated above.

Perhaps even less well understood is the specific link between suicide and pesticides, which is significant in rural areas generally and in Asian countries in particular. It is estimated that in the last 10 years between 60–90% of suicides in China, Malaysia, Sri Lanka, and Trinidad and Tobago were by pesticide ingestion.^{W5} This led Gunnell & Eddleston to estimate that there are as many as 300 000 deaths each year from intentional pesticide poisoning in those parts of the world.^{W6} More recently, WHO has received reports of a growing number of suicides due to pesticide ingestion in many other Asian countries and in Central and South American countries (e.g. Brazil, El Salvador, Guatemala, Guyana, Nicaragua and Paraguay). This may well mean that the global number of suicide deaths is considerably higher than currently estimated, and clearly makes pesticide ingestion the most common method of suicide on a worldwide basis.

This new information provides clear indications of directions for action. It highlights the preventive value of controlling access to pesticides, which all too often are easily accessible and stored without any precautions in most rural households in many of the countries indicated above. Ongoing pilot studies indicate that interventions to control access to pesticides are effective and work better when integrated into more comprehensive community education programmes as well as into pesticide management programmes.

Furthermore, the importance of the problem indicates that in places where pesticide poisoning is frequent there is an urgent need to train primary health care personnel (including doctors and nursing staff at emergency care units) in the clinical management of such intoxications. The paper by Eddleston

et al. indicates that the fatality rate of pesticide intoxication depends on the specific toxicology of a given pesticide and the intoxication severity, as well as case management factors such as the time before intervention and adequate use of antidotes. Sadly, in many places where suicide attributable to pesticide ingestion is highly prevalent, health staff are neither aware of nor trained in appropriate procedures and do not have the necessary medication available when and where it is needed.

In view of the magnitude of this problem, its impact and its relative neglect so far, three WHO departments (Mental Health and Substance Abuse, Injuries and Violence Prevention, and the Programme on the Promotion of Chemical Safety) recently joined forces to produce an action proposal entitled *The impact of pesticides on health: preventing intentional and unintentional deaths from pesticide poisoning* (http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/). This initiative has already received strong support from civil society and some of the governments most directly concerned. It is our hope that it will help to reduce the impact of pesticides on health and improve the performance of health systems. ■

References

(References prefixed "W" appear in the web version only, available from www.who.int/bulletin)

1. Eddleston M, Sudarshan K, Senthilkumaran M, Reginald K, Karalliedde L, Senarathna L, et al. Patterns of hospital transfer for self-poisoned patients in rural Sri Lanka: implications for estimating the incidence of self-poisoning in the developing world. *Bull World Health Organ* 2006;84:276–82.
2. *The world health report 2003 – Shaping the future*. Geneva: World Health Organization; 2003.
3. Schmidtke A, Bille-Brahe U, De Leo D, Kerkhof A, Wasserman D. *Suicidal behaviour in Europe. Results from the WHO/EURO Multicentre Study on Suicidal Behaviour*. Göttingen: Hogrefe & Huber; 2001.

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