

context of the important social and health benefits of horse-riding as a sporting and leisure activity.<sup>1</sup> Taylor and Roe have commented on the perceived benefits of Riding for the Disabled, especially in children with Down syndrome.

Certainly, the available data suggest that in this strictly supervised scenario horse riding would appear to be very safe.<sup>3</sup> However, the evidence for therapeutic benefit would appear to be relatively weak, and the risks of this form of equestrianism cannot be compared with the more common interaction that might occur between a normal child and horse.<sup>4</sup>

The incidence of spinal cord injury in children fortunately appears low, at less than 2% of children admitted with all forms of traumatic injury.<sup>5</sup> In this context, the use of spinal cord injury as a measure of the safety of a sport for children is flawed. While children may be at greater risk of injury when inappropriately restrained in a motor-vehicle accident, this fact in itself does not make horse-riding, or indeed any other high-risk sporting activity, safe. The use of appropriate safety devices and responsible adult supervision does.

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## Dangerous bodies: a case of fatal aluminium phosphide poisoning

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**TO THE EDITOR:** In their case report entitled "Dangerous bodies", Nocera and colleagues described a case of poisoning with aluminium phosphide tablets,<sup>1</sup> which generate the fumigant gas phosphine when exposed to moisture.<sup>2</sup> The foul odour emanating from the patient alarmed hospital staff, leading to evacuation of the

emergency department. After the patient died, they sealed his body in an impervious suit and bin. It was buried, without autopsy, using earth-moving equipment — it being considered too dangerous to do this by hand. The burial was filmed for television.

The article sought to highlight risks to hospital staff from poisoned patients and indicated that phosphine gas emanating from this patient could be toxic before it was able to be smelt. Despite stated fears of extreme toxicity, no air samples were collected for analysis, and the sole symptom among staff was nausea (not unexpected given the smell).

In parts of India, where wheat is commonly stored in the home before being ground into flour, aluminium phosphide tablets are widely available for household use to stem insect attack on the grain.<sup>3,4</sup> Ingestion of these tablets is a common way to attempt suicide, with perhaps as many as 15 000 cases per year, two-thirds of which are fatal. The hospital in the city of Chandigarh, in northern India, treats about 50 cases per year.

The breath of patients who have ingested aluminium phosphide has a characteristic garlic-like odour. Diagnosis is based on history and a positive result (blackening) on tests of the patient's breath with paper moistened with fresh silver nitrate solution. Hospital staff take no special precautions during resuscitation, and surviving patients are managed with routine supportive care. Autopsies are routine. No threat is perceived by hospital staff.

Metal phosphides have been safely used by trained people in Australia for decades. They are Schedule 7 poisons and so require an expensive permit for purchase. Consequently, their use for suicide is rare. Nocera and colleagues understandably reacted with caution to an unusual situation. However, we consider that, in documenting their experience, they overstated the risk.

Because of the legal and ethical issues involved in patient care in a situation of alleged risk, we consider that risk estimates should, when possible, be based on available evidence rather than theoretical possibilities. In general, apart from a few highly toxic, mainly anticholinesterase compounds that can be absorbed through the skin (eg, sarin and tabun), there are no known poisons that will seriously endanger hospital staff routinely caring for patients in an emergency department.

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**IN REPLY:** In our article, we clearly stated that the emergency department was evacuated on the instructions of officers from the New South Wales Fire Brigades.<sup>1</sup> The officers then placed the patient's body within a fire brigade hazardous materials encapsulated suit and, when that began to distend with phosphine gas emissions from the body, into a hazardous materials recovery bin.

In contrast, Christophers and colleagues state that staff at the hospital in Chandigarh, India, take no special precautions in antemortem or postmortem care of patients who have taken aluminium phosphide tablets. I am disappointed that they provide no data on air sampling for phosphine gas during this care to justify this practice.

Our case highlights the problems confronting emergency department staff with a critically ill patient and an unknown chemical hazard. In this case, the chemical hazard was not correctly identified for over 30 minutes. The risk cannot be estimated, as suggested by Christophers and colleagues, until the chemical agent and its vapour concentration are correctly identified. Retrospective determinations cannot be used to guide the immediate emergency department response, or to determine what personal protective equipment is needed by staff during the initial confusion of a hazardous materials incident.

In addition to organophosphates, over 30 chemical agents have the potential to be used as chemical weapons. Furthermore, the toxicity profiles of many industrial chemicals are unknown or incomplete. We do not believe that any hospital or emergency department staff should be exposed to avoidable danger during antemortem or postmortem care of patients, or that healthcare institutions should be exempt from their statutory obligations under occupational health and safety legislation.

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