



## AN OUTBREAK OF FOOD POISONING AMONG CHILDREN ATTENDING AN INTERNATIONAL SPORTS EVENT IN JOHANNESBURG — DON'T LET IT HAPPEN AGAIN!

An extensive search by a colleague (Dr John Freen) and ourselves has revealed a dearth of published information on the nature, extent and aetiology of food-borne illness in southern Africa. Certainly, there are no well-documented studies in the scientific literature of such food-borne outbreaks, although in South Africa in recent years several outbreaks have been identified and investigated by local health authorities (Dr J Simpson — personal communication). Given that the number of cases reported in the USA (approximately 15 000 - 20 000 per year) is assumed to be between 1/10 and 1/100 of the actual incidence,<sup>1</sup> we can predict that in South Africa the rates are probably much higher than those reflected in notifications to health authorities in this country. It is therefore reassuring to note that this *Journal* is prepared to feature food poisoning prominently as a disease in this country. Food poisoning is costly in terms of both morbidity and resources, and as such deserves a higher priority than it currently receives.

The article by Karas *et al.* in this issue of the *Journal*<sup>2</sup> is to be commended on a number of scores. Firstly, those involved in the investigation showed a good rapid response to the first outbreak, investigating the implicated foodstuffs and the premises where these were prepared soon after the children were admitted to hospital. Secondly, this was in the face of some opposition from the organisers, who apparently preferred not to acknowledge an association between food poisoning and the event. Thirdly, the authors had to overcome the hurdle of contacting the children, who came from all parts of the country, once they had gone home, to elucidate what foods had been consumed and what the symptoms and signs were, so that the authors could analyse what foodstuffs were contaminated. The response rate from the children themselves was excellent and gave the investigation a statistical strength that would otherwise be lacking, particularly as no enteropathogen was isolated from the patients' vomitus in the first outbreak, and to the best of our knowledge no organism was isolated from the patients in the diarrhoeal outbreak. The article is also an example of what can be achieved with co-operation between the Gauteng Department of Health, the South African Institute for Medical Research and a private laboratory service.

A number of criticisms may be levelled with regard to handling of the outbreak. Firstly, why were no good clinical specimens obtained? Was no vomitus available from the 513 children admitted to hospital? Admittedly, casualty facilities and wards may have been overwhelmed, and the symptomatology could have been diagnosed as mass sociogenic illness with an element of hysteria (as evidenced by the short incubation period in some cases, an atypical presentation and the rapid resolution of symptoms). It is important to note, however, that the male-female ratio was approximately equal, the onset of vomiting was delayed in some cases, and in retrospect the incriminated food was suspect and did not meet recommended microbiological standards.<sup>2</sup> Despite the suspicion of mass hysteria, which is a diagnosis of exclusion,<sup>3</sup> it remains the responsibility of the authorities to ensure collaboration with the clinicians in order to investigate thoroughly the cause of the outbreak.

Notification, a requirement of the Health Act, was unfortunately ignored and not a single case involved in the present outbreak had been notified by the time this article was written (Johann van den Heever — personal communication). Currently, notification of food poisoning by clinicians is required if more than four persons are affected after eating contaminated food.<sup>4</sup> If the notification process fails, we are failing the public, who has the right to have the vehicle of transmission identified in order to prevent further outbreaks. Although busy and overworked clinicians believe that the notification process does not deserve high priority, Karas *et al.*<sup>2</sup> have shown that definitive steps by health authorities are taken on such occasions. If nothing is ever notified, of course nothing will be done!

Further serious questions remain. Was it due to denial on the part of the organisers that the second outbreak was identified only through submission of questionnaire responses to the authors, rather than through follow-up by the organisers to ensure that the participants in the event recovered fully from the first outbreak? How could the children have been provided with food from such questionable sources? Surely the organisers of the event would have ensured that food provided was of an acceptable quality, preferably in consultation with health licensing authorities, whether those eating it were athletes or part of the supporting ceremony?

Although no single pathogen could be linked with the vomiting outbreak, it is clear that the levels of bacteria in the fruit juice were unacceptably high and were within ranges associated with food poisoning. Furthermore, the conditions for the preparation of the fruit juice were completely unacceptable.

Some credence may be given to the theory of mass hysteria in schoolchildren, but this is largely a diagnosis of exclusion. In the current investigation the absence of good clinical specimens, especially vomitus, and of a reliable test to identify





the emetic toxin of *Bacillus cereus*, hampered the chances of making a definitive diagnosis. With hindsight and in the light of the questionnaire findings, it is unlikely that hysteria was the sole explanation of the symptoms that led to the admission of a large number of children to the hospitals involved.

Data related to the second outbreak suggest that the *Shigella flexneri* isolated from the maize-meal porridge may have been responsible for the diarrhoea in a number of the children. However, neither this organism nor other enteric pathogens were isolated from any of the children, and the evidence incriminating *S. flexneri* therefore remains inconclusive. Furthermore, *S. flexneri* would probably not have survived the preparation of the porridge and was probably introduced afterwards, during handling of the porridge before it was served. Considering the available evidence, the aetiology and evolution of the diarrhoeal outbreak were unfortunately not fully elucidated. *Nevertheless, the conditions for the preparation of the food were, in certain instances, questionable.*

One of the lessons to be learnt from this outbreak is that we need systems in place to monitor how food is prepared at such events. The organisers must be aware of food regulations and in the interests of transparency agree to have caterers' premises inspected. Caterers should be selected only if they comply with these regulations.

South Africa has already held a number of international sporting events and is bidding for others, most notably the Soccer World Cup in 2010, the biggest sporting event in the world. We would like to suggest that the organisers of such large, high-profile meetings be well versed in and prepared to implement preventive measures appropriate to such a major event. These would include:

1. An agreement to co-operate fully with the various Departments of Health in allowing them to inspect premises where catering and the serving of food will be undertaken. Contracts for the provision of foods should comply with stringent regulations, which should include a satisfactory pass of thorough inspection of the premises.

2. There should be a standard protocol for the investigation of such outbreaks that includes environmental, laboratory and clinical aspects and a task force should be nominated to have responsibility for co-ordinating this. Members of such a team should be available at all times, including after hours, to expedite the investigation and control of outbreaks that may occur.

3. Those involved in the outbreak should improve liaison with the media and the public to avoid misunderstandings, contradictions and misrepresentations.

To reiterate, public interests demand thorough investigation of food-borne outbreaks not only at sporting events but also at other large social, political and religious gatherings. More importantly, preventive measures commensurate with the reasonable expectations of all participants are mandatory. Let

us see more examples of good co-operation between various health officials that could go a long way towards meeting internationally accepted standards in future.

Lastly, there is a major undertaking currently to re-examine the notifiable diseases and make these more appropriate for South Africa. Hopefully, when the new list of notifiable diseases has been published, once again public interests will be served and notifications will be improved, facilitating outbreak investigation.

**Karen H Keddy  
Hendrik J Koornhof**

*Department of Clinical Microbiology and Infectious Diseases  
South African Institute for Medical Research  
Johannesburg*

1. Snyderman D. Food poisoning. In: Gorbach SL, Bartlett JG, Blacklow NR, eds. *Infectious Diseases*. Philadelphia: WB Saunders, 1998: 768-781.
2. Karas JA, Nicol MP, Martinson N, Heubner R. An outbreak of food poisoning among children attending an international sports event in Johannesburg. *S Afr Med J* 2001; **91**: 417-421 (this issue).
3. Small GW, Nicholi AM. Mass hysteria among school children. Early loss as a predisposing factor (Abstract). *Arch Gen Psychiatry* 1982; **39**: 721-724.
4. Department of Health, Republic of South Africa. Notifiable medical conditions. *Epidemiological Comments* 1998; **25**:

## ULTRASOUND IN OBSTETRICS AND GYNAECOLOGY — QUO VADIS?

Obstetrics and gynaecology has cause to be thankful to Professor Ian Donald, who despite numerous setbacks pioneered the technique of ultrasound imaging in the specialty. Today no obstetrician or gynaecologist would so much as consider practice without having such a service available.

The benefits of ultrasound imaging continue to multiply.

From the diagnosis of ectopic pregnancy to detection of multiple pregnancy or fetal anomalies and confirmation of gestational age and fetal well-being, the indications for ultrasound examination cover virtually every facet of obstetrics and gynaecology. The ultrasound image has opened a window into the private life of the developing fetus, allowing us to do a detailed fetal examination long before birth.

However, as one surveys the broader South African picture of ultrasound in obstetrics and gynaecology one cannot fail to conclude, in the words of Shakespeare, that something is rotten in the State of Denmark — or in this case, of course, the state of ultrasound in obstetrics and gynaecology.

Let me state immediately that many sonologists in obstetrics and gynaecology are seriously committed to high standards and have attended many courses and congresses covering the subject as well as visiting centres of excellence to get hands-on training. Recently a number of state and private sonologists in