

AN EXTENDED OUTBREAK OF HEPATITIS A

Gerard Finnigan, Tony Kolbe, Kim Gilchrist, Terry Carvan
South West Centre for Public Health

This article describes a slowly evolving and widely distributed outbreak of hepatitis A which occurred in the south-west of NSW. The outbreak lasted 20 months and led to 130 disease notifications.

Public health workers face a number of difficulties in controlling such a slowly evolving outbreak of hepatitis A across a large area. The relatively long incubation period (about a month), the difficulty in case recall of possible sources of infection, the high rate of asymptomatic or mild infection in children, the reluctance of cases to nominate possible sources of infection and contacts and the poor notification of cases all contributed to the difficulties.

OUTBREAK DETAILS

A total of 130 notifications for hepatitis A were received between September 1993 and May 1995 for the south-west districts of NSW. The number of cases peaked in November 1994, when 22 cases were notified. In contrast, three notifications were received in 1990, six in 1991 and 14 in 1992.

Seventy-one notifications were received from laboratories, 69 from general practitioners and four from hospitals. Generally, laboratory notifications were received in the week following the specimen collection date, although delays in notifying occurred in some cases. Notifications from doctors were received between two days and three weeks after the time of consultation.

The average age of notified cases was 20.6 years, with 48 per cent of cases aged 14 years or younger and 69 per cent aged 24 years or younger. The age-specific attack rates peaked in the five- to nine-year age group (Table 5). The youngest case notified was aged four months, and the oldest 51 years. Males represented 68 per cent of notifications. One outbreak involved mainly Aboriginal people and Aborigines represented 9 per cent of all notifications. Homosexuality was not identified as a risk factor in any of the outbreaks.

Attack rates varied by location. The local government areas of Temora, Murray, Wakool and Hume had the highest attack rates (Table 6).

The outbreak was characterised by 13 sporadic, localised pockets of disease spread over a wide area. These local outbreaks reflected transmission within families, day care centres, schools and a centre for the intellectually disabled. The distribution of cases and outbreaks was suggestive of person-to-person transmission.

Investigations failed to find a link between 11 of the pockets of infection or the original source of the outbreak, although the pattern of transmission within the pockets of infection was well established.

METHOD OF SPREAD

Transmission within families occurred through person-to-person contact and through contaminated food. Infection of more than one member of an immediate family occurred on 17 occasions and accounted for 43 of the notifications.

In total, nine local outbreaks were traced to person-to-person contact and four to contaminated food.

TABLE 5

NUMBERS OF NOTIFICATIONS AND AGE-SPECIFIC ATTACK RATES:
SOUTH WEST DISTRICTS OF NSW

Age group	Number of notifications			Rate per 100,000 population*
	Male	Female	Total	
0-4	6	2	8	38
5-9	21	12	33	156
10-14	14	4	18	86
15-19	6	5	11	55
20-24	12	7	19	106
25-29	7	2	9	52
30-34	7	6	13	63
35-39	6	2	8	40
40-54	8	2	10	21
All ages	87	42	129 ^b	

Notes:

(a) Attack rate = cases x 100,000/population.

(b) For one case age and sex were unknown.

Population source:

Australian Bureau of Statistics. Estimated resident population by age and sex, in statistical local areas, NSW, June 30, 1994 (preliminary).

TABLE 6

DISTRICT AND LOCAL GOVERNMENT AREA ATTACK RATES:
SOUTH-WEST DISTRICTS NSW

District	Local government area	Number of notifications	Rate per 100,000 ¹
Hume		55	68
	Albury	41	99
	Corowa	2	24
	Culcairn	1	22
	Hume	10	145
	Tumut	1	9
Murray		20	48
	Murray	10	193
Wakool		10	191
		12	24
Murrumbidgee	Griffith	11	51
	Murrumbidgee	1	41
		43	48
Riverina	Junee	3	49
	Lockhart	3	79
	Temora	15	229
	Wagga Wagga	22	39
		130	52
Total			

Note:

(a) Attack rate = cases x 100,000/population.

Population source:

Australian Bureau of Statistics. Estimated resident population, by age and sex in statistical local areas, NSW, June 30, 1994 (preliminary).

The school environment represented a second major source of infection. In one outbreak, six children in one class became ill, with the likely source of infection being food prepared by the class about one month earlier. The difficulty of maintaining soap dispensers or keeping soap available in toilets because of vandalism was recognised as a problem in schools. Poor hand-washing practices and lack

of soap are believed to have contributed to cases in school children in a similar community-wide outbreak¹.

PUBLIC HEALTH ACTION

General practitioners and laboratories were contacted and immediate notification for all suspected and confirmed cases was requested. GPs were provided with information and recommendations for at-risk patients.

Case investigations and contact tracing were undertaken when possible. Education about the disease, the mode of spread and immunoglobulin prophylaxis was provided.

Environmental inspections were conducted in households and schools where cases occurred. In each location, a comprehensive history was obtained using a survey form which sought information on food preparation and food sources, contact with other possible cases (including sexual contact), children in the household attending school or pre-school, and problems with water supply or sewage disposal. In schools, the information obtained included communal food preparation and school records of trips or events. Toilets were inspected and the availability of soap and towel facilities for hand washing was determined. Records of absenteeism from school were examined to help identify cases and possible contacts. Generally, the most detailed information was obtained from schools.

The impact of hepatitis A on a centre for the intellectually disabled was significant. Cases occurred in both staff and residents. Immunoglobulin was administered to all staff and residents either by their general practitioners or during a clinic conducted at the centre. Four cases occurred in the week following the administration of immunoglobulin but no further cases were reported. The prompt use of immunoglobulin in this situation is thought to have prevented spread of the infection. Hepatitis A has previously rapidly infected staff and residents of a centre for people with developmental disabilities².

Reticulated water supplies were monitored as a precaution, although these were unlikely to be sources of infection.

Because of the proximity of Victorian communities, health workers in Victoria were contacted, but investigations did not reveal any related increase in cases in Victoria.

As no definite link between outbreaks was established, the potential to predict or confine the outbreak through contact tracing was limited. A media campaign was undertaken

across the area to raise the level of awareness about hepatitis A and to improve reporting. This campaign encouraged good hand-washing practices, particularly for children, and described the method of transmission and the differences between hepatitis A and other types of hepatitis.

DISCUSSION

The outbreak highlighted:

- The need to encourage notification and undertake active surveillance for laboratory, doctor and hospital notifications during a community outbreak of hepatitis A.
- The need to recognise and counter the high level of concern of cases, contacts and the community which arises because of confusion between hepatitis A and other forms of hepatitis, in particular hepatitis B.
- The need to disseminate consistent and simple messages widely to schools and the community about hand washing during an outbreak.
- The potential for hepatitis A to infect a large number of people rapidly, particularly in schools and in centres for the intellectually disabled. (NHMRC recommendations for hepatitis A vaccination include staff and residents of residential facilities for the intellectually disabled³.)
- The need for schools to ensure that soap is available in toilets, to encourage and enforce hand-washing practices, and to be aware of the possible transmission of disease through communal cooking arrangements.
- The need to have a coordinated public health response to an outbreak making use of all appropriate unit staff, local government officers and the media.

ACKNOWLEDGMENTS

The contributions of Stephen Hooppell and Craig Smith of the South West Centre for Public Health in reviewing the draft paper are appreciated.

1. Hanna J. Hepatitis A outbreak in a rural town, Atherton Tablelands, Queensland 1992. *Communicable Disease Intelligence* 1993; 17(4):70-71.
2. Bell JC, Crew EB, Capon AG. Seroprevalence of hepatitis A antibodies among residents of a centre for people with developmental disabilities. *Aust NZ J Med* 1994; 24:365-67.
3. National Health and Medical Research Council. The Australian Immunisation Procedures Handbook 5th ed. 1994.

PUBLIC HEALTH EDITORIAL STAFF

The editor of the *NSW Public Health Bulletin* is Dr Michael Frommer, Director, Centre for Research and Development, NSW Health Department. Dr Lynne Madden is production manager.

The *Bulletin* aims to provide its readers with population health data and information to motivate effective public health action. Articles, news and comments should be 1,000 words or less in length and include a summary of the key points to be made in the first paragraph. References should be set out using the Vancouver style, described in the *New England Journal of Medicine* 1997; 336:309-315.

Please submit items in hard copy and on diskette, preferably using WordPerfect, to the editor, *NSW Public Health Bulletin*, Locked Mail Bag 961, North Sydney 2059. Facsimile (02) 9391 9029.

Please contact your local Public Health Unit to obtain copies of the *NSW Public Health Bulletin*. The *Bulletin* can be accessed via the Internet from the NSW Health Department's World Wide Website, at <http://www.health.nsw.gov.au/public-health/phb/phb.html>

Back issues can be obtained from the Better Health Centre, Locked Mail Bag 961, North Sydney 2059.
Telephone: (02) 9954 1193, Facsimile (02) 9955 5196.