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One success story of birth defects surveillance systems was the initial demonstration of an association between neural tube defects and folate intake,⁸ the demonstration of the links with anti-convulsants,^{6,9} and ultimately the demonstration that the campaigns encouraging the use of folate supplements by women before and during the first trimester of pregnancy has worked.^{6,7}

These data must be interpreted with some caution, because there are no published surveillance case definitions for these genetic conditions. Case ascertainment may vary within and between conditions.

CONCLUSIONS

Decisions about targeted screening or population-based screening programs need to be based on the best available data. These surveillance data, along with input from clinical and public health experts and health economists, will inform proper policy analysis. It is important to take a consistent national approach, implemented by all States and Territories. Such an approach has been lacking, but the National Public Health Partnership's appointment of a National Public Health Genetics Working Group is a step in the right direction. Improved surveillance of genetic conditions will be an essential task of the strategy and will contribute to the formulation of good public health policy.

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Hepatitis C: Enhancing Routine Surveillance In Victoria

Dr Sean Tobin

ABSTRACT

Hepatitis C is a serious blood-borne infection of epidemic proportions that is proving difficult to control in Australia. Many people acquire and carry the hepatitis C virus without symptoms, so infection surveillance is challenging. The notifiable diseases system is unlikely to ever represent a comprehensive surveillance system for hepatitis C in Victoria. It has the potential, however, to play an important part in the collection of information about the incidence of, and risk factors for, infection. This information is vital to the planning and evaluation of prevention and treatment strategies.

This paper reviews the epidemiology of hepatitis C notifications in Victoria from 1997 to 2000 and outlines Department of Human Services strategies to enhance the notifiable disease surveillance system for hepatitis C infections from 2001.

BACKGROUND

The most current modelling of hepatitis C virus (HCV) infection in Australia estimated that around 190,000 people were living with the infection in 1997.¹ This modelling also estimated that there would be approximately 11,000 acute infections each year, with 91 per cent of cases exposed through injecting drugs.

The most recent national notification data indicate that 385 (1.8 per cent) of the 21,629 notifications in 1999 were identified as being acute infections.² HCV notifications from Victoria in that year represented approximately 29 per cent of the national notifications, of which less than 1 per cent were identified as being acute infections.

HCV was made a notifiable disease in Victoria in 1990, coinciding with the availability of commercial assays to test for HCV infection. All laboratories and medical practitioners are required to notify the Department of Human Services of HCV diagnoses within five days.³ For surveillance purposes, the Department classifies hepatitis C notifications as being either 'acute hepatitis C' or 'hepatitis C, not further specified'. Acute infections are defined as:

- The demonstration of seroconversion to HCV where the most recent negative specimen was within the past 12 months
- or
- The demonstration of a positive HCV antibody test or a positive polymerase chain reaction (PCR) test for HCV, and a clinical illness consistent with acute hepatitis within the past 12 months where other possible causes of acute hepatitis have been excluded.⁴

HCV infections associated with a positive HCV antibody or PCR test in the absence of a negative test in the previous 12 months and with no clinical evidence of an acute hepatitis illness are classified as 'hepatitis C, not further specified'. If a previously unreported positive HCV antibody or PCR test is identified, then the case is further classified as being prevalent.

METHODS

All laboratory-confirmed HCV notifications to the Department from 1997 to 2000 were reviewed, collated and analysed by classification. For population rates, the Department used the reported estimated residential population for 1999.⁵ A detailed case-by-case review of acute HCV notifications for 2000 was also performed.

RESULTS

During the four-year period to 2000, the Department received a total of 23,619 notifications of HCV infection. The proportion of acute cases had risen since 1997, but acute notifications in 2000 still represented less than 1 per cent of all notifications.

Table 1: Summary of HCV Notifications, 1997–2000

	1997	1998	1999	2000	1997–2000
Hepatitis C—acute	11	54	76	78	219
Hepatitis C—unspecified	4,977	6,299	6,279	5,845	23,400
Hepatitis C—total	4,988	6,353	6,355	5,923	23,619

Combined Hepatitis C Notifications for 1997–2000

The Department divides Victoria into four Melbourne metropolitan regions (north, south, east and west) and five non-metropolitan regions (Barwon South–West, Gippsland, Grampians, Hume and Loddon–Mallee). Notifications of HCV are more common in metropolitan regions than in non-metropolitan regions, with the southern metropolitan region contributing the highest total number of notifications. The western metropolitan region had the highest notification rate per 100,000 population for the four years combined for both males and females (Figure 1). Almost two thirds (62 per cent) of all HCV notifications were for males—a finding that was consistent for all regions.

In the same four-year period to 2000, a total of 219 notifications were defined as being acute infections—approximately 1 per cent of all HCV notifications. Approximately 80 per cent of acute notifications came from residents of metropolitan regions, with the highest population rates also in the western metropolitan region. These findings need to be interpreted with caution, given the small numbers of cases involved.

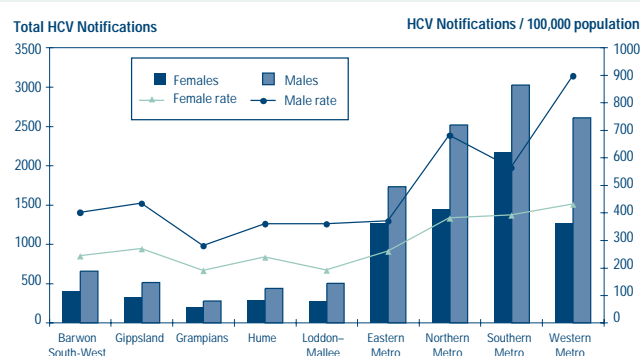
Acute Hepatitis C Notifications for 2000

Sixty-seven (86 per cent) acute cases in 2000 gave a history of intravenous drug use either currently or in the past. Six cases denied intravenous drug use, and the risk factor status of five cases was unknown.

Two of the six acute cases who denied a history of intravenous drug use reported having either nose piercing and tattooing in the previous 12 months. Infection control investigations were conducted of the two tattooing/nose piercing premises nominated by these two cases. No infection control deficiencies were identified.

Of the remaining four cases who denied a history of intravenous drug use, one case reported having had unprotected sexual intercourse overseas in the previous 12 months, one case was associated with a needle-stick injury and one case appears to have resulted from verti-

Figure 1: Combined HCV Notifications and HCV Notifications by Department Region, 1997–2000



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cal transmission. No risk factor could be identified for the fourth case.

Of the 78 HCV notifications in 2000 identified as being acute infections, 57 (73 per cent) were first notified by the testing laboratory and the remainder were first notified by the treating doctor. Also of these 78 notifications, 57 (73 per cent) met the case definition for documented HCV antibody seroconversion alone, 11 (14 per cent) met the case definition for a positive HCV antibody or PCR test and a clinical illness consistent with acute hepatitis alone, and 10 (13 per cent) met both case definitions.

DISCUSSION

The great disparity between HCV incidence estimates obtained through modelling and those made directly from notification data highlights the gap in our understanding of the epidemic of HCV infection in Australia. The Department has thus committed to a national strategy to improve surveillance of HCV infection.

This strategy recommends (a) the establishment of routine systematic assessment of all new HCV diagnoses to identify incident cases, and (b) the development of a standardised protocol for collecting more detailed data on incident cases. The aims are to:

- Ensure the collection of up-to-date information on the epidemiology of HCV infection.
- Detect outbreaks of HCV infection.
- Detect novel modes of transmission.
- Identify those at risk, to target prevention and control strategies appropriately.
- Evaluate prevention and control strategies.

The previous passive HCV surveillance system was relatively insensitive in detecting acute infections, relying on an indication from the notifying doctor or laboratory. As a result, many acute infections are likely to have been misclassified as 'hepatitis C, not further specified'. Identification of cases who constitute an occupational risk of transmission or who might have acquired the infection through nosocomial or novel forms of transmission also depends on the notifying doctor.

The Department's passive HCV surveillance strategy has had some notable achievements. The bulk of the surveillance data has been underused, however, given the difficulty in determining the proportion of notifications that represent acute infections. This determination is vital for understanding the changing epidemiology of the disease and for evaluating prevention strategies.

A short pilot study conducted in 2000, involving intensive follow-up of all notifications, found approximately 4 per cent of notifications could be confirmed as being acute infections. By comparison, conventional methods identified less than 1 per cent as being acute infections. Routine follow-up of all of the approximately 6,000

HCV notifications received each year would be extremely resource intensive and inefficient, so alternative strategies are being developed to enhance the HCV surveillance system to improve our understanding of the routinely collected HCV surveillance data. These include strategies include the following.

Random Sampling of HCV Notifications for Follow-Up

From February 2001 the Department commenced intensive follow-up of routine HCV notifications by selecting a random sample of 10 per cent of the weekly notifications. No weighting is given to groups at higher risk of acute infection, so as to maintain the capacity to generalise the results to the non-sampled notifications.

Six per cent of sampled notifications have been identified as being acute infections, with a further 15 per cent identified as being prevalent infections. The remainder cannot be classified as being either acute or prevalent, given the available information.

Increasing Laboratory Reporting of Previous HCV Results

Only a few laboratories currently report previous HCV test results. Yet, almost half of all HCV notifications (36 of 78) identified as being acute in 2000 were identified as a result of a laboratory indicating that they had a record of a negative HCV antibody test in the previous 12 months. The Department will consult with both public and private laboratories to increase the reporting of previous negative HCV testing when laboratories notify the Department of a positive HCV result.

Improving Liaison with Organisations Performing Serial HCV Testing

A number of organisations—such as the Red Cross Blood Bank, prisons and correctional centres, and sexual health clinics—perform repeated HCV testing on clients. The Department will seek to work with these organisations more closely to use previous testing results to help classify notifications as being acute or prevalent.

Modifying the 'Notification of Infectious Disease' Form

With the introduction of the new Health (Infectious Diseases) Regulations 2001, the Department will change the 'Notification of Infectious Disease' form used by doctors and laboratories to include a choice under the hepatitis C category of 'acute' or 'non-acute'. This option currently exists for only hepatitis B notifications.

When applied together, these strategies are likely to increase significantly the utility of the HCV surveillance data collected in helping us to understand the epidemiology of HCV infection in Victoria. The silent nature of many HCV infections means there is a continuing need to supplement these enhanced surveillance data with the innovative research of at-risk populations being

undertaken by research institutions in Victoria and other States.

As we collect better information, we help to paint a more complete picture of HCV infection in Victoria. This assists in the development of more effective prevention strategies and allows for more appropriate services for those who carry the infection and suffer its complications.

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The Victorian Temazepam Injection Prevention Initiative

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ABSTRACT

Prescription drug abuse is a serious problem and the prevalence of misuse of benzodiazepines is high among injecting drug users. In late 2000, a marked and sustained decrease in the availability of illicit heroin led to major and sustained changes in drug use. The most problematic behaviour has been the injection of the liquid contents of temazepam capsules—a prescription medication commonly used for the short term management of insomnia. The result is serious tissue and vascular harm. In response, the Department of Human Services developed an education and information initiative for general practitioners, pharmacists and injecting drug users: the Temazepam Injection Prevention Initiative.¹

INTRODUCTION

Injection of the liquid contents of temazepam capsules was first identified in the United Kingdom in 1987.² Serious harm from such injection was first reported in 1988.³ In subsequent years, numerous journal articles described cases of devastating injury, including gangrene resulting from unintentional injection into arteries,^{4,5,6} skin ulcers,^{7,8} inflamed tissue,⁹ blood clots in veins,¹⁰ abscesses¹¹ and damage to the veins in the groin (pseudoaneurysm)¹² were also described. Temazepam injection was also associated with a wide range of criminal behaviours,¹³ including a thriving black market.^{14,15}

Despite intensive efforts over the next nine years to raise doctors' awareness of the implications of temazepam misuse, and despite voluntary bans on prescribing,¹⁶ the

problem was not controlled until temazepam capsules were rescheduled and banned from being prescribed under the UK National Health Service in January 1996.¹⁷

TEMAZEPAM CAPSULES

Temazepam is a benzodiazepine hypnotic drug prescribed for the short term treatment of insomnia. It is available as either a tablet or a soft, gelatin liquid-filled capsule. In Australia, temazepam capsules are one of the 10 most frequently prescribed drugs on the Pharmaceutical Benefits Scheme (PBS), accounting for 2.2 million prescriptions in 1999-2000. Temazepam tablets became available several years after the capsules, and there has been a steady trend towards tablets being prescribed instead of capsules. Only 25 per cent of temazepam PBS prescriptions in Victoria in September 2001 were for tablets.¹⁸

DIVERSION OF MOOD-ALTERING PRESCRIPTION DRUGS FROM LICIT USE

Many mood-altering prescription drugs such as tranquillisers and the opiate analgesics morphine and pethidine are diverted from licit use for misuse and, in some cases, injection. Drug-seeking people use a number of methods to obtain prescription drugs. These methods include forging prescriptions on stolen prescription stationery, altering prescriptions, falsely representing disease to persuade doctors to prescribe the drugs, presenting to multiple doctors and pharmacists with a false