Viral Hepatitis, 2004

Key Points

- **Hepatitis A incidence remained low, with 47 cases notified in 2004.**
- **The number of notifications of hepatitis B continued to increase with 797 cases reported in 2004, compared to 547 cases in 2003. Where acute/chronic status was known, 91% (n=553) of cases were reported as chronic and 9% (n=58) were reported as acute.**
- **2004 was the first year that hepatitis C was notifiable in Ireland and 1,154 cases were reported. The majority of cases occurred in young adults.**
- **Work is progressing on a national database for people infected with hepatitis C though administration of blood and blood products. By collecting medical and demographic information on consenting patients, this database will enable the natural history of hepatitis C to be studied in this cohort, and will facilitate health service planning and evaluation.**

Viral Hepatitis - Type A

Introduction

Hepatitis A is an acute, usually self-limiting disease of the liver caused by the hepatitis A virus (HAV). It is transmitted by person-to-person contact, primarily via the faecal-oral route and is associated with poor hygiene and sanitation and water that is contaminated with human faecal matter.[1] Blood borne transmission of hepatitis A can occur but is not as common.

In high- and intermediate-endemicity countries (Africa, the Middle East, Asia, Eastern Europe, Central and South America), most adults have serological evidence of past HAV infection. In developed countries, hepatitis A is most commonly seen among travellers to endemic countries, injecting drug users (IDUs), men who have sex with men (MSM) and household or sexual contacts of known cases. Sporadic food and waterborne outbreaks or outbreaks in crèches also occur. Hepatitis A in children is often asymptomatic or mild and usually resolves within a couple of weeks. Clinical severity tends to increase with age and adults can experience severe illness lasting several months. Symptoms include sudden onset of fever, fatigue, loss of appetite, nausea and abdominal pain. Jaundice usually occurs within a few days of onset of symptoms.[1,2]

A safe and effective vaccine is available for hepatitis A. In Ireland, vaccination is recommended for individuals in high-risk groups such as travellers to high endemicity countries, patients with chronic liver disease, individuals at occupational risk, close contacts of infected persons, individuals with haemophilia and recipients of plasma-derived clotting factors.[3]

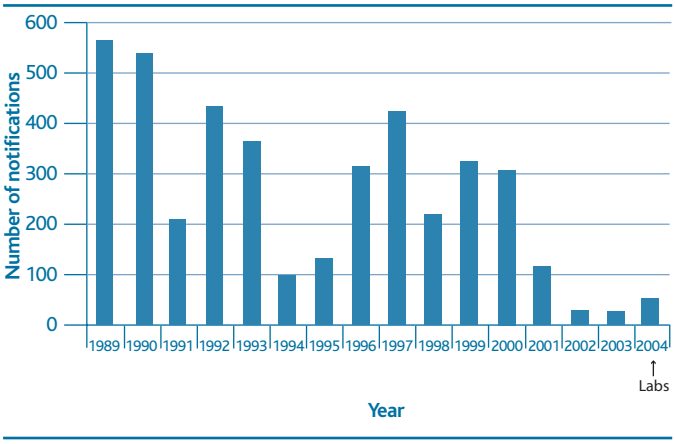

Figure 1. Number of cases of hepatitis A notified 1989-2004

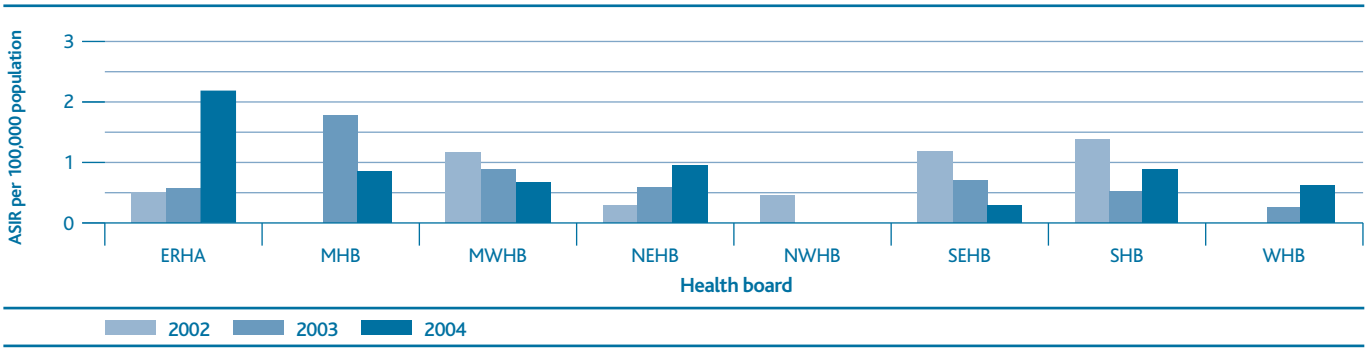

Figure 2. Age-standardised incidence rates of hepatitis A per 100,000 population by health board, 2002-2004

Materials and Methods

Hepatitis A is a notifiable disease under the Infectious Diseases Regulations 1981. Aggregate data on notifications are available from 1982 and disaggregate data are available since mid-2000. An amendment to the regulations implemented on 1st January 2004 (S.I. 707 of 2003) introduced case definitions for hepatitis A (Box 1).

Results

Hepatitis A incidence remained low, with 47 cases notified to the HPSC during 2004. This corresponds to an age-standardised incidence rate (ASIR) of 1.1 per 100,000 population and represents an increase of 88% compared to the number of notifications received in 2003 (n=25) (figure 1). Thirty-six cases were reported as confirmed, five were reported as possible and the case classification was not reported for six cases. The ERHA notified 64% of all cases (n=30), corresponding to an ASIR of 2.1 cases per 100,000 population (figure 2). Fifty-five percent of cases of hepatitis A notified in 2004 were female (n=26). Adults aged between 25 and 44 years (n=20) and children aged between 0 and 4 years (n=9) were most affected. The overall median age for hepatitis A notifications was 28 years (figure 3).

Discussion

Hepatitis A incidence remained low in Ireland in 2004. However cyclic recurrences of hepatitis A can occur in developed countries and the annual incidence of hepatitis A has varied considerably since 1989 (figure 1). Many hepatitis A cases occur in the context of family or local community outbreaks and two family outbreaks and one outbreak in a crèche were reported to the HPSC in 2004. The source of these infections was not identified but it was known that they were not travel-related.

Outside of Ireland, a large foodborne outbreak of hepatitis A was reported in European tourists who had stayed in a particular hotel in Egypt in the summer of 2004. Over 300 people were affected and the outbreak was ultimately linked to the consumption of fruit juice.[4] Outbreaks among MSM were reported in Norway, Copenhagen and London and an outbreak was reported among a homeless and drug user community in Rotterdam.[5,6,7,8] No outbreaks in either MSM or IDUs in Ireland were reported to the HPSC in 2004.

Although risk factor information is collected in the context of outbreaks there is currently no enhanced surveillance system for hepatitis A in Ireland. More detailed information would contribute to the prevention and control of hepatitis A and the efficient detection of outbreaks.

Viral Hepatitis – Type B

Introduction

Hepatitis B virus (HBV) is transmitted by contact with blood or body fluids of an infected person and is 50 to 100 times more infectious than HIV. Only 10% of children and 30-50% of adults develop clinical symptoms during the acute phase of hepatitis B infection and if the virus is cleared at this stage, the infection may never be recognised.[1,9]

The course and clinical symptoms of hepatitis B infection depend on the patient's age and immune status. Between one and ten percent of those infected as older children or

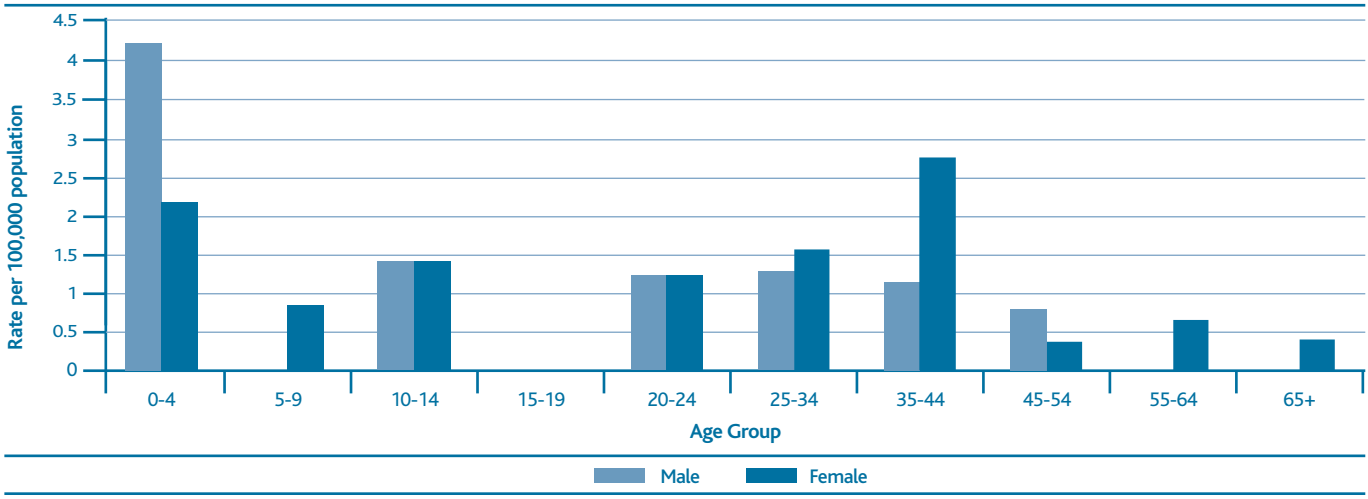

Figure 3: Age- and sex-specific incidence rates of hepatitis A per 100,000 population, 2004

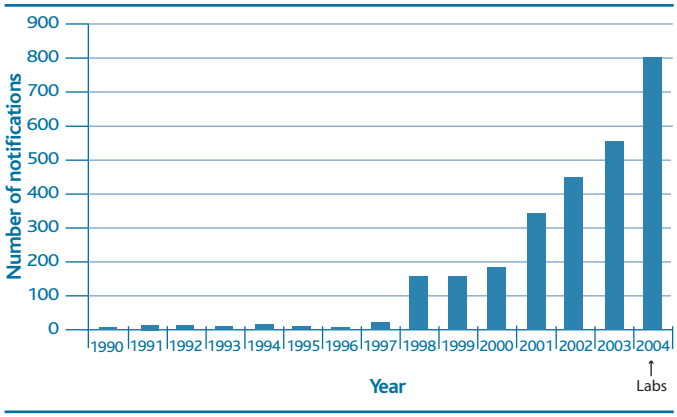

Figure 4. Number of cases of hepatitis B notified, 1990-2004

adults, and 90% of infants infected at birth, develop chronic hepatitis B infection. More than 350 million people worldwide are chronically infected with HBV. In Sub-Saharan Africa, South-East Asia and parts of China over 8% of the population have chronic HBV infections, most of which were contracted at birth or through child-to-child contact in household settings. Chronic infection is associated with an increased risk of developing cirrhosis and/or hepatocellular carcinoma, and premature death from chronic liver disease occurs in 15-25% of chronically infected people.[1,9] The prevalence of HBV infection in Ireland is low (<1%)[10], however infection is more prevalent in certain high-risk populations such as IDUs[11,12], prisoners[13] and immigrants from high endemicity countries.

Hepatitis B is a vaccine-preventable disease and in 1992 the WHO recommended that hepatitis B vaccine be included in routine immunisation programmes in all countries by 1997.[9] In Ireland, vaccination is currently recommended for individuals in high risk groups such as babies born to mothers with acute or chronic hepatitis B infections, patients with chronic renal failure or haemophilia, individuals at occupational risk, close contacts of infected persons, IDUs, prisoners, homeless people, heterosexuals with multiple partners and MSM.[3]

Materials and Methods

Hepatitis B is a notifiable disease under the Infectious Diseases Regulations 1981. An amendment to the regulations implemented on 1st January 2004 (S.I. 707 of 2003) introduced case definitions and differentiated between notifications of acute hepatitis B and chronic hepatitis B for the first time (Box 2). In addition, laboratory directors are now required to report cases of notifiable diseases identified in their laboratories.

Results

The increase in hepatitis B notifications seen in recent years continued in 2004, with 797 cases notified. This represents a 46% increase compared to 2003 (figure 4). The national age-standardised notification rate was 20 per 100,000 population, with the highest rates reported by the ERHA (ASIR: 33/100,000 population) (figure 5). Case classification was reported for 582 cases, with 569 cases reported as confirmed and 13 cases reported as probable.

Seventy-seven percent of notifications (n=611) contained information on acute/chronic status. Where status was known, 91% of cases were reported as chronic (n=553) and 9% were reported as acute (n=58).

The age and sex breakdown for acute and chronic cases differed substantially and is presented separately in figures 6a and 6b. Seventy-six percent of acute cases notified in 2004 were male (n=44), 22% were female and the sex of one case was unknown. The majority of cases (67%) were aged between 20 and 44 years. However, there were six acute hepatitis B notifications for males over the age of 65 years. In contrast to the acute cases, the percentage of male (54%) and female (46%) chronic cases was similar. Eighty-four percent of chronic cases were aged between 20 and 44 years.

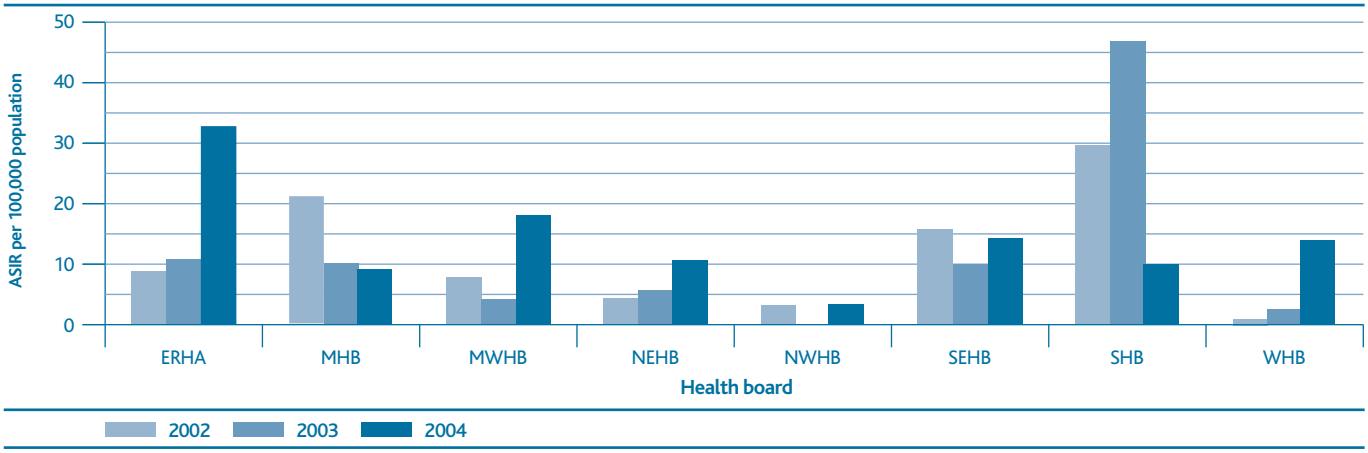

Figure 5. Age-standardised incidence rates of hepatitis B per 100,000 population by health board, 2002-2004

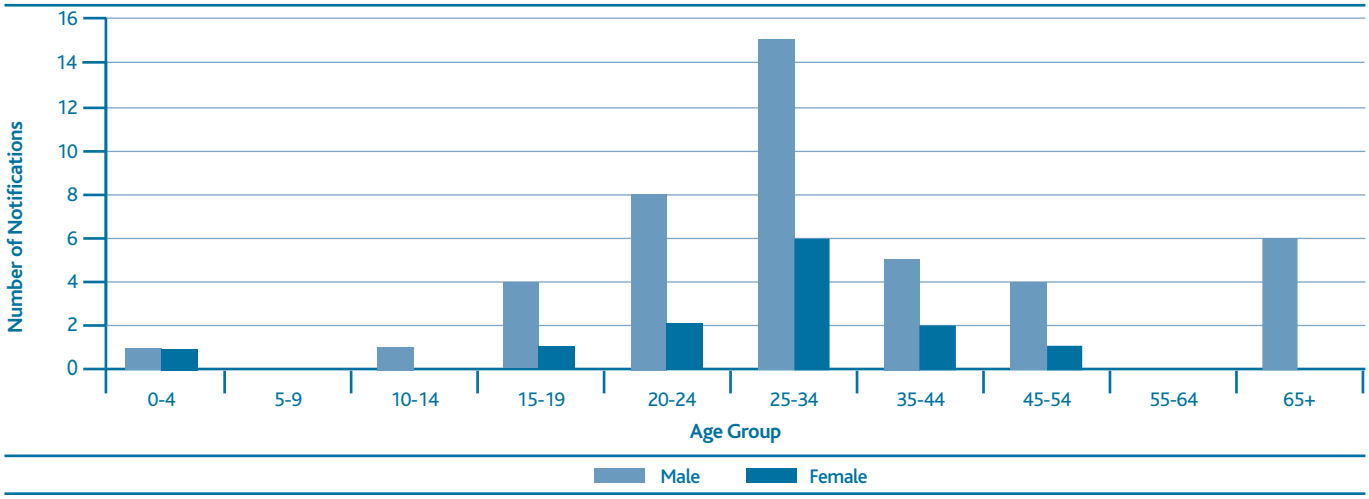

Figure 6a. Number of acute cases of hepatitis B notified in 2004 by age and sex

Risk factor information and region of birth also differed significantly between acute and chronic cases. Risk factor information was available for 30 of the 58 acute cases and the main risk factor for acute cases in Ireland in 2004 was sexual exposure. Where risk information was provided, 43% (n=13) of cases were MSM and a further 17% (n=5) were associated with possible sexual exposure. Other risk factors reported include household contact (n=2), injecting drug use (n=2), travel/living abroad (n=2) and being a baby of a hepatitis B surface antigen-positive mother (n=2). Of the six acute cases over the age of 65, one had multiple risk factors including sexual exposure but no risk factors were identified for the other five cases. Where region of birth was known for acute cases (n=25), 88% were born in Ireland.

Limited risk information was available for chronic cases, but where information was available, 120 out of 128 cases were identified as either asylum seekers or as having been born in a country where hepatitis B is endemic. Where region of birth was identified (n=48), 56% of chronic cases were born in Sub-Saharan Africa, 19% were born in Eastern Europe, 8.3% were born in East Asia and the Pacific and 6.3% were born in South and South-East Asia. Only 4.2% of chronic cases, where region of birth was known, were born in Western Europe. Where the reason for testing was reported (n=97), 80% (n=80) of chronic cases were identified through asylum seeker screening and 8% (n=8) were identified through antenatal screening.

Discussion

Hepatitis B data have improved significantly with the introduction of case definitions, laboratory reporting and differentiation between acute and chronic hepatitis B. Some enhanced surveillance data were also received for over 50% of acute cases and over 20% of chronic cases. These data clearly illustrate the differences in the epidemiology of acute and chronic hepatitis B in Ireland.

Although Ireland is considered a low endemicity country, hepatitis B notifications have increased substantially in recent years. This is partly due to changes in immigration patterns to Ireland. The number of asylum seeker applications increased from 1,179 in 1996 to a peak of 11,634 in 2002, and decreased to 4,766 in 2004. Large numbers of work permits have also been issued in recent years.[14] Many of these immigrants come from countries of intermediate- or high-endemicity for hepatitis B. It is also likely that case identification and notification have improved with the introduction of laboratory reporting and screening programmes such as voluntary health screening for asylum seekers and some antenatal screening in maternity hospitals. Where the reason for testing was reported, the majority of chronic cases were identified through asylum seeker screening.

Limited information is available on the actual risk factors for cases with chronic infections but it is likely that a large proportion of infections were acquired at birth or in early childhood where individuals were born in countries where hepatitis B is endemic. A large proportion of acute cases were in the 20-34 year age group and where risk exposure

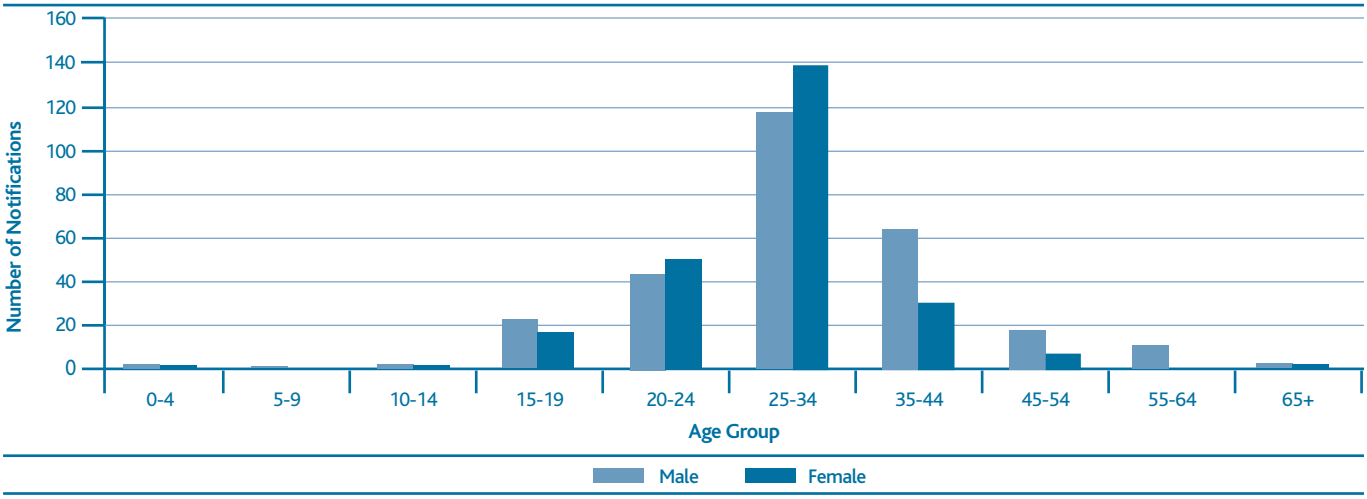

Figure 6b. Number of chronic cases of hepatitis B notified in 2004 by age and sex

information was known, most infection's had been acquired sexually.

Good quality surveillance data are essential in order to follow trends, inform vaccination policy and plan public health initiatives and service provision for the prevention and control of hepatitis B. Given the serious nature of HBV infection, particularly when acquired in infancy, and the potential for prevention with a safe and effective vaccine, the planned introduction in 2005 of a programme of universal antenatal screening is to be welcomed.

Viral Hepatitis-Type C

Introduction

The hepatitis C virus (HCV) was first identified in 1989. Prior to this, hepatitis C was usually labelled non-A non-B hepatitis. HCV is transmitted primarily via exposure to contaminated blood or blood products. The main causes of infection are sharing infected needles or other drug paraphernalia, and the receipt of unscreened blood or blood products. Occupational exposure to infected blood and mother-to-baby and sexual transmission also occur but are less common. In developed countries, it is estimated that 90% of people with chronic hepatitis C are current or former injecting drug users or have received unscreened blood or blood products. The WHO estimates that about 170 million people worldwide are infected with hepatitis C, with prevalence ranging from 1% in Europe to 4.6% in the Eastern Mediterranean and 5.3% in Africa. [1,15]

Over 90% of cases are asymptomatic in the acute phase of the disease but between 50 and 80% progress to chronic infection. Of those chronically infected about 10-20% develop cirrhosis and between 1 and 5% develop hepatocellular carcinoma over a period of 20-30 years. There is currently no vaccine available for hepatitis C. [1,15]

Materials and Methods

Hepatitis C became a notifiable disease under the Infectious Diseases Regulations amendment introduced on the 1 January 2004 (S.I. 707 of 2003). Previously hepatitis C could be notified under the category "viral hepatitis, type unspecified", but was not a notifiable disease in its own right. Since the HPSC started collecting disaggregate data in mid-2000, many of the notifications of viral hepatitis type unspecified have included information on the causative agent and most of these were hepatitis C. The case definitions for hepatitis C can be seen in Box 3.

Results

2004 was the first year that hepatitis C was notifiable in Ireland and 1,154 cases were notified, compared to 85 cases of viral hepatitis, type unspecified in 2003 (figure 7). This corresponds to an ASIR of 29/100,000 population. Over 80% (82.7%) of cases were notified by the ERHA, corresponding to an ASIR of 62/100,000 population (figure 8). There was a large disparity between the sexes: 61% of cases were male (n=706), 37% were female (n=426) and sex was reported as unknown for 2% (n=22). Young adults were most affected, with over 83% of male cases (n=586) and over 80% of female cases (n=355) aged between 20 and 44 years. The age and sex-specific incidence rates can be seen in figure 9.

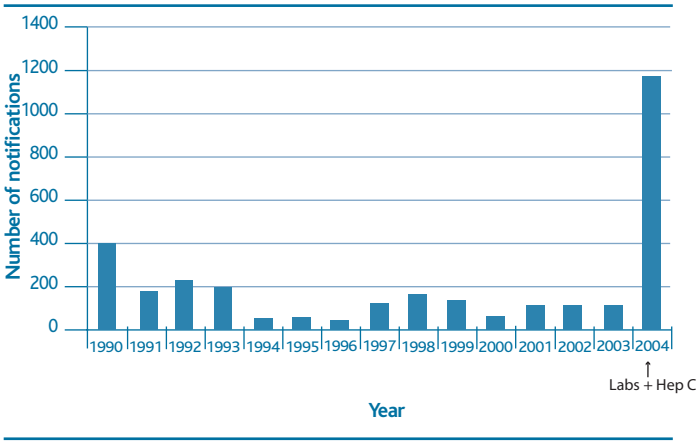

Figure 7. Number of notifications of hepatitis (type unspecified) 1990-2003, and number of notifications of hepatitis C in 2004

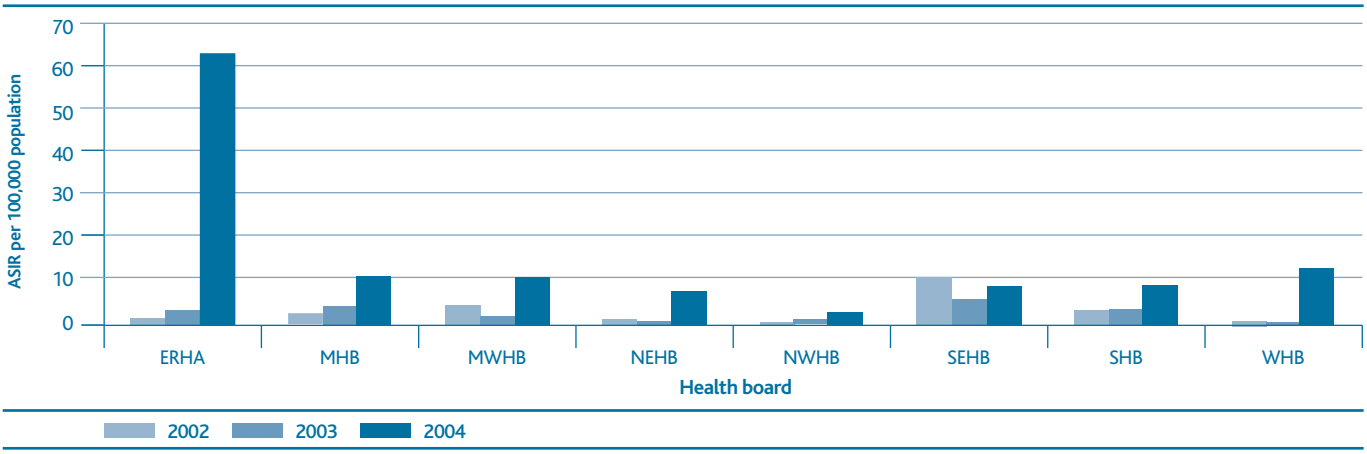

Figure 8. Age-standardised incidence rates of hepatitis type unspecified per 100,000 population 2002-2003, and hepatitis C per 100,000 population 2004, by health board

Discussion

Prior to 2004, there was very little routine information available to describe the epidemiology of hepatitis C in Ireland. The 2004 data indicate that the incidence of hepatitis C is higher than that of hepatitis B (29.5 compared to 20/100,000 population) and that the geographic distribution is skewed towards the ERHA. There is currently no enhanced surveillance system for hepatitis C in Ireland. However, previous studies in Irish settings indicate that the hepatitis C epidemic in Ireland is mainly occurring in injecting drug users and is strongly associated with sharing syringes or other drug paraphernalia.[11,12,13] A cross-sectional study of blood-borne infections in clients attending addiction treatment centres in the ERHA, found that 66% had antibodies to the hepatitis C virus, and a national study of individuals entering prisons found that 72% of injecting drug users had antibodies to the hepatitis C virus.[12,13] Enhanced surveillance is essential for the identification of risk factors and for planning public health strategies for hepatitis C prevention and future health service provision.

National Hepatitis C Database

A national database of people infected with hepatitis C through the administration of blood or blood products has been set up by HPSC in association with the eight designated hepatology units. This project was recommended by the Consultative Council on Hepatitis C[16] and is supported financially by the Department of Health and Children.

The objectives of the database are:

1. To follow the natural history of infection in this group of people
2. To evaluate the impact of various host factors on the progression of the disease
3. To evaluate the outcomes of treatment
4. To monitor the uptake of services
5. To provide information for the planning and evaluation of health services.
6. To serve as a resource for future research into hepatitis C

Any person who has contracted hepatitis C infection through the administration of blood or blood products within the State is eligible to be included in the database. It is estimated that about 1,600 persons have been infected with hepatitis C in this way. These include women infected through anti-D immune globulin, persons with haemophilia, recipients of blood transfusion and persons who received treatment for renal disease.

Data collection commenced at the end of 2004 and is based on data contained in the medical records of patients who have attended any of the eight designated hepatology units. It is estimated that baseline data collection will take 9 to 12 months to complete. Follow-up information will be collected annually thereafter. Only patients who have given written consent are included in the database. The database does not contain names or addresses. Ethical approval for the database has been received from the ethics committees of the eight hospitals. Patient support groups are represented on the Steering Committee, which oversees the project.
An annual report will be prepared. There will be an annual call for research based on the data contained in the database. This process will be overseen by the Steering Committee.

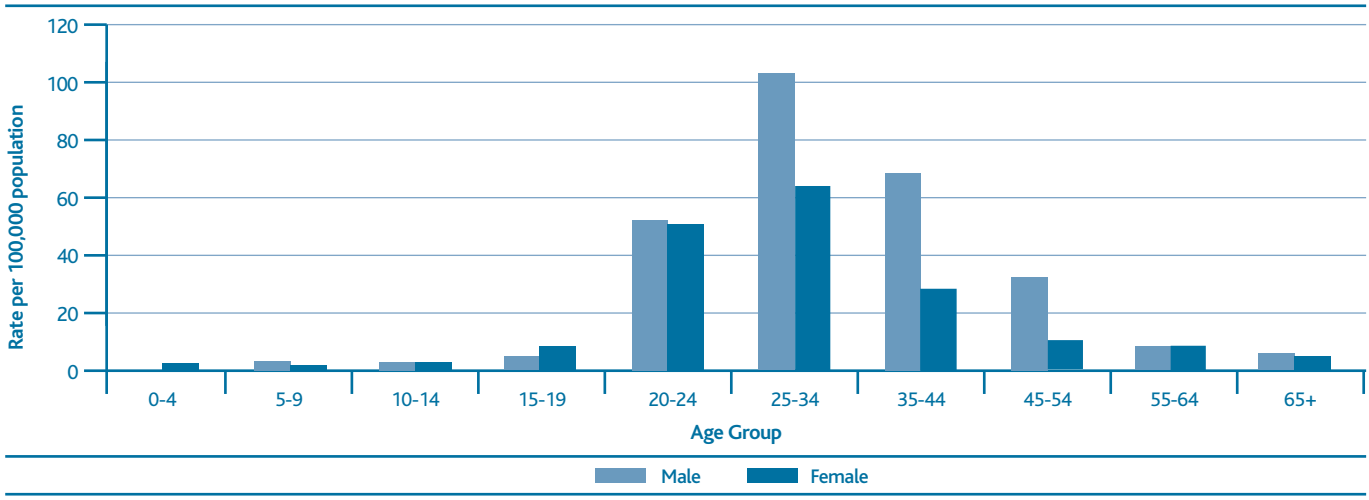

Figure 9. Age- and sex-specific incidence rates of hepatitis C per 100,000 population, 2004

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Box 1. Case definition for Hepatitis A[17]

Hepatitis A (acute)
Clinical description
In symptomatic cases, clinical picture compatible with hepatitis, i.e. discrete onset of symptoms and/ or jaundice or elevated serum aminotransferase levels. Asymptomatic cases are common.

Laboratory criteria for diagnosis
One of the following:
IgM-class to hepatitis A virus (anti-HAV) positive
Detection of antigen in stool
Detection of nucleic acid in serum

Case classification

Possible:	A case that meets the clinical case definition but has no epidemiological link
Probable:	A case that meets the clinical case definition and has an epidemiological link
Confirmed:	A case that meets the clinical case definition and is laboratory confirmed

Box 2. Case definition for Hepatitis B[17]

Hepatitis B (acute and chronic)
Clinical description
In symptomatic cases, clinical picture compatible with hepatitis, i.e. discrete onset of symptoms and/ or jaundice or elevated serum aminotransferase levels. Asymptomatic cases are common.

Hepatitis B (acute)
Laboratory criteria for diagnosis
One of the following:
IgM antibody to hepatitis B core antigen (anti-HBc) positive
Detection of hepatitis B virus (HBV) nucleic acid in serum

Case classification

Possible:	N/A
Probable:	A symptomatic case that is HBsAg positive and has a clinical picture compatible with an acute hepatitis
Confirmed:	A case that is laboratory confirmed

Hepatitis B (chronic)
Laboratory criteria for diagnosis
One of the following:
Hepatitis B surface antigen (HBsAg) positive and antibody to hepatitis B core antigen (anti-HBc) positive and IGM antibody to hepatitis B core antigen negative
Persistence for more than 6 months of either HBsAg or HBV nucleic acid in serum

Case classification

Possible:	N/A
Probable:	N/A
Confirmed:	A case that is laboratory confirmed

Box 3. Case definition for Hepatitis C[17]

Hepatitis C
Clinical description
In symptomatic cases, clinical picture compatible with hepatitis, i.e. discrete onset of symptoms and/ or jaundice or elevated serum aminotransferase levels. Asymptomatic cases are common.

Laboratory criteria for diagnosis
One of the following:
Detection of hepatitis C virus (HCV) specific antibodies
Detection of HCV nucleic acid from clinical samples

Case classification

Possible:	N/A
Probable:	N/A
Confirmed:	A case that is laboratory confirmed.