IV
BLOOD-BORNE DISEASES

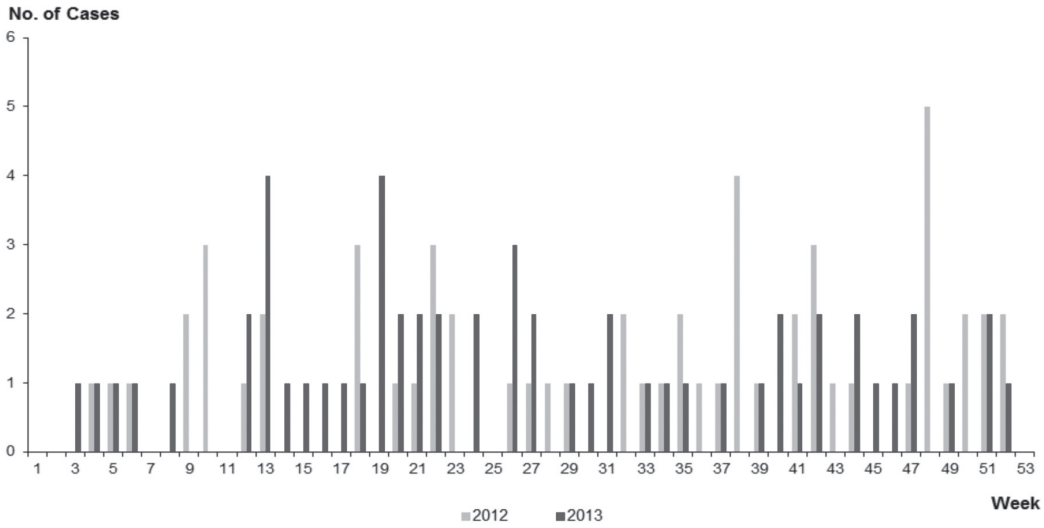
Blood-borne pathogens are microorganisms such as viruses or bacteria that are carried in blood and can cause disease in humans. There are many different blood-borne diseases. We focus on hepatitis B (HBV) and hepatitis C (HCV) in this chapter. The mode of transmission is via infected human blood and body fluids. The mechanism of infection commonly includes transfusion of blood or blood products, sexual contact, contaminated IV drug use paraphernalia or accidental occupational exposure.

HEPATITIS B

Hepatitis B virus is a small DNA virus that belongs to the Hepadnaviridae family of viruses. Common symptoms of hepatitis B infection include fever, fatigue, muscle or joint pain, loss of appetite, nausea and vomiting. More severe cases may present with jaundice and ascites.

A total of 57 cases of acute hepatitis B were reported in 2013, compared to 58 cases reported in 2012 (Figure 4.1). All cases were serologically confirmed with the presence of hepatitis B surface antigen (HBsAg) and anti-HBc IgM antibody which are both associated with acute clinical presentation.

Figure 4.1
E-weekly distribution of reported lab confirmed Hepatitis B cases, 2012 - 2013



The incidence rate was highest in the 25 - 44 years age group, with an overall male to female ratio of 5.2:1 (Table 4.1). Among the three major ethnic groups, Chinese had the highest incidence rate. (Table 4.2).

Table 4.1
Age-gender distribution and age-specific incidence rate of acute hepatitis B cases^, 2013

Age (Yrs)	Male	Female	Total (%)	Incidence rate per 100,000 population*
0 – 4	0	0	0 (0.0)	0.0
5 – 14	0	0	0 (0.0)	0.0
15 – 24	2	0	2 (3.6)	0.3
25 – 34	17	4	21 (38.2)	1.7
35 – 44	14	2	16 (29.1)	1.7
45 – 54	7	2	9 (16.4)	1.2
55-64	3	0	3 (5.4)	0.5
65+	2	2	4 (7.3)	0.9
Total	**45**	**10**	**55 (100.0)**	**1.0**

^Excludes two foreigners seeking medical treatment in Singapore.
*Rates are based on 2013 estimated mid-year population.
(Source: Singapore Department of Statistics)

Table 4.2
Ethnic-gender distribution and ethnic-specific incidence rate of acute hepatitis B cases^, 2013

	Male	Female	Total (%)	Incidence rate per 100,000 population*
Singapore Resident				
Chinese	24	4	28 (35.1)	1.0
Malay	0	2	2 (3.6)	0.4
Indian	0	0	0 (0.0)	0.0
Others	1	0	1 (1.8)	0.8
Foreigner	20	4	24 (43.7)	1.5
Total	**45**	**10**	**55 (100.0)**	**1.0**

^Excludes two foreigners seeking medical treatment in Singapore.
*Rates are based on 2013 estimated mid-year population.
(Source: Singapore Department of Statistics)

The cases comprised people from a wide spectrum of occupational groups. Construction labourers and related workers made up 16.4% of total notifications in 2013 (Table 4.3).

Table 4.3
Distribution of acute hepatitis B cases by occupation, 2013

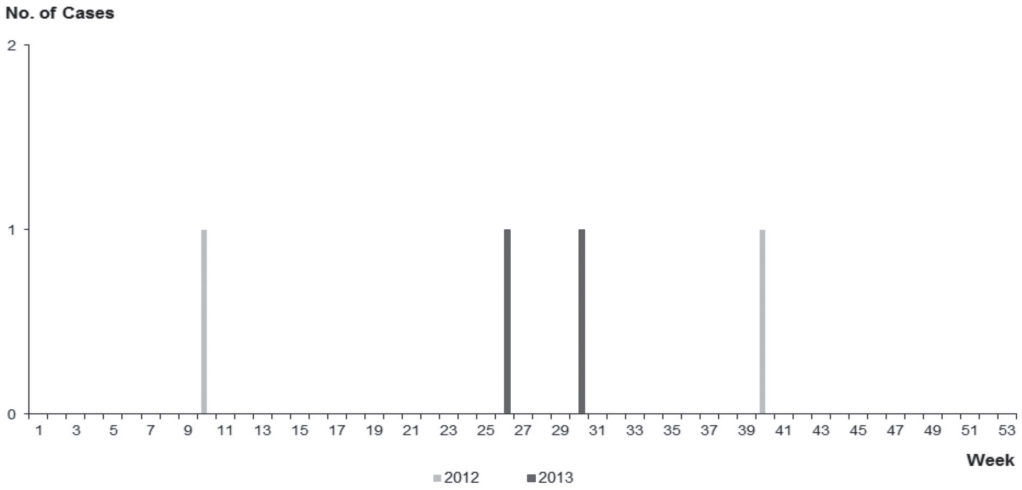
Occupation	Total	%
Cleaners, Labourers and Related Workers		
Construction labourers and related workers	9	16.4%
Domestic helpers & cleaners	3	5.5%
Labourers & Related Workers Not Classified	6	10.9%
Legislator, Senior Officials and Manager		
Manager	7	12.7%
Self-employed/Businessmen	3	5.5%
Professionals		
Company director	1	1.8%
Clerks/secretaries	1	1.8%
Architects	1	1.8%
Healthcare workers	1	1.8%
Policeman/Fireman/Security guard	1	1.8%
Associate Professionals and Technicians		
Technicians/Asst Engineers	3	5.5%
Service Workers and Shop/Market Sales Workers		
Driver	2	3.6%
Hawker/ Food Handler	1	1.8%
Shop Sales & Related Workers	3	5.5%
Production craftsmen & workers not classified		
Ship deck crew, sailors & related workers	1	1.8%
Unclassified		
Housewife	5	9.1%
Retiree	2	3.6%
Students	1	1.8%
Unemployed	3	5.5%
Prisoner/Illegal immigrant	1	1.8%
Total	**55**	**100%**

HEPATITIS C

Hepatitis C virus (HCV) is an enveloped RNA virus in the flaviviridae family which appears to have a narrow host range. HCV is a major cause of acute hepatitis and chronic liver disease, including cirrhosis and liver cancer. It is most efficiently transmitted by direct percutaneous exposure to infected blood or intravenous drug use.

A total of two cases of acute hepatitis C were reported in 2013, similar to two cases reported in 2012 (Figure 4.2). Both cases had positive HCV recombinant immunoblot assay (RIBA) results. Both cases presented with acute clinical symptoms such as fever, jaundice, dark urine and pale stools.

Figure 4.2
E-weekly distribution of reported hepatitis C cases*, 2012 – 2013



Both cases were 45-years and above (Table 4.4) and were males (Table 4.5).

Table 4.4
Age-gender distribution and age-specific incidence rate of reported acute hepatitis C cases, 2013

Age (Yrs)	Male	Female	Total (%)	Incidence rate per 100,000 population*
0 – 4	0	0	0 (0.0)	0.00
5 – 14	0	0	0 (0.0)	0.00
15 – 24	0	0	0 (0.0)	0.00
25 – 34	0	0	0 (0.0)	0.00
35 – 44	0	0	0 (0.0)	0.00
45 – 54	1	0	1 (50.0)	0.14
55 - 64	1	0	1 (50.0)	0.18
65+	0	0	0 (0.0)	0.00
Total	**2**	**0**	**2 (100.0)**	**0.04**

*Rates are based on 2013 estimated mid-year population.
(Source: Singapore Department of Statistics)

Table 4.5
Ethnic-gender distribution and ethnic-specific incidence rate of reported acute hepatitis C cases, 2013

	Male	Female	Total (%)	Incidence rate per 100,000 population*
Singapore Resident				
Chinese	0	0	0 (0.0)	0.00
Malay	1	0	1 (50.0)	0.19
Indian	1	0	1 (50.0)	0.28
Others	0	0	0 (0.0)	0.00
Foreigner	0	0	0 (0.0)	0.00
Total	**2**	**0**	**2 (100.0)**	**0.04**

*Rates are based on 2013 estimated mid-year population.
(Source: Singapore Department of Statistics)