Hepatitis A

Introduction

Hepatitis A is a small, unenveloped, symmetrical RNA virus within the genus *Hepatovirus*, a member of the Picornavirus family.

Epidemiology

(Data from the Travel Health Surveillance Section of the Health Protection Agency Communicable Disease Surveillance Section)

Global Epidemiology

![Hepatitis A, 2002](image)

This map is reproduced with acknowledgement to WHO. Note that the data shows prevalence NOT incidence. Countries that are not coloured have not reported cases to WHO, which does not necessarily mean that no cases are occurring.

Hepatitis A occurs worldwide; it is estimated to cause around 1.5 million cases of clinical hepatitis per year. The incidence of hepatitis A is closely related to socio-economic conditions, and sero-epidemiological studies show that prevalence of anti-hepatitis A antibodies in the general population varies from 15% to close to 100% in different parts of the world (1). It is endemic in many resource-poor countries where food and water hygiene may be of a low standard.
Countries where hepatitis A is highly endemic include the Indian Sub-Continent (particularly India, Pakistan, Bangladesh and Nepal), the Far East (not Japan), North Africa, South and Central America, Sub-Saharan Africa and the Middle East. Clinical cases of hepatitis A in adults are rare in these countries, as most will have been exposed to the virus at a young age and will have subsequently acquired life-long immunity. Most of the resource-rich countries such as those in Western and Northern Europe, Australia and New Zealand, North America and Japan are of low endemicity for hepatitis A, although small outbreaks occur from time to time. Most of the population in these countries will have no immunity to hepatitis A and are therefore susceptible to infection as adults and children should they be exposed to the virus.

In some countries in Eastern Europe and in parts of Asia and America, there has been a recent reduction in endemicity from high towards low, such that hepatitis A is more common in young adults and teenagers who may not have had previous exposure (and therefore not acquired any immunity) to the virus as a child. Conversely, hepatitis A is rare in older adults as most of them will most likely to have been exposed to the virus as a child and therefore will have acquired immunity.

**Hepatitis A Risk in UK Travellers**

Hepatitis A is the most commonly reported vaccine-preventable disease in travellers. Travellers from countries of low endemicity to countries of high/intermediate endemicity are at high risk of contracting the disease as they have had no previous exposure to the virus and therefore not acquired any natural immunity. Figure 1 shows the total laboratory reports to the Health Protection Agency, Communicable Disease Surveillance Centre (CDSC) of hepatitis A by travel history (see link below) and figure 2 shows the statutory notifications of hepatitis A by presumed travel history.
For both the laboratory reports and notifications, there has been a significant decline in total hepatitis A cases seen in England and Wales over the period 1990 – 2002*. The majority of notifications of hepatitis A are presumed to be contracted in Great Britain. However, for laboratory reports, the majority have not had a travel history.
given so it is not possible to say where they were acquired. Figure 3 shows the laboratory reports to CDSC of hepatitis A with a history of travel and the notifications of hepatitis A cases presumed contracted abroad.

**Figure 3 Laboratory reports of hepatitis A with a history of travel and notifications of hepatitis A presumed to be contracted abroad in England and Wales 1990 - 2002***

The number of cases notified or reported by laboratories has declined between 1990 and 2002, more consistently from laboratory data than from notifications. However, the proportion of laboratory reports for which no travel history has been given has increased over time and so the decline in laboratory reports may in part reflect poorer reporting rather than an actual decline in travel-associated disease.

Figure 4 shows the proportion of laboratory reports of cases of hepatitis A acquired in different regions in the world where information on recent travel abroad has been given.
The proportion of laboratory reports of cases acquired in the Indian Sub-Continent has fallen from one third to a fifth between 1990 and 1997. Over the same period, the proportion of reports of cases acquired in European countries popular with UK travellers, have declined from 15% to 5%. Meanwhile, an increasing proportion of cases have been acquired in other countries in the rest of the world. More information is required about country of acquisition to be able to accurately determine trends in travel-associated hepatitis A and to investigate more fully the role of hepatitis A immunisation in preventing travel-associated hepatitis A.

**Risk for Travellers**

The risk of hepatitis A in resource rich countries is low. The risk in resource poor regions depends on several factors including living conditions, length of stay and standards of food and water hygiene. The risk is highest in those intending to visit rural areas where there may be poor sanitation; however cases have occurred in tourists staying in standard hotel accommodation.

Hepatitis A is the most common of the vaccine preventable diseases, although there is a lack of recent data. A review paper in 1994 estimated the monthly incidence rate to be 3 cases per 1000 travellers. Amongst those travellers who do not adhere to food and water hygiene precautions, the risk increases to 20 cases per 1000 travellers.\(^2\)
Transmission

Hepatitis A in travellers is generally acquired through food or water contaminated by human faeces. Foods that grow close to the ground such as strawberries and lettuce are particular risks. Bottom feeding crustaceans such as oysters and clams are also a risk. Food handlers excreting hepatitis A virus may contaminate foods if they do not observe proper hygiene.

It is also possible to contract the disease directly through close personal contact, in conditions of poor faecal hygiene. This mode of transmission may occur between children, and during certain sexual practices.

Virus shedding occurs in the faeces during the incubation period, and continues for a few days after the onset of jaundice. It is at this stage that patients are most infectious. Virus shedding can be greatly prolonged in immunocompromised persons.

Signs & Symptoms

Hepatitis A is usually a sub clinical illness in young children, with less than 10% of those under the age of 6 years developing jaundice. However, the disease becomes much more serious with advancing age, with approximately 2% mortality rate in those over 50 years of age.³ After a relatively long incubation period of on average 28 days, with a range of 15-50 days, patients can experience a prodrome of malaise, anorexia, nausea and fever before developing jaundice.⁴ Recovery takes on average a month in young people, but some patients are ill for many weeks. Complications are more likely in those with pre-existing liver disease, and include fulminant hepatitis.

Following infection with hepatitis A, patients acquire life long immunity.

Treatment

There is no specific anti viral treatment for hepatitis A, but rather supportive intervention.
Prevention

Hepatitis A is transmitted via the faecal-oral route; therefore the most common mode of infection for travellers is through eating contaminated food, or drinking contaminated water. The risk of acquiring hepatitis A can be reduced by following simple guidelines on food and water hygiene and by ensuring good personal hygiene.

Several highly effective and well-tolerated hepatitis A vaccines are available for those travellers intending to visit endemic areas. However, the vaccine should not be an alternative to food and water hygiene precautions.
Hepatitis A Vaccine Information

Indications for use of vaccine

Hepatitis A vaccine is recommended for

- Travellers (who do not have natural immunity to hepatitis A) visiting areas of moderate or high hepatitis A endemicity, especially if sanitation and food hygiene are likely to be poor.
- Travellers with chronic liver disease. Although not at greater risk of hepatitis A infection, the disease can produce a much more serious illness in this group.
- Travellers whose sexual behaviour is likely to put them at an increased risk. A significant increase in hepatitis A has been noted in men who have sex with men.5,6
- Other specific indications for vaccination can be found in *Immunisation Against Infectious Disease*

Availability of vaccine

There are several vaccines licensed for use in the UK, all of which are inactivated.

Details of these and manufacturers can be found in the summary table below.

There are also combined hepatitis A and B, and hepatitis A and typhoid vaccines available.
## Vaccine schedules

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Manufacturer/distributor</th>
<th>Schedule</th>
<th>Length of Protection*</th>
<th>Age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avaxim</td>
<td>Aventis Pasteur MSD</td>
<td>2 doses, given 6-12 months apart</td>
<td>10 years following booster*</td>
<td>Adults from 16 years</td>
</tr>
<tr>
<td>Epaxal</td>
<td>Swiss serum and Vaccine Institute</td>
<td>2 doses, given 6-12 months apart</td>
<td>20 years following booster*</td>
<td>Adults &amp; children from 2 years</td>
</tr>
<tr>
<td>Havrix Monodose</td>
<td>GlaxoSmithKline</td>
<td>2 doses, given 6-12 months apart</td>
<td>10 years following booster*</td>
<td>Adults from 16 years</td>
</tr>
<tr>
<td>Havrix Junior Monodose</td>
<td>GlaxoSmithKline</td>
<td>2 doses, given 6-12 months apart</td>
<td>10 years following booster*</td>
<td>Children from 1 to 15 years</td>
</tr>
<tr>
<td>Vaqta Paediatric</td>
<td>Aventis Pasteur MSD</td>
<td>2 doses, given 6-12 months apart</td>
<td>10 years following booster*</td>
<td>Children from 2 to 15 years</td>
</tr>
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It is good practice to continue a course of hepatitis A with the same brand of vaccine. However, evidence suggests that hepatitis A vaccines are likely to be compatible with each other,\(^7,8,9\) and if necessary a different brand of hepatitis A vaccine could be given.

* There is no evidence that further reinforcing doses of hepatitis A vaccine are needed in immunocompetent individuals following completion of the primary course.\(^10\) However, further advice should be sought for individuals with altered immune responses.
Interrupted Courses

The SPC states that for Havrix Monodose and Havrix Junior Monodose, a booster that is delayed for up to 3 years can be expected to induce similar antibody levels as a booster given within the recommended 6-12 months.

The SPC states that for Avaxim the reinforcing dose may be administered up to 36 months after the primary dose.

Vaqta Paediatric booster doses can be administered up to 18 months following the primary dose. Booster doses delayed beyond the recommended interval are not covered by the Product Licence. However, research suggests that reinforcing doses of Havrix Monodose and Junior Monodose given up to 66 months after the first dose will still boost the primary dose, i.e. immunity is expected to persist for at least 10 years.\(^{11}\)

Good protective antibody levels are achieved even if the booster dose of Epaxal is given up to 56 months after the primary dose.\(^{12}\)

Contraindications

- Current severe febrile illness
- Individuals who develop symptoms suggestive of hypersensitivity after vaccination should not receive further doses

  Specifically to Epaxal
  - Hypersensitivity to eggs and chicken protein

Adverse events

Adverse reactions following hepatitis A vaccine tend to be mild and transient. They include tenderness, redness and swelling at the injection site. Less commonly, fever, headaches, dizziness and malaise have been reported.
References

5. CDC. Hepatitis A amongst homosexual men. MMWR 1992;41:155 pp161-4

Links

CDC www.cdc.gov/travel/diseases/hav.htm
Health Canada www.hc-sc.gc.ca/pphb-dgpsp/tmp-pmv/info/hepa_e.html
WHO www.who.int/ith/chapter05_04.html#hepatitisa