Managing risks of travel abroad with children

In this article...

- Why children are at greater risk of contracting infection
- Main risk factors when travelling abroad with children
- Strategies to minimise the risk of ill health while overseas

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Abstract

Infants and children have an increased risk of contracting infection and developing serious illness. A careful risk assessment is needed to identify the key risks when they are travelling abroad as well as strategies for maintaining their safety. This article outlines the risks and what can be done to protect children against them.

Travelling with children can be rewarding and frustrating. Parents should plan carefully, involving children where they can, and have realistic expectations. Potential hazards and the risks and benefits of therapeutic interventions such as vaccines must be discussed with parents or guardians. People aged 16 or 17 years are presumed in law to be able to consent to their own medical treatment (DH, 2013). Younger children who fully understand the procedures (referred to as “Gillick competent”) can also consent to treatment, although ideally their parents would be involved (DH, 2013).

Risk assessment
All travellers, including infants and children, need a thorough travel health risk assessment that considers their destination and itinerary, season of travel, duration of stay and any planned activities. The risk profile of infants and children differs from that of adults; in general, infants and toddlers have an increased risk of exposure to a hazard, of contracting infection and of developing serious illness due to:

- Less immunologic development;
- Limited ability to understand and communicate;
- Developmentally appropriate behaviour such as putting objects in the mouth and crawling on the ground (Committee to Advise on Tropical Medicine and Travel, 2010).

Vaccination and medication to prevent and treat infection may be limited due to age restrictions, as well as presenting challenges in administration. Older children and adolescents increasingly have the chance to travel alone or in groups, leading to a rise in risk-taking behaviour and an increased risk of injuries (CATMAT, 2010).

Children of parents visiting friends and relatives in their country of origin are considered at higher risk of acquiring infectious diseases due to extended stays, often in rural locations and in close contact with the local population (Stauffer et al, 2008).

Preparations for travel
Parents should be advised that special foods (formula feeds or baby foods) and disposable nappies might not be available at their destination.

Safety and security
Tips on what to consider to maximise the safety and security of children while abroad are given in Box 1. Safety standards vary around the world with some countries having poorly maintained roads and vehicles not fitted with seat belts. Hotels and holiday apartments may not be “child-proof” and may have unsafe balconies.

Road traffic accidents and drowning account for the majority of serious injury and death in children travelling abroad (Hotstetter, 1999). Supervision is especially limited by age restrictions.

5 key points

1 Risk assessment is essential for all travellers including infants and children

2 Children have an increased risk of contracting infection and developing serious illness

3 Vaccinations and medication to prevent or treat infection may be limited by age restrictions

4 Supervision of children is important as safety standards and security vary around the world

5 Travel health insurance is essential for all children as well as adults

Box 1. Safety and security tips
- Label clothes of small children with their name
- Provide older children with accommodation and parent contact details in case of separation
- Advise parents to carry photos of their children
- Bring safety equipment from home (eg car seat)
- Check hotel room/apartment to make as “childproof” as possible
- Ensure medicines are out of reach of children

Source: Committee to Advise on Tropical Medicine and Travel (2010)
important around unfamiliar roads and water - with the latter, attention should be paid to tides, currents and local warnings.

**Healthcare abroad**

It is important parents can deal with minor issues and know what to do and where to go in case of more serious illness. Medical facilities at the destination should be considered, especially for children with pre-existing health problems. A summary of their medical condition and a list and adequate supply of medication must be carried.

Travel health insurance, including repatriation, is essential for all travellers including children.

**Infectious disease risks**

**Diarrhoea and dehydration**

Travellers’ diarrhoea is commonly reported in young children (Herbinger et al, 2012; Hagmann et al, 2010). Resultant dehydration is of concern as it can be life threatening in children aged under two years. The cornerstone of treatment is oral rehydration (Stauffer et al, 2008).

Adults travelling with children should be advised on the signs and symptoms of dehydration (Box 2), appropriate use of oral rehydration solutions and when to seek medical help. Breastfeeding reduces the risk of diarrhoea in infants and should be continued if the child has diarrhoea.

**Food and water**

Food, water and personal hygiene precautions for children are the same as for adults. Dairy products should be pasteurised and water for drinking and preparing infant feeds sterilised (using boiled and cooled water or bottled mineral water). If bottled water is used, sodium levels should be <200mg/l (Field et al, 2010).

**Rabies**

Worldwide, 40% of people bitten by suspected rabid animals are <15 years of age (World Health Organization, 2014). Children are at greater risk than adults due to:

> More contact with animals;
> Bites to the head and neck, which can be more serious;
> Not reporting a bite or scratch.

Parents should be advised on immediate first aid measures in the event of a bite and the need to seek prompt medical attention (Field et al, 2010).

**Vaccinations in children**

The travel consultation is an ideal opportunity to ensure routine childhood immunisations are up to date. Maternal antibodies can interfere with an infant’s ability to develop their own antibodies to vaccines, for example measles, mumps and rubella (MMR). However, MMR can be given from six months of age if travelling to an area of risk. If a dose is given before 12 months of age, two further doses should be given as in the routine schedule (DH, 2013). Polysaccharide vaccines like Typhoid Vi may produce a suboptimal response in young children (DH, 2014).

Polysaccharide meningococcal vaccine is no longer available; conjugate meningococcal ACWY vaccines are considered to have higher and longer-lasting immunity and are recommended for travel (DH, 2013).

In some instances vaccines can be administered at an early age (Table 1) but guidelines exist for altering vaccine schedules if required (Field et al, 2010). In all cases the DH’s “Green Book” (bit.ly/DHGreebook) should be consulted with individual summaries of product characteristics, or specialist advice sought.

**Malaria**

Chiodini et al’s (2014) “ABCD” of malaria prevention should be followed:

> Awareness of risk;
> Bite prevention;
> Chemoprophylaxis (malaria tablets);
> Prompt diagnosis and treatment.

**Awareness of risk**

Children are at particular risk of severe and fatal malaria (Chiodini et al, 2014). If travel is unavoidable they should be protected against mosquito bites and given appropriate malaria tablets.

**Bite prevention**

Avoidance of mosquito bites is essential. DEET (N,N-diethyl-meta-toluamide) is suitable for all individuals aged over two months (unless allergic). There is no current evidence that any group (including small children) is at increased risk from using 50% DEET (Chiodini et al, 2014). Permethrin-impregnated bed nets should be used over beds, cots and playpens.

Rigorous bite-avoidance measures are an important part of prevention of both tick and mosquito-borne diseases such as malaria, yellow fever, Japanese encephalitis and dengue fever.

**Chemoprophylaxis**

Parents should supervise children who are taking malaria tablets as some regimens are difficult to follow. Some can be toxic to children if recommended doses are exceeded, so care must be taken (Chiodini et al, 2014).

Paediatric doses of antimalarials are calculated according to the child’s weight. Chiodini et al (2014) provides dosage tables, as does the British National Formulary for Travellers’ Health (DH, 2013). Paracetamol is suitable for all individuals aged over two years. The cornerstone of treatment is oral rehydration (Stauffer et al, 2008). In some instances vaccines can be administered at an early age (Table 1) but guidelines exist for altering vaccine schedules if required (Field et al, 2010). In all cases the DH’s “Green Book” (bit.ly/DHGreebook) should be consulted with individual summaries of product characteristics, or specialist advice sought.

**TABLE 1. TRAVEL VACCINES FOR CHILDREN**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Age to start course of vaccine</th>
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<tbody>
<tr>
<td>Cholera</td>
<td>2yrs</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>12mths (hepatitis A can be asymptomatic in children &lt;2yrs although vaccine is generally recommended in children at risk from 12mths)</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>From birth</td>
</tr>
<tr>
<td>Japanese encephalitis</td>
<td>2mths+</td>
</tr>
<tr>
<td>Meningococcal meningitis</td>
<td>Two doses a month apart: 2mths to 1yr Single dose: 1yr upwards (Menveo)</td>
</tr>
<tr>
<td>Rabies</td>
<td>From birth</td>
</tr>
<tr>
<td>Tick-borne encephalitis</td>
<td>12mths</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>From birth</td>
</tr>
<tr>
<td>Typhoid (Vi antigen)</td>
<td>2yrs: can be considered from 12mths if risk of typhoid considered high</td>
</tr>
<tr>
<td>Yellow fever</td>
<td>9mths: can be considered from 6mths in exceptional risk – seek specialist advice</td>
</tr>
</tbody>
</table>

Source: Field et al (2010)
Children. Although it is preferable to avoid breaking or crushing tablets, the appropriate dose may be crushed and mixed with jam or a similar food to help with administration. Breastfeeding infants require their own medication. Box 3 details antimalarial drugs for infants and young children.

**Diagnosis and treatment**

Children with malaria may deteriorate quickly and become critically ill. People caring for children on their return from malarious areas must be aware that medical attention is needed without delay if they become unwell within a year of leaving a malarious area (Chiodini et al, 2014).

**BOX 3. ANTIMALARIALS**

- Chloroquine and proguanil can be given from birth (chloroquine syrup has now been discontinued)
- Mefloquine can be given to infants weighing 5kg or more
- Atovaquone/proguanil paediatric tablets are licensed for children weighing 11kg upwards but can be given to infants weighing 5kg-plus
- Doxycycline is unsuitable for children under 12 years

**BOX 4. CASE STUDY**

Nisha is seven months old and travelling to India with her mother to stay with family in a small village in the state of Orissa. They will stay in India for at least four months, and are due to depart in four weeks. Nisha is a healthy baby and is being breastfed. The travel consultation is an ideal opportunity to ensure Nisha is up to date with the current UK immunisation schedule as far as possible. She is too young to receive travel immunisations such as hepatitis A and typhoid but these infections are a risk and Nisha’s mother should be advised on the prevention of these and other food-borne illnesses. Nisha’s mother should be encouraged to continue breastfeeding to reduce the risk of gastrointestinal infection, and advised on oral rehydration should Nisha develop diarrhoea.

BCG and hepatitis B vaccines can be given from birth and would be considered for Nisha due to the extended length of stay in India. MMR would also be offered (with two further doses as per routine schedule (Department of Health, 2013). A rabies vaccination should be considered and Nisha’s mother would be advised on first aid treatment of any bite or lick, and to seek medical help as soon as possible. Japanese encephalitis has not been reported in Orissa although bite avoidance measures are still important.

There is a risk of malaria in Orissa and the recommended antimalarials for Nisha would be either mefloquine or atovaquone/proguanil. Choice of medication will depend on her weight as well as practicalities of administration, contraindications and the risk of side-effects (Chiodini et al, 2014). Nisha will need to be weighed and the appropriate dose of antimalarial calculated, bearing in mind she may increase in weight during her stay. Administration of the tablets may be difficult so they could be crushed and mixed in her food. Bite avoidance measures to prevent malaria and other mosquito-borne infections should be discussed.

Additional advice on travel health insurance and issues such as heat exposure should be provided and Nisha’s mother encouraged to attend for a pre-travel consultation for herself.

**Flying**

Children should be assessed for fitness to fly and, if necessary, referred to a paediatrician if they have had a recent or current illness. Healthy babies can usually travel by air 48 hours after birth but should ideally wait seven days (Field et al, 2010).

Child seats and carry cots can be booked in advance, and parents should be advised to check facilities with their airline.

Approximately 15% of children develop ear pain when flying, especially during descent and landing (Field et al, 2010). Infants can be bottle or breast-fed and older children encouraged to suck, chew or swallow to equalise middle ear pressure.

**Environmental risks**

**Altitude**

The incidence of acute mountain sickness in children is the same as for adults (Pollard et al, 2003) but trying to distinguish between behavioural changes caused by travel - altered sleep patterns, appetite and mood - and those caused by altitude illness can be difficult. A slow ascent and time at an intermediate altitude are encouraged.

**Heat and cold injuries**

Infants and children are more prone to heat and cold injury due to increased surface area to weight ratio. Parents should ensure children wear appropriate clothing for the conditions.

**Sun exposure**

Severe sunburn in childhood is a risk factor for skin cancer later in life (Neumann, 2006). Parents should be advised to:

- Avoid the midday sun
- Provide children with protective clothing
- Use sunscreen.

**Conclusion**

Children are a special group of travellers who may have different risks from their parents and it may be harder to prepare for their travel (Box 4). Potential risks associated with travel need to be discussed with parents, who should be advised on how to minimise them. Parents need to be able to deal with minor ailments and know when to seek medical help.

**References**


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- Travel risk assessment and risk management
- Bit.ly/NTTravelRisk