Breastfeeding and bottle feeding

Careful pre-trip preparation can reduce the travel-associated health risks to breast- or bottle-feeding women and their infants, making for a more enjoyable trip

Key messages

- **The timing of a trip should be considered; ideally infants should receive primary immunisations before travel.**
- **Advice from a travel health professional should be sought 4-6 weeks prior to travel for mother and baby (although last-minute advice is still useful if time is short).**
- **A pre-travel consultation provides an opportunity to offer appropriate antimalarial medication for those visiting risk areas.**
- **Breastfeeding while travelling is not only convenient but also protects the infant against travellers' diarrhoea and exposure to contaminated food and water.**
- **Careful research of the destination before travel, provides an understanding of cultural expectations regarding breastfeeding in public.**
- **Most vaccinations can be given safely in breastfeeding, although yellow fever requires special consideration.**

Overview

Evidence suggests that many women travel to visit friends and relatives soon after giving birth, often for prolonged periods of time [1, 2]. These travel characteristics have been associated with an increased risk of illness because for example bed nets are less likely to be used, access to safe food and water may be reduced and longer stays in rural communities increases the exposure to and risk of diseases such as malaria, yellow fever, and typhoid [1, 3, 4]. It is important to identify these travellers as early as possible to assess risk and advise appropriately [3, 4].

Pre-travel preparation

Good pre-travel preparation can reduce the risk of travel-associated illness. Women who are either breast-or bottle feeding should discuss specific health issues for the destination and risks/benefits of interventions such as vaccination, with a health professional ideally 4-6 weeks prior to departure. Health professionals providing pre-travel advice need to consider destination, susceptibility to travel-related illness, planned activities and any pre-existing medical conditions in their risk assessment before advising on prevention strategies. Destination-specific health advice can be found on our Country Information pages.

Most vaccinations (live and inactivated) can be offered to breastfeeding women [5], although caution is required with the yellow fever vaccination; further details can be found in the vaccination section below. Certain antimalarial tablets are also suitable for breastfeeding women and their infants. A 2017 study in the USA indicates that destination specific preventive interventions were often underused in breastfeeding women [1]. Health professionals should seek expert advice if unsure on the safety of vaccinations or antimalarial medications for this group. Infants require their own age appropriate routine and travel vaccinations and antimalarial medication based on their body weight; they will not be protected by medication excreted in breastmilk.

It is important to research the destination before travel. Cultural expectations in some countries may mean that breastfeeding in public is considered offensive; it is advisable to check this before travel [6]. For those who plan to bottle-feed, it may be sensible to pack equipment that could be unavailable at the destination, including bottles, formula, and sterilising equipment. If milk is to be stored, reliable refrigeration at the destination should be checked. Further information about milk storage is available from the NHS [7].

Comprehensive medical insurance, covering repatriation, pre-existing medical conditions, and all planned activities, is recommended for each traveller.

All travellers should pack a first aid kit that is appropriate for the destination, the activities to be undertaken and any pre-existing medical conditions. Useful items when travelling with an infant include sun cream, oral rehydration solution, age-appropriate painkillers, antiseptic, basic wound dressings, thermometer, and barrier cream for those using nappies. It may be appropriate to discuss packing antifungal medication in the first aid kit for women/infants who have previously experienced problems with thrush, and who are now planning to visit hot, humid climates.

Journey risks

Travellers planning to fly with their babies can take enough baby milk, baby food and sterilised water for the journey but containers may be opened at security for screening. Up to two litres of expressed breastmilk (not frozen) may be carried in clear containers, even when travelling without the infant [8].

Due to pressure changes on plane take-off and landing, approximately 15 percent of children will get ear pain; making it more common in children than adults [9]. To help equalize pressure, infants/children can feed from breast or bottle, as this encourages sucking and swallowing actions

[10].

Food and water-borne risks

A number of different infectious diseases can be transmitted through contaminated food and water, and it is advisable for travellers to seek information regarding the risk at the destination before travel.

It is difficult to eliminate all risk but precautions for safe food and water hygiene should be observed and are the same for all travellers [9]. Infants do not have a well-developed immune system and are more likely to get infections. Therefore, good hygiene is important. Hands should be washed often, for example after using the toilet or nappy changing and before feeding or preparing bottles. Hand sanitisers can be used where hand washing is unavailable; however, they are not as effective against some infections [11].

Breastfeeding an infant during travel has many benefits including ease and accessibility of feeding as well as reduced exposure for the infant to potential contamination, for example, on cups or in food/water [12]. Breastfed infants under the age of six months do not require water supplementation even when it is very hot [12]. The mother should ensure adequate hydration for herself, particularly when visiting destinations that are hot or at high altitude [6]. It is recommended that the infant is fed regularly on demand to maintain milk supply [12].

Equipment for bottle feeding should be sterilised before use. Generally, the NHS do not recommend bottled water to make up formula feeds for infants as it may contain too much salt, or sodium (also written as Na) sulphate (also written as SO or SO4) and is usually not sterile [13]. When travelling, however, the quality of tap water may be uncertain. Bottled water may be safer to drink than tap water in some areas, as the mineral content of the latter may be uncertain [14].

As bottled water is usually not sterile, it should be boiled, like tap water, to at least 70°C, covered and allowed to cool for no more than 30 minutes before mixing with the formula in preparation for a feed. Alternatively, parents could consider using ready-made formula when travelling. For further information see our food and water hygiene factsheet.

Despite the most scrupulous care with hand washing and food/water preparation, travellers' diarrhoea remains a common travel-related illness and travellers should be prepared to manage the symptoms [15]. The main aim of treatment for travellers' diarrhoea is to prevent dehydration [16]. Exclusive breast feeding protects the infant against travellers' diarrhoea. However, if the infant does become unwell, breastfeeding is the ideal rehydration and should continue at regular intervals [12]. Bottle-fed babies should continue their usual formula for rehydration [17]. Medical care should be sought if symptoms do not improve within a few days, or if infants are not tolerating fluids or are showing signs of dehydration.

Travellers' diarrhoea in the breastfeeding mother may reduce milk supply temporarily. Breastfeeding should continue, along with adequate hydration for the mother, as this is the most

effective way to maintain milk supply [12]. Should treatment for travellers' diarrhoea be required, rehydration salts are considered safe for use in breastfeeding [18] but medical advice should be sought before using any other medications [12].

A small number of food and water-borne illnesses are vaccine preventable. Check the Country Information pages for further details of vaccine recommendations at specific destinations.

Vector-borne risks

There are a number of infectious diseases that can be transmitted by insects/ticks. Check our Country Information pages for details of the more common infections; some of these may be preventable with vaccines or tablets. However, for many insect/tick-borne infections such as West Nile virus or Zika, bite avoidance is the only way to reduce the risk of disease.

Many breastfeeding women travel to areas endemic for insect/tick-borne disease [1]. Travellers should take insect bite avoidance measures day and night, including covering up with loose clothing, wearing shoes when outdoors and sleeping under appropriately-sized mosquito nets, impregnated with insecticide [19]. There may be an increased risk of mosquito bites if a woman is breastfeeding overnight and leaving the mosquito net [6].

Insect repellent should be applied to exposed skin, as the effects of diseases such as dengue or malaria could have serious consequences for the breastfeeding mother. Clothing may be sprayed, or impregnated, with an insecticide such as permethrin. Repellents containing N, N-diethylmetatoluamide (DEET) can also be applied to clothing made of natural fibres such as cotton but may damage synthetic fabrics and items such as plastic watch straps or jewellery [19, 20]. DEET-containing repellent, at 50 percent concentration, is recommended for all travellers over 2 months of age, including breastfeeding women [19]. There is currently no evidence that a DEET-containing repellent is harmful to the infants of lactating women, provided it is used according to the manufacturers' instructions [19]. The repellent should not be applied to the nipple area; hands and breast area can be washed before handling the infant to avoid inadvertent ingestion of repellent. If DEET is not tolerated or is unavailable, an alternative preparation should be used [19]. In the USA, the Environmental Protection Agency has further information about safety of repellents whilst breast feeding although not all active ingredients listed are recommended in the UK.

Zika

Travellers should be aware of the risk of Zika virus at their destination. Country-specific information can be found in the 'Other Risks' section on our Country Information pages. Generally, it is a mild self-limiting illness. However, for some individuals, including pregnant women and those planning a pregnancy, additional advice is necessary. Please see Zika virus: Evaluating the risk to individual travellers for more information.

Zika virus has been detected in breast milk, although there have been no documented cases of transmission to infants through breastfeeding. No adverse neurological outcomes have been

reported in infants infected with Zika postnatally [21]. The benefits of breastfeeding are thought to outweigh the theoretical risk of Zika virus transmission through breast milk [12].

Malaria

In malaria endemic areas, the 'ABCD' of malaria prevention should be discussed. Travellers should be: **A**ware of malaria risk in the area they are travelling; practice good **B**ite prevention, as this is the first defence against malaria; use appropriate **C**hemoprophylaxis (antimalarial medication) for the destination when indicated; and recognise the importance of responding quickly to potential signs/symptoms of malaria to ensure prompt **D**iagnosis.

If antimalarial medication is recommended, it is important to select an option appropriate for the destination and traveller even when breastfeeding. Evidence suggests mefloquine is safe to use during breastfeeding, although it is excreted in breast milk [19]. If both breastfeeding mother and infant take mefloquine, there may be a concern that the infant, particularly if lower in weight, could take more than the recommended maximum dose. However, this effect is likely to be short lasting as the weight of the child increases and the contribution of mefloquine in breast milk to the total prophylactic dose becomes relatively small [19].

There is an absence of data regarding the use of atovaquone/proguanil in breastfeeding and UK guidelines suggest generally it use should be avoided. However it can be used in circumstances where there are no suitable alternatives [19].

Doxycycline is not recommended for use in breastfeeding, unless there is no alternative, and its use is felt to be essential [19].

Country-specific recommendations should be checked on the Country Information pages.

Breastfeeding does not affect maternal or infant dosage guidance [12]. Nursing mothers should be advised to take the usual adult dose of antimalarial medication [19]. The amount of antimalarial medication in breast milk will not protect the breastfed infant or child and they will need their own medication [19]. The correct anti-malarial dose for children is based on the child's weight; see our children's antimalarial dosage table for further details. The known risks of stopping breastfeeding generally outweigh the theoretical risk of exposure to antimalarials through breastfeeding [12]. Further information may be found in the guidelines for malaria prevention in UK travellers.

Vaccination

Most live and inactivated vaccines do not affect breast milk or the safety of breastfeeding for the woman and their infant [5].

Inactivated vaccines do not multiply in the body and pose no special risk for breastfeeding women or their infants [5, 22].

Most live vaccines can also be safely administered; health care professionals should check prescribing guidance for specific information. Where an inactivated and live option for vaccination is available, for example typhoid, the inactivated vaccine would usually be given as there is limited data on the use of live oral vaccines in breastfeeding [23]. Due to lack of safety data, the dengue vaccine licensed in the UK Qdenga®▼ is not currently recommended for breastfeeding women or infants [24].

Yellow fever vaccination requires special consideration for breastfeeding women, and expert advice should be sought for those breastfeeding infants less than nine months of age [25]. Three infants, exclusively breastfed, developed encephalitis shortly after their mothers received yellow fever vaccine for the first time during their babies' first month of life. Although all babies were breastfed, the mode of transmission has not been established [26-28].

Ideally yellow fever vaccination should be avoided in breastfeeding. However, if travel cannot be avoided or postponed to areas where yellow fever is endemic, the benefits of vaccination are likely to outweigh risk of potential transmission of vaccine virus to the infant [28]. Breastfeeding women planning on visiting yellow fever endemic areas should be counselled regarding the benefits and potential risks of vaccination [12]. **Breastfeeding is a precaution rather than a contraindication for yellow fever vaccine administration** [25].

Insufficient evidence exists to recommend expressing and discarding breast milk post-vaccination [12]; furthermore, the benefits of continuing to breastfeed are considered to outweigh the alternatives for infant feeding [28].

Yellow fever is transmitted though the bite of an *Aedes* mosquito and it is important that all travellers follow insect bite precautions day and night; particularly infants who may be too young to receive yellow fever vaccination.

Other health risks

Women travelling with young children are often easily distracted, providing an ideal opportunity for pickpockets. Rather than using handbags, which can be difficult to hold onto, it is advisable to carry valuables in, for example, a neck pouch or money-belt worn under clothing.

COVID-19

The World Health Organization has stated that the benefits of breastfeeding substantially outweigh the potential risks for transmission and recommends that mothers should be encouraged to initiate or continue to breastfeed, even if suspected or confirmed to have COVID-19 [29].

All individuals, should follow current UK recommendations to reduce their risk of catching COVID-19 and passing it on to others.

General guidance regarding risk assessment for travel during the COVID-19 pandemic and

information about the COVID-19 vaccination programme is available.

General advice and advice for those who get sick abroad

Travellers should carry a basic first aid kit that will help manage common issues affecting travellers such as travellers' diarrhoea, insect bites, minor cuts, and grazes. Medication should only be recommended or prescribed by a clinician who is aware the traveller is breastfeeding.

Travellers should know when and how to seek prompt medical advice, for example if they experience fever, prolonged diarrhoea, dehydration or any other concerning symptoms. Keep any receipts for treatment and the travel insurance company should be informed as soon as possible.

Resources

- La Leche League: International Support for Breastfeeding Women
- UK Health Security Agency: Guidelines for Malaria Prevention in Travellers from the UK
- UK Health Security Agency: Contraindications and Special Considerations. Immunisation Against Infectious Disease 'The Green Book' Chapter 6

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