



REVIEW ARTICLE

Traveling with children: beyond car seat safety^{☆,☆☆}



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KEYWORDS

Travel;
Safety;
Protective
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Abstract

Objective: To spread knowledge and instigate the health professional to give advice on childcare during travels and on child transport safety.

Sources of data: Literature review through the LILACS and MEDLINE® databases, using the terms: travel, safety, protective equipment, child, preventive medicine, retrieving articles published in the last 21 years.

Summary of the findings: The authors analyzed 93 articles, of which 66 met the inclusion criteria after summaries were read. For drafting this article, the following sub-themes were proposed: getting ready to travel with children; knowing some of the transfer risks (air, land and water transportation) and exploring the destination with children (sun exposure, accommodations, altitude, food, traveler's diarrhea, insect bites) and return from the trip with children.

Conclusions: Over the years, there has been an increase in the number of children who travel around the world. However, this population is still subject to health problems while traveling and may be even more susceptible than the adult age group. These problems arise from a variety of factors, including exposure to infectious organisms, the use of certain types of transportation, and participation in some activities, such as hiking at high altitudes, among others. However, when traveling with children, these risk factors can be overlooked; a trip that is considered safe for an adult might not be a good choice for this age group. The pediatric consultation should be a good opportunity to optimize preventive guidelines at the pre-trip planning.

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PALAVRAS-CHAVE

Viagem;
Segurança;
Equipamentos de
proteção;
Medicina preventiva

Viagem com crianças: segurança “além da cadeirinha”**Resumo**

Objetivo: Proporcionar conhecimento e instigar o profissional de saúde a fornecer uma orientação otimizada quanto aos cuidados com crianças em viagens, além de orientar o seu transporte seguro.

Fontes dos Dados: Revisão bibliográfica através das bases de dados LILACS e MEDLINE®, utilizando os termos: Viagem, segurança, equipamentos de proteção, criança, medicina preventiva, publicados nos últimos 21 anos.

Síntese dos Dados: Foram analisados 93 artigos, sendo que 66 destes atenderam aos critérios de inclusão após a leitura dos resumos. Para a construção do artigo propôs-se a definição dos subtemas: preparando a viagem com as crianças, conhecendo alguns riscos do traslado (transporte aéreo, transporte terrestre e aquático) explorando o destino com as crianças (exposição solar, hospedagem, altitude, alimentação, diarreia do viajante, picada de insetos) e retorno de viagem com crianças.

Conclusões: Ao longo dos anos houve um aumento do número de crianças que estão viajando pelo mundo. Entretanto, esta população não está isenta de apresentar problemas de saúde durante a viagem, podendo ser até mais suscetível que a faixa etária adulta. Estes surgem a partir de uma variedade de fatores, incluindo a exposição a organismos infecciosos, ao uso de certos tipos de transporte, e a participação em algumas atividades, como caminhadas para altas altitudes, entre outros. Porém quando se viaja com crianças estes fatores de risco podem ser negligenciados, e uma viagem considerada segura para um adulto pode não ser uma boa opção para os infantes. A consulta pediátrica deve ser uma boa oportunidade para otimizar as orientações preventivas no planejamento pré-viagem.

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Introduction

Over the past few years, there has been an increase in the number of children living or traveling outside their country of origin. In 2010, an estimated 2.2 million children and adolescents in the United States younger than 18 years old traveled to international destinations.¹ However, a trip can become unpleasant for both children and accompanying adults, due to the children's risk of health problems. These problems arise from a variety of factors, including exposure to infectious organisms, the use of certain types of transportation, and participation in activities such as diving and hiking at high altitudes, among others.² However, these risk factors are often neglected when traveling with children: a trip that is considered safe for an adult might not be safe for them.

Most health problems associated with traveling can be prevented by a careful combination of good pre-trip planning, which includes health status examination, learning to deal with mishaps that might occur during the trip, and knowing which safety precautions should be taken for each itinerary.² A medical consultation can be an opportunity for parents to update the vaccination schedule, improve child-care, and clear their doubts, anxieties, and fears before going to the chosen destination.¹ This consultation should also include advice on behavioral care and environmental exposure. The update on the prevalence and incidence of endemic infections in touristic areas should be constant to prevent their spread in Brazil.³

Underlying medical conditions (e.g., immunological impairment due to transplantation), current medications, and history of allergies to antibiotic agents or vaccine

components (such as eggs, gelatin) must be addressed during the consultation.³

To consider that pediatric patients might not endure long travel schedules and strenuous routines is a good start to avoid mishaps. Trip duration, weather conditions at the destination, planned activities while traveling, and accommodations (for instance, a modern hotel, a cottage, or camping) are topics to be known in a pediatric consultation, so that the pediatrician can improve his/her recommendations.⁴ The physician should emphasize why these questions are being addressed, so it does not seem to be a matter of inquiry without purpose.

This review article aims to provide relevant information on this topic for healthcare professionals that care for children, especially pediatricians, so they can use the consultation time to give advice to patients that are going to travel. The main objective is to prompt the search for more information on the subject to optimize the information given to caregivers, estimating risks and preventing injuries during the trip.

Method

The LILACS and MEDLINE® databases were reviewed regarding the last 21 years (1994 to 2015), using the terms: travel, safety, protective equipment, child, preventive medicine. The analysis was carried out for this period due to the lack of scientific publications on the subject. Legal documents and guidelines were included due to the importance of knowledge of such consensuses and laws. For drafting this article, the following sub-themes were identified: getting ready to travel with children; knowing

some of the transfer risks; air, land and water transportation; exploring the destination with children (sun exposure, accommodations, altitude, food, traveler's diarrhea, insect bites); return from the trip with children.

Getting ready to travel with children

Getting ready for a trip when you have the company of a child goes beyond packing and buying travel guides. There are some questions the family does not bring to the physician's office as they think it is not the health team's responsibility to advise them, such as whether an authorization is required for certain adults to travel with a child, how to safely transport children inside a vehicle, and how to choose entertainment resources if the children show some degree of anxiety. For the physician to provide adequate information, a comprehensive preventive consultation, appraising the caregivers' questions, knowing the epidemiological situation of the travel destination, as well as keeping their patients' immunization schedule updated should be as important as the physical examination performed in routine consultations.

Child restraint devices

One of the first concerns about the safety of children during trips is the use of the child car seat. There are several studies that provide information on the proper use of these car seats and their effectiveness.^{5,6} In cars, Brazilian National Traffic Council (Conselho Nacional de Trânsito – CONTRAN), in its Resolution 277 of 2008⁷ has established that children younger than 1 year of age must travel in a rear-facing infant car seat attached to the back seat of the car. Between 1 and 4 years of age, the child should be placed in a forward-facing seat; between 4 and 7.5 years, children should use the booster seat and between 7.5 and 10 years, they are required to ride in the back seat, wearing the seat belt. After 10 years of age, they are allowed to ride in front seat, while wearing the seat belt.

However, this resolution considers age as a reference for changing devices instead of height, which is the ideal measure to indicate the use of certain car seats.

No child should wear a seat belt before reaching a height of 1.45 m, when the shoulder seat belt crosses the passenger's shoulder, and is not positioned on the back or under the armpit. This height corresponds to the 3rd percentile at 13 years and the 97th percentile at 9 years of age, which leads to the conclusion that the booster seat should be used until the age of 13 years.⁸

In 2011, The American Academy of Pediatrics⁹ published new guidelines and scientific evidence to support the best use of safety devices, stating that all infants and preschoolers should be transported in a rear-facing car seat until 2 years of age or until they reach the highest weight or height allowed by the manufacturer. It also emphasizes that children whose weight or height is above the limit for the forward-facing seat should use a booster seat until the car seatbelt fits them properly, that is, when the child is 145 cm in height, which is attained between 8 and 12 years of age.¹⁰

In order to ensure a faster and safer car seat attachment, the publication of Resolution 518/2015 of 29 January 2015¹¹ repealed earlier resolutions^{12,13} and stated that cars must

have ISOFIX or LATCH (Lower Anchors and Tethers for Children) car seat attachment systems in the rear seats. The ISOFIX attachment system allows direct attachment of the car seat to the body of the vehicle, which reduces the risk of incorrect seat installation and improves efficiency. The Resolution also provides for the compulsory three-point seat belts with retractors for all seating positions.

To appropriately advise patients traveling by other means of transportation rather than by car, it is interesting to know their respective legislations. In planes, for instance, the use of child restraint systems for children younger than 2 years is still optional. However, when facing unexpected turbulence or collision, the aircraft can create enough thrust that an adult cannot restrain a child.

To reduce this risk, ideally children should be placed in a Federal Aviation Administration (FAA)-certified safety seat. This should be positioned facing backwards for children aged less than 1 year and weighing less than 10 kg. Children older than 1 year and weighing 10–20 kg, must be placed in a safety child seat facing forward or wear a child aviation restraint system (CARES) device, which consists in an extra belt and straps that pass over the shoulders and are fixed behind the seat. Children whose weight is >20 kg can wear the aircraft seat belt.¹

In 2013, new rules were published regarding access to air transport of passengers requiring special assistance,¹⁴ which stated that Brazilian airlines must provide a child restraint system for infants or allow the adult responsible for the child to provide it, in agreement with the abovementioned specifications. However, many airlines are not familiarized with these specifications.¹⁵ As for the age when air travel is indicated, the American Aerospace Medical Association recommends waiting only one or two weeks after birth to ensure that the child is healthy before flying. However, some airlines do not accept newborns in their aircrafts.¹⁶

In the case of motorcycles, scooters, and mopeds, Brazilian Traffic Code,¹⁷ in Article 244, section V, states that only children older than 7 years that can be responsible for their own safety can be transported in these vehicles. At this age, the child's size usually allows them to firmly plant their feet on the vehicle support pedals. In the case of children older than 7 years, they should be seated behind the driver and wear a helmet certified by the National Institute of Metrology, Quality, and Technology (Instituto Nacional de Metrologia, Qualidade e Tecnologia [INMETRO]) and appropriate to their size.

When traveling by bus, subway, or urban train, child restraint devices are not available on board. CONTRAN Resolution No. 277 of 2008⁷ states that "the requirements for restraint systems when transporting children up to 7.5 years of age do not apply to public transportation vehicles, rentals, taxis, school buses, and other vehicles whose gross weight exceeds 3.5t." As an alternative to better protect children on a bus, the purchase of an extra car seat, which will be attached to the bus seat, is suggested as the best option in this situation.

Identification

For the safety of children, even those accompanied by their parents, it is interesting to recommend the use of some

identification, such as a bracelet containing the name, medical conditions, address, and a phone number of the emergency contact.¹⁸ As a protective measure, the laws require court authorization for the children in some situations. Authorization is required from parents or guardians in domestic travels for unaccompanied children younger than 12 years or in the company of individuals who are not their relatives up to the third degree (siblings, uncles/aunts, and grandparents – Article 83, §1, b, 1, of Law 8.069/90).¹⁹

Adolescents (older than 12 years) do not need permission to travel within the Brazilian territory if they carry their original ID document, original birth certificate, or a certified copy (Article 83 c/c Article 2 of Law 8.069/90). As for international travel, authorization is required for children and adolescents (0–17 years) who are traveling unaccompanied, accompanied by only one parent, or accompanied by third parties (Article 84, I, of Law 8,069/90).

Advices

Young passengers are the fastest growing market in the travel industry.²⁰ Adolescents have increasingly more opportunities to travel alone or in groups, giving rise to situations of higher risk and less supervision.²¹ Over 50% of travelers aged between 10 and 19 years of age have reported some type of health problem while traveling, as described in a US cohort in 2000.²² An increase in risk behaviors, characteristic of this age group, which includes factors such as increasing identification with peers and conflicts with parents, together with the evolution to abstract thinking, makes them more vulnerable when traveling.²³

These characteristics can result in increased risk of trauma during radical activities, as well as sexually transmitted diseases and illicit drug and alcohol use.^{24,25} Advising adolescents about the risks, prevention measures, and attitudes that should be taken during a trip without the parents can often be sufficient to reduce risks. Encouraging parents to talk about their fears and cautions together with their children is part of the approach at this phase of life.²⁶

Medications

Continuous-use medication in pediatric patients may not be available in other countries, or may only be found in different presentations. Therefore, parents of children who regularly take medications should bring it in sufficient amount for the travel duration. If they are traveling by plane, the drugs must be carried in the hand luggage, in order to prevent loss or theft. Travelers that need syringes to administer the medication must also carry a medical prescription documenting their need.²⁷ Parents should be advised to take, in addition to prescriptions containing generic names of medications, a basic medical kit, containing, for instance, a thermometer, adhesive bandages, gauze, oral rehydration powder, sunscreen, insect repellent, analgesics, antipyretics, diaper rash ointments, and nasal saline drops (for children) or a previously prescribed decongestant (oral/nasal).

For patients with any pre-existing condition, such as asthma or eczema, emergency drugs should be provided at

the pre-travel consultation, such as oral or topical corticosteroids. If the child has a history of allergic reactions, and there is concern about an anaphylactic reaction (e.g., by bee sting, seafood, or peanut allergy), an epinephrine pre-filled syringe can be prescribed.²⁸ In addition to a medication kit, it is important to pack light clothing, snacks, and drinks to maintain adequate hydration and entertainment.

Preventing anxiety

Entertainment while traveling should be part of children's well-being during the trip. A backpack containing some small favorite toys or those chosen by the child him/herself, drawing paper, books, a tablet, and snacks are indicated, especially for long trips, as well as adequate.²⁷ It should be emphasized that adults should not drink hot beverages while holding a child on their lap in order to prevent accidents.²

Immunizations

The vaccination schedule should always be verified at pediatric consultations. Immunization can be divided into three categories: routine prevention, those necessary for the trip, and those recommended based on the risk of exposure to vaccine-preventable diseases.²⁹ The child's immunization schedule has to adapt to the trip, to conform to possible endemic diseases in the region to be visited. For instance, travelers to Saudi Arabia have to be vaccinated against yellow fever, meningococcal meningitis, vaccines against hepatitis A and typhoid fever are generally recommended.³⁰

Epidemics and changes in the nature of imported diseases require that healthcare professionals be immediately informed.³¹ Physicians should advise adults traveling with children to endemic disease areas, such as those endemic for malaria, to use preventive measures, be aware of signs and symptoms of the disease, and seek immediate medical attention if they notice their development.

Malaria is one of the most severe and life-threatening diseases that can be acquired by international travelers. Pediatric travelers are at particularly high risk for acquiring malaria if they do not receive adequate chemoprophylaxis. Children with malaria can rapidly develop high levels of parasitemia. They are at increased risk for severe complications of malaria, including shock, seizures, coma, and death. The initial symptoms of malaria in children can mimic many other common causes of pediatric febrile illness, and therefore can result in delayed diagnosis and treatment.¹

Knowing some risks while traveling

Air transport

Airplanes are a low-oxygen environment, which reduces the amount of oxygen in the blood.³² Commercial aircrafts, when flying at an altitude between 9000 and 12,000 m, offer an approximate oxygen concentration of 17.2 and 15.1%, instead of the 21% at sea level.¹ In healthy children, there are no clinically noticeable adverse effects due to reduced oxygen saturation on flights, but patients with preexisting anemia or cardiopulmonary disease may develop symptoms during the trip.¹

Anatomical and physiological factors make infants and young children more susceptible to hypoxia than adults, mainly due to the difference in ventilation-perfusion, because they have a more compliant rib cage, and due to the increase in the pulmonary vascular bed proportion in early childhood.³³ However, most healthy children can travel safely to altitudes below 3500 m, being at no greater risk than adults.³⁴

Even asthmatics may find that their symptoms improved due to a relative lack of allergens at high altitudes and do not appear to be at a higher risk of altitude sickness than non-asthmatics.^{35,36} Children with a history of bronchopulmonary dysplasia with restrictive severe disease should undergo a hypoxia altitude simulation test in a plethysmography chamber, if available, prior to the trip. One study suggested that longer flights are associated with an increased risk of oxygen desaturation in healthy children, reflecting a progressive reduction in oxygen pressure in the cabin.³⁷

Premature newborns, with or without a history of respiratory disease and that reached full-term, must have available O₂ in the aircraft and receive 1–2 L per minute if symptomatic or if there is a decrease in pulse oximetry to <85%. Children who are oxygen-dependent at sea level should double the O₂ flow during the flight.¹

Jet lag, faced by many adult passengers, is considered a problem of lower incidence in young travelers, due to their better adaptation to the circadian cycle. However, babies and children that follow strict schedules may have this problem. The advice given to children and adults is to perform outdoor activities, soon after arrival if possible, with sun exposure in the morning during trips to the east and in the afternoon in trips to the west, adjusting sleep and feeding patterns.³⁸ For longer trips, changes in the child's sleep schedule can be started two or three days before travel.

Air travel is also the most frequent cause of middle ear barotrauma.³⁹ The pathologies that affect the ear can cause acute and severe pain, generating anxiety and discomfort, especially in infants, who cannot specify the affected site. Barometric pressure outside decreases as the airplane ascends. Normally, this gradual change is balanced by ingestion or absorption of air through the middle ear mucosa. The opposite should occur on the descent, in which the air pressure has to increase in the middle ear to compensate for the increase in atmospheric pressure.

When that does not occur, the tympanic membrane is submitted to a medial force and is stretched. This can lead to bruising or bleeding of the tympanic membrane, fluid exudate formation in the middle ear and, occasionally, rupture of the tympanic membrane. To prevent this damage, children should be oriented to swallow or to perform the Valsalva maneuver (positive pressure against a closed nasal airway), as these measures tend to open the Eustachian tube and equalize pressure in the middle ear to the outside. Chewing gum or sucking on hard candy should not be recommended due to the risk of aspiration, but the intake of fluids or breastfeeding during aircraft descent helps prevent this problem without risks.⁴⁰

Land and water transportation

Motion sickness is the most common disease in children during travels, especially by car and ship. Children younger

than 5 years of age have ataxia as the predominant symptom, and nausea is the most prevalent symptom in children older than 12 years. Other motion sickness symptoms include headaches, vomiting, pallor, dizziness, and sweating.⁴¹ As preventive measures, a light meal should be offered to the child at least 3 h before travel; they should be stimulated to focus on a stable object while traveling, avoid reading, and avoid excessive head movements. Pharmacological interventions have not been studied in children, but antihistamines can be used in children younger than 12 years, according to the literature.⁴²

Care measures at the destination

Sun exposure

Outdoor excursions with children must be planned taking into account sun exposure time. It is known that, in most individuals, over 80% of sun exposure throughout life occurs before the age of 21. Outdoor activities should be reduced between 10 AM and 2 PM, especially in high-altitude areas and near the equator, where solar intensity is higher.² Sunscreens can be used in infants older than 6 months, as recommended by the American Academy of Pediatrics.⁴³ The FDA does not recommend the use of sunscreens on babies younger than 6 months due to the greater skin absorption and the possible difficulty in eliminating it, due to the immaturity of their excretory system. Up to 2 years old, it is preferable to use physical barriers, as they are less allergenic in relation to chemical barriers. Sunscreen should be applied throughout the body surface before sun exposure and reapplied every 2 h.⁴⁴ They must be active against UVA and UVB and not contain PABA, which can cause rashes in sensitive skin. Children younger than 6 months of age should not be exposed to direct sunlight; physical protection should be used and the child should be kept more often in the shade, wearing loose, light clothing in light colors, hats, and sunglasses in places where exposure is intense.

Accommodations

Attention should also be given to the choice of accommodations. The ideal situation is to get recommendations from friends or family members who have been to the chosen destination. It is easier to make the right choice by using the Internet. When staying at the chosen place, potential dangers to children should be noted, such as open wiring, paint chips, poisons or traps for pests, and low windows and balconies.⁴⁵ It is also worth mentioning that care should be taken to prevent children's access to medications, by keeping any potentially toxic product away from them. It is crucial that pediatricians recommend basic measures to prevent poisoning, avoid using emetics, and seek the nearest emergency care.⁴⁶ Pediatricians should always have the telephone number of poison control centers for toxic exposure to assist travelers in these risk situations.^{47,48}

Altitude

The physician should be able to give advice to families who will travel to high-altitude regions on the prevention and treatment of diseases associated with this environment. These diseases include mountain sickness, high-altitude pulmonary edema, and high-altitude cerebral

edema. They generally occur above 2000 m and especially above 3500–4000 m of altitude.⁴⁹ Their signs in young children are very unspecific, such as prostration, insomnia, vomiting, and loss of appetite, which may go unnoticed.⁵⁰ However, in most cases, this disease can be prevented with proper precautions.

The onset of mountain sickness starts commonly 6–12 h after arriving at the high-altitude region, but it may occur from 1 to 2 h up to after 24 h of arrival.⁵¹ Moderate disease symptoms may require specific prophylactic medications (e.g., acetazolamide), supplemental oxygen (if available), and if the symptoms persist or worsen, it is necessary to go down to lower altitude areas to prevent its progression to cerebral edema.^{49,52}

In addition to mountain sickness, the weather at high altitudes should also be considered. Children are more prone to hypothermia due to the larger surface area in relation to body mass, as well as increased energy demand in cold weather.⁵³

There is a risk of retinal hemorrhage caused by high altitude, a relatively common pathology at altitudes >4270–4570 m. As it is usually asymptomatic, it is not recognized unless the macula is involved, which can be perceived as a blind spot in the vision. Symptoms include blurring of vision and fundus showing retinal flame-shaped hemorrhage. As with all other forms of altitude sickness, a slow climb is preventive and going down to lower altitudes is the best treatment, considering that no medication has been found to prevent or treat it.⁵⁴

Another risk of traveling to high altitudes that should be known is the pulmonary hypertension caused by altitude, which is rare in healthy children. However, infants younger than 6 weeks of age have a higher risk of pulmonary hypertension and progression to right heart failure.⁵⁵

This entity has been described in up to 1% of children from low-altitude countries and go to high-altitude locations (3000–5000 m [9840–16,400 ft]) or who are born in high-altitude locations, whose pregnancy occurred mainly at low altitude and remain there for more than a month.³⁶ Because of the risk of this disease, the exposure to prolonged high altitude should be avoided in children younger than 6 weeks of age normally living at low altitude or whose pregnancy occurred mainly at low altitude.⁵⁶

Measures to reduce the incidence of these diseases are limited physical efforts and exposure to cold temperatures, provision of supplemental oxygen, descending to lower altitudes, which appear to have superior efficacy to any drug therapy. Families more acquainted with water and diving should remember that after diving it is necessary to wait 12–48 h (depending on the dive depth) before traveling on a jet plane. This measure is important to prevent decompression sickness.⁵⁴

Food

Several infections can be acquired by ingesting contaminated food and water, including infectious diarrhea (traveler's diarrhea), hepatitis A, typhoid fever, and less commonly, trichinosis. In destinations where sanitation and personal hygiene are poor, food and water precautions are essential to reduce the risk of these infections.¹ By following some dietary precautions, such as not eating fruits

that were not peeled, raw vegetables, nor raw or undercooked meat, it is possible to maintain a less industrialized and more natural diet. Tap water is a source of several pathogens and must be treated prior to use. Filtration devices or chemical disinfecting agents (e.g., iodine or chlorine tablets) can be used. However, it is known that *Giardia lamblia*, *Entamoeba histolytica*, and *Cryptosporidium* cysts can survive even after chlorination. Therefore, the ideal is to drink only boiled or carbonated water and using boiled tap water when brushing the children's teeth.^{1,57}

Traveler's diarrhea

Traveler's diarrhea is the first cause of consultation of children returning from travels.⁵⁸ The incidence varies depending on the destination, being more common in India and North Africa. The most common causative pathogens are bacteria, and *Escherichia coli*, *Shigella* spp., and *Salmonella* spp. are the most commonly identified.² As children with diarrhea may become dehydrated more quickly than adults, being a fast management condition, it should be emphasized that signs and symptoms of moderate to severe dehydration require medical attention, such as bloody diarrhea, fever, and persistent vomiting.^{58,59}

The immediate and adequate use of oral rehydration salt should be recommended; it should be used or discarded within 12 h, if kept at room temperature, or 24 h, if kept refrigerated. To prevent this disease, greater attention should be given to hand washing and cleaning of baby bottles, pacifiers; breastfeeding should be especially encouraged.^{58,60} The initial and most important management is to provide adequate hydration to the child. Antiemetics can be used to improve acceptance of fluid intake; however, according to a recent Cochrane review, the routine use of these medications for vomiting associated with traveler's diarrhea has not been established yet, even though the use of ondansetron, metoclopramide, or dimenhydrinate in acute gastroenteritis in children and adolescents in studies have shown some benefits.⁶¹ The use of intestinal antiperistalsis drugs is prohibited for infants.² The use of empirical treatment of traveler's diarrhea must be individualized by the pediatrician, considering the risks and benefits. Chemoprophylaxis is not indicated.²

Adults are advised to maintain the child feeding as similar as possible to the routine diet, prioritizing starches, cereals, pasteurized yogurt, fruit, and vegetables.

Foods with high-fat content should be restricted in the diet, due to their tendency to delay gastric emptying, as well as foods high in simple sugars, due to the osmotic effect.¹

Insect bites

In certain areas of the world, insects (mosquitoes, flies, fleas, bugs, and lice), and arthropods (mites and ticks) can transmit a number of potentially serious infections, including malaria. Travelers to areas with malaria, dengue, chikungunya, and other vector-borne diseases should receive instructions on how to prevent mosquito bites. Some measures include avoiding outdoor exposure during mosquito feeding time. For instance, in the case of malaria, feeding time occurs at night. There are over

25,000 malaria cases imported into industrialized countries annually.⁶² Although common, malaria may be underdiagnosed in 60% of cases in its initial form, especially in children.⁶³

It is important to dress children in light clothing and long sleeves and pants, reducing the amount of exposed skin, as well as to use repellents, treat fabrics with insecticides, and carry a mosquito net.⁶⁴ Concerning topical repellents, DEET, icaridin and lemon-eucalyptus natural oil have, at appropriate concentrations, favorable safety profiles and are effective in preventing mosquito bites in children and adults. They are generally recommended for children older than 2 years of age.

Physical barriers are essential to protect young infants, especially those younger than 6 months; permethrin-treated screens should be preferred.⁶⁵

In countries where schistosomiasis (water-borne parasitic infection) is common, children should not be allowed to swim in fresh water. During the trip, children should not walk barefoot on soil or sand, which might be contaminated with dog or human feces. This may lead to hookworm infection or strongyloidiasis.¹

Return from the trip

If the instructions were followed before and during the trip, the return will probably be free from health problems, expected to cause a minimum of physical and mental stress for both children and adults. If there are any symptoms of fever, diarrhea, or skin rash after returning from an international trip, a physician should be consulted immediately.¹⁸ It is always important to recall that, in all trips, the safest place for children with height <1.45 m is the center rear seating position.⁵⁻¹³

Conclusion

Traveling is important for children, as they learn to discover the world beyond what they already know, perform new activities, explore different environments, and take pleasure in new experiences. Nevertheless, everyone wishes for them to return home happily and safely. Therefore, it is crucial to think about what the best destinations for children are, prioritizing appropriate accommodations, reducing stress and physical exertion, while caring for their health, hiring health insurance, and knowing where to seek help in the chosen destination.

The physician should advise parents, so that the adults feel responsible and at the same time able to provide a travel experience with comfort and safety for all ages without much difficulty. The tourism industry is increasingly investing in destinations for children, resorts that have recreational services, measures that encourage parents to bring their children along during trips. To take advantage of the pediatric consultation to address these issues is a current requirement, as there is a worldwide trend of children traveling with adults, no longer staying in the grandparents' homes while their parents travel. Nothing can be more important than the children's future and their discoveries in life. To help them enjoy these discoveries while caring for their health and well-being is the duty of all caregivers.

Conflicts of interest

The authors declare no conflicts of interest.

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