

Committee to Advise on Tropical Medicine and Travel

Statement on International Adoption

Preamble

The Committee to Advise on Tropical Medicine and Travel (CATMAT) provides the Public Health Agency of Canada (PHAC) with ongoing and timely medical, scientific, and public health advice relating to tropical infectious disease and health risks associated with international travel. PHAC acknowledges that the advice and recommendations set out in this statement are based upon the best current available scientific knowledge and medical practices, and is disseminating this document for information purposes to both travellers and the medical community caring for travellers.

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Introduction

International adoption medicine is a new field that is changing constantly due to the different countries and circumstances from which children are adopted into Canada. Although this document is evidence-based when possible, much of the published literature does not apply to current situations given the dynamic nature of international adoption medicine. With the exception of the Bucharest Early Intervention Project (1), all known published literature in international adoption is based on descriptive studies or expert opinion (e.g. grades B/C III). The reader is directed to recent comprehensive reviews on international adoption (2-4) and infectious diseases in international adoption(5;6) for more information.

Over the past 10 years, Canadians have adopted over 20,000 children from other countries (7). These children are a unique group of travellers and can have unique medical issues related to growth and developmental delay, attachment disorders, long-term institutionalization, prenatal and postnatal exposure to toxins and drugs, variable immunity to vaccine preventable diseases, and exposure to infectious diseases. In addition, the process of international adoption may require a medical practitioner to make judgments on specific circumstances in which they may have little experience or knowledge.

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Background

The number of international adoptions has remained stable over the past 10 years at approximately 2,000 per year(8). In 2008, adoptions from China accounted for approximately 25% of Canadian international adoptions, a decline from over 50% in 2003 (8). The next most frequent countries of origin (excluding the United States) were Ethiopia, Haiti, the Philippines, South Korea, Vietnam and Russia, although the patterns varied between provinces(8). The ratio of adopted girls to boys in 2008 was 1.4:1(8). In 2008, seventy percent of adopted children were less than four years of age. The majority of adopted children settle in Quebec, Ontario and British Columbia with almost 75% going to urban areas. Although China has historically been the largest source country, recent changes in their adoption policy, in conjunction with increased global demand for international adoptions, has slowed the adoption process from China and shifted the demographics towards newly accessible countries such as Vietnam and Ethiopia.

The reason for the adoption from the birth family's perspective may be related to social stigma associated with a single woman raising a child, a 'one-child' policy, poor maternal health (including Human Immunodeficiency Virus (HIV)), or the economic situation of the birth parents. The reasons why Canadian parents choose international adoption are equally diverse.

In Canada, international adoption is regulated provincially with federal oversight and coordination. All provinces and territories are signatories and have implemented the *Hague Convention on Protection of Children and Co-operation in Respect of Intercountry Adoptions* (9). The goals of the Hague Convention are to protect the interests of the child, standardize the adoption process between countries, establish the status of the child in the adoptive country, and to prevent abuse of the system (i.e. trafficking of children).

Although the process can vary between provinces and territories, each international adoption requires a homestudy be performed. The objective of the homestudy is to assess the ability of the prospective parent(s) to parent an adopted child. This study entails four to five sessions with a licensed social worker incorporating medical reports on parents, reference checks, and police background checks resulting in a written report that is submitted to the province or territory. In addition, the process of the homestudy educates the prospective adoptive parents on the issues surrounding international adoptions (cultural differences, adjustment, medical issues, etc.).The cost and duration of the entire adoption process varies depending on the country, but may take 12-36 months or longer and cost \$20,000—\$30,000 or more. Finalization of the adoption may take up to two years after the child has arrived in Canada. Bill C-14: *An Act to Amend the Citizenship Act (adoption)* allows for the granting of citizenship to non-Canadian children adopted abroad by Canadian parents without requiring that such children first become permanent residents (10). Increasingly, parents are opting to utilize the citizenship process rather than the immigration process. There are subtle, yet important differences in these processes. The important medical difference is that an Immigration Medical Examination (IME) is not required in the citizenship process whereas it is required with the immigration process.

Many adoptive parents describe the process as an emotionally stressful rollercoaster ride filled with joys and sorrows. For this reason, it is highly recommended that the prospective parents be associated with a licensed international adoption agency, preferably one that is large enough to provide education and support pre-adoption, during the trip, and post-adoption. A physician that is knowledgeable in the issues of international adoption is also crucial both in advance of the adoption to help educate about the medical issues, decipher foreign medical terminology, and provide a risk assessment, as well as provide medical assessments post adoption.

Medical Adoption Details

Pre-Adoption Medical Consultation

The pre-adoption consultation provides the opportunity for the medical practitioner to provide a risk assessment of the prospective adoptive child, as well as to ensure that appropriate pre-travel counseling and medical assessment is done for the adopting parents and extended family members who would be in contact with the child. Many case series have been published describing transmission of potentially preventable infectious diseases from internationally adopted children to their adoptive family and others, including tuberculosis (11), hepatitis A(12;13), hepatitis B(14), pertussis (15), and measles(16).

The challenge of the pre-adoption medical assessment lies in the inability to physically examine the child, the lack of standardized data, the misleading medical terminology, and the lack of knowledge on risks for particular geographic locales. The amount of information that is supplied to the prospective parents depends on the cultural, political and economic status of the country. Therefore, the medical practitioner may be supplied with some basic growth parameters, a picture or a short video clip and a short medical file supplied by a local physician possibly with some developmental milestones attached. Russian adoption files commonly employ relevant medical terminology such as 'Perinatal encephalopathy' (17). This is not interpreted in the same way in North America where this diagnosis is made based on labour and delivery information as well as physical signs and laboratory results observed in the neonatal period. The Russian terminology reflects their belief that childbirth is a neurologic insult in which the child recovers and that the circumstances of the mother leading to adoption of the child places the child at 'high risk'. Videos may provide useful information, but can also be misleading as they represent a very short view of the child in arguably artificial or even stressful conditions.

Important issues that should be discussed with the adoptive families include: family history of mental illness or mental retardation, antenatal drug or alcohol exposure (fetal alcohol spectrum disorder), estimated age of the child, prematurity, birth trauma, low birth weight, history of abuse/neglect,

prolonged or recurrent hospitalization/institutionalization, malnutrition, rickets, anemia, recurrent respiratory tract infections, gastrointestinal parasites, lead poisoning, hemoglobinopathies, incomplete immunization, hepatitis B/C, HIV, tuberculosis, syphilis, congenital dysplasia of the hip, developmental delay, and abnormal muscle tone (3). The prospective parents should be educated about the risks of individual issues identified on the history or physical examination, the inherent risks of the country of origin, impact of institutionalization, and the limitations of medical assessment based on the unreliable or limited information provided. One study comparing pre-adoption information with post-adoption medical assessment found a 20% correlation in pre-post diagnosis, with 30% having a new diagnosis made at the post-adoption assessment, therefore it is important that each diagnosis be considered along with the cultural context in which it was made. If possible, each diagnosis should be compared to available data to ensure accuracy (18).

A definitive description of the overall outcome of children adopted internationally does not exist. Assessments of specific conditions such as infectious diseases are based on a small number of case studies and are subject to bias (18-25). Complicating the issue further is the changing nature of international adoption. There have been long-term studies focusing on the growth and mental health of Romanian adoptees from the early 1990's (20;26) This group of children was adopted later in life, had multiple medical issues, was seriously malnourished, and had a high incidence of infectious diseases. The results of these studies are not generalizable given changes in the geographic sources of international adoption and the variable living conditions and ages of adoptees (e.g. adoption of an infant in foster care from South Korea, or infants from Chinese orphanages are not comparable to the sample of older children adopted from Romania in the long term study). More recent studies have identified a moderately increased risk of attention deficit hyperactivity disorder (ADHD)(27) and also increased incidence of executive functioning and sensory processing difficulties in adopted children compared to children who were not adopted (28).

Institutionalization may be associated with many risks including but not limited to lack of medical care, inappropriate medical care (sedatives, multiple injections to 'boost the immune system'), inadequate nutrition (resulting in micronutrient deficiencies), neglect, and exposure to infections. Growth delays are common in institutionalized children. Thirty-five to fifty percent of such children are less than the 5th percentile for height, weight, and head circumference(29-31). Linear growth delays in institutionalized settings are directly proportional to the length of institutionalization(20). These data are consistent across multiple studies from different countries, demonstrating a loss of one month of height age for every three months of institutionalization'(18;20;21). Although catch-up growth is common, the long-term prognosis of children who are failing to thrive, especially those with microcephaly, is unknown. Significant delays in all areas of development are common among children from the unique environment of an orphanage. Delays may be due to a number of factors including low staff to child ratios, toys only kept on display rather than used for play and limited infant stimulation(3). Often, with proper post-adoption attention and stimulation, children will make significant gains in developmental milestones.

A few small studies based on selected populations found a decrease in intelligence quotient (IQ) with institutionalization(26). In these studies, age at adoption and concomitant medical issues were predictive of IQ outcome. Data from the only randomized control trial in international adoption suggests that IQs in children raised in foster care from infancy are higher than those raised in institutions(1). One hundred and thirty-six children were randomized to either foster care or institutionalized care in Bucharest, Romania. The controls were a group of children who were raised by their biological families in the greater Bucharest community. The average age of randomization was 21 months and all children were assessed by psychological testing at 30, 42 and 54 months. The cognitive outcomes of institutionalized children were markedly lower than never-institutionalized or foster care children. The improved outcomes were best seen in children who were younger when placed in foster care suggesting an early sensitive developmental window.

Foster care was also seen to be protective (when compared to orphanage care) for cognitive skills and anthropomorphic growth in a study of Guatemalan adoptees to the United States (25). A recent meta-analysis on adoption and behavioural issues and mental health referrals from 1950-2005 showed a small increased effect size of behavioural issues in international adoptees compared to non-adopted controls (32) However, there were fewer behavioural issues in international adoptees compared with domestic adoptees. International adoptees were also less often referred to mental health services compared to domestic adoptees (32). Selection bias, referral bias and the heterogenous populations studied limit generalizability of the studies to the all international adoptions, but provide some evidence that these are not necessarily significant issues in all international adoptees.

When counselling prospective parents on infectious diseases, it is important that they recognize that different countries have differing endemicity and risk factors for infections, many of which are asymptomatic. The infectious diseases diagnosed post adoption in internationally adopted children have been described in a case series (21-23) in which acute or chronic hepatitis B was found in 2-20% of adoptees, acute hepatitis A in 1% (33), tuberculosis infection in 3-19%, and gastrointestinal parasites in 7-51%(24;34). Other infections such as syphilis and hepatitis C are also reported in these studies. These wide ranges of proportion of adoptees with infection are a reflection of the variation between such populations by region, time, institutionalization, and other factors. Historically, it appears that the majority of health issues identified in internationally-adopted children were detected by medical screening upon arrival in Canada, therefore the standard of care in post-adoption medical assessment is to screen all children (see post-adoption screen—Appendix 1).

Although many medical practitioners may feel compelled or explicitly asked to decide whether the child should be adopted, the practitioner should resist the pressure to respond to this question. Instead, there should be a universal recognition that each internationally adopted child is a special-needs child, no child is 'normal' and that the process should focus on risk assessment. More useful to the prospective parents is an assignment of a high to low risk

estimation. High risk situations would include but not be limited to high risk antenatal exposures (drug use, infection, etc.), severe developmental findings, significant medical disorders, microcephaly out of proportion to other growth parameters, and a child with physical traits characteristic of fetal alcohol syndrome. A small group of International Adoption Medicine specialists exists across Canada that can provide pre-adoption consultations if required.

Travel and Transition

Most families travel to their child's country of birth. It is imperative that all prospective parents seek pre-travel medicine assessment and counselling. The PHAC website (<http://www.phac-aspc.gc.ca/tmp-pmv/travel/clinic-eng.php>) provides a non-exhaustive list of travel medicine clinics in Canada and posts travel health notices on events that may be of concern to the health of the families while travelling. As a baseline, travellers and non-travelling family members should ensure that their primary vaccination series are complete (diphtheria, tetanus, pertussis, polio, measles, mumps, rubella) as well as diphtheria and tetanus boosters. Hepatitis A and B vaccinations are highly recommended for family members who travel as well as for all siblings and caregivers who remain in Canada given the cases of transmission from newly adopted children(14;35). Travel medicine specialists may also recommend typhoid or other vaccines and malaria chemoprophylaxis depending on the area to be visited. All travellers need to be reminded of basic travel hygiene (food, water, sanitation) and personal safety abroad.

As with any foreign travel involving children, one must be well prepared with a hygiene and child-centered travel kit. Often international adoption agencies will include a list of items to include in this travel kit in their pre-travel recommendations. Appendix 2 lists some suggested items for a generic kit.

The travel duration for the parents ranges from a few days to many weeks to months. Delays can occur when abroad and parents should be prepared with items such as sufficient malaria medication for themselves. At times, the

parents are required to make more than one trip. This time period can be highly stressful due to potential language barriers and the presentation of a child who has only known an institutionalized setting. Anticipatory guidance by the international adoption agency and physician helps the families understand what can be expected in terms of bonding, institutionalized behaviours, and feeding.

At this time, many prospective parents are given the choice of whether they wish to accept the adoption of this child. This choice is usually made without a reliable up-to-date medical exam. The support and expertise of an international adoption agency and a knowledgeable physician is crucial at this point in time to allow the families to make an informed choice. The Citizenship and Immigration Canada (CIC) Immigration Medical Examination (IME) is required only if the process chosen is one of immigration. The IME is not required if the child is being processed through the citizenship category.

The IME is commonly confused as being a review that would assist the prospective parents to make a decision. Although some important information can be obtained from the exam, the purpose is to assess whether he/she is admissible to Canada. For adoptee children this focuses on whether they may pose a public health or safety risk. For children who are under the age of five years, the IME consists only of a history and physical and no laboratory testing is required.

Whether an IME is required or not, it is highly advised that all children receive a full medical examination and indicated laboratory testing by a reliable local medical practitioner to provide the prospective parents with up-to-date medical information to allow them to make an informed decision.

Families should seek guidance from their adoption agency on finding an appropriate physician. In some situations, the CIC Designated Medical Practitioner may be able to do this, separate from the immigration process requirements. In rare circumstances, the discovery of new major health issues may lead the parents to decline the adoption at that point.

Post-adoption Medical Assessment

Initial Assessment

The child should ideally be medically evaluated two to three weeks after arriving in Canada. Parents should be informed that despite pre-adoption records, investigations done abroad may need to be repeated in Canada. The components of the initial evaluation include: evaluation of pre and post adoption medical information (including vaccination records), complete physical examination (focusing on dysmorphologies, syndromes, plagiocephaly (abnormally shaped head) and evidence of prenatal drug or alcohol exposure, rickets, scabies or lice), screening tests (appendix 1), growth and developmental assessments, and determination of vaccination approach. The presence of relative or absolute microcephaly is a worrisome sign. Evaluation for infectious, structural, and toxin (i.e. alcohol) exposures may be indicated.

The vaccine records of adoptees from countries other than Canada often do not match the National Advisory Committee on Immunization (NACI) recommended schedule of immunizations(36). Conflicting studies have been published on the comparison of immunization records to protective antibody titres. One study in 1998 showed that only 12% of 17 adoptees who received DPT vaccines from Chinese, Russian or Eastern European orphanages had protective titers to diphtheria and tetanus (37). In this same study, 78% of those who lived in foster care before being transferred to these orphanages (9 adoptees) had protection to diphtheria and tetanus. More recent studies in many different countries reported that between 50% and 95% of adopted children with documentation of a complete immunization series demonstrated immunity (38;39). Possible explanations for this may be incorrect documentation, incorrect administration technique, use of expired or ineffective vaccine due to disruption of the cold chain storage, or host factors in the child. A study of vaccine response did not show any correlation with health status or nutritional status of the child (40).

The current recommendation for the internationally adopted child is to repeat all the immunizations if there is no immunization record or the immunization record is not reliable(6). If a record exists, the clinician and the family should address the risks and benefits of either guided immunizations based on selected immunity testing (serological testing is not available for all vaccine-preventable diseases versus repeating all the immunizations). A good reference for clinicians to guide catch-up vaccination schedules is 7th edition of the Canadian Immunization Guide which includes links to provincial schedules (41). The risk of reaction to repeating the vaccinations lies mainly with the diphtheria, tetanus, pertussis vaccination. If a child has received a full primary series and another primary series is started, up to 20-25% will have a reaction consisting of local pain, swelling, erythema and irritability. No life-threatening or neurological syndromes have been described.

The screening tests for the initial medical assessment of an internationally adopted child are listed in appendix 1. Given the prevalence of a wide variety of parasitic organisms, stools for ova and parasites are recommended in all children(5). In addition to the baseline serology and Mantoux, expert opinion suggests that tuberculosis, HIV, hepatitis B, and hepatitis C testing be repeated 6 months later due to the potential of infection just before adoption resulting in a false negative test conducted in the incubation period. Testing for tuberculosis (TB) can be complex and confusing, and therefore merits special discussion.

- The Canadian Tuberculosis Standards 6th edition—2007(42) states for screening of Latent tuberculosis infection (LTBI):
 - Targeted screening for LTBI can be considered in groups with high prevalence of infection and low risk of adverse events from treatment (e.g. immigrant children from countries with high burden of TB)

- Many children come from areas of high tuberculosis endemicity and screen positive with rates of infection up to 20%(24;34). Given the increased likelihood of more severe disease, a child under 5 years with a known contact with active pulmonary tuberculosis should be started on isoniazid therapy pending the two month tuberculin skin test result. In the absence of immunocompromised state (including HIV infection) or contact with a known case of pulmonary TB, 10 millimetres of induration is considered a positive Mantoux test. The receipt of bacillus Calmette-Guerin (BCG) vaccination should be disregarded in this interpretation. A positive result should lead the clinician to rule out disease (history, physical examination, chest x-ray). Nine months of isoniazid therapy is indicated for latent TB infection(42).
- Tuberculin skin (Mantoux) testing should be utilized for screening of all internationally adopted children for LTBI. There may be a role of interferon gamma release testing (IGRA) in confirmation testing(43).

In addition to these investigations, other testing for infectious diseases may be relevant to asymptomatic children from particular regions of origin due on potential exposure to endemic infections such as strongyloides and schistosomiasis. Eosinophilia has been found to be an inadequate predictor of such infections(44). Therefore, select organism-specific testing may be considered, based on studies in and recommendations for other immigrant and refugee populations(45). Additional infectious considerations (such as malaria in the febrile child from an endemic area) may need to be addressed in the symptomatic adoptee. In those cases, consultation with an infectious diseases or tropical medicine expert may be advised. Routine non-infectious screening looking for dietary hypothyroidism (21), Ricketts (calcium, phosphate, alkaline phosphate; no IA references), hearing screening for asymptomatic congenital hearing loss (21), urinalysis for microscopic hematuria potentially caused by melamine or other reasons(46), lead level with zinc protoporphyrin (47), electrolytes and renal function for renal failure, liver enzymes (AST) for hepatitis, CBC with differential to determine the hemoglobin and also for assessment of potential parasitic infections with

eosinophilia, hemoglobin electrophoresis in the setting of microcytic anemia to assess for thalassemia, and glucose-6-phosphate dehydrogenase deficiency which is an enzyme deficiency more common in Asian ethnic groups (48).

The initial medical examination in Canada may be frightening for the adopted child as it is a foreign environment. Behaviours observed in the clinic may not reflect that of which the parents have seen at home. It is important to specifically ask about repetitive or self-soothing behaviours a child may have developed as a result of institutionalization. These often dissipate with time. Information regarding signs of emotional deprivation and insecure attachment should be gathered. These include poor eye contact, difficulty initiating contact with adults, difficulty accepting physical contact, indiscriminate behaviour with strangers and hyperactivity. A baseline developmental screen, with a tool such as *the Denver Development II*, which includes milestones for gross motor, fine motor, language and personal-social spheres should be completed and delays should be documented. One should not forget that many developmental and behavioural concerns raised with respect to adopted children are, in fact, variations of normal developmental stages that can arise in any population. As with the addition of a new sibling, existing children in the family may also exhibit adjustment behaviours, such as jealousy, which should dissipate with time and parental reassurance.

Parents of adopted children are in the unique position of becoming “instant” parents in that they have not known their child since birth. As such, the clinician must provide anticipatory guidance for specific childhood issues to prepare the parents well. Sleep disturbances are very common in the transition period as institutionalized children may be resistant to sleeping alone or in a toddler bed. Conventional sleep training methods should be delayed until a time when secure attachment has been established(49). Mealtimes can also be stressful. As many source countries do not adhere to Western standards of formula composition or the timing of the introduction of solid foods, most children arrive with some degree of feeding difficulty, be it aversion to bottles or oral-motor discoordination leading to aversion to solid foods(49). Feeding strategies should be provided to parents,

as well as encouragement that this too will improve with time and effort. Other key topics to cover include: well balanced nutrition, childproofing the home, avoidance of smoke exposure, childcare options, car seat safety, dental care, positive parenting, discipline, appropriate health seeking behaviour and cultural identity issues(50). Parents may be encouraged to take extended parental leave if possible due to the possibility of bonding difficulties and unforeseen stressors. Post adoption depression has also been found to occur with similar rates to postpartum depression(51). Both parents should be counselled on the signs and symptoms indicating when to seek mental health care.

Longitudinal Care

Once the initial assessment is complete, the health care provider should follow-up with a detailed evaluation of any medical condition or positive screening test which arose from that assessment. Appropriate pharmacologic treatment or specialty consultations should be instituted with little delay. Given that many newly adopted children display developmental and growth delays, an early return visit to the health care provider would be appropriate to monitor acquisition of developmental milestones and weight gain.

Proper nutrition is essential to the growth and wellbeing of every child. If problems with solid foods, new tastes, textures or oral-motor discoordination are preventing appropriate weight gain, then early intervention from an occupational therapist and/or a nutritionist will optimize growth opportunities. Supplementation with a multivitamin which includes vitamin D and toddler formula until age two years may be necessary for low weight or malnourished children.

Developmental delays in many spheres are common in institutionalized children. By utilizing a consistent developmental screening tool at each visit (e.g. *Denver Development II*) it is possible to track the progress made in acquiring milestones. With the proper stimulating environment, rapid gains are often seen, usually first in gross motor and fine motor development (52). Language development may be the last sphere to observe tangible improvement (53). If gross motor abnormalities become apparent over time and multiple visits, prompt referral to a physiotherapist would be prudent. Similarly, delays

in fine motor skills can be addressed by an occupational therapist, and speech and language delays should be assessed by audiology and speech language therapy. If global developmental delays spanning multiple areas are diagnosed or complex communication abnormalities or autism is suspected, the child should be assessed and followed long term by a developmental pediatrician.

Adoption is a lifelong process for a family and parents must be aware that issues may surface at many different developmental stages beyond infancy (54). This may be true when challenged in a school environment which may warrant psycho-educational testing. In severe cases, where concerning behaviours persist beyond the first year of adjustment to a new environment, it may be necessary to consult with a behavioural psychologist. Persistent emotional detachment reflecting insecure attachment should be referred to a psychologist familiar with attachment theory.

Attachment has been most studied in Romanian children, a population characterized by the most severe institutionalized deprivation states. It has been determined that there is a linear correlation between time in the institution and disordered attachment, however, even within a homogenous population, there was significant heterogeneity of results (55). To date, there are no clinically validated tools for the clinician to screen for attachment disorders. Subjective questioning surrounding issues such as: lacking differentiation between adults, indication that the child would readily go off with a stranger, and indications that the child shows a lack of checking back with the parent in new and anxiety-provoking situations, may provide an indication that the child requires further assessment by a mental health professional.

Financial issues

Prospective parents begin the process of international adoption by contacting a licensed adoption agency or independent facilitator. As previously mentioned, the entire process including a homestudy by a social worker, administration fees, documents and international travel will cost tens of thousands of dollars. The expense of the undertaking does not stop there. Pre-adoption review and medical assessment of referrals are not covered by

provincial health care plans, but are a mandated step in the completion of the adoption. Other costs that need to be considered by prospective parents include their pre-travel clinical assessment fees, which are also not covered by most provincial health care plans, and any recommended vaccines required for foreign travel.

Overall, parents are generally pleased with their international adoption experience. Many even decide to adopt other children in the future to expand their family. In the Minnesota International Adoption project, families

of 2,300 internationally adopted children were surveyed on multiple issues(56). In contrast to the focus on problems, a significant portion of the children had received awards of academic, artistic, and athletic merit. Most revealing is the fact that 98% of the parents would recommend international adoption to other prospective parents. Overall, despite the financial costs, medical challenges, and emotional turmoil involved in adopting children internationally, the overwhelming feeling from new parents is one of love, contentment and satisfaction with having chosen international adoption.

Resources and Links

Citizen and Immigration Canada—International adoption and the immigration process

<http://www.cic.gc.ca/english/immigrate/adoption/index.asp>

Human Resources and Skills Development Canada—Intercountry Adoption Services (IAS)

http://www.hrsdc.gc.ca/eng/community_partnerships/international_adoption/index.shtml

Links to adoption (not only international) sites

<http://www.nlm.nih.gov/medlineplus/adoption.html>

Joint Council on International Children’s Services

<http://www.jcics.org/>

Adoption Council of Canada

www.adoption.ca

Adoption Council of Ontario

<http://www.dreaming.org/~aco/acomain.html>

American Academy of Pediatrics (AAP) section on Adoption

<http://www.aap.org/sections/adoption/default.htm>

Hague convention on Intercountry Adoption

http://hcch.e-vision.nl/index_en.php?act=conventions.text&cid=69

Canadian Paediatric Society parental website—Caring for Kids: Statement on International Adoption: Health Issues for Families

<http://www.caringforkids.cps.ca/healthybodies/intladoption.htm>

Recommendations

Table 1: Strength and quality of evidence summary sheet*

Categories for the strength of each recommendation	
CATEGORY	DEFINITION
A	Good evidence to support a recommendation for use.
B	Moderate evidence to support a recommendation for use.
C	Poor evidence to support a recommendation for or against use.
D	Moderate evidence to support a recommendation against use.
E	Good evidence to support a recommendation against use.
Categories for the strength of each recommendation	
GRADE	DEFINITION
I	Evidence from at least one properly randomized, controlled trial.
II	Evidence from at least one well designed clinical trial without randomization, from cohort or case-controlled analytic studies, preferably from more than one centre, from multiple time series, or from dramatic results in uncontrolled experiments.
III	Evidence from opinions or respected authorities on the basis of clinical experience, descriptive studies, or reports of expert committees.

* From: CATMAT. Evidence-based medicine. CCDR 1994;20:145-47.
<http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/94pdf/cdr2017.pdf>

Recommendation	EBM Rating
Prospective parents should seek pre-adoption medical advice with a practitioner who is experienced in international adoption.	B III
Prospective parents should seek pre-travel health consultation prior to travel to foreign country	BII
Prospective parents, siblings and caregivers should ensure that they are vaccinated against hepatitis A and B in addition to being up to date on routine immunizations.	BII
<p>The internationally adopted child should be medically assessed on arrival in Canada. The child should have:</p> <ul style="list-style-type: none"> • screening tests performed (see appendix 2) • growth and development assessment • vaccinations assessment—the vaccination record should not be accepted on face value • attachment assessment 	<p>BII and BIII</p> <p>BIII</p> <p>DII</p> <p>BIII</p>

Appendix 1—Post-adoption screening tests

(The evidence is expert opinion [BIII] unless otherwise noted)

Non-infectious	Infectious
<ul style="list-style-type: none"> • Thyroid—TSH • Rickets—Calcium, phosphate, alkaline phosphate • Hearing screening • Urinalysis • Lead—lead level and zinc protoporphyrin (BII) • Electrolytes—Na, K, gluc • Renal function—Cr, Urea • Liver function—AST • CBC—with differential • Hgb electrophoresis (any child with microcytic anemia) • G6PD (in Asian ethnic group) 	<ul style="list-style-type: none"> • Serology for strongyloides and Schistosoma (BII) • Serology for HIV* • Serology for Hepatitis A (Hepatitis A IgM [acute infection] and IgG[immunity]) (BII) • Serology for Hepatitis B* and C* (BII) (Hepatitis B surface antigen and Hepatitis B surface antibody) • Mantoux testing (see Post adoption medical assessment)* (BII) • Stool O&P x3 (BII) • VDRL/RPR (syphilis testing)

* retest in 6 months

Appendix 2—Travel Kit (BIII evidence)

Medical	Non-Medical
<ul style="list-style-type: none"> • Topical antibacterial (skin, eyes) • Topical antifungal (mouth, skin) • Topical corticosteroid • Scabicide (permethrin) • Saline nose drops • Syringes & needles with letter from a physician detailing that these are for medical use • Syringe / medication spoon • Thermometer • Antipyretic/analgesic • Oral rehydration solution • Antihistamine • Antiemetic • Vitamins • Band-Aids • Resources to locate health care facilities 	<ul style="list-style-type: none"> • Infant Formula (lactose free) • Bottles • Device to boil water • Infant / toddler food • Hand sanitizer • Infant / child clothing • Blankets • Toys & books • Diapers • Wipes • Zinc oxide/Barrier cream • Vaseline or moisturizer • Insect Repellent (see statement on personal protective measures to prevent arthropod bites¹) • Sunscreen • Baby shampoo • Soap • Toothbrush & paste

References

1. Nelson CA, Zeanah CH, Fox NA, Marshall PJ, Smyke AT, Guthrie D. Cognitive recovery in socially deprived young children: the Bucharest early intervention project. *Science* 2007;318(5858):1937-40.
2. Miller LC. *The handbook of international adoption medicine: a guide for physicians, parents, and providers*. New York: Oxford University Press; 2005.
3. Bledsoe JM, Johnston BD. Preparing families for international adoption. *Pediatr Rev* 2004;25(7):242-50.
4. International Adoption. *Pediatr Clin North Am* 2005;52(5):1221-532.
5. Miller LC. International adoption: infectious diseases issues. *Clin Infect Dis* 2005;40:286-93.
6. Committee on Infectious Diseases. *Red book: 2003 report of the committee on infectious diseases*. Elk Grove Village, USA: American Academy of Pediatrics; 2006.
7. Citizenship and Immigration Canada. International adoption. <http://www.cic.gc.ca/english/immigrate/adoption/index.asp> 2010
8. Adoption Council of Canada. 2008 International Adoption Statistics. Citizenship and Immigration Canada 2009 [cited 2010 Sep 24]; Available from: URL: <http://www.adoption.ca/2008%20International%20Adoption%20Stats.htm>
9. Convention on protection of children and co-operation in respect of intercountry adoptions. Hague Conference on Private International Law 1993 [cited 2010 Oct 5]; Available from: URL: http://hcch.e-vision.nl/index_en.php?act=conventions.text&cid=69
10. Kuruvila E. Bill C-14: An Act to amend the Citizenship Act (adoption). 2006. Report No.: **LS-528E**.
11. Curtis AB, Ridzon R, Vogel BS, McDonough S, Hargreaves DO, Ferry J, et al. Extensive transmission of mycobacterium tuberculosis from a child. *N Engl J Med* 2010;341(20):1491-5.
12. Wilson ME, Kimble J. Posttravel hepatitis A: probable acquisition from an asymptomatic adopted child. *Clin Infect Dis* 2001;33(7):1083-5.
13. Advisory Committee on Immunization Practices. Updated Recommendations from the Advisory Committee on Immunization Practices (ACIP) for Use of Hepatitis A Vaccine in Close Contacts of Newly Arriving International Adoptees. *MMWR* 2009 Sep 18;58(36):1006-7.
14. Vernon TM, Wright RA, Kohler PF, Deborah AM. Hepatitis A and B in the family unit: nonparenteral transmission by asymptomatic children. *JAMA* 1976;235(26):2829-31.
15. Centers for Disease Control and Prevention (CDC). Pertussis in an infant adopted from Russia-May 2002. *MMWR* 2002;51(18):394-5.
16. Centers for Disease Control and Prevention (CDC). Update: multistate investigation of measles among adoptees from China. *MMWR* 2004;53(14):323-4.
17. The Center for Adoption Medicine. Glossary of Russian medical terms. <http://www.adoptmed.org/topics/glossary-of-russian-medical-terms.html> 2006 [cited 2010 May 11];
18. Albers LH, Johnson DE, Hostetter MK, Iverson S, Miller LC. Health of children adopted from the former Soviet Union and Eastern Europe: comparison with preadoptive medical records. *JAMA* 1997;278(11):922-4.
19. Hostetter ML, Iverson S, Thomas W, McKenzie D, Dole K, Johnson DE. Medical evaluation of internationally adopted children. *N Engl J Med* 1991;325(7):479-85.
20. Johnson DE, Miller LC, Iverson S, Thomas W, Franchino B, Dole K, et al. The health of children adopted from Romania. *JAMA* 1992;268(24):3446-51.
21. Miller LC, Hendrie NW. Health of children adopted from China. *Pediatrics* 2000;105(6):e76.

22. Saiman L, Aronson J, Zhou J, Gomez-Duarte C, San Gabriel P, Alonso M, et al. Prevalence of infectious diseases among internationally adopted children. *Pediatrics* 2000;108(3):608-12.
23. Staat MA. Infectious disease issues in internationally adopted children. *Pediatr Infect Dis J* 2002;21(3):257-8.
24. Mandalakas AM, Kirchner HL, Iverson S, Chesney M, Spencer MJ, Sidler A, et al. Predictors of *Mycobacterium tuberculosis* infection in international adoptees. *Pediatrics* 2007;120(3):e610-6.
25. Miller L, Chan W, Comfort K, Tirella L. Health of children adopted from Guatemala: comparison of orphanage and foster care. *Pediatrics* 2005;115:e710-7.
26. Rutter M, O'Connor G, the English and Romanian Adoptees (ERA) Study Team Institute of Psychiatry. Are there biological programming effects for psychological development? Findings from a study of Romanian adoptees. *Dev Psychol* 2004;40(1):81-94.
27. Lindblad F, Weitoft GR, Hjern A. ADHD in international adoptees: a national cohort study. *Eur Child Adolesc Psychiatry* 2009;19(1):37-44.
28. Jacobs E, Miller LC, Tirella LG. Developmental and behavioral performance of internationally adopted preschoolers: a pilot study. *Child Psychiatry Hum Dev* 2010;41(1):15-29.
29. Miller LC, Kiernan MT, Mathers MI, Klein-Gitelman M. Developmental and nutritional status of internationally adopted children. *Arch Pediatr Adolesc Med* 1995;149(1):40-4.
30. Pomerleau A, Malcuit G, Chicoine J-F, Seguin R, Belhumeur C, Germain P, et al. Health status, cognitive and motor development of young children adopted from China, East Asia and Russia across the first six months after adoption. *Int J Behav Dev* 2005;29(5):445-57.
31. Cohen NJ, Lojkasek M, Zadeh ZY, Puglieses M, Kiefer H, Hincks-Dellcrest Centre, et al. Children adopted from China: a prospective study of their growth and development. *J Child Psych and Psych* 2008;49(4):458-68.
32. Juffer F, van Ijzendoorn MH. Behavior Problems and Mental Health Referrals of International Adoptees: A Meta-analysis. *JAMA* 2005;293(20):2501-15.
33. Abdulla RY, Rice MA, Donauer S, Hicks KR, PD, SM. Hepatitis A in Internationally Adopted Children: Screening for Acute and Previous Infections. *Pediatrics* 2010;126(5):1039-44.
34. Chen LH, Barnett ED, Wildon ME. Preventing infectious diseases during and after international adoption. *Ann Intern Med* 2003;139(5):371-8.
35. Centers for Disease Control and Prevention (CDC). Updated recommendations from the Advisory Committee on Immunization Practices (ACIP) for use of hepatitis A vaccine in close contacts of newly arriving international adoptees. *MMWR Morb Mortal Wkly Rep* 2009;58(36):1006-7.
36. National Advisory Committee on Immunization. Recommended Immunization Schedules. Canadian Immunization Guide. 7th ed. Public Health Agency of Canada; 2006. p. 93-146.
37. Hostetter MK, Johnson DJ. Immunization status of adoptees from China, Russia, and Eastern Europe [abstract]. *Pediatr Res* 1998;43:147.
38. Verla-Tebit E, Zhu X, Holsinger E, Mandalakas AM. Predictive value of immunization records and risk factors for immunization failure in internationally adopted children. *Arch Pediatr Adolesc Med* 2009;163(5):473-9.
39. van Schaik R, Wolfs TF, Geelen SP. Improved general health of international adoptees, but immunization status still insufficient. *Eur J Pediatr* 2009;168(9):1101-9.
40. Miller LC. Immunization status of Internationally adopted children. *Pediatrics* 2001;108(4):1050-1.
41. National Advisory Committee on Immunization. Canadian Immunization Guide. Public Health Agency of Canada, <http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php> 2006 [cited 2010 May 10];

42. Public Health Agency of Canada. Canadian tuberculosis standards, 6th ed.—2007. Public Health Agency of Canada [online]. Available from: <http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tbstand07-eng.php>; 2007.
43. Pai M, Gardam M, Haldane D, Kitai I, Kunimoto D, Long R, et al. Updated recommendations on interferon gamma release assays for latent tuberculosis infection. Ottawa, On: Public Health Agency of Canada [online]. Available from: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/08vol34/acs-6/index-eng.php>; 2008.
44. Dawson-Hahn EE, Greenberg SLM, Domachowske JB, Olson BG. Eosinophilia and the Seroprevalence of Schistosomiasis and Strongyloidiasis in Newly Arrived Pediatric Refugees: An Examination of Centers for Disease Control and Prevention Screening Guidelines. *J Pediatr* 2010;156(6):1016-8.
45. Stauffer WM, Rothenberger M. Hearing Hoofbeats, Thinking Zebras: Five Diseases Common Among Refugees that Minnesota Physicians Need to Know About. *Minn Med* 2007;9(3):42-6.
46. Guan N, Gan Q, Ding J, Zhao Y, Lu J, Ai Y, et al. Melamine-contaminated powdered formula and urolithiasis in young children. *N Engl J Med* 2009;360:1067-74.
47. Centers for Disease Control and Prevention. Elevated Blood Lead Levels Among Internationally Adopted Children—United States, 1998. *MMWR* 2000;49(5):97-100.
48. Glader BE, Look KA. Hematologic Disorders in Children from Southeast Asia. *Pediatric Clinics of North America* 1996;43:665-81.
49. Schulte EE, Springer SH. Health care in the first year after international adoption. *Pediatr Clin North Am* 2005;52(5):1331-49.
50. Canadian Paediatric Society (CPS). Transracial adoption. *J Paediatr Child Health* 2006;11(7):443.
51. Senecky Y, Agassi H, Inbar D, Horesh N, Diamond G, Bergman YS, et al. Post-adoption depression among adoptive mothers. *J Affect Disord* 2009;115(1-2):62-8.
52. Miller LC. Initial assessment of growth, development, and the effects of institutionalization in internationally adopted children. *Pediatr Ann* 2000;29(4):224-32.
53. Glennen S, Masters MG. Typical and atypical language development in infants and toddlers adopted from Eastern Europe. *Am J Speech Lang Pathol* 2002;11(4):417-33.
54. Canadian Paediatric Society (CPS). Understanding development: a developmental approach. *J Paediatr Child Health* 2001;6(5):281-3.
55. Weitzman C, Albers L. Long-term developmental, behavioral, and attachment outcomes after international adoption. *Pediatr Clin North Am* 2005;52(5):1395-419.
56. Hellerstedt WL, Madsen NJ, Gunnar MR, Grotevant HD, Lee RM, Johnson DE. The international adoption project: population-based surveillance of Minnesota parents who adopted children internationally. *Matern Child Health J* 2008;12(2):162-71.