

- 2 Srivastava S, Pasipanodya JG, Ramachandran G, et al. A long-term co-perfused disseminated tuberculosis-3D liver hollow fiber model for both drug efficacy and hepatotoxicity in babies. *EBioMedicine* 2016; **6**: 126–38.
- 3 Swaminathan S, Pasipanodya JG, Ramachandran G, et al. Drug concentration thresholds predictive of therapy failure and death in children with tuberculosis: bread crumb trails in random forests. *Clin Infect Dis* 2016; **63** (suppl 3): S63–74.
- 4 Chiang SS, Khan FA, Milstein MB, et al. Treatment outcomes of childhood tuberculous meningitis: a systematic review and meta-analysis. *Lancet Infect Dis* 2014; **14**: 947–57.
- 5 Rogers Z, Hiruy H, Pasipanodya JG, et al. The non-linear child: ontogeny, isoniazid concentration, and NAT2 genotype modulate enzyme reaction kinetics and metabolism. *EBioMedicine* 2016; **11**: 118–26.
- 6 Radtke KK, Dooley KE, Dodd PJ, et al. Evaluation of dosing guidelines for childhood tuberculosis: a mathematical modeling study. *Lancet Child Adolesc Health* 2019; published online July 16. [http://dx.doi.org/10.1016/S2352-4642\(19\)30196-8](http://dx.doi.org/10.1016/S2352-4642(19)30196-8).
- 7 Guaiastrennec B, Ramachandran G, Karlsson MO, et al. Suboptimal antituberculosis drug concentrations and outcomes in small and HIV-coinfected children in India: recommendations for dose modifications. *Clin Pharmacol Ther* 2017; **104**: 733–41.
- 8 Te Brake LHM, Boeree MJ, Aarnoutse RE. Conflicting findings on an intermediate dose of rifampicin for pulmonary tuberculosis. *Am J Respir Crit Care Med* 2019; **199**: 1166–67.
- 9 Svensson EM, Svensson RJ, Te Brake LHM, et al. The potential for treatment shortening with higher rifampicin doses: relating drug exposure to treatment response in patients with pulmonary tuberculosis. *Clin Infect Dis* 2018; **67**: 34–41.
- 10 Pasipanodya JG, McIlleron H, Burger A, Wash PA, Smith P, Gumbo T. Serum drug concentrations predictive of pulmonary tuberculosis outcomes. *J Infect Dis* 2013; **208**: 1464–73.
- 11 Colangeli R, Jedrey H, Kim S, et al. Bacterial Factors That Predict Relapse after Tuberculosis Therapy. *N Engl J Med* 2018; **379**: 823–33.
- 12 Deshpande D, Pasipanodya JG, Mpagama SG, et al. Ethionamide pharmacokinetics/pharmacodynamics-derived dose, the role of MICs in clinical outcome, and the resistance arrow of time in multidrug-resistant tuberculosis. *Clin Infect Dis* 2018; **67** (suppl 3): S317–26.
- 13 Rockwood N, Pasipanodya JG, Denti P, et al. Concentration-dependent antagonism and culture conversion in pulmonary tuberculosis. *Clin Infect Dis* 2017; **64**: 1350–59.



## Misguided altruism: the risks of orphanage volunteering



istock/Lingbreck

Orphanage volunteering (also known as voluntourism or orphan tourism) describes an activity in which short-term volunteers engage in day-to-day caregiving activities with vulnerable children and youth living in residential care.<sup>1</sup> Volunteers (most of whom are from high-income countries) work as temporary caregivers for children (most of whom are in low-income or middle-income countries), typically interacting with them for several hours each day during their visit. Each year, thousands of religious institutions, universities, and non-profit organisations sponsor such volunteer trips.<sup>2</sup> Much of the published research on orphanage volunteering has focused on the effects of the practice on volunteers. We argue that there is also substantial reason for concern about the harm this practice might have on the children—especially in young children (ie, ≤5 years)—being raised in these settings.

Although no research has specifically examined the long-term effect of orphanage volunteering on vulnerable children living in residential care, evidence from related fields of study suggests that this practice is potentially damaging to these children. Decades of research on parent-child attachment in early childhood, and several compelling new studies<sup>3–6</sup> on the effect of attachment disruptions in young children has showed that disrupted attachment relationships substantially increase the risk of both short-term and long-term harm. These findings raise alarms about the effects of short-term volunteer caregiving.

Young children are biologically predisposed to form attachments to adults who care for them regularly. The attachment system has evolved to ensure that young children seek closeness to caregivers when they are frightened, hungry, sick, or in need of reassurance or nurturance. Children develop attachments to caregivers in whom they trust to take care of them—ie, adults who offer consistent responsiveness and become attachment figures.

Because of caregiving deficiencies in residential settings (eg, rotating caregiver shifts, low caregiver to child ratios, and instability of caregivers), children are often without stable and emotionally available attachment figures, and many young children will have no or weakly formed attachments to these caregivers.<sup>7</sup> Thus, children who are being raised in orphanages are especially likely to attempt to form attachments to volunteers who care for them, even if the caregiving relationships have existed only for relatively short periods<sup>3</sup> of time. We know from studying children in new foster placements that children begin to develop attachments to new foster parents within days to weeks after placement.<sup>8</sup>

When children develop attachments to caregivers, disrupting these attachment relationships increases the risk of negative consequences. Disruptions of attachment relationships have harmful effects for children in foster care,<sup>3,4</sup> and for children who have experienced early deprivation associated with institutional rearing.<sup>5,6</sup> The

Published Online  
June 26, 2019  
[http://dx.doi.org/10.1016/S2352-4642\(19\)30213-5](http://dx.doi.org/10.1016/S2352-4642(19)30213-5)

harms of disruptions include symptoms of emotional disorders, behavioural disorders, and problems with inhibitory control. These serious sequelae are associated with substantial societal costs.<sup>9</sup> Frequent changes in caregivers has been implicated in the cause of indiscriminate social behaviour, in which children display poor social boundaries with unfamiliar adults, which is not uncommon among children being raised in group care settings.<sup>7</sup> Increasing numbers of disrupted attachment relationships are associated with increased risks of many types of psychopathology, in both the short and long term.<sup>3-6</sup> Conversely, reducing caregiving disruptions for young children in foster care has been shown to reduce the incidence of more problematic outcomes, such as psychiatric morbidity, disturbances of attachment, and cognitive development.<sup>10</sup> Although consequences might be especially deleterious in early childhood (<6 years), disruptions of attachment relationships throughout middle childhood (6 to <12 years) are also associated with increased risk of serious psychiatric disorders.<sup>5,6</sup> These findings indicate that disruptions increase the risk of maladaptation and should be avoided whenever possible.

Based on the available evidence, the repeated experiences of establishing and disrupting attachments resulting from orphanage volunteering pose substantial and unnecessary risks of psychological harm, especially to young children. We, therefore, agree with Richter and Norman<sup>1</sup> that the practice of volunteer caregiving is incompatible with the wellbeing of children.

There are alternatives to becoming a temporary caregiver that might be rewarding to the volunteer and beneficial to children, families, and communities. Opportunities to improve the care and safety of children include volunteering in after-school centres to help children with homework, art activities, and sports, walking children to and from school to enhance their safety, playing and reading with hospitalised children, or volunteering in early child development centres. Many of these activities are under-resourced, and volunteers

could make productive contributions without assuming transient primary caregiving roles.

We encourage volunteers and organisations to develop models of engagement that do not involve volunteers providing transient direct care to children in institutions and the consequent risks of long-term emotional and developmental harm.

\*Charles H Zeanah, Nicole G Wilke, Carole Shauffer, Tamsen Rochat, Amanda H Howard, Mary Dozier

Department of Psychiatry and Behavioral Sciences, Tulane University Health Sciences Center, New Orleans, LA 70112, USA (CZH); Christian Alliance for Orphans, Arequipa, Peru (NGW); Youth Law Center, San Francisco, CA, USA (CS); MRC Developmental Pathways to Health Research Unit, University of Witwatersrand, Johannesburg, South Africa (TR); Department of Psychology, Samford University, Birmingham, AL, USA (AHH); Department of Psychology and Brain Sciences, University of Delaware, Newark, DE, USA (MD) czeanah@tulane.edu

CHZ reports grants from Lumos Foundation, outside of the submitted work. All other authors declare no competing interests.

- 1 Richter LM, Norman A. AIDS orphan tourism: a threat to young children in residential care. *Vulnerable Child Youth Stud* 2010; **5**: 217–29.
- 2 Rotabi KS, Roby JL, McCreery Bunkers K. Altruistic exploitation: orphan tourism and global social work. *Br J Soc Work* 2016; **47**: 648–65.
- 3 Lewis EE, Dozier M, Ackerman J, et al. The effect of placement instability on adopted children's inhibitory control abilities and oppositional behavior. *Dev Psychol* 2007; **6**: 1415–27.
- 4 McGuire A, Cho B, Huffhines L, et al. The relation between dimensions of maltreatment, placement instability and mental health among youth in foster care. *Child Abuse Negl* 2018; **86**: 10–21.
- 5 Almas AN, Woodbury MR, Papp LJ, et al. The impact of caregiving disruptions experienced by previously institutionalized children on multiple outcomes in late childhood. *Child Dev* 2018; published online Oct 8. DOI:10.1111/cdev.13169.
- 6 Humphreys KL, Gleason MM, Drury SS, et al. Effects of institutional rearing and foster care on psychopathology at age 12 years in Romania: follow-up of an open, randomised controlled trial. *Lancet Psychiatry* 2015; **2**: 625–34.
- 7 Nelson CA, Fox NA, Zeanah CH. Romania's abandoned children: deprivation, brain development, and the struggle for recovery. Boston: Harvard University Press, 2014.
- 8 Stovall-McClough KC, Dozier M. Forming attachments in foster care: Infant attachment behaviors during the first 2 months of placement. *Devel Psychopathol* 2004; **16**: 253–71.
- 9 Scott S, Knapp M, Henderson J, et al. Financial cost of social exclusion: follow-up of anti-social children into adulthood. *BMJ*; **323**: 191.
- 10 Pasalich DS, Fleming CB, Oxford ML, et al. Can parenting intervention prevent cascading effects from placement instability to insecure attachment to externalizing problems in maltreated toddlers? *Child Maltreat* 2016; **21**: 175–85.

For care and safety programmes see [www.saferespaces.org.za/being-inspired/entry/walking-bus-initiative](http://www.saferespaces.org.za/being-inspired/entry/walking-bus-initiative), <https://www.nelsonmandelachildrenshospital.org/nmch-volunteer-program>, and [www.tree-ecc.co.za/volunteer](http://www.tree-ecc.co.za/volunteer)

## High flow nasal cannula—just expensive paracetamol?

Bronchiolitis is the leading cause of hospitalisation for children younger than 2 years,<sup>1</sup> motivating the ongoing effort to identify new therapies that might speed up

recovery and reduce the time infants and families spend in the hospital. However, a familiar pattern in the development of new therapies for bronchiolitis



Published Online  
July 17, 2019  
[http://dx.doi.org/10.1016/S2352-4642\(19\)30235-4](http://dx.doi.org/10.1016/S2352-4642(19)30235-4)