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Answering the call to support youth orphaned by COVID-19



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As of July 7, 2021, more than 4 million people have died of COVID-19.¹ A large portion of the scientific and media attention has focused on COVID-19-related mortality of adults, with less focus on the bereaved children these deceased adults have left behind. It is vital to draw awareness to the various ways in which children are affected by the pandemic—including the psychosocial burdens of unexpected parental or caregiver loss and the resulting secondary adversities (eg, poverty, abuse, and institutionalisation). Given the risks for poor outcomes among parentally bereaved children,^{2,3} governmental and organisational responses across the globe should direct efforts to the identification and support of this vulnerable population of young people.

In *The Lancet*, Susan Hillis and colleagues report their global minimum estimates of the number of children who lost one or more caregivers to COVID-19 between March, 2020, and April, 2021.⁴ The authors used aggregate country-level data on fertility and mortality estimates from 21 countries (which together accounted for 77% of all global deaths during the identified timeframe) to extrapolate global minimum estimates of children orphaned or bereft of caregivers. The study methodology was modelled after previous research into rates of orphanhood associated with the AIDS epidemic.⁵ Hillis and colleagues have been particularly thoughtful in conducting sensitivity analyses to evaluate for undue influence of individual countries by repeatedly fitting data to the model while omitting one country at a time, with near equivalent resulting estimates. They estimate that 1 042 000 children (95% credible interval 806 000–1 083 000) globally experienced the death of a parent during the identified timeframe, with up to five times more children losing fathers than mothers. An additional 92 000 children lost a custodial grandparent, and 428 000 more lost a non-custodial but co-residing grandparent or older kin, leading to a total of 1 562 000 children (1 299 000–1 682 000) who have lost a primary or secondary caregiver as a result of the pandemic. This study offers a unique and comprehensive perspective in its consideration of children who have lost both parents as well as its appropriate inclusion of non-parent caregivers.

The importance of accurate estimates of the number of bereaved youths is crucial for correctly identifying

and supporting affected children. As the current study was limited in scope to COVID-19-related deaths within a 1-year period, the authors' estimates do not account for children already bereaved before the pandemic. In Africa, for example, rates of orphanhood are highly associated with the HIV/AIDS epidemic.⁶ It is likely that some of the children who lost a parent to COVID-19 had already lost another parent or caregiver, which compounds grief, increases secondary adversities, and heightens the need for more intensive or additional supports. Identification of children bereaved by the pandemic is further complicated by the variability in under-reporting of deaths across countries. In Brazil, for instance, excess deaths at the start of the pandemic were estimated to be 33.5% higher than the reported COVID-19 deaths.⁷ Hillis and colleagues adjusted their estimates to account for this figure,⁴ but the true extent of such under-reporting across different countries remains unknown, and could lead to underestimates of at-risk children (ie, children orphaned or bereft of caregivers) and subsequent deficiencies in the mobilisation of needed supports and support personnel.

Importantly, not all bereaved children will experience adverse biopsychosocial outcomes, and resiliency in mental and behavioural health should not be overlooked.⁸ Consistent with the Pediatric Psychosocial Preventative Health Model,⁹ a three-tiered model for assessing and treating families from a public health orientation, Hillis and colleagues highlight the importance of supporting surviving caregivers in a preventive manner. Specifically, the authors outlined two universal interventions—PEPFAR DREAMS and INSPIRE—designed to mitigate risk factors of secondary adversities through systemic and community-based supports, such as economic support, positive parenting, and education. As parentally bereaved children represent a subset of the target population for these interventions and could be at elevated risk for ongoing psychosocial difficulties, more tailored grief-focused intervention might be needed. Relatively brief, evidence-based interventions such as the Resilient Parenting for Bereaved Families Program can have lasting outcomes for surviving caregivers and also help to moderate the risk of maladaptive child grief reactions and subsequent behavioural, mental, and physical health sequelae.¹⁰ Such targeted interventions must be adapted

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to be both culturally syntonetic and feasible for the global scope and scale. Access to bereavement support, and higher order mental health interventions as needed, is further constrained by an overburdened health-care system and low numbers of mental health providers. For this reason, support services are likely to be most feasible and effective when approached and offered in collaboration with schools, churches, community health workers, and international advocacy groups and non-governmental organisations.

When compared with the overall prevalence of global orphanhood (140 million total orphans¹¹), the 1 million children bereaved by COVID-19 could appear underwhelming on a relative scale; however, on an absolute level, this number represents a considerably large group of children in need of support. By answering the authors' call to expand our worldwide pandemic response to include caring for children, the global community can capitalise on this momentum; we can harness the current global attention on children bereaved by the pandemic to mobilise resources and implement systemic, sustainable supports for bereaved youth around the world.

We declare no competing interests.

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- 1 Dong E, Du H, Gardner L. An interactive web-based dashboard to track COVID-19 in real time. *Lancet Infect Dis* 2020; **20**: 533–34.
- 2 Kentor RA, Kaplow JB. Supporting children and adolescents following parental bereavement: guidance for health-care professionals. *Lancet Child Adolesc Health* 2020; **4**: 889–98.
- 3 Thomas T, Tan M, Ahmed Y, Grigorenko EL. A systematic review and meta-analysis of interventions for orphans and vulnerable children affected by HIV/AIDS worldwide. *Ann Behav Med* 2020; **54**: 853–66.
- 4 Hillis SD, Unwin HJT, Chen Y, et al. Global minimum estimates of children affected by COVID-19-associated orphanhood and deaths of caregivers: a modelling study. *Lancet* 2021; published online July 20. [https://doi.org/10.1016/S0140-6736\(21\)01253-8](https://doi.org/10.1016/S0140-6736(21)01253-8).
- 5 Grassly NC, Timaeus IM. Methods to estimate the number of orphans as a result of AIDS and other causes in Sub-Saharan Africa. *J Acquir Immune Defic Syndr* 2005; **39**: 365–75.
- 6 Belsey MA, Sherr L. The definition of true orphan prevalence: trends, contexts and implications for policies and programmes. *Vulnerable Child Youth Stud* 2011; **6**: 185–200.
- 7 Silva GAE, Jardim BC, Santos CVB. Excess mortality in Brazil in times of Covid-19. *Cien Saude Colet* 2020; **25**: 3345–54.
- 8 Collishaw S, Gardner F, Aber JL, Cluver L. Predictors of mental health resilience in children who have been parentally bereaved by AIDS in urban South Africa. *J Abnorm Child Psychol* 2016; **44**: 719–30.
- 9 Kazak AE. Pediatric Psychosocial Preventative Health Model (PPPHM): research, practice, and collaboration in pediatric family systems medicine. *Fam Syst Health* 2006; **24**: 381–95.
- 10 Sandler I, Ayers TS, Tein JY, et al. Six-year follow-up of a preventive intervention for parentally bereaved youths: a randomized controlled trial. *Arch Pediatr Adolesc Med* 2010; **164**: 907–14.
- 11 Clark H, Coll-Seck AM, Banerjee A, et al. A future for the world's children? A WHO–UNICEF–Lancet Commission. *Lancet* 2020; **395**: 605–58.

Appropriate vascular access for patients with cancer

Questions as to how best to meet vascular access needs and safety requirements when caring for patients with cancer occur daily in clinical practice, yet evidence for which methods are optimal is poor. In cancer, use of vascular devices such as peripherally inserted central catheters (PICCs), Hickman-type tunneled catheters (eg, Hickman), or totally implanted ports (PORTs) is common. Collectively, these are referred to as central venous access devices (CVADs). Hickman and PICCs are catheters with an external segment, in contrast to PORTs, which are totally implanted under the skin. CVADs are rightly referred to as a lifeline for patients with cancer. In addition to chemotherapy, they are used to administer blood products, hydration, parenteral nutrition, antibiotics, and phlebotomy. The devices also improve patients' quality of life by reducing the need for venepunctures.

All CVADs are associated with risks, including infection, venous thrombosis, and occlusion—events

that could delay treatment or cause the patient harm. Importantly, device characteristics have been shown to independently contribute to such outcomes. The oncological population is at increased risk for catheter-related infection and thrombosis in the setting of immunosuppressive therapies, treatment-related neutropenia, and a prothrombotic state secondary to malignancy. Therefore, choosing the appropriate CVAD in cancer is not a mundane exercise; rather, it is essential to patient safety.^{1–3}

Despite the weight of this decision, guidelines have not provided direction due to the absence of high-quality trials comparing different CVADs.^{4,5} Nevertheless, practice has evolved in the absence of evidence-based recommendations. Because PORTs and tunneled catheters require dedicated theatre time and specialist expertise, they are costlier and can be harder to arrange. Conversely, as PICCs can be conveniently inserted at the bedside, they are perceived to be safer and have



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