

Measuring Separation of Children from their Usual Caregivers in Humanitarian Contexts:

The case for a holistic approach to measurement, with implications for practice

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## **Abstract**

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Disaster-affected children are among the most vulnerable populations and face a wide range of threats to their health and well-being. One of the most significant threats to children is separation from their family, a problem which occurs in most humanitarian contexts. Because separation can have lasting adverse consequences for children's health and well-being, child protection actors frequently develop programs to respond to the needs of separated children. However, rigorous methods to measure prevalence and characteristics of separation are scarce and rarely deployed in humanitarian settings. Existing measurement and programmatic approaches focus primarily on responding to the needs of already separated children and give little attention to prevention of separation at the population level, the context, and the root causes of separation. Analyzing innovative measurement methodologies with a public health lens, this dissertation presents a systematic, conceptual and practical case for a comprehensive approach to the measurement of and programming for separation of children in humanitarian settings. It argues that efforts to support vulnerable children must ultimately be as holistic as are the causes of their vulnerability.

Keywords: child protection, humanitarian, UASC, population-level, adversity, separation, unaccompanied, separated, children, emergency, method, hard-to-reach, hidden population

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## **Dedication**

This dissertation is dedicated to Soren, my beloved son, who put up with my limited time to play with him at nights and on weekends. With his occasional visits to my desk and spending a few minutes on my lap, he would give me that extra energy that I needed to keep reading and writing. He, however, continues to have a hard time understanding why I would want to become a type of doctor that cannot treat people. That has made me wonder, too!



## Chapter 1: Introduction

Humanitarian circumstances such as conflict or natural disaster present a wide range of risks and harms to children. Family separation, sexual violence and exploitation, trafficking, and recruitment into armed forces or groups are among the most serious risks to children.

Emergencies typically result in the separation of children from their parents or customary guardians, which frequently exposes children to additional risks (Derluyn, Mels, & Broekaert, 2009; Hepburn, 2006; Reed, Fazel, Jones, Panter-Brick, & Stein, 2012; Wessells, 2002).

Unaccompanied and separated children are at increased risk of exposure to child recruitment, child labor, sexual abuse and exploitation and other potential harms (Bennouna, Fischer, Wessells, & Boothby, 2018; Williamson & Greenberg, 2010).

Separation can have short- and long-term social, developmental, and psychological effects, including chronic stress and anxiety (Ajduković & Ajduković, 1993; Freud, 1973; Bick et al., 2015; Garbarino & Kostelny, 1996). Physical, neurological, emotional, and social development are impacted by growing up outside of a caring family environment (Boothby et al., 2012; Hepburn, 2006; Perry & Szalavitz, 2017; USG, 2012). Evidence shows that responsive family care, especially in a child's early years, results in better developmental outcomes later in life. Therefore, preventing separation and responding promptly when it does occur is essential to ensuring the healthy development and long-term well-being of children affected by humanitarian crises.

The field of child protection, a relatively new sector of humanitarian action, aims to address harms to children. Child protection is defined as “the prevention of and response to abuse, neglect, exploitation and violence against children” (Alliance for Child Protection in Humanitarian Action, 2019, p. 19). However, this sector is limited by the lack of a strong

evidence base. Data describing the prevalence of risk and harm is limited, and there is a shortage of quality evidence regarding the effectiveness of particular interventions (Boothby & Stark, 2011). In addition, the sector has focused mainly on responding to harm that has already occurred, and has used mostly case focused measurement strategies that are limited in regard to primary prevention.

Acquiring accurate data on the prevalence, characteristics and causes of separation has been an ongoing challenge for humanitarian actors, which has in turn made it difficult to effectively target humanitarian aid in this area of work. While estimates from displaced populations in different settings suggest that 3-5% of children get separated from their caregivers (Ressler, Boothby, & Steinbock, 1988), some of the recent data from the European migration crisis paints an even bleaker picture. UNHCR reports that 13% of the 95,200 migrants that arrived in Italy from January to July, 2017 have been unaccompanied and separated children (UNHCR, 2017). Also, a study in 2014 in the Democratic Republic of Congo found that at least 8.5% of children had been separated from their primary caregivers following the M23 attacks in 2012 (Stark et al., 2016).

This dissertation analyzes and addresses four specific gaps in measurement and programming for child-family separation in humanitarian settings: contextual understanding of separation and UASC (including its sub-populations); measuring prevalence/scale and characteristics of UASC at population level; preventive approach in measurement and programming (including root causes of separation); and attention to ethical issues. These are outlined here for purposes of providing an overview, though the analysis of these gaps is provided in the three papers.

## 1.1 Contextual Understanding of Separation and UASC

The *IASC Guiding Principles on Unaccompanied and Separated Children* defines separated children as “children who have been separated from both parents, or from their previous legal or customary primary caregiver, though not necessarily from other relatives” (ICRC, 2004, p. 13). Unaccompanied children are defined as “children who have been separated from both parents and other relatives and are not being cared for by any adult who, by law or custom, is responsible for doing so” (ICRC, 2004, p. 13).

Although these definitions are useful in programming and measurement, they must also be viewed critically. The IASC definition can suggest that separation is a unitary, homogeneous construct. In reality, however, the categories of “separated children” and those who are “unaccompanied” include significant diversity in regard to sub-groups of children, the causes of their separation, the current conditions of the children, the lived experience of children, and the short- and long-term consequences of separation. Attention to these differences is significant for both measurement and programming. For example, measurement approaches may be significantly different for UASC who live on the streets, versus those who live with their relatives. And even within the same sub-group, there could be certain differences that could exclude part of the group from measurement efforts. For example, within the sub-group of children associated with the streets, some children may have reasons to avoid contact with outsiders (such as those in conflict with the law), while others may not. In terms of programming, for example, effective programming for the reintegration of children who had been formerly associated with armed forces and groups may require significantly different elements compared to a reunification program for children who had been placed in institutions due to accidental separation during population movement.

An essential first step in measuring separation is to define the terms and unpack some of their complexities. Particular attention should be paid to different sub-groups and their characteristics, attitudes, and social behaviors. Qualitative methods can support such analysis and the results can enrich not only the quantitative measurement of the scale and characteristics, but also the program design and implementation.

### 1.2 Measuring the Scale and Characteristics of UASC

Separated children are considered a hard-to-reach population as they may be scattered through households, institutions, work sites, streets and other hidden locations. The increased vulnerability of separated and unaccompanied children calls for particular attention to ethical principles such as do no harm (Boothby et al., 2012). Constructing an accurate sample frame for hidden and hard to reach populations is the most significant challenge in understanding the size and key characteristics of these populations, as it is either impossible or not practical in resource restricted environments (Bjørkhaug & Hatløy, 2009; Crawford, Wu, & Heimer, 2018; Handcock, Gile, & Mar, 2015; Magnani, Sabin, Heckathorn, & Saidel, 2005). For such populations, conventional sampling designs typically result in few cases from the population of interest (Thompson & Collins, 2002). It is also well documented that non-probability sampling approaches, such as snowball sampling, introduce bias (Heckathorn, 1997).

Technical challenges in studying such populations and their characteristics are compounded when dealing with limited time and resources, unpredictability, security concerns, heightened risks, and erosion of protective mechanisms in humanitarian settings. To overcome these technical and practical hurdles, innovative research methods are needed (Rubenstein & Stark, 2016). Such methods should have the potential to produce valid and reliable data, require

fewer resources and less time and technical expertise than typical research methods (such as household surveys) require, and maintain high ethical standards.

Several innovative, rigorous research methods have been used to quantify rare and hard-to-measure phenomena such as drug use, sex work, and demographic events, such as birth and death. However, most of the existing learning on such methods is from non-emergency settings. While methods such as respondent-driven sampling, capture re-capture, neighborhood method, and time-location sampling have produced valid and reliable data in particular contexts, their feasibility and the ethical issues associated with their use in emergency contexts have not been analyzed systematically. Additionally, not all these methods have been tested with populations of children and adolescents, who are inherently more prone to potential harm.

### 1.3 A Preventive Approach to Measurement and Programming

Programs to address the needs of separated children have been a cornerstone of child protection in humanitarian action, dating back to World War II (Ressler et al., 1988; Shields & Bryan, 2002). Inter-agency guidelines and minimum standards do exist to guide family tracing, reunification and alternative care programming (Alliance for Child Protection in Humanitarian Action, 2017, 2019; ICRC, 2004). However, the progress that has been made is far more focused on response rather than on prevention. For example, standards 13 and 19 of the *Minimum Standards for Child Protection in Humanitarian Action* address strategies on Identification, Documentation, Tracing and Reunification (IDTR) and Alternative Care (Alliance for Child Protection in Humanitarian Action, 2019). Both program strategies focus mostly on responding to the needs of individual children who have been separated from caregivers, with minimal practical guidance on preventing separation.

Yet prevention should be a high priority in humanitarian as well as development settings. The scale of threats to children in humanitarian contexts, particularly the risk of separation, makes it inconceivable that responsive approaches alone can address the needs of all children who get harmed in these contexts. Additionally, if preventing harm is viable and in the best interest of the child, the only responsible and ethical approach would be to prevent the harm before it occurs. This makes preventative approaches that target all vulnerable children, families and communities, necessary.

#### 1.4 Attention to Ethics in the Measurement of Separation

While the participation of children in research is broadly accepted as a right and a good practice, the direct engagement of vulnerable children in data collection can pose ethical dilemmas (Bennouna, Mansourian, & Stark, 2017; Graham, Powell, Taylor, Anderson, & Fitzgerald, 2013; UNICEF, 1989). Ethical considerations are important in all settings but become even more important in humanitarian settings for numerous reasons. First, humanitarian settings often increase existing risks to and vulnerabilities of children and their families (H. Thompson, 2012). For example, even before a war erupts, children may tend to drop out of school due to chronic poverty and the need to help support their families. After a war erupts, this problem is often magnified, as families may have even greater challenges in meeting their basic needs. Second, formal and informal protective mechanisms are often weakened or otherwise unable to operate in their full capacity (Ager, Stark, Akesson, & Boothby, 2010). Third, emergency situations pose new and unfamiliar risks, to which the affected population is unaccustomed, particularly children. The resulting rapid proliferation of risks in humanitarian settings, without a corresponding increase in protective factors, can lead to a great deal of suffering for children and families. All these concerns are further heightened in conflict settings.

In addition, aspects of the humanitarian response in a crisis can unintentionally increase the risks to children. A breach of confidentiality in the case of children associated with armed forces or groups, for example, can very quickly become a life or death issue. Issues of non-voluntary participation, stigma, unwanted attention, and raised expectations, among others, can increase due to children participating in a data collection exercise. Each of these problems can cause unintended harm to children.

The recognition in the past few decades that children are not ‘objects’ or ‘subjects’ of study, but are full participants in the process, has made more pressing the need for renewed exploration regarding the issue of informed consent and assent of child participants (Ericsson & Boyd, 2017; Graham, Powell, & Taylor, 2015; Hordyk, 2017). Evidence indicates that informed consent or assent cannot legitimately be achieved through a one-time process, with presumed validity for the rest of the interaction (Ericsson & Boyd, 2017; Graham et al., 2015). Informed consent and assent are also increasingly understood in the context of a child’s evolving capacities. Depending on the age and maturity of the child, as well as the knowledge and skills of the enumerators, it can be a challenge to ensure that the child fully comprehends the potential benefits and dangers of participation.

### 1.5 Overview of the Dissertation

To date, there is no comprehensive analysis of nor suggested, holistic approach for measuring separation in humanitarian settings. The goal of this dissertation is to develop and inform more robust, applicable, and comprehensive approaches to measuring the separation of children in humanitarian settings that help to address the four identified gaps described above and support effective practice. In order to achieve this goal, this dissertation intermixes

methodological review, original empirical work, and conceptual analysis of how a public health approach could strengthen measurement and practice in regard to UASC.

The [first paper](#) is a review of literature (1995-2018) that evaluates whether the research methods used to estimate the prevalence and characteristics of other hard-to-reach populations can be applied to measuring the prevalence and characteristics of unaccompanied and separated children in humanitarian contexts. This review analyzes the validity and reliability, feasibility, and ethical considerations in applying existing methods to the topic of separation. It examines four principal methods used to measure hidden and hard-to-reach populations: Time-Location Sampling; Capture-Recapture; Respondent-Driven Sampling; and Neighbourhood Method.

The [second paper](#) provides an empirical analysis of the Neighborhood Method for measuring the prevalence and basic characteristics of separation of children from their caregivers in the North Kivu province of the Democratic Republic of Congo. To this end, a survey measuring the prevalence and characteristics of separation of children from their caregivers was conducted in Summer, 2014. Prevalence rates of separation in neighboring households targeted for interview were assessed, and the results were contrasted with those from a regular household survey. Qualitative inquiry was also conducted in advance of the survey to validate some of the assumptions and inform the conceptualization of separation in the Congolese context. This study provided a systematic analysis of the validity and reliability of the method. It also examined practical implementation issues related to the Neighborhood Method in order to determine its feasibility in humanitarian contexts. The implementation issues discussed include the time and cost of using the Neighborhood Method, the ease of training enumerators and local people's knowledge and willingness to disclose information about separation in neighboring households.



The [third paper](#) develops a systematic conceptual and practical case for incorporating a public health approach in the measurement of separation of children from their caregivers in emergency settings. Arguing for a stronger, population based, prevention focus in the child protection sector, the paper provides an interpretive analysis of what is meant by a public health approach to measurement and how a public health approach can be applied to the issue of child-family separation in humanitarian settings. A systematic contrast of the case-based versus public health approaches to measurement and their implications for programming shows the added value that a public health approach can bring to the child protection sector, primarily in terms of supporting population-level measurement as a means of informing and guiding preventive work at population level. Arguing in favor of a holistic approach to the measurement of, and programming for, child separation, the paper shows that case-based and public health approaches are complementary. A balance between the responsive and preventive approaches provides the most comprehensive understanding and means of addressing the separation of children in humanitarian crises.

This dissertation follows a progression that moves from the analysis of existing methods to the development of new methods for measuring family separation. Whereas the first paper reviews existing methods for applicability to separation in humanitarian settings, the second paper provides an empirical analysis of one particular method in an ongoing humanitarian crisis. The third paper, however, argues for the development and use of a new category of methods and approaches that are grounded in a contextual, public health approach that emphasizes the importance of prevention at a population level. This movement from what is known towards stronger, preventive approaches is intended to help the field of international child protection achieve its highest potential and to help prevent separations before they occur.

## **Chapter 2: Understanding the Prevalence and Characteristics of Unaccompanied and Separated Children Amidst Crises**

### **Abstract**

Worldwide, large numbers of children grow up amidst humanitarian crises and face myriad adversities such as family separation that can adversely affect their development and health. Although humanitarian action addresses separation, it is limited by the shortage of reliable evidence on issues such as the prevalence of separation. To address this gap, this narrative review assesses the applicability (including validity and reliability, feasibility, and ethical appropriateness) of four research methods to the measurement of separation in humanitarian settings. The review highlights that although each method is applicable to particular sub-populations of separated children, each has distinct boundaries, strengths, and limitations, and ethical issues remain underattended.

Keywords: separation, unaccompanied, separated, children, humanitarian, emergency, methods, hard-to-reach, hidden.

According to the United Nations, 132 million people around the world are affected by conflict and disasters and the average humanitarian crisis lasts more than nine years (UNOCHA, 2019). The United Nations Children’s Fund (UNICEF, 2016) estimates that nearly one in four children live in countries affected by conflict or disaster, often without necessary protection. Because armed conflicts are increasingly protracted, many children grow up amidst ongoing crises. The separation of children from their usual caregivers is one of the most common threats to children in emergency settings (Ressler et al., 1988; Riddell, 2016; Jan Williamson & Moser, 1988).

Evidence from the health and nutrition sectors has established that childhood deprivations and traumatic experiences are associated with developmental challenges as well as higher morbidity and mortality (Berkman, Lescano, Gilman, Lopez, & Black, 2002; Bronstein, Montgomery, & Ott, 2013). Toxic stress, which is often caused by separation in early years of life, has been found to bring upon lasting effects on neural and physical development of children (Shonkoff et al., 2012). Separation, especially at a young age, has the potential to cause severe harm to a child’s healthy development and well-being over both the short- and long-term (Ajduković & Ajduković, 1993; Bick et al., 2015; Nelson et al., 2007; Van Ijzendoorn, Luijk, & Juffer, 2008).

In their seminal book, *War and Children*, Anna Freud and Dorothy Burlingham write (1943, p. 37), “[The war] becomes enormously significant the moment it breaks up family life and uproots the first emotional attachments of the child within the family group.” Physical, neurological, emotional, and social development are impacted by growing up outside of a caring family environment (Boothby et al., 2012; Hepburn, 2006; Perry & Szalavitz, 2017; USG, 2012). A meta-analysis of 75 studies found that children reared in institutions had significantly lower IQ

scores than their peers in foster care (Van Ijzendoorn, Luijk, & Juffer, 2008). Therefore, preventing separation and responding promptly when it does occur is essential to ensuring the healthy development and long-term well-being of children affected by humanitarian crises.

Recognizing these risks, programs to address the needs of separated children have become a cornerstone of child protection in emergency response, dating back to World War II (Ressler et al., 1988; Shields & Bryan, 2002). Inter-agency guidelines and minimum standards do exist to guide family tracing, reunification and alternative care programming, but reliable evidence to effectively identify program needs and subsequently tailor programming approaches is rarely available in emergency contexts (Ager et al., 2010; ICRC, 2004).

The complexity of the construct of separation, also adds to the challenges of measurement. There are many sub-populations within the broader UASC population, exhibiting distinct characteristics. The behavior and attitude of the members of each of these sub-populations can also differ from one context to another. For example, children associated with the streets may network in one context, but not in another. As a result, practitioners and policymakers are left to assess the scope of separation based on gross generalizations and/or selective data (Stark et al., 2016). There is a pressing need for simple, yet robust, methods to produce context-specific, reliable and valid population-based estimates of the prevalence and basic characteristics of separated children in humanitarian settings (Boothby et al., 2012; Pullum et al., 2012).

Representative, population-based data, such as that generated from a household survey, has enormous potential to inform funding, programming, and policies for separated children (Boothby et al., 2012). However, due to security and accessibility constraints as well as limited time, finances and human resources, it is not always possible to use conventional household

surveys with a sufficiently large sample size to measure the scale and basic characteristics of separated children in humanitarian setting. These challenges are exacerbated by the fact that because separation is a relatively rare event, it requires a large sample size to achieve adequate statistical power.

To date, few comparative reviews have been published that examine the strengths and weaknesses of different methods with respect to the study of hidden or hard-to-reach populations. An earlier review (Pullum et al., 2012) usefully examined sampling issues yet needs to be updated, with attention as well to the operational applicability of various methods in humanitarian settings. The purpose of this paper is to assess the applicability of research methods used to study hidden and hard-to-reach populations to the study of unaccompanied and separated children (UASC) in humanitarian settings. Providing a narrative analysis of the existing literature, this review assesses the applicability of methods for the measurement of separation using three dimensions of applicability: validity and reliability, feasibility, and ethics.

## 2.1 Method

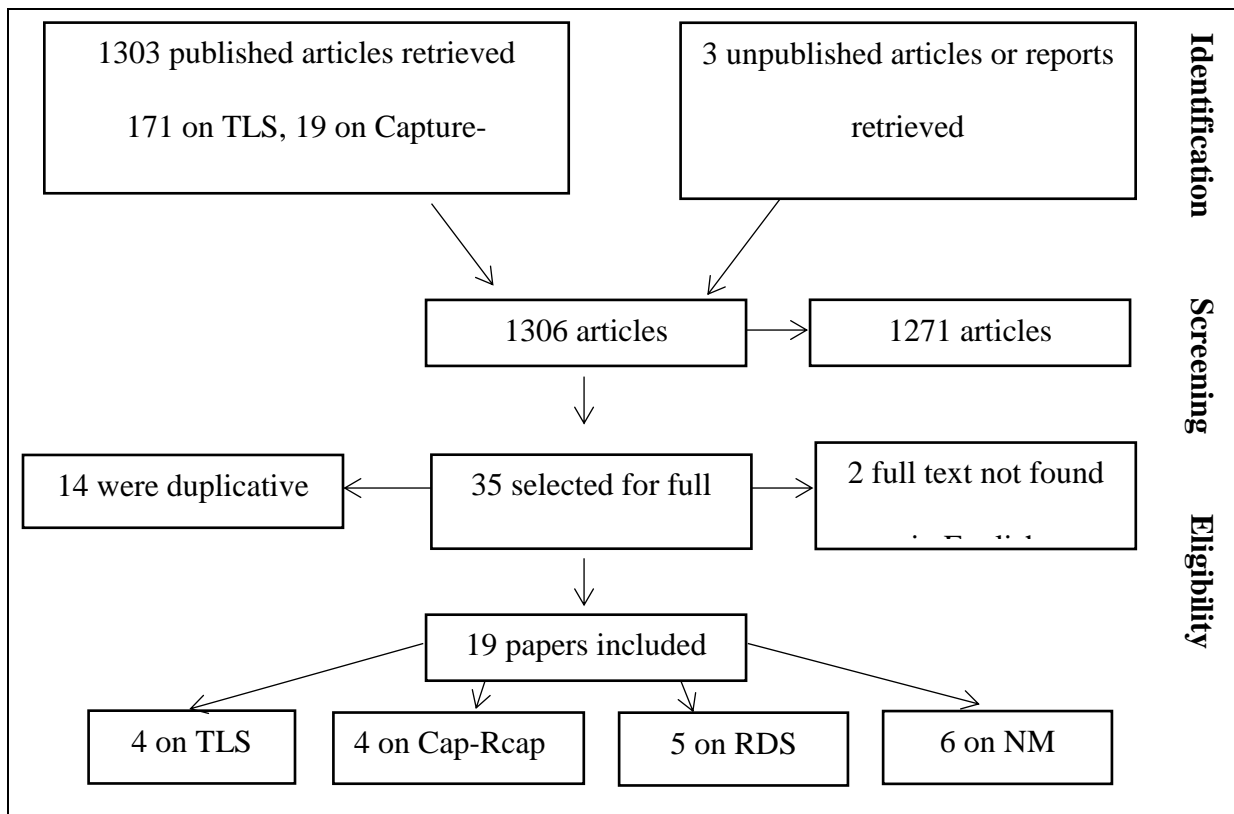
Four specific innovative methods that have been used successfully to study hidden and hard-to-reach populations, are reviewed here: Time-Location Sampling (TLS); Capture-Recapture; Respondent Driven Sampling (RDS); and Neighbourhood Method (NM). This narrative review conducted a targeted, online search to identify the key literature published until 2018 on these four methods.

Pubmed and Psycinfo were used to search for published literature from 1995-2018. For grey literature and organizational documents, the [CPC Learning Network](#) and the [Alliance for Child Protection in Humanitarian Action](#) websites were searched, with three grey literature papers identified. The following search terms were used:

"Hard-to-reach populations," "hidden populations," "venue-day-time sampling," "time-location sampling," "respondent-driven sampling," "respondent driven sampling," "link tracing," "neighborhood method," "neighbourhood method," "network scale up," "network scale-up," "chain-referral sampling."

The search was not limited to humanitarian contexts since preliminary research had shown that most of these methods have not been used in such contexts. Because most of the literature reviewed does not pertain directly to humanitarian settings, this paper makes analytical inferences about the applicability of different methods to humanitarian settings.

Figure 1: Review flow chart



Articles were included in this review if they reported on the use of one of the four methods under discussion to study an under 18 population. To determine the number of new articles on these methods since the publication of Pullum et al. (2012), a disaggregated search was also conducted (1995 to 2011 vs. 2012 to 2018). Between 2012 and 2018, 985 articles and reports were found on this topic (an average of 141 articles per year). This is in contrast to 321 articles from 1995 to 2011 (an average of 20 articles per year), indicating a significant increase in the number of new publications on the study of hidden and hard-to-reach populations.

The analysis was guided by three questions: (1) Have the authors established (directly or by referring to other existing literature) the validity and reliability of the method in enumerating the population under study; (2) Can the method be feasibly adapted to measure the scale and nature of separation in emergency contexts. This includes but is not limited to considerations of the cost and time required for implementation; and (3) Are there potential ethical considerations that could make it inappropriate to use the method(s) to measure separation in emergency contexts.

Validity refers to the extent to which there is a systematic departure in the answers given from the true value of the concept of interest or the actual state of affairs. Reliability refers to the reproducibility of results of the study (i.e. will one obtain the same results if data were collected at another time and with another group of enumerators and participants). These two concepts were examined based on data collected to establish the comparability of results from the method in question with another source of data; inter-rater reliability; discussions of the generalizability of the results; and elaborations on whether the assumptions had been met.

Feasibility was assessed primarily based on references to cost and time, including (ideally) on all aspects of the research, including contextualization, training of researchers, data

collection, and analysis. Other aspects of feasibility related to the assumptions and requirements of each method. For example, if a method assumes that children congregate in specific locations, this assumption was analysed in different types of humanitarian contexts and with distinct sub-populations of children.

The ethical suitability of the methods was analysed based on information provided within the identified paper and widely used ethical standards regarding research involving children (Campbell, 2017; Clark-Kazak, 2017; Ericsson & Boyd, 2017; Graham et al., 2013); critical practitioner expertise; and learnings from the field. Careful attention was paid to different types of humanitarian contexts and characteristics of different sub-groups of UASC. Particular attention was given to three widely accepted ethical principles for the study of human subjects: respect for persons, beneficence, and justice (Department of Health, 1979). These principles led to the analysis of issues of informed consent/assent, unwanted attention, coercion, raised expectations, confidentiality, and issues related to do no harm, stigma, labeling, and exclusion and/or discrimination, among others.

A challenge involved in the ethical analysis of the different methods is that no consensus exists globally regarding complex issues such as whether to require and how to obtain informed consent when UASC reside outside of households. In such settings, the informed consent of a parent or guardian, which has long been an ethical research standard, may be impossible. The only remaining option may be direct consent or assent from the children themselves. Also, countries diverge in their laws regarding who is a minor. If a country has laws stipulating that 16 is the legal age of adulthood, researchers within that country may be expected to allow a 16- or 17-year-old to give informed consent. This contrasts with the more common approach, wherein



informed consent is obtained from the parents or guardian of a person under 18 years of age, and assent is obtained from the person under 18.

The text of all 19 articles included for review were searched for specific key words related to the criteria outlined earlier. For feasibility, the following terms were searched: “time,” “training,” “days,” “cost,” and “logistic(al).” For validity and reliability, the following terms were searched: “valid”/ “validity,” “reliable”/ “reliably”/ “reliability,” “comparable”/ “comparability,” “representative,” “generalizable”/ “generalizability,” and “assumptions.” For ethics, the following terms were searched: “ethics”/ “ethical,” “consent,” “assent,” “dissent,” “unintended,” and “harm.” The results from the search of each paper were noted and included in Tables 1 to 4, supporting information.

The limitations of the review included the limited access to grey literature. The author’s involvement in the application of the NM to the measurement of separation in emergencies might also have been a source of bias. Since the review was conducted by one individual (the author), biases may have influenced the selection of papers and the extraction process, despite the author’s attempts to remain unbiased.

## 2.2 Results

Each of the four reviewed methods is considered below, with attention to both its characteristics and its applicability in humanitarian settings.

### Time-Location Sampling (TLS)

*TLS* (also known as time-space or venue sampling) is defined as "a probabilistic sampling strategy used to recruit members of a target population known to congregate at specific times in set venues" (Pullum et al., 2012, p. 702). *TLS* entails identifying days and times when the population of interest congregates at specific locations and uses this information to construct a

sample frame of time and location units (Leon, Jauffret-Roustide, & Le Strat, 2014; Sommen et al., 2018). The time and location units—called the primary sampling units—are then systematically visited to collect information from consenting individuals in the key population (UNICEF, 2013).

The key assumptions are: (1) The population of interest naturally congregates in identifiable locations/areas; (2) All members of the population of interest can be found in the sample frame of time-location units with an equal probability larger than 0; and (3) Hot-spots do not change from the construction of the sample frame until data collection.

171 publications were identified on TLS from 1995 - 2018 (87 from 2012 to 2018 and 84 from 1995 to 2011). The reviewed literature suggests that TLS has been widely used to study populations such as men having sex with men, sex workers, people living and/or working on the streets, injecting drug users, transgender persons, etc. Only four articles directly reported on the use of TLS for an under 18 population. Of those, none was carried out in a humanitarian setting (see Table 1, supporting information).

Since the TLS method assumes that the population of interest naturally congregates in identifiable locations/areas, this method can only apply to the measurement of separation among sub-groups of UASC who congregate. Children currently or formerly associated with the armed forces and groups who may congregate to socialize or access specific services are sub-groups that could potentially be studied using TLS.

However, the congregation assumption may not be met. Children who have become associated with the streets due to an emergency may not establish routines immediately after separation. Also, children on the move are less likely to remain in one place long enough to establish such routines. The question of whether children are congregating in accessible places

can best be answered by children themselves. Applicability of TLS to pre-adolescents is not established.

TLS strengths include its ability to produce a large, representative sample of the target population; its efficiency; and ability to create a sample frame that can be of value for programming and service delivery. Among its challenges are the difficulty or impossibility of constructing an accurate and complete initial sample frame; fluidity of humanitarian settings may make it impossible to access initially identified sites; and children who congregate in specific time-locations may not represent the entire sub-population under study.

*Validity and Reliability.* The validity of TLS results depends on fulfilling its core assumptions. Yet the closure assumption is likely to be violated in humanitarian settings, in which new separations happen continuously. However, there are recently proposed statistical methods to improve the validity and reliability of TLS by including sampling weights and taking into account the Frequency of Venue Attendance (FVA) (Leon et al., 2014; Sommen et al., 2018). The validity and reliability of this method, however, is not yet fully established and calls for additional research.

*Feasibility.* One limitation on the feasibility of TLS, especially in rapid onset emergencies, is that UASC may not have established patterns of visiting specific locations. Two additional challenges in humanitarian settings are: (1) Some of the venues may no longer be accessible by the time of the data collection due to security or physical access issues, and (2) Situational fluidity could result in changes in attendance of UASC to the venue-time units initially identified.

While cost and time considerations were unreported in the reviewed literature, TLS may be limited by the creation of the initial sample frame, a step unique to TLS. Depending on pre-existing information, or lack thereof, this step may require significant time and resources.

*Ethics.* The papers reviewed scantily address the ethical issues surrounding the use of TLS with child populations. Nada and Suliman (2010) briefly mentioned the ethics surrounding informed consent. In the reviewed literature on TLS, ethics are primarily discussed in connection with institutional review boards with little attention to context.

With UASC populations, ethical concerns will need to be contextually analyzed, both prior to and during data collection. Attention to issues of informed consent/assent is warranted, particularly since UASC sub-populations who will not likely be accompanied by their adult caregivers. Thus, informed consent from the child (depending on the context, the legal age of consent, and the individual capacity) will be necessary. For vulnerable children, it is essential to devote time to ensuring full comprehension of the potential benefits and risks of participation by the assenting/consenting child. This requires time. In the context of TLS, which is by definition linked to time units, this may present a challenge. Also, Johnston et. al (2017) argue that limitations linked to parental consent for adolescents can become a barrier to their participation, affecting the validity and generalizability of data. In addition, street associated children and/or former child soldiers may be fearful of stigma, labelling and becoming known to authorities. Indeed, many such children may intentionally try to be invisible and avoid coming in contact with the law. This will likely also affect their willingness to participate and consequently impact the generalizability of research findings.

A respectful first step is to understand whether and how researchers' identification of children's congregation places and times may heighten risk. This could be investigated in part by

speaking to children themselves to learn about their concerns, potential fears, and possible solutions. The information learned could facilitate the provision of necessary services to the children.

*Conclusion.* This review identified the successful use of TLS with only one sub-population of UASC: children associated with the streets, and no examples came from humanitarian settings. Application may also be possible to other sub-populations of UASC that may congregate in certain time-locations (such as children associated with armed forces and groups). However, the application of TLS to these populations in different contexts will require a systematic evaluation of its effectiveness and ethical appropriateness. This may be easier in more protracted, relatively stable humanitarian settings, as compared to rapid-onset emergencies. The feasibility of TLS in less stable humanitarian settings is uncertain.

Table 1: Summary of the studies that used TLS with child populations<sup>1</sup>

Study	Population	Description
Prevalence of HIV, HBV and HCV among street and labor children in Tehran, Iran (Foroughi et al., 2017)	Children living and/or working on the streets	In Iran, street and working children were recruited via TLS to study HIV prevalence. No specific information was provided on validity, reliability, or research cost or duration. Children provided consent [sic], and questionnaire and blood sample data were anonymized to ensure confidentiality.
HIV seroprevalence among orphaned and homeless youth: No place like home (Hillis et al., 2012)	Street-involved children and youth (15-24)	Used TLS to study HIV seroprevalence and risk among street-involved youth in Ukraine. The study provided invaluable insight to the impact of risk factors such as homelessness and orphaned status on risk of HIV and injecting drug use. There was no discussion of validity and reliability or research cost or implementation time Only children and youth who consented were included. Ethical review was conducted by the CDC and the Ukrainian Government.

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<sup>1</sup> In developing Tables 1 to 4, an attempt was made to respect the wording used by the authors of the papers. On the topic of consent/assent, in particular, a few discrepancies were identified where the term ‘informed’ was not used in the publication, even when the description alluded to the informed nature of the consent sought. In such situations, [sic]’ was used to indicate this discrepancy between the standard terminology and the author’s wording. When a paper was silent about one or more of these issues, the authors were contacted and asked whether their study had yielded any information about those issues. 12 authors were contacted, and five responded with additional information, which was then incorporated in the analysis.

<p>Multi-City Assessment of Lifetime Pregnancy Involvement among Street Youth , Ukraine (Zapata et al., 2011)</p>	<p>Teenage and older children (15-24) living or working on the streets</p>	<p>Studied the lifetime pregnancy involvement (LPI) among teenage and older street youth residing in Kyiv, Odessa, and Donetsk, Ukraine. Developed a sampling frame of locations known to be frequented by street youth. The authors report confidence on the validity and generalizability of the findings. Reliability, methodological challenges, or feasibility issues were not discussed. Ethical considerations were also not discussed, beyond mentioning that the study was exempted form IRB.</p>
<p>Violence, abuse, alcohol and drug use, and sexual behaviors in street children of Greater Cairo and Alexandria, Egypt (Nada &amp; Suliman, 2010)</p>	<p>Children (12-17) living on the streets</p>	<p>TLS was used to recruit a sample of children living on the streets in Cairo and Alexandria, Egypt, to measure the prevalence of HIV/AIDS risk behaviors and related factors among.</p> <p>Validity or reliability is not directly discussed, however, the authors recognized that their sample is not representative of the entire population of street children in the two cities. No information was provided on cost or time of implementation. Assent [sic] was sought from study participants, with NGO social workers acting on their behalf for consent purposes, in the absence of legal guardians. Referral to services was done when deemed necessary.</p>

## Capture-recapture

In capture-recapture method, the estimation of the size of the population of interest is determined based on the pattern of overlap between two or more lists or databases of observed individuals from the target population (Jones et al., 2016; Sopko, Škařupová, Nečas, & Mravčík, 2016).

Key assumptions are: (1) All members of the population of interest have an equal, non-zero chance of inclusion in each capture (homogeneity of captures); (2) Being “captured”—meaning to be identified in one round of sampling—does not change the likelihood of being captured in future samples (independence); (3) It is possible to accurately identify the individual (perfect identification); and (4) the population of interest is closed (closure) (Oosterlee, Vink, & Smit, 2009; Pullum et al., 2012; Sopko et al., 2016; VanDerNagel et al., 2014).

The literature suggests that the capture-recapture method can be operationalized in two major ways: (a) using already existing lists (such as registration databases of NGOs that provide services to the target population), and (b) constructing the lists by actively identifying or ‘capturing’ members of the target population. Most of the literature identified regarding the use of this method for human subjects employs approach (a). For existing lists to be usable for this approach, they should include sufficient information for identification across lists.

The online search uncovered 19 unique results for the capture-recapture method (12 from 2012 to 2018 and seven from 1995 to 2011). The majority of the studies were related to drug abuse, and other studies pertained to the prevalence of family violence, the population size of street children, the enumeration of sex work, and the estimation of the number of general practitioners. Four papers applied to a child population, none of which were in a humanitarian context (see Table 2, supporting information).



In theory, the capture-recapture method can be used for the study of UASC sub-populations that frequent public spaces or appear on multiple lists or databases. The members of the sub-population under study should all have an equal, non-zero chance of appearing on the lists. Also, the initial capture should not reduce the chance of being recaptured in subsequent samples or lists. These assumptions may be difficult to satisfy in volatile humanitarian settings. The assumption of closure might be particularly difficult to satisfy in unstable settings as the number of children in the sub-population of interest may change due to the evolving crisis.

Capture-recapture strengths include its usability even when little is known about the size of a population or the prevalence of a particular phenomenon across a larger population; its reliance on multiple sources of data reduces its susceptibility to external manipulation (i.e. higher validity); and its ability to be implemented in a relatively short period of time. Challenges of this method include the risk of over-estimation of population size, if the population under study tends to avoid 'recapture;' the difficulty of satisfying the closure assumption with mobile populations; the occurrence of errors due to imperfect identification across sources of data; and the requirement of access to a large, well-trained group of enumerators.

*Validity and Reliability.* While a few of the reviewed papers caution about the validity of their results due to a possible violation of assumptions, none of the papers specifically studied or reported on the validity of their results. High reliability was reported in some papers. There are likely difficulties meeting the assumptions of the capture-recapture method in humanitarian settings, although methods have been proposed to mitigate the risk of violating key assumptions (Jones et al., 2016; Sopko et al., 2016).

*Feasibility.* Relatively rapid data collection can be achieved using the capture-recapture method. If lists or databases already exist, there can be significant time savings. If lists have to be

proactively constructed and there is a significant number of qualified staff, the actual data collection can be done rather quickly (Pullum et al., 2012). Therefore, the capture-recapture method might be a time-efficient approach for the study of a specific sub-population of UASC. While none of the reviewed papers reported on the cost of their study, cost of capture-recapture can be low relative to other methods, particularly if existing databases are being used. Certain sub-groups may tend to avoid ‘capture’ and/or ‘recapture’.

*Ethics.* None of the TLS papers reviewed specifically reported or discussed any ethical concerns outside of the mention of IRB reviews. An ethical consideration when using existing databases (i.e. approach (a) above) is related to respect for confidentiality. It is paramount that researchers scrutinize the way in which existing lists or databases were constructed, to ensure respect for ethical principles.

If lists are being proactively constructed through data collection, several of the ethical concerns described above, should be considered carefully: informed consent/assent, stigma, raised expectation, labeling, etc. Also, ‘tagging’ needs to be carefully studied. Physical tagging can pose significant ethical challenges as it can lead to stigma and/or targeting. However, identifiable information can be obtained from respondents to circumvent this issue.

*Conclusion.* The capture-recapture methodology could conceivably be applied to some sub-populations of UASC. Approach (a) above could be applied to any population that may be benefitting from services, if identifiable information regarding them is being recorded. Of course, the researchers have a responsibility to scrutinize the observance of basic ethical principles in the compilation of those lists. Moreover, such databases should be able to satisfy the assumptions of homogeneity, independence and closure, which may be challenging in humanitarian settings. Approach (b) could be applied to populations of UASC that may not

appear on existing lists. Such populations could also benefit from a combination of approach (a) and (b), similar to Gurgel et al. (2004), described in Table 2, supporting information. However, children on the move may not benefit from capture-recapture methodology as they are less likely to either be on existing lists or be settled in one place long enough, as a sub-population, to enable creation of two independent and homogeneous lists.

It may be less feasible to use capture-recapture in humanitarian settings if databases do not already exist or if the children of interest tend to avoid re-capture. Stable humanitarian contexts provide a more conducive environment for the use of the capture-recapture method. Conflict settings or less stable environments not only pose logistical and security concerns, but also could make it less likely for vulnerable children to feel safe in interacting with outsiders. Such tendencies should be studied, and mechanisms put in place to maximize representation of all children in the data.

Table 2: A summary of studies using the capture-recapture method with child populations.

Study	Population	Description
<p>Estimating the size of the homeless adolescent population across seven cities in Cambodia (Stark, Rubenstein, Pak, Taing, et al., 2017)</p>	<p>Adolescents 13-17</p>	<p>Used capture-recapture to estimate the numbers and characteristics of homeless adolescents across seven cities in Cambodia. Two independent counts of homeless 13–17-year olds were conducted in key sub-areas of 15 purposefully selected administrative zones.</p> <p>While validity and reliability were not directly addressed, the authors provide an analysis of fidelity to the core assumptions of capture-recapture. Data collection lasted four weeks and training of enumerators took three days. Issues of informed consent, confidentiality, incentives, and age of participants were addressed. Informed consent was sought directly from participating adolescents.</p>
<p>Making the invisible visible: An enumeration of children on the streets in Malawi (Crewes, Gwengwe, Whitford, &amp; Wakia, 2015)</p>	<p>Children 7-15</p>	<p>Estimated the population of children living and working on the streets in Lilongwe and Blantyre, Malawi. Data collection took place in two distinct periods of two-days each in different locations.</p> <p>While validity or reliability are not directly addressed. Data collection took four days. No information on cost was provided. An ‘ethical strategy’ was developed to address elements such as dealing with children who may become distressed during the research; obtaining informed consent; confidentiality &amp; anonymity; and sharing the findings with all stakeholders, including children. Informed consent was obtained directly from participating children.</p>

<p>Prevalence of family violence in adults and children: Estimates using the capture-recapture method (Oosterlee et al., 2009)</p>	<p>Child and adult populations</p>	<p>The authors used capture-recapture to estimate the prevalence rate of family violence in the Dutch city of Haarlem. Established and suspected cases of family violence were registered through eight organizations over a period of seven months to create the necessary lists.</p> <p>The authors cautioned about the external validity (i.e. generalizability) of the results given their inability to establish that all core assumptions were respected, in particular the independence of the samples and closure. No information on the cost of the study was provided. The issues of consent and ethics in general were not addressed.</p>
<p>Capture-recapture to estimate the number of street children in a city in Brazil (Gurgel et al., 2004)</p>	<p>Street children &lt;19 years old</p>	<p>Estimated the number and characteristics of street children in Aracaju, Brazil. Three independent lists of street children were constructed: one from the existing databases of all non-governmental (NGOs) and two additional lists through cross sectional surveys in the streets.</p> <p>The authors argue that the capture-recapture method enables the production of estimates that are reproducible and less vulnerable to external manipulation (i.e. high reliability). No information on the cost or length of the study is provided. Informed verbal consent was sought from children before collecting information. No other ethical issues are discussed.</p>

## Respondent-Driven Sampling (RDS)

Respondent-Driven Sampling (RDS) is a method for creating a statistically representative sample of hidden or hard-to-reach populations for which no sampling frame exists (Griffin, Gile, Fredricksen-Goldsen, Handcock, & Erosheva, 2018). Using a statistical estimator, this method can also estimate the size of the population.

To initiate the sampling process, a smaller number of members of the target population (i.e. seeds) are purposefully recruited (Goel & Salganik, 2009). The seeds are given a limited number of coupons to recruit their peers from within social networks of the same target population. “Participants receive an incentive for participating in the survey (primary incentive) and for recruiting their peers (secondary incentive)” (Johnston, Thurman, Mock, Nano, & Carcani, 2010, p. 2). As seeds recruit their peers, they give them a referral coupon. As the coupons are brought back by new members of the population, referral chains are constructed. “As the sample grows in size from wave to wave, the composition ceases to change and the stable sample composition that is achieved is called the ‘equilibrium’ or stable sample composition” (Bjørkhaug & Hatløy, 2009, p. 100). Inherent to RDS, is the use of primary and secondary incentives to encourage participation.

Core assumptions of RDS include: (1) the population of interest is socially networked; (2) members of the hidden population are best suited to identify and refer their peers to the study; (3) all sub-groups of the population can be reached through the referral mechanism (i.e. no sub-group is excluded); and (4) all individuals in a respondent’s social network have the same probability of being recruited and all contacts approached agree to participate (uniform recruitment assumption).

A total of 1108 articles were found on RDS, between 1995 and 2018 (847 from 2012 and 2018, and 261 from 1995 to 2011). Of the identified literature, only 15 papers reported on the use of RDS with an under 18 population. None were in humanitarian settings. After full text review, 10 of them were excluded. Table 3 (supporting information) provides a summary of the remaining five articles.

Despite a relatively short history, the rich literature available on RDS suggests that it is becoming a well-established method for the study of hidden and hard-to-measure populations. The literature on the use of this methodology for the study of child populations, however, is scant. And none of the included studies were of humanitarian settings. Yet, RDS may have promise to be adapted and used in more stable humanitarian settings for the study of certain sub-populations that form effective networks.

Some of the strengths of RDS include that it can produce a random and representative sample; given the right circumstances, it can generate a large sample in a short period of time; RDS can be effective in accessing the more isolated groups of children who might have never come in contact with government bodies or other service providers; through recruitment quotas, RDS reduces the potential for over representation of the individuals with larger social networks; and recruitment chains contain valuable information about potential biases associated with the non-random selection of seeds. Challenges may include difficulty in accessing population sub-groups who may have no network with more accessible members of the population; possibility of interviewing respondents more than once without realizing it; difficulty in describing recruitment parameters to a child respondent; high chance of homophily (i.e. it is difficult to fulfill the assumptions of random recruitment within personal networks); reliance on self-reporting, especially in determining the size of respondent's social network; possibility of exclusion of

certain portions of the population due to gatekeepers; and, children with higher levels of vulnerability, or those who have suffered stigma in the past, may be less likely to be recruited and/or agree to attend an interview.

*Validity and Reliability.* Authors of included papers are confident about the validity and reliability of their results. Some posit that their results may not be representative of the population beyond the sites where data was collected (Mmari, Marshall, Hsu, Shon, & Eguavoen, 2016). Goel & Salganik (2009), Decker et al. (2014), among others, suggest that many RDS assumptions can be violated in practice. The uniform recruitment assumption seems to be one that is specifically prone to violation because it is outside the control of the researchers. Crawford et al. (2018) suggest that the validity of RDS “relies on subjects’ knowledge of their contacts’ membership in the target population” (Crawford et al., 2018, p. 756).

There are proposed methods that enable researchers to increase the validity and reliability of their work such as: formative research in advance of data collection; analysis of how and when equilibrium is achieved in each chain; analysis of the recruitment model and coupon use to inform analysis of results, etc. (Crawford et al., 2018; Goel & Salganik, 2009; Johnston, McLaughlin, Rouhani, & Bartels, 2017). Griffin et. al. (2018) have devised a statistical simulation approach that allows for assessing whether the study of a specific phenomenon in a hard-to-reach population is statistically feasible through RDS. However, the reviewed literature is characterized by a shortage of critical analysis by researchers. In fact, many papers do not discuss the underlying assumptions at all.

*Feasibility.* Papers that reported on the length of the data collection suggested a wide range, from a few days to several weeks (Decker et al., 2014; Goel & Salganik, 2009; Johnston et al., 2010). A common trend is for data collection to start slowly, followed by a period of



overwhelming increase in the number of participants. Decker et al. (2014) suggest that they had to place an expiration date on their coupons to shorten the data collection period. Goel & Salganik (2009) had to reduce the number of recruitment coupons from six to four in order to manage the speed of recruitment. This characteristic of RDS--i.e. the speed—increases the feasibility of this method in humanitarian settings, assuming that the research team has the capacity needed to manage the surging number of respondents. While only Rogers & Stark, (2010) reported on the length of training (two days), it is conceivable that enumerators will need at least as much training as for other methods.

Also, since the data collection takes place in a few selected sites, time can be saved in terms of travel, which can also reduce the cost of transport. However, to increase the validity of the results, researchers should pay attention to selecting the sites in a manner that provides uniform and easy access to all the members of the sub-population of interest. Rogers & Stark (2010) conducted focused group discussions with children to determine the best location to station the interview teams.

*Ethics.* Semaan et al. (2009) suggest that ethical remuneration has to be “guided by ethical principles, regulations protecting study participants, and data reported in the scientific literature” (Semaan et al., 2009, p. 15). They discuss issues such as the possibility of coercion and the potential of crowding out intrinsic motivation for participants by offering financial incentives and propose safeguards against them. DeJong et al. (2009) discuss the ethical implications of RDS that arose in the study of three at-risk groups in the context of Lebanon. They identified a series of concerns, including the incentive structure in the context of the principles of autonomy and justice. They point out the importance of contextual analysis, particularly in developing countries, to minimize the possibility of violating ethical norms and

standards. The principle of do no harm is not directly addressed in any of the included RDS literature.

Multiple ethical issues arise in regard to remuneration, which is integral to the design of RDS. Depending on the real and perceived value of the primary incentive, there could be significant risks that need to be analyzed and addressed appropriately. Even a seemingly small financial incentive, in a context of poverty, may be perceived as a large prize. Study participants could be ambushed with the aim of taking away their coupons. Seeds could ask members of their network for favors in return for receiving a coupon. Depending on the perceived value of the secondary incentive, participants may coerce their peers to participate against their will (Rogers & Stark, 2010). Or they may distort the objective and/or exaggerate the benefits of the study to make it seem more attractive to peers than it really is. For those who participate in the RDS method, there is a risk that they will be labeled for interacting or ‘cooperating’ with outsiders, who could be perceived as a threat.

*Conclusion.* Despite challenges, the relatively large body of literature on RDS seems to suggest that this method provides enough statistical rigor in addition to logistical incentives (i.e. time and cost) to be a viable option for the study of hidden and hard-to-reach populations in humanitarian settings. Researchers are encouraged to take measures before and after the application of RDS to test the statistical viability as well as fulfillment of the necessary assumptions.

Ethical issues remain a concern when employing RDS with child populations. Many of them go beyond RDS, such as informed consent, confidentiality, potential stigma, etc. Others may be specific to RDS, such as remuneration and concerns around coerced participation; endangerment of participations who are known to have coupons; or request for ‘favors’ in

exchange for coupons. Financial and in-kind incentives both have advantages and disadvantages that need to be investigated in each context and with each population. Researchers have the moral and professional obligation to investigate potential harm to participants, through ethnographic and formative research, before embarking on and during an RDS exercise. Many of these complex decisions can be informed by children themselves, particularly around selection of data collection site(s) and appropriate incentives (Rogers & Stark, 2010).

Regardless of validity, reliability, feasibility and ethical issues, the use of RDS remains limited to sub-populations of UASC who network. This may include street associated children; children currently or formerly associated with gangs or armed groups; children affected by HIV; etc. RDS is unlikely to be useable for the study of children on the move, unless innovations are added to the method. This is because, by design, team are required to be stationed in a fixed location until recruitment chains reach equilibrium. If children are moving along a migratory route, they may not remain in one place long enough for equilibrium to be achieved.

In humanitarian settings, particularly in rapid-onset emergencies, researchers need to assess whether children who are separated as a result of the emergency have networked effectively enough to warrant the use of RDS.

Table 3: Summary of studies using Respondent-Driven Sampling with child populations

Study	Population	Description
<p>A mixed methods study to examine the influence of the neighborhood social context on adolescent health service utilization (Mmari et al., 2016)</p>	<p>Out-of-school youth and unstably housed youth (aged 15–19 years)</p>	<p>Used respondent-driven sampling to study the influence of the social context on adolescent health care seeking behaviors across five diverse sites: Baltimore (USA), Ibadan (Nigeria), Johannesburg (South Africa), New Delhi (India), and Shanghai (China). Both qualitative and quantitative data were collected, using a variety of methodologies.</p> <p>Validity and reliability were not directly addressed. The authors suggest, however, that the data collected in each site may not be representative of the adolescent population in that city. No information about length of data collection or cost was provided. For under 18 participants, consent [sic] was obtained from a legal guardian, combined with assent [sic] from the child. In Shanghai (China) where legal age of majority was 16, adolescents 16 and above provided direct consent [sic].</p>
<p>Respondent-driven sampling for an adolescent health study in vulnerable urban settings: a multi-country study (Decker et al., 2014)</p>	<p>Male and female youth aged 15 to 19 years</p>	<p>This paper describes and analyses the methodology used to collect data from youth aged 15-19. The results of this study are presented above in this table (Mmari et al., 2016). They describe the reach of RDS into populations of youth who may be missed by traditional sampling methods, such as household- and school-based methods. The authors find that this study confirms the feasibility, efficiency and utility of RDS in quickly reaching diverse samples of youth who are commonly missing from other sampling frames. While validity and reliability are not directly addressed, the authors describe the risk of some unmitigated biases within RDS. For example, some sub-</p>

		populations may be under-recruited systematically, leading to their exclusion from the data.
Respondent-driven sampling: A new method for studying street children with findings from Albania (Johnston, Thurman, Mock, Nano, & Carcani, 2010)	Street children aged 10–17	Studied the characteristics of street children in Tirana, Albania. Authors did not provide an analysis related to validity or reliability of the data but argue that RDS provides representative data that can be generalized to the population. Data was collected over 45 working days. No information on cost was provided. Children gave verbal consent [sic], without parental consent. Authors explained that this was agreed upon because the study was classified as minimal risk, and due to the possibility that some children would not be connected to adult family members or were exploited by them.
Save the Children UK Mobile Assessment Tool for Children on the Move: South Africa Pilot Report (Rogers & Stark, 2010)	Children 10-17	Used RDS to study characteristics of children on the move in Musina, South Africa. The authors discussed coercion as a potential side effect of secondary incentives. Due to limited time for in-depth study of this ethical concern, the researchers decided to remove secondary incentives from their design. While there was no direct report on validity and reliability of the data, researchers tried to increase representativeness of the sample by developing a typology of children on the move in Musina. Training for enumerators was done in two days and the data collection itself took seven days. However, the authors suggest that this time was not enough for some of the referral chains to arrive at equilibrium. Informed consent was sought from all participating children.

<p>Utilization of respondent-driven sampling among a population of child workers in the diamond-mining sector of Sierra Leone (Bjørkhaug &amp; Hatløy, 2009)</p>	<p>Children under 18 working in the diamond sector</p>	<p>Used RDS to identify children working in the diamond sector in Kono District, Sierra Leone. The authors argued that RDS is a useful sampling method for rapid assessments since despite the speed, it can produce results with high validity. Data collection was conducted over seven days of intensive recruitment (about two days of interviewing in each site). Ethics or consent were not discussed in this paper. It is also not clear from the article whether a lower limit to the age of participants was used.</p>
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### The Neighborhood Method (NM)

The Neighborhood Method is derived from the network scale-up sampling approach. It can estimate size and characteristics of a population “using information about the personal networks of survey respondents under the assumption that personal networks are, on average, representative of the general population” (Salganik et al., 2011, p. 1191). NM is useful for measuring sensitive events such as association of children with armed forces and groups in situations where “security, logistical, and financial constraints can make large samples difficult to obtain” (Pullum et al., 2012, p. 705). Through one-on-one, in-depth, household-based interviews, respondents will be asked to share their experience as well as the experiences of their neighboring households.

The NM assumptions include: (1) Members of households have some knowledge of the population of interest within their household and are willing to disclose it, and (2) Members of households have some knowledge of the population of interest linked to their neighboring households and are willing to report it.

Eight articles were found, representing seven instances of the use of NM (three instances from 2012 to 2018 and four from 1995 to 2011). All of these were in humanitarian (including post-conflict) settings, and six were studying child populations. Four of these investigated the issue of violence against women and girls, while two studied child separation, and one estimated the rates of grave violations against children. These six articles are outlined in Table 4, supporting information. It is noteworthy that all identified uses of the NM, involved researchers from the same academic program at Columbia University.

The Neighborhood Method has been used for the study of child separation in humanitarian settings. Because the method entails the use of a household survey, a first step in determining its applicability is to establish whether a household survey is feasible. Willingness of families to speak about UASC from their neighboring households may differ significantly based on the context and reasons for separation. Security or social stigma will impact such willingness.

Some strengths of this method may include its ability to measure sensitive issues; track-record of successful use in humanitarian settings; its use of cluster sampling approach to generate a representative sample; and its suitability for collecting qualitative as well as quantitative data. Challenges may include that it is best suited for clearly defined events and, not so much for subjective outcomes such as emotional violence; and that it needs relatively complete sampling frame.

*Validity and Reliability.* Several of the studies identified have specifically looked into the issue of validity and some form of reliability. The results, however, have been mixed, with some studies establishing validity and reliability, and others not. Different NM studies showed different tendencies in terms of higher or lower reporting rates for members of the participants' household vs. that of the neighbors. All studies related to violence against women showed a tendency for the respondent to report a higher incidence rate for herself as compared to all other women reported on. Potts et al. (2011) reported consistent, but not statistically significant higher self-reporting rates versus reports about the neighbors on most variables. Both studies of separation showed a tendency toward reporting higher incidence of separation within the respondents' households compared to the neighbors (Mansourian et al., 2016; Stark et al., 2018).



While the mixed result does not mean that the NM cannot produce valid and reliable data, it suggests that further investigation is needed. If an adequate number of studies observing a relatively uniform protocol were conducted, it may be possible to correct such biases through statistical modeling.

*Feasibility.* The NM is found to be a feasible research method in both protracted and rapid-onset emergency contexts. All reviewed studies were implemented in humanitarian settings. Reported difficulties, such as lack of access to all sampling units due to security, were not unique to the NM. The NM is found to save cost and time. In humanitarian contexts where the population has moved recently, the NM may face a dilemma in terms of the knowledge of households about their neighbors.

*Ethics.* Since the NM entails a household survey, all the ethical issues that are common to household surveys will also be a potential concern for this method. The main ethical concern that appears to be unique to the NM is the potential for causing or exacerbating tensions between neighbors. For example, Parcesepe et al. (2016) reported that during the ethical check, “six of 79 women reported violent disputes with neighbors, and six of 79 reported non-violent disputes with neighbors that they attributed to participation in this study” (p. 813). While this is only one instance among many safe and ethical uses of NM, this should be considered a potential threat to be analysed and mitigated in each context.

*Conclusion.* Despite its short history, the NM has been successfully applied to the study of hard-to-measure issues and hard-to-reach populations in humanitarian contexts. It is encouraging that the research on this method has taken an empirical approach to examining validity, reliability and ethics. Although its validity and reliability has been mixed in different contexts, its promise of saved cost and time warrants further refining and testing. The successful

application of the NM in multiple countries and regions and in particular to the measurement of separation in Haiti, which incorporated lessons from the initial application in the DRC, is cause for optimism. Researchers should build on the existing lessons and further refine the methodology to measure separation in humanitarian settings.

Table 4: Summary of studies using Neighborhood Method with child populations

Study	Population	Description
Using a population-based survey approach to estimate child separation after a natural disaster: findings from post-Hurricane Haiti (Stark et al., 2018)	Children (under 18)	Used NM to measure the prevalence and characteristics of UASC in the aftermath of Hurricane Matthew in Haiti. Participants were asked to provide information on their own household composition, as well as that of their closest neighbor. Data collected from a sub-sample of the neighbors to test the reliability of results, confirmed that the neighbourhood method delivered reliable results. Verbal informed consent was acquired from all participants. Other ethical issues were not addressed in the paper. The authors suggested that the approach has the potential to substantially reduce sample size, time and cost of data collection.
Estimating child separation in emergencies: Results from North Kivu (Stark et al., 2016) & Assessing the use of the neighborhood method to estimate the prevalence of child separation: a pilot in North Kivu, DRC (Mansourian et al., 2016)	Children (under 18)	Used NM to measure prevalence and basic characteristics of children who were separated from their primary caregivers subsequent to the M23 attack in Goma, Democratic Republic of Congo. Two types of reliability were tested, and both resulted in moderate to fair agreement: a) reliability of reporting by under 18 respondents, b) reliability of reporting across primary and neighbor households. The authors conclude (in the second paper) that the NM, in the way it was operationalized for this setting, was not a valid approach to measuring separation in this particular case. Time and cost analysis suggest that the full use of the NM would have reduced data collection time by half and lowered costs by 36 % (as compared to a fully powered household survey). The social acceptability, in terms of reporting on the composition of a neighbor’s household, was deemed high.

<p>Measuring Physical Violence and Rape Against Somali Women Using the Neighborhood Method (Parcesepe et al., 2016)</p>	<p>Girls and women (16 and above)</p>	<p>Estimated the prevalence of gender-based violence (GBV) among Somali women and girls in Ethiopian refugee camps and host communities. The study included collection of data from a sub-set of the neighbors to assess comparability. Results were mixed, with the respondent consistently reporting higher incidences of GBV against herself. Data collection lasted for about two weeks. No information on the cost was available. Informed consent was obtained. The ethical check, administered four weeks after the initial data collection, found multiple cases of negative consequences that participants associated with taking part in the study.</p>
<p>Measuring the incidence and reporting of violence against women and girls in Liberia using the 'neighborhood method' (Stark, Warner, Lehmann, Boothby, &amp; Ager, 2013)</p>	<p>Girls and women (16 and above)</p>	<p>Measured the nature and incidence of violence against women and girls in Liberia. Analysis of self and secondary reporting suggested consistently higher rates among respondent versus neighbour households. Inter-rater reliability suggests a wide variance in recording of incidents across interviewers. Data collection lasted for four weeks. Ethical considerations, including the potential for harm to participating women, were discussed and addressed. Research was conducted in areas where IRC had services available for participants who would need them.</p>
<p>Measuring human rights violations in a conflict-affected country: results from a nationwide cluster survey in Central</p>	<p>Children aged 5 and above</p>	<p>Estimated the rates of grave violations against children and adults affected by armed conflict, in Central African Republic (CAR). No reliability or validity check was reported. Potential biases that might have affected their results were discussed. One point relates to the possibility of bias due to the systematic exclusion of certain profiles of respondents who may have experienced violations at a different rate than those who participated. The paper suggests that the NM</p>

African Republic (Potts et al., 2011)		enabled capturing a large-scale sample with limited resources and time. An ethical check was conducted several days after the interview, where none of the 33 revisited respondents reported any negative consequences.
Estimating the Incidence of Physical and Sexual Violence against Children and Women in Trincomalee District, Sri Lanka (Rogers, Anderson, Stark, & Roberts, 2009)	Children and women	<p>Studied physical violence, corporal punishment outside the home, rape, early marriage, and sexual violence against children and women in Trincomalee district in Sri Lanka.</p> <p>To assess validity, a sub-sample of girls aged 16–18 were interviewed during phase II about their experiences of rape and sexual abuse. They found that reports on rape from phases I and II were consistent. Inter-rater reliability was assessed and found a relatively uniform rating by different interviewers. No information on cost or duration was provided. Verbal informed consent was sought from all participants. An ethical check was conducted to determine whether participation in the study had resulted in any harm. No harm was reported.</p>

### 2.3 Discussion

Overall, this analysis suggests that each method reviewed—TLS, capture-recapture, RDS and NM—is potentially applicable to measurement of certain sub-populations of UASC in humanitarian settings. None of these, however, provides a universal ‘silver bullet’ solution. This review highlights that each method has distinct boundaries, strengths and limitations (see Table 5 for a summary). TLS, capture-recapture, and RDS may only be applicable in protracted crises, while NM is also applicable to rapid-onset crises. The applicability of these methods to the study of pre-adolescent children has yet to be established.

The review underscores the diversity, and fluidity of humanitarian settings, and the corresponding need to analyze the context carefully before determining which method to use. It also makes clear that the relevance of these methods to humanitarian settings depends primarily on fulfillment of their core assumptions. While the literature provides limited information on the time and resources required for the implementation of these methods, it is safe to conclude that these methods have the potential to save time and resources as compared to traditional research methods, such as household surveys.

Table 5: Comparative summary of reviewed methods

<b>Method</b>	<b>Reliability and Validity</b>	<b>Feasibility</b>	<b>Ethics</b>	<b>Recommendation for use with UASC in Humanitarian Settings</b>
TLS	If assumptions are met, validity and reliability is established. However, fulfilment of the assumptions, especially that of closure, may be difficult in humanitarian settings.	TLS does not appear to significantly save on cost or time. Also, in humanitarian setting, access to sites may not be guaranteed at all times, which may pose challenges to its application.	Issues of potential labeling, stigma, exposure and possible endangerment need to be qualitatively investigated prior to data collection.	This review suggests that TLS may be applicable to the study UASC sub-populations who congregate in certain time-locations. Stable humanitarian settings may provide a more conducive environment for TLS.
Capture re-capture	If assumptions, such as independence, homogeneity and closure are met, the method can produce data with high validity and reliability.	If using existing databases, this method can reduce cost and time. If lists are to be proactively constructed, data collection can still be done rather quickly (contingent on	If existing databases are being used, it is important to scrutinize ethical consideration at the time of data collection. If lists are being proactively constructed, informed consent, potential for stigma, raised expectations and labeling should be addressed.	If existing databases with comparable, identifiable information exist, capture-recapture may be applicable to the study of UASC sub-populations who appear on such lists.

		availability of highly trained and qualified cadre of enumerators).		
RDS	If key assumptions are met, validity and reliability are achievable.	RDS has the potential to save cost and time. Its feasibility has to be assessed based on the characteristics of the sub-population of interest.	An ethical dilemma particular to RDS is remuneration, linked to the coupon system. Potential harm, such a coercion, should be prevented thorough contextual analysis and ongoing vigilance.	RDS can be used in humanitarian settings with UASC sub-populations who are well networked. Its use with children on the move may be limited.
Neighborhood Method	The NM has yielded valid and reliable results in some settings and less so in others. Research is needed in order to increase the consistency in the method's ability to achieve high levels of reliability and validity.	Full use of the NM can save cost and time. Its feasibility also depends on the level of knowledge about neighboring households and willingness of individuals to share such knowledge with outsiders.	NM literature provides a rich set of lessons and discussion on ethical issues related to its use, specifically in humanitarian settings. A unique ethical concern for NM is that of the potential to induce or increase tension among neighbors. Formative research should be done to understand the dynamics and put in place necessary safeguards.	NM can be used in humanitarian settings with UASC sub-populations that remain within households, maintain ties with family or have left recently. Ongoing investigation is needed to fully establish validity and reliability.



Ethical considerations for these methods are scantily addressed in the literature, aside from some discussion pertaining to the Neighborhood Method. Most papers merely reported their IRB approval or exemption as evidence of having addressed this topic. As demonstrated by Campbell (2017), IRBs are not always equipped to investigate all aspects of ethical challenges present in conflict and post-conflict settings. It is hoped that this review will stimulate increased attention to, documentation of, and reflection on the ethical issues associated with the measurement, particularly in humanitarian settings.

These findings have significant implications for both research and practice. Although each is considered in turn here, they are best seen as interlinked and complementary.

### Implications for Research

While several of the reviewed NM studies had reported a systematic analysis of reliability, validity, cost, and time, similar documentation and reporting remain much needed in regard to other methods. Some of these aspects may be less of a concern in non-humanitarian settings but are often significant challenges in humanitarian settings.

More proactive attention to ethics in research, based on the particularities of each humanitarian context and each sub-population of interest, is needed. Questions of raised expectation, stigma, labeling, remuneration, coercion, perception of exclusion and discrimination, among others, require in-depth analysis of the population and context under study. While some ethical issues may not be predictable in advance, others will be. In-depth discussion and reporting about ethical issues and how to manage or prevent them will enrich the literature and provide lessons for future researchers.

Publication bias towards studies that report on ‘success’ may have resulted in under-representation of studies that may have resulted in invalid results or have faced ethical dilemmas.

Researchers may hesitate to include validity, or reliability tests in their research, in case results are not favorable. The same may be true about investigating ethical concerns and dilemmas in depth and beyond IRB approvals or exemptions. Academic institutions, researchers and journals should foster an environment that encourages more critical approaches to inquiry and rewards constructive documentation of challenges such as unforeseen ethical issues.

One obvious sub-population of UASC that has been missing from this review is that of children living in institutions. Pullum et al. (2012) have analyzed establishment surveys as a method that can be used to estimate this sub-population. Other methods have also been used to estimate the number and characteristics of children living in institutions in Haiti and Cambodia (Rubenstein, MacFarlane, Jensen, & Stark, 2018; Stark, Rubenstein, Pak, & Kosal, 2017). An updated review of relevant methods could complement this review and bring value add to future research.

### Implications for Practice

Practitioners are in a unique position to support systematic attention to some of the ethical issues pertaining to research, particularly on do no harm issues. Concerted attention to ethics is needed at all phases: design, selection and training of enumerators, data collection, etc. Practitioners often have the advantage of remaining in place once research has concluded and can further analyze and document potential do no harm issues.

Methodologically robust and ethical measurement approaches can inform more relevant and focused prevention and response interventions. This can lead to more efficient provision of services to unaccompanied and separated children, supporting their resilience and healthy development. The sooner separated children are connected to services, the more likely it is for them to recover from the impact of the deprivations and toxic stress associated with separation.

# **Chapter 3: Assessing the Use of the Neighborhood Method to Estimate the Prevalence of Child Separation: a pilot in North Kivu, DRC**

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## **Abstract**

**Background:** This manuscript reports on the use of the ‘neighborhood method’ to measure the prevalence and basic characteristics of children who became separated from their parents or usual caregivers subsequent to an attack by the M23 militia group in North Kivu, Democratic Republic of the Congo.

**Methods:** A two-stage household cluster survey was conducted in 522 households in North Kivu in August 2014. Heads of households were asked about separated children in their household, as well as the households of their two closest neighbors. Separation was tracked in terms of children who arrived into the households after the M23 attacks and children who departed from the households after the recall event without their parent(s) or usual caregiver. For a subset of 44 neighbor pairs, respondents were asked to report on the same household to assess inter-rater reliability. Data about primary respondents and their neighbors were assessed to determine whether the neighborhood method was a comparable, reliable and efficient alternative to a traditional household survey about separated children.

**Results:** The prevalence of separated children who arrived was 8.52% [6.75-10.75] in primary households and 4.46% [95% CI: 3.60-5.52] in neighbors’ households (p-value=0.0000). The prevalence of separated children who departed was 4.98% [3.45-7.19] in primary households and 3.19% [95% CI: 2.27-4.48] in neighbors’ households (p-value=0.0110). Kappa coefficients for the neighbor pairs indicated fair to moderate agreement for most demographic variables, but agreement was generally higher for variables related to current characteristics of the households than for variables describing the household in the past, especially before the M23 attack. Compared to a traditional household survey with similar power, the neighborhood method reduced data collection time by 50% and lowered costs by 36%.

**Conclusion:** This pilot showed that, for measuring separated children in North Kivu, the results from neighbor households significantly underestimated the prevalence of separation when compared to data collected from respondents directly. Reliability was mixed. Although the neighborhood method did not yield valid results in this setting, given the potential the method holds to save scarce resources in humanitarian settings, additional pilots to refine and evaluate its validity and reliability in settings with shorter recall periods are recommended.

**Keywords:** Democratic Republic of the Congo; child protection; unaccompanied and separated children; prevalence; neighborhood method; household survey

### 3.1 Background

It is well documented that children who are separated from their parents or usual caregivers face a multitude of risks (Hepburn, 2006; ICRC, 2004). Compared to children who are not separated, these children have an increased likelihood of recruitment and abduction into armed forces and groups (Machel, 1996). They suffer from higher levels of food insecurity, and are more likely to be exploited for labor and sex than their unseparated peers (Kifle, 2002; Mushingeh et al., 2002; UNHCR, 2007). In addition, separation can have long-term social and psychological impacts, including chronic stress and anxiety (Ajduković & Ajduković, 1993; Garbarino & Kostelny, 1996).

Recognizing these risks, programs to address the needs of separated children have become a cornerstone of child protection in emergency response, dating back to shortly after World War II (Shields & Bryan, 2002). However, while minimum standards exist to guide organizations in establishing family tracing, reunification and alternative care programming, there are currently no guidelines for quantifying the overall magnitude of such separation in an emergency (Child Protection Working Group, 2012). As a result, practitioners and policymakers are left to assess the scope of separation, for programming purposes, based on gross generalizations and/or selective data. The most common strategy to assess magnitude is to employ a “rule of thumb” which suggests that unaccompanied and separated children (UASC) typically comprise 3-5% of the displaced population during emergencies (Ressler, Boothby, & Steinbock, 1988). This approach has never been validated. Other mechanisms rely primarily upon key informants employing a “best guess” at the scale of separation in their community subsequent to the emergency of interest.

There is thus a pressing need for reliable, valid and feasible population-based methods to estimate the prevalence of separated children in emergencies. Population-based prevalence data, such as that generated from a household survey, has enormous potential to inform funding, programming, and policies for separated children. However, due to security and accessibility constraints and limited time, finances and human resources, it is difficult to use conventional household surveys to enumerate children who are separated from their usual caregivers in emergencies. These challenges are exacerbated by the fact that separation is generally a relatively rare and hidden event and thus requires a large sample size to achieve adequate statistical power.

The neighborhood method was developed in an attempt to overcome some of the logistical challenges associated with conducting a household survey in a complex emergency (L. Stark et al., 2010). The neighborhood method is an adapted household survey approach whereby randomly sampled households are asked to provide information about their household, as well as the households of their neighbors. The neighborhood method has proven useful for measuring sensitive events such as sexual violence in situations where security, logistical, and financial limitations make large samples difficult to attain (Pullum et al., 2012; L. Stark et al., 2010; Lindsay Stark, Warner, Lehmann, Boothby, & Ager, 2013).

Working in conjunction with the global Child Protection Working Group, a survey tool was developed and piloted by Columbia University researchers to measure the prevalence and basic characteristics of unaccompanied and separated children in a defined area, affected by the same emergency.<sup>2</sup> The tool asked respondents to provide information about separated children

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<sup>2</sup> The Child Protection Working Group (CPWG) is the global level forum for coordination and collaboration on child protection in humanitarian settings. The group brings together NGOs, UN agencies, academics and other partners under the shared objective of ensuring more predictable, accountable and effective child protection responses in emergencies (CPWG.net).

from their own household, as well as separated children from the households of their two closest neighbors. Here, the investigators evaluate the findings about primary respondents and their neighbors to determine whether the neighborhood method was a comparable, reliable and efficient alternative to a traditional household survey about separated children.



### 3.2 Methods

**Setting:** The neighborhood method was tested as part of a broader pilot project that aimed to measure the prevalence and basic characteristics of separated children in emergency contexts (Lindsay Stark et al., 2016). The pilot project was implemented between July and August 2014 in Nyiragongo territory and the town of Goma, two areas in the North Kivu province of Democratic Republic of the Congo (DRC). These areas have been affected by armed conflict for more than two decades (Stearns, 2012). Children in the region are regularly separated from their families due to violence, displacement, poverty and recruitment to armed forces (Bell, 2006; UNICEF, 2015). In late 2012, a militia group known as M23 attacked these areas, overtaking the city of Goma and surrounding areas, displacing parts of the population and exacerbating the conditions that lead to separation.

**Sample:** Sampling was achieved via a two-stage cluster design. The sample was powered for a traditional household survey (i.e. not considering the increase in sample size due to use of the neighborhood method). Twenty clusters of 25 households per cluster were targeted in order to detect a 5% prevalence of separation in a population of 10,000, assuming precision of 1.5% and a design effect of two. Due to insecurity in many parts of the covered areas, clusters were randomly selected from areas identified as accessible by the security team at the hosting organization. To select households within each cluster, systematic random sampling was used. Primary and neighbor households were identified using a fixed interval calculated based on the estimated number of households in the sample area. Households that were a multiple of the interval were the primary households and the two next most proximate households (as determined by the survey team leader) were the neighbor households. If two houses were equally close to the primary household, a coin flip was used to randomly select amongst the two. The

survey team leader was responsible for preventing duplication by ensuring that no household was included as both a primary and a neighbor household during data collection. In each household, if no one over the age of 17 years was home, the next available house in the pattern was approached.

Adult respondents from 522 primary households were surveyed and asked to provide information about their own household and the households of their two closest neighbors. This resulted in an effective total sample size of 1,533 households (522 primary households, 515 first neighbors, and 496 second neighbors). A sub-sample of 44 neighbor pairs was also selected to more directly assess the reliability of respondents' reports about their neighbors. Each adult informant in the sub-sample of neighbor pairs was asked to report about his/her own home and the home of an adjacent neighbor, such that in a pair of adjacent dwellings, two separate reports about UASC for each home were obtained: one from the household of interest, and one from the neighbor [See Figure 1].

**Measures:** The survey intended to measure the prevalence and basic characteristics of children who were separated from their parents or usual caregivers in the aftermath of the M23 attacks of December 2012. As per the inter-agency guiding principles for unaccompanied and separated children, separated children were defined as children who have been separated from both parents, or from their previous legal or customary primary caregiver, though not necessarily from other relatives. Unaccompanied children were defined as children who have been separated from both parents and other relatives and are not being cared for by any adult who, by law or custom, is responsible for doing so (ICRC, 2004).

Because separated and unaccompanied children may be living outside of a household (e.g. in a residential care facility, on the street, with an armed group), a household survey will

inherently miss a segment of the population of interest. This was partially addressed in this study by capturing two distinct populations of children. First, we measured separated children who arrived, defined as separated or unaccompanied children who started living in the sampled household at any point after December 2012 (the date of the M23 takeover of Goma). Second, we measured separated children who departed, defined as children who left the sampled household after December 2012 and were separated from their usual caregiver. Children who departed included children living outside of the sampling universe. Births and deaths were not counted as children who arrived or departed.<sup>i</sup>

**Study Protocol:** Heads of households were chosen as the primary respondents. Verbal consent was obtained from all participants. Questions were designed to ask about household composition in general before and after the emergency event of interest, rather than separated children in particular. This approach was intended to reduce bias in case respondents had an interest in either over- or under-estimating the true number of UASC.

As part of the interview, interviewers used cards to visually depict each household member. Cards were then arranged to ‘map’ the current household composition in comparison to the household composition before the M23 attacks. The interviewer asked the sex and age of each household member, his/her relationship to the head of the household and whether s/he was still alive. Where children who had arrived or departed since the emergency were identified, the interviewer asked additional questions about that child, including reasons for separation and current caregiver.

This study was covered under Columbia University Medical Center’s IRB reference AAAB7134.

**Data Analysis:** Data was analyzed using SAS 9.4 and Microsoft Excel. Standard errors were adjusted for clustering at the neighbor level by incorporating a Poisson regression model using the method of generalized estimating equations (GEE). Two sample t-tests were performed to evaluate the null hypothesis that mean household characteristics and levels of separation were equal across primary households and neighbor households. Kappa statistics were used to evaluate inter-rater reliability amongst paired neighbors. Feasibility was assessed according to four criteria: ease of training, interview time, data collection costs and social acceptability.

### 3.3 Results

**Comparability of main outcomes:** Five hundred and twenty-two primary households were surveyed. Of these 522 households, 98.7% (n=515) of respondents provided information about their first neighbors and 95.0% (n=496) provided information about their second neighbors, yielding a neighbor sample of 1,011 households.

The prevalence of separated children who arrived was 8.52% [6.75-10.75] in primary households, meaning that in the sample of all 2,197 children living in the respondents' homes at the time of data collection, 186 were separated children who had arrived in the household since the M23 attack in December 2012. For separated children who departed, the prevalence in primary households was 4.98% [3.45-7.19], meaning that in the sample of all 2,034 children living in the respondents' homes prior to the M23 attack, 108 children had departed from the household, resulting in separation from their parents or usual caregivers. In neighbors' households, the overall prevalence of separated children who arrived was 4.46% [95% CI: 3.60-5.52] and the overall prevalence of separated children who departed was 3.19% [95% CI: 2.27-4.48]. Both of these differences in overall prevalence rates between primary households and neighbors' households were statistically significant at the 5% level (see Table 1).

The trend of primary respondents reporting significantly lower separation prevalence in neighbors' households, compared to their own households, was seen in several more specific measures as well, most notably among separated children who arrived in villages and separated children who departed in camps. A similar trend of lower separation prevalence in neighbors' households was detected in all other categories analyzed (separated children who arrived in camps, separated children who departed from villages and unaccompanied children who arrived and departed across all locations), but these differences were not statistically significant. When prevalence rates were further disaggregated by first reported neighbor households and second reported neighbor households, there was also a slight trend towards lower reported prevalence of separation in second neighbor households, compared to first neighbor households. However, again, these differences were not statistically significant.

**Table 1: Prevalence of separation by primary households and neighbors' households**

	Primary Households			Neighbors' Households			p-value
	n	Prevalence	95% CI	n	Prevalence	95% CI	
<b>ARRIVALS</b>							
<b>Separation (overall)</b>	186	8.52%	(6.75-10.75)	154	4.46%	(3.60-5.52)	0.0000
<b>in villages</b>	164	9.07%	(7.11-11.56)	112	4.14%	(3.19-5.37)	0.0000
<b>in camps</b>	22	5.88%	(3.08-11.24)	42	5.64%	(4.92-6.47)	0.8830
<b>Unaccompaniment</b>	41	1.81%	(1.19-2.75)	65	1.78%	(1.17-2.69)	0.8520
<b>DEPARTURES</b>							
<b>Separation (overall)</b>	108	4.98%	(3.45-7.19)	99	3.19%	(2.27-4.48)	0.0110

<b>in villages</b>	60	3.37%	(2.37-4.80)	66	2.60%	(1.87-3.62)	0.2120
<b>in camps</b>	48	11.29%	(9.21-13.83)	33	5.85%	(3.20-10.67)	0.0380
<b>Unaccompaniment</b>	11	0.44%	(0.20-0.97)	6	0.19%	(0.08-0.50)	0.1800

To better understand what may have driven these differences in reported prevalence rates between primary households and neighbors households, additional demographic variables were compared across both groups. Specifically, there was a trend for primary households to report approximately one less person in their neighbors' households compared to their own households. This statistically significant trend was consistent for total numbers of people per household, as well as number of children per household (see Table 2).

**Table 2: Household size by primary households and neighbors' households**

	<b>primary households</b>		<b>neighbors' households</b>		<b>p-value</b>
	<b>(n=522)</b>		<b>(n=1,011)</b>		
	<b>mean</b>	<b>95% CI</b>	<b>mean</b>	<b>95% CI</b>	
<b>current household size</b>	6.43	(5.95-6.95)	5.43	(4.70-6.27)	<0.0001
<b>in villages</b>	6.70	(6.46-6.95)	5.52	(4.80-6.36)	<0.0001
<b>in camps</b>	5.38	(4.25-6.81)	4.60	(3.80-5.56)	0.0010
<b>current number of children</b>	4.21	(3.87-4.58)	3.31	(2.08-5.27)	<0.0001
<b>in villages</b>	4.37	(4.17-4.57)*	3.41	(2.83-4.11)	<0.0001
<b>in camps</b>	3.59	(3.16-4.03)	2.98	(2.32-3.83)	<0.0001

\*The Poisson regression using the GEE method to adjust for clustering between neighbors did not converge.

**Reliability:** Using the Landis and Koch interpretation, kappa coefficients indicated fair to moderate agreement for most variables for the 44 neighbor pairs reporting on the same household (Landis & Koch, 1977). Agreement was highest for number of newborns (Kappa=0.542, 95% CI: 0.307-0.776)<sup>3</sup>, number of arrivals (Kappa=0.445, 95% CI: 0.081-0.809) and current number of children in the household (Kappa=0.409, 95% CI: 0.240-0.578). Agreement was lowest for all variables describing the household before the M23 attack, including the number of children living in the household before the emergency (Kappa=0.181, 95% CI: 0.010-0.352) and number of departures (Kappa=0.189, 95% CI: -0.233-0.612). All results had wide confidence intervals due to the small sample size (see Table 3).

**Table 3: Agreement between neighbors**

<b>Variable</b>	<b>N</b>	<b>Kappa (unweighted)</b>	<b>95% CI</b>	<b>p-value (2-sided)</b>
Current household size	44	0.357	(0.184-0.530)	<0.0001
Current number of children	44	0.409	(0.240-0.578)	<0.0001
Number of newborns	44	0.542	(0.307-0.776)	0.0001
Number of arrivals	42	0.445	(0.081-0.809)	<0.0001
Household size before emergency	37	0.233	(0.052-0.415)	<0.0001
Number of children before emergency	40	0.181	(0.010-0.352)	0.0099
Number of departures	40	0.189	(-0.233-0.612)	0.1236

**Feasibility: Ease of Training:** The survey components related to the neighborhood method repeated the same questions and probes used to interview the primary households.

<sup>3</sup> “Newborns” were defined as babies 18 months or younger, born after the M23 attack of interest.

Therefore, once data collectors understood the core questionnaire and interview guide, introduction of the neighborhood component was relatively straightforward. Out of the seven-day training course for data collectors, less than one day was devoted to training on the neighborhood method. Most of this time was spent ensuring the data collectors understood the protocol for choosing the closest neighbors based on geographic proximity before entering the selected primary household. Because this concept was both important and difficult, during implementation, members of the training team led the data collectors in identifying the closest neighbors for each primary household.

Time: Each interview required an average of 45 minutes to complete, including the neighborhood component. On average, approximately 15 minutes of each interview was dedicated to introduction and informed consent, 15 minutes to the primary household questionnaire and 15 minutes to the first and second neighbors' questionnaires. That is to say, the neighborhood component of the survey only represented about a third of the total interview time. Thus, based on the observed attrition rate of 5% for reporting on the second neighbor in this study, we estimated that using the neighborhood method would have enabled us to interview just 183 primary households to achieve a sample size of 522 households. Accordingly, if the survey had included neighbors' data as part of the main sample, the total data collection time could have been halved, from 24 days to 12 days.

Cost: The estimated cost of collecting data from 183 primary households, including asking about their two neighbors (i.e., the neighborhood method), was compared to the cost of sampling 522 primary households, but not asking about neighbors (i.e., a traditional household survey). The cost of data collection with the neighborhood method would have been 36% lower than the cost of a traditional household survey, or \$12,059 versus \$18,951, respectively.



Social Acceptability: The vast majority of respondents agreed to provide information on both their first and second neighbors (98.7% and 95.0%, respectively). Anecdotal observations from data collectors also confirmed that respondents were willing to provide information about their neighbors' household composition, including information about children who arrived and departed.

### 3.4 Discussion

The purpose of this investigation was to determine whether the neighborhood method was a comparable, reliable and efficient alternative to a traditional household survey about UASC. From an implementation perspective, the neighborhood method proved to be a feasible methodology for measuring the prevalence of UASC in an emergency context. The method was simple to learn, significantly more time-efficient and cost-effective than a traditional household survey, and socially acceptable.

From a methodological perspective, suitability of the neighborhood method as a substitute for a traditional household survey depends on the strength of its underlying assumptions. The neighborhood method assumes that respondents' neighbors are essentially random and representative of the general population; that respondents are aware of the current and past composition and care status of children in their neighbors' households; and that respondents do not have reasons to over- or under-report the numbers of people or unaccompanied and separated children in their own or their neighbor's household (Pullum et al., 2012). If these assumptions are correct, one would expect the findings from primary households to be similar to the findings from neighbors' households. Instead, our data showed statistically significant differences for several key measures compared.

These differences between primary households and neighbor households could be driven by multiple factors. First, primary respondents may have deliberately underreported the number of children who arrived and departed in their neighbors' households. The most plausible explanation for deliberate underreporting of the number of children who arrived and departed in neighbors' households is respondent fatigue. Respondents may have realized during the first part of the interview about their own household that every arrival and departure identified triggered a new set of questions pertaining to the circumstances surrounding the child's separation (Hart, Rennison, & Gibson, 2005). This may have led respondents to deliberately avoid reporting arrivals and departures to facilitate swift completion of the interview. The trend towards lower prevalence of separation in second neighbors' households, compared to first neighbors' households, is consistent with this theory.

A second possible explanation for the differences between primary respondents and neighbor households is that primary respondents did not have full knowledge of the composition of their neighbors' households or of the presence of children who arrived in or departed from their neighbors' households. The limited agreement between neighbor pairs reporting on the same household, especially with regards to historical data, suggests that incomplete knowledge of neighbors' household composition may be a factor in the observed differences. This would also invalidate a central assumption of the neighborhood method that people know about the households of their neighbors. This theory could be tested in future applications of the neighborhood method by alternating the order of the questionnaire, such that some respondents first report on their own household (followed by their neighbors) and other households first report on their neighbors (followed by themselves).

A third conceivable explanation for the differences between primary respondents and neighbor households is that, due to the method in which households were sampled, neighbors' households might be truly smaller than primary households on average. This bias could have arisen because a condition for conducting an interview with a primary household was the presence of an adult at the time the household was visited. The probability of an adult being home at the time of study visit likely increases with the total number of adults living in the household. Compared to larger households, smaller households were thus more likely to be excluded from the primary household sample, but not from the sample of neighbors' households. However, true differences in size between the sample of primary households and the sample of neighbors' households does not explain the low kappas between neighbor pairs reporting on the same household. The results of the kappa analysis therefore suggest the two preceding explanations for the differences between primary respondents and neighbor households are the most likely reasons for lower reported separation prevalences in neighbors' households, compared to primary households. In other words, given the violation of two underlying assumptions of the method, the neighborhood method did not yield valid results in this setting.

Limitations: This study is not without limitations. First, the survey had a very long recall period of 18 months. After discussion with local leadership, the M23 attacks were the only emergency event in the recent past that resonated with the majority of the study population. This may explain some of the discrepancies between primary households and neighbor households if primary respondents were more likely to suffer recall biases with regards to knowledge about their neighbors' households, compared to knowledge about their own households. This potential recall bias pertains particularly to the composition of the neighbors' households prior to the M23 attacks. In order to further explore the effects of length of recall period, future investigations

should pilot the neighborhood method in a rapid-onset emergency setting with a shorter recall period.

Second, because child-headed households were excluded from primary households by design (all respondents had to be at least 18 years of age), unaccompanied children were systematically undercounted in primary households. Child-headed households were only included in the sub-sample of neighbor households. As a result, it is not appropriate to compare the prevalence of unaccompanied children in primary households to the prevalence of unaccompanied children in neighbors' households. In fact, because of the systematic undercounting of unaccompanied children in primary households, but not in neighbors' households, one might expect the prevalence of unaccompanied children to be higher in the neighbors' households than in the primary households. That the prevalences were similar suggests that the prevalence in the neighbors' households may be an undercount, consistent with the directionality of the other primary/neighbor prevalences compared. This bias could be partly addressed by widening the age criteria for interview eligibility to 15 years or older. Many well-established household surveys, such as the Demographic and Health Survey (DHS), already interview individuals 15 years and older as part of standard practice.

Finally, this pilot used a small sample size of neighbor pairs ( $n=44$ ) and a small sample size of households in camps ( $n=104$ ). The former limited the power of our reliability analysis and the latter limited our ability to draw meaningful conclusions about the appropriateness of using the neighborhood method in camp versus non-camp settings. In future investigations, the sample size for neighbor pairs and camps should be powered to explore these issues.

## **Conclusion**

By reducing sample size requirements, study time and costs, the neighborhood method holds potential to increase efficiency in data collection in emergencies. However, given the results of this analysis with regards to the comparability and reliability of the neighborhood method, we conclude that the neighborhood method is not a valid method for measuring separation in this setting. It is recommended that the neighborhood method be tested in the context of an acute-onset emergency with a shorter recall period and that the survey tool be revised to ask respondents about only one neighbor. It is hoped that, with these adaptations, the neighborhood method can save precious time and resources in humanitarian emergencies, without sacrificing data quality. Ultimately, the appropriateness of the neighborhood method for measuring separated children in emergencies hinges on demonstrating greater comparability of the main outcomes and improved reliability in other contexts. The neighborhood method cannot be recommended to measure separated children unless future pilots in settings more comparable to those for which this tool was developed (shorter recall period, acute-onset emergency) consistently provide valid results.

### Competing interests

No competing interests were noted. Statements made in this paper are the views of the authors alone, and do not constitute the policy of the above listed funding bodies.

### Authors contributions

LS, BR, CS, HM conceived and designed the study. HM, CS, EN, MCS, AA, and CC led data collection in the field. BR led statistical analysis. HM, LS and BR wrote the manuscript. CS, EN, MCS, CC and AA contributed important revisions to the manuscript. All authors approved the final submitted version of the manuscript.

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## **Chapter 4: Prioritizing the Prevention of Child-Family Separation: The value of a public health approach to measurement and action**

### Abstract

Disaster-affected children are among the most vulnerable populations and face a wide range of threats to their health and well-being. One of the most significant threats to children is separation from their family, a problem which occurs in most humanitarian contexts. Because separation can have lasting adverse consequences for children's health and well-being, child protection actors frequently develop programs to respond to the needs of separated children. However, methods to measure prevalence, characteristics and root causes of separation are scarce and rarely deployed in humanitarian settings. Existing measurement and programmatic approaches focus primarily on responding to already separated children and give little attention to prevention of separation at population level, the context and prevalence of separation, and the root causes of separation. Analyzing how a public health approach helps to fill these gaps, this paper presents a systematic, conceptual and practical case for incorporating a public health approach in the measurement of and programming for separation of children in humanitarian settings. It argues that a population-level, preventive approach to measurement and programming will complement the more common case-based, responsive approach to separation of children and enable children's well-being amidst adversity.

Keywords: child protection, humanitarian, UASC, population-level, adversity, primary prevention

#### 4.1 Background:

The United Nations estimates that in 2018, 132 million people around the world were affected by crises and in need of urgent humanitarian assistance and protection (UNOCHA, 2019). Children, defined as people under 18 years of age, often comprise a large portion of those affected by humanitarian crises (Devi, 2016; Silverman & La Greca, 2002). The United Nations Children’s Fund (UNICEF) (2016) estimated that “535 million children—nearly one in four—live in countries affected by conflict or disaster, often without access to medical care, quality education, proper nutrition and protection.” Save the Children (Save the Children, 2018) estimated that by 2016, 357 million children lived in a conflict zone—a 75% increase from the 200 million estimated in the early 1990s. UNHCR estimated in 2014 that 51% of refugees globally were under the age of 18. Demographic information shows that children and youth comprise almost half of the population in most disaster and conflict afflicted countries.<sup>4</sup>

Children living through disasters, be they human-made or natural, are among the most vulnerable population and face a wide range of threats to their lives and well-being, as outlined in the *Minimum Standards for Child Protection in Humanitarian Action* (Alliance for Child Protection in Humanitarian Action, 2019) and shown in the seminal report *A Matter of Life and Death* (Thompson, 2015). The risks that children frequently face in crises include injury, psychosocial distress, recruitment into armed forces or groups, involvement in hazardous labor, different types of violence, including physical, emotional, and sexual, separation from usual caregivers, and exploitation (Alliance for Child Protection in Humanitarian Action, 2019; Boothby et al., 2012; Thompson, 2015; Wessells, 2002). Emergency conditions not only pose

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<sup>4</sup> See population estimates of the World Fact-book of the US Central Intelligence Agency for countries such as Nepal, the Philippines, Central African Republic, Democratic Republic of Congo, South Sudan, etc. <https://www.cia.gov/library/publications/resources/the-world-factbook/>



new risks to children but also exacerbate pre-existing risks. They also weaken protective systems and structures that protect children against such risks (Ager, Stark, Akesson, & Boothby, 2010; Carballo, Heal, & Horbaty, 2006; Thompson, 2015).

The futures of children affected by humanitarian crises are also often compromised due to physical and mental health strains (Ager et al., 2010; Garbarino & Kostelny, 1996; Silverman & La Greca, 2002; UNICEF, 2006; Wessells, 1997). Evidence from the health and nutrition sectors has linked childhood deprivation and traumatic experiences to developmental challenges as well as higher morbidity and mortality (Berkman, Lescano, Gilman, Lopez, & Black, 2002; Bronstein, Montgomery, & Ott, 2013). Toxic stress in the early years of life has lasting, adverse effects on children's neural and physical development (Shonkoff et al., 2012).

### Separated Children

Separation from their usual caregivers is one of the most common and consistent threats to children in emergency settings (Hepburn, 2006; Ressler, Boothby, & Steinbock, 1988; Jan Williamson & Moser, 1988). An estimated 50,000 children were rendered homeless in Europe at the end of World War II (Ressler et al., 1988). Between 1970 and 1984, roughly 22,000 unaccompanied Vietnamese children fled the conflict to neighboring countries (Jan Williamson & Moser, 1988). The 1994 Rwandan genocide separated over 100,000 children from their families in Rwanda and neighboring countries (M. Brown, 1995; K. Williamson, Gupta, Gillespie, Shannon, & Landis, 2017). According to Eurostat (2018), 284,445 unaccompanied minors sought refuge in European Union countries between 2008 and 2017.

The *IASC Guiding Principles on Unaccompanied and Separated Children* define separated children as “children who have been separated from both parents, or from their previous legal or customary primary caregiver, though not necessarily from other relatives”

(ICRC, 2004, p. 13). Unaccompanied children are defined as “children who have been separated from both parents and other relatives and are not being cared for by any adult who, by law or custom, is responsible for doing so” (ICRC, 2004, p. 13). Separations can be divided into two general categories: accidental and deliberate. Involuntary separation is “not planned or anticipated, and occurs against the will of the parent/caregiver and child(ren)” (Alliance for Child Protection in Humanitarian Action, 2017, p. 53). Voluntary separation “occurs when parents, caregivers or children themselves make a conscious decision to separate, whether during (‘primary separation’) or after the emergency (‘secondary separation’)” (Alliance for Child Protection in Humanitarian Action, 2017, p. 54). This paper addressed both accidental and deliberate separations.

It is well documented that separated children face psychological burdens and experience a multitude of risks and long-term impacts on their well-being (Boothby et al., 2012; Hepburn, 2006; ICRC, 2004; Stark et al., 2016; Jan Williamson & Moser, 1988). To quote Anna Freud and Dorothy Burlingham (Freud & Burlingham, 1943, p. 37), “[The war] becomes enormously significant the moment it breaks up family life and uproots the first emotional attachments of the child within the family group.” Separation may compound other risks, primarily due to the loss of families’ protective function (Derluyn, Mels, & Broekaert, 2009; Hepburn, 2006; John Williamson & Greenberg, 2010). Compared to other children, separated children face an increased likelihood of recruitment and abduction into armed forces and groups (Machel, 1996). They also suffer from higher levels of food insecurity and an increased risk of child labor and sexual exploitation (Kifle, 2002; UNHCR, 2007).

Separation can also have short- and long-term social, developmental, and psychological effects, including chronic stress and anxiety (Ajduković & Ajduković, 1993; Anna Freud, 1973;

Bick et al., 2015; Garbarino & Kostelny, 1996). Evidence shows that responsive family care, especially in a child's early years, results in better developmental outcomes later in life. A meta-analysis of 75 studies found that separated children reared in institutions had significantly lower IQ scores than their peers in foster care (Van Ijzendoorn, Luijk, & Juffer, 2008).

Preventing separation and responding promptly when it does occur is essential to ensuring the healthy development and long-term well-being of children affected by humanitarian crises. The work done to support separated children sits under the umbrella of child protection, which is defined as “the prevention of and response to abuse, neglect, exploitation and violence against children” (Alliance for Child Protection in Humanitarian Action, 2019). The field of Child Protection in Humanitarian Action (CPHA) seeks to protect children in humanitarian settings caused by armed conflict, political violence, natural disasters, global warming, extreme poverty, and other adverse conditions. Programs to address the needs of separated children have been a consistent feature of humanitarian response dating as far back as World War II (Freud & Burlingham, 1943; Ressler et al., 1988; Shields & Bryan, 2002). Today, in almost all humanitarian crises, some form of intervention to respond to child-family separation is in place. Family Tracing and Reunification (FTR) and case management procedures are established and understood across child protection action. Well accepted and widely used inter-agency guidelines and minimum standards now exist to guide family tracing, reunification, and alternative care programming (Alliance for Child Protection in Humanitarian Action, 2017, 2019; ICRC, 2004).

### The Prevention Gap

Despite substantial gains in addressing the needs of separated children, progress has been far more focused on response rather than on prevention. For example, the two most common programmatic approaches to address the separation of children from caregivers (i.e.

Identification, Documentation, Tracing and Reunification (IDTR) and Alternative Care) focus mostly on responding to the needs of individual children who have been separated from caregivers. Yet prevention should be a high priority in humanitarian action. The scale of threats to children in humanitarian contexts makes it inconceivable that responsive approaches alone can address the needs of all children who get harmed in these contexts. Additionally, if preventing harm is viable and in the best interest of the child, the only responsible and ethical approach would be to prevent the harm before it occurs. From this standpoint, preventative approaches that target all vulnerable children, families and communities are a necessity.

Even in the highly detailed guidance that has been developed around issues of separation, there are few practical recommendations on how to prevent separation. There have been repeated calls for systematic inclusion of preventative approaches in programming, but few suggestions regarding how to operationalize these. An emphasis on the complementary role of preventive and responsive approaches to separation is explored in some of the earlier guidelines and principles developed for child protection in emergencies (Ressler et al., 1988; Ressler, Tortorici, & Marcelino, 1993; Jan Williamson & Moser, 1988). Examples of attempts to prevent separation at the policy level in humanitarian settings also exist (CPWG, 2010; Ressler et al., 1993). More recent guidelines and standards also emphasize prevention and response (Alliance for Child Protection in Humanitarian Action, 2019; UNICEF, UNHCR, Save the Children, & World Vision, 2013). UNICEF's child protection strategy stipulates that "successful child protection begins with prevention" (UNICEF, 2008, p. 2).

Most other technical guidelines related to Unaccompanied and Separated Children (UASC) dedicate a negligible portion of their text to the idea of primary prevention. Those guidelines and tools that provide guidance for primary prevention are often limited to awareness

raising and methods of avoiding the most common types of separation, such as those taking place during population movement (Alliance for Child Protection in Humanitarian Action, 2017; CPWG, 2012; Jan Williamson & Moser, 1988). Few existing guidelines and tools actually provide practical recommendations and examples regarding contextual identification and addressing root causes of separation (IAWG-UASC, 2013).

Fortunately, prevention is possible, though achieving it will require an understanding of and programmatic attention to root causes of separation. Analysis of the categories of separation provided by Ressler et al. (Ressler et al., 1988), outlined in Table 1, suggests that all voluntary categories, as well as most of the involuntary ones, could potentially be prevented at the program level. This point is illustrated by the following two cases, from Rwanda and Indonesia, respectively.

*Case study 1:*

*Experience post-1994 genocide in Rwanda demonstrates that separation is preventable, even in the most complex and dire of situations. World Vision staff in the North Kivu province of then Zaire identified that one of the main causes of voluntary child separation was lack of access to food among the newly-arrived Rwandan families. This was done by observing the process of abandonment by parents and subsequently discussing with these parents the factors informing their decision to entrust their children with the humanitarian community. World Vision then managed to prevent further separations by providing food support. This realization also supported the return and reintegration of already separated children to their families. (John Williamson, 2019)*

Case study 2:

*In Indonesia, after the Indian Ocean tsunami and earthquake of 2004, great attention was given to the issue of institutional care, as the number of *panti asuhan* (children's homes) grew exponentially. While international agencies addressing child protection needs in Aceh responded by giving cash grants to households to try to ensure families stayed together, some overseas donors, individual givers and the government were supporting institutional care.*

*The Ministry of Social Affairs, with support from Save the Children, conducted research, which found that up to 97.5% of the children placed in residential care in the aftermath of the tsunami in Aceh had been placed there by their families. The research found that if funding had been directed at helping families and communities rather than institutions, most girls and boys placed in institutional care could have remained at home. It also highlighted the costs of supporting institutional care, which were far greater than the costs of supporting families directly (Thompson, 2012).*

As these cases illustrate, efforts to prevent separation need to be grounded in an understanding of the root causes, context, and prevalence of separation, as well as characteristics of children already separated. As discussed below, a public health approach is helpful in enabling this understanding.

This paper argues that a public health approach can help to fill the prevention gap in addressing child-family separation in humanitarian settings. Public health approaches provide programmers with tested measurement and programmatic approaches to prevention, particularly primary prevention, at the population level (Sanders & Markie-Dadd, 2003; Smith, 2006).

## 4.2 Methods

In making a case for a stronger prevention focus in the child protection sector, the paper begins with an interpretive analysis of what is meant by a public health approach to measurement. This entails an examination of different conceptualizations of public health approaches to measurement that are prominent in the public health literature and in the work of key public health agencies such as WHO and CDC. It includes a contrast with individualized medicine and a critical analysis of measurement within the discipline of public health, highlighting its strengths and potential pitfalls when applied to child-family separation.

The second part of the paper analyzes how a public health approach can be applied to the issue of child-family separation in humanitarian settings. It provides a comparison of the case-based versus public health approaches to measurement and their implications for child protection programming. This section analyzes the added value that a public health approach can bring to the child protection sector, primarily in terms of supporting population-level measurement to inform preventive work.

The third part of the paper develops a logical case in favor of a holistic approach to the measurement of, and programming for, child separation. It argues that case-based and public health approaches are complementary with respect to understanding and addressing the separation of children in humanitarian crises in a manner that balances response and prevention.

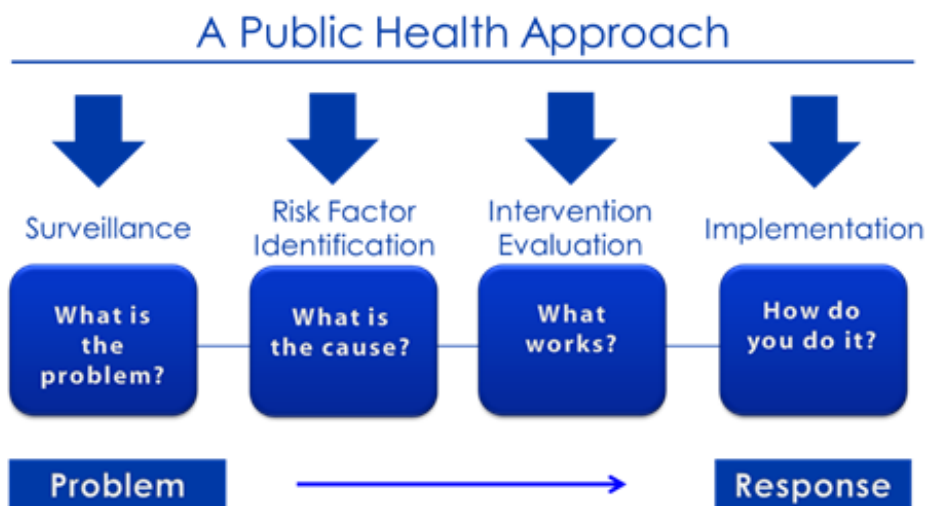
## 4.3 A Public Health Approach

Public health is defined by the CDC as “the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private communities, and individuals” (CDC, 2018). In defining their approach to violence prevention, the CDC and the World Health Organization

suggest that public health is concerned with providing the maximum benefit for the largest number of people (CDC Foundation, 2019; WHO, 2019). This does not suggest that public health ignores the care of individuals, but rather aspires to extend better care and safety to entire populations (Dahlberg & Krug, 2002). While there is variability in how public health is defined by different actors and sectors, there is consensus regarding the focus on the population, as opposed to individuals (CDC, 2013, 2018; Kolodny et al., 2015; WHO, 2019).

The Centers for Disease Control and Prevention (CDC, 2018) describes a public health approach as incorporating four main steps from problem definition to response (see Figure 1).

Figure 1: A Public Health Approach



Source: CDC. Public Health 101 Series. 2018

The value of a public health approach to prevention becomes evident when contrasting it with a medical approach. Medicine, as a science and practice, predominantly looks at health from the perspective of the individual. A doctor or a nurse works with the individual to alleviate his or her pain and suffering resulting from a disease or other health conditions. In contrast, the



entry point of public health is the population. The American Public Health Association explains that public health “deals with health from the perspective of populations, not individuals” (APHA, n.d.). Population, however, includes sub-groups within a broader population (CDC Foundation, 2019). This can be the whole society, a community, or a group or subgroup among the population. The public health approach complements the individualized lens of the practice of medicine by recognizing the centrality of the social, contextual, and relational aspects of health and well-being (Deodhar, 2007) of groups and populations.

According to the Centers for Disease Control and Prevention (CDC, 1999), 25 of the 30 years added to average life expectancy in the United States during the 20<sup>th</sup> century are attributable to advances made in public health. Only about five of the 30 years are attributable to medicine. This significant contribution is owed to the emphasis in the public health sphere on primary prevention at the population level (Gold & Teutsch, 1994). Evidence supports a clear link between an increase in public health spending and a decline in preventable diseases (Mays & Smith, 2011; Nurse et al., 2014; Singh, 2014).

#### Primary, Secondary, and Tertiary Prevention

Both medical and public health professionals implement some form of prevention in their work, though they do so in different ways. These differences become apparent in considering primary, secondary, and tertiary prevention (CDC, n.d.). Primary prevention is the main emphasis of public health, while secondary and tertiary prevention are often applied by medical professionals. Primary prevention is characterized by intervening before a negative health outcome occurs or becomes imminent, by addressing known risk factors and strengthening protective and promotive factors linked to the condition (CDC, n.d.; Gordon Jr, 1983; Kirch, 2008). Examples of addressing risks factors include administering vaccinations, altering risky

behaviors (poor eating habits, tobacco use, etc.), and banning substances known to be associated with a disease. Promoting an active lifestyle, such as walking or biking instead of driving, is an example of strengthening protective factors.

Secondary prevention attempts to identify and halt the development of diseases in the earliest stages or before the onset of signs and symptoms (CDC, n.d.; Gordon Jr, 1983; Kirch, 2008). Frequently used steps in secondary prevention include screening measures, such as mammography and regular blood pressure testing, that guide appropriate preventive interventions. Tertiary prevention is linked to the management of the health condition post-diagnosis, with the aim of decreasing the risk of disease progression or recurrence and addressing the risk of long-term effects on the individual, such as disability (CDC, n.d.; Gordon Jr, 1983; Kirch, 2008). This is in addition to addressing the immediate symptoms of the disease, which constitutes a curative response.

#### Measurement in Public Health: Strengths and potential pitfalls

The population focus is evident in public health approaches to measurement. Public health incorporates five core sciences, including public health surveillance and epidemiology (CDC, 2018).<sup>5</sup> WHO (2018) defines public health surveillance as “an ongoing, systematic collection, analysis and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice.” Within the public health discipline, qualitative methods complement and enrich quantitative methods (Creswell, 2007). The information produced by public health surveillance is used to guide prevention and response efforts in health-related crises (CDC, 2012).

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<sup>5</sup> The other three are: Public Health Laboratories, Public Health Informatics, and Preventions Effectiveness.

Despite the strengths of a public health approach regarding prevention at the population level, the adoption of a public health approach can have potential shortcomings. Some public health work has privileged more positivist approaches, such as epidemiology, which relies heavily on quantitative methods to study the distribution of health phenomena and their determinants in a population. Sole reliance on quantitative epidemiological methods will not be able to capture the diverse forms of separation, the context-specificity of separation, or the nuances of separated children's lived experiences. The approach may also come up short in clarifying the nexus of beliefs, social norms, and practices that work to perpetuate separation and/or obstruct its prevention. To achieve a more comprehensive approach, the field of public health frequently uses mixed methods. Myriad examples in the public health literature show how complex research questions can be answered effectively through a combination of quantitative and qualitative methods (Parcesepe, Stark, Roberts, & Boothby, 2016; Stark, 2010; Stark et al., 2016; Stoller et al., 2009; Tariq & Woodman, 2013).

Another potential pitfall is the use of universally defined constructs with limited flexibility for contextual adaptation. The lack of adequate contextualization of a construct can lead to an incomplete picture of complex social phenomena, such as drug or alcohol abuse, health seeking behaviors, hand washing and general hygiene, and so on. Separation, too, is a complex construct. If it were operationalized only based on global definitions and understanding, researchers may fail to develop a full understanding of separation in a particular context and of how it can be prevented and responded to effectively. To navigate these challenges, the following sections present a contextualized, mixed methods, public health approach to understanding, supporting, and preventing separation.

#### 4.4 A Public Health Approach to the Problem of Separated Children

A public health approach to child protection entails a focus on protection at the population level with a strong emphasis on primary prevention. Applied to the problem of separated children, a public health approach would examine closely the context of the separations; identify multiple separation causes and sub-groups, using population-based measurement approaches; address the root causes of separation; and guide humanitarian action that reduces risk factors and strengthens protective and promotive factors related to separation at the population level.

#### Applying Primary, Secondary, and Tertiary Prevention to Separation

The core idea of a public health approach—focusing on prevention and response at the population level—apply readily to issues of separation in humanitarian settings. Primary prevention entails first identifying which factors contribute to or mitigate the risk of separation in a particular humanitarian context and then addressing those factors in order to reduce the incidence of separation in the affected population. For example, if in a certain context, poverty, lack of access to school, and seasonal floods have been associated with separation of children between 13 and 17 years of age, steps to reduce those risks would constitute a primary prevention intervention. Concurrently, if positive parenting were a protective factor that mitigated the risk of separation, promoting positive parenting at population level could contribute to the primary prevention of separation.

Secondary prevention, when applied to separation, addresses the vulnerabilities of children and families who are identified as being at high risk of separation due to characteristics of the children or to aspects of the family, community and/or wider social environments, or to interactions across these different levels. Tertiary prevention of separation can be conceptualized

as efforts to reduce the short- and long-term impact of separation on children who have already been separated from their caregivers, including the risk of secondary separation and/or other types of harm (e.g., recruitment into armed groups or trafficking). This is in addition to the efforts to reunify those children and/or place them in a family-based alternative care setting, which constitute responsive measures.

The power of primary prevention lies in part in reducing the need for responsive as well as secondary and tertiary prevention services. It also eliminates some of the suffering associated with high levels of vulnerability and separation.

### A Contextualized Approach to Defining Separation

An essential first step in measuring separation is to define the term and unpack some of its complexities by, for example, identifying some of the different sub-groups that may exist in a population. Global definitions, such as the IASC definition outlined above, can suggest that separation is a unitary, homogeneous construct. In reality, the categories of UASC include significant diversity in regard to sub-groups of children, the causes of their separation, the current conditions of the children, the lived experience of children, and the short- and long-term consequences of separation.

Ressler et al. (1988 p. 115) identified nine categories of separation, divided into voluntary and involuntary types (see Table 1).

Table 1. Categories of Parent/Child Separations

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Involuntary Separation: Against the Will of the Parents	
1. Abducted:	a child involuntarily taken from parent(s).
2. Lost:	a child accidentally separated from parents.
3. Orphaned	a child whose parents are both dead.

4. Runaway: a child who intentionally leaves parents without their consent.
5. Removed: a child removed from the parents as a result of the loss of suspension of parental rights.

Voluntary Separation: With the Parent's Consent

6. Abandoned: a child whose parent(s) has deserted him [or her] with no intention of reunion.
7. Entrusted: a child voluntarily placed in the care of another adult, or in an institution, by parents who intend to reclaim him [or her].
8. Surrendered: a child whose parents have permanently given up their parental rights.
9. Independent: a child living apart from parents with parental consent.

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Source: Ressler et al. 1988, 115

As suggested by Table 1, children become separated under a variety of circumstances and for different reasons (IAWG-UASC, 2013; Petty, 1996). Some children are accidentally separated from their usual caregivers (for example during population movements), while others are separated voluntarily—either of their own will or by that of their caregiver(s) (Hepburn, 2006). Children can also become separated forcibly, as in the case of forced recruitment into armed groups. Voluntary separations may occur as an unintended consequence of poorly-designed humanitarian interventions, such as targeting of relief items only for separated and unaccompanied children, or the provision of residential care facilities or other services that exclusively target separated children (De la Soudière, Williamson, & Botte, 2007; Hepburn, 2006; Ressler et al., 1988; Jan Williamson & Moser, 1988; John Williamson & Greenberg, 2010). For example, in post-genocide Rwanda, a sudden increase in the number of existing institutions created a “pull factor” by incentivizing the abandonment of children by parents who

were unable to provide for their children (Better Care Network & UNICEF, 2015; Greenwell, 2002).

In other situations, the lack of attention and/or proper documentation by medical personnel may hinder the return of a child to his/her family upon release from medical facilities. Marie de la Soudière, a veteran of child protection in humanitarian action, believes that up to 80% of approximately 5,000 separations that took place during the 2017–2018 post-election violence in Kenya were linked to families' decisions to make education available to their children (De la Soudière, 2018).

Some cultures consider certain types of voluntary separation as protective measures, while others may regard them as violation of child rights. For example, in Haiti an estimated 150,000 and 500,000 children are subjected to the practice of *restavèk* (Shahinian, 2009). Many families of *restavèk* children would argue that their children are sent to live with more affluent families as a protective measure. While one may disagree with this practice, it attests to the complexity of the construct of separation and the importance of understanding it in context.

That the causes and impact of separation vary significantly according to the context cautions against rigid, universalized constructions of the phenomenon of child-family separation. This more contextual, variegated perspective on separated children invites a contextual analysis of root causes, context, and separated children's lived experiences. This kind of analysis, which is based on both qualitative and quantitative methods, helps to guide practical efforts toward sustained family reunification and more effective preventative measures.

#### A Public Health Approach to Measuring Separation

Reliable evidence to effectively identify program needs and tailor child protection programming approaches is rarely available in emergency contexts (Ager et al., 2010; ICRC,

2004). Therefore, many child protection interventions are not based on a systematic, rigorous analysis of the situation and needs, vulnerabilities and capacities of children and their families (Ager, Blake, Stark, & Daniel, 2011; CCRC, 2003; Gosling & Edwards, 2003; Thompson, 2015). Even when child protection issues are identified, the scale and distribution of needs remain unknown to programmers and policymakers (Annan, Blattman, Mazurana, Carlson, & Horton, 2006). While some measurement approaches have been developed specifically to measure separation in emergencies (Mansourian et al., 2016; Stark et al., 2018, 2016), they are not used systematically. Identifying root causes and determinants of separation, which can inform primary prevention, is also largely absent from extant data collection approaches.

In developing a public health approach to measuring separation, methods of measurement can be borrowed and adapted from the core sciences of public health (CDC, 2018). In fact, there are many examples of such efforts in the field of child protection (Boothby & Stark, 2011; Canavera et al., 2017; Rubenstein et al., 2015; Stark et al., 2018, 2016). Public health surveillance systems provide a wealth of theoretical and practical lessons from a variety of settings regarding how to monitor trends and patterns of complex social phenomena at the population level. These include analysis of context, root causes, incidence, and short- and long-term consequences of harm or an adverse condition.

Regarding separation in humanitarian settings, a public health approach to measurement offers distinctive value added in several respects. As discussed above, qualitative methods applied at a population level can help to illuminate the situation and lived experiences of different categories of separated children, while informing subsequent quantitative measurements. At the same time, quantitative methods can provide a picture of how widespread problems are in a population.



The value added of a public health approach to measurement becomes most apparent in contrast to case-based measurement, which is currently the most widely used measurement approach. Case-based measurement aims to identify individual cases of separated and unaccompanied children and is useful mainly with respect to response and secondary and tertiary prevention for individuals. In contrast, by placing the emphasis on population level measurement, public health approaches provide a much-needed understanding of prevalence, trends and patterns, including of root causes and protective factors. Efforts such as enumeration, screening, and case-finding for UASC belong to the case-based measurement category, as they aim to identify individual children who have already been—or are at very high risk of being—separated. Assessments, estimation, and population monitoring belong to the population-based category.<sup>6</sup> They do not necessarily attempt to identify individual cases, though that can be a positive consequence of the process. Overall, a public health approach could help to enable the population-based measurement to generate information that the child protection sector needs in order to fill its prevention gap and continue its processes of maturation and its increasing use of robust evidence.

#### 4.5 A Holistic Approach to Measuring and Addressing Separation of Children from their Caregivers: Towards More Effective Practice

Case-based and population-based approaches are complementary and are useful when applied appropriately and in tandem. Case-based measurement can provide pertinent information on the specific vulnerabilities and needs of specific children and/or their families that may require support. This can, for example, ensure identification of separated and unaccompanied

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<sup>6</sup> ‘Monitoring’ is used in place of the term “surveillance.” The term ‘surveillance’ is more commonly used in public health.

children, and those at higher risk of separation, so their immediate needs and heightened vulnerabilities can be addressed. Population-based measurement provides programmers with much needed information on scale, patterns, and trends which can be essential to program planning, fundraising, and advocacy, as well as efforts to prevent new, unnecessary separations. While these approaches employ different methods, a combination of methods can provide the comprehensive approach that is needed. In protracted humanitarian contexts it is particularly important that population level monitoring systems are implemented to capture the changing nature of separation, the underlying causes, and the characteristics of those impacted. This will ensure continued relevance of interventions.

Learning from the public health sector, a holistic approach to measurement and programming for separation seeks to identify and address the unique needs of children who are separated or made unaccompanied, while also addressing the root causes of separation at the population level. In essence, it attempts to address the problem of separation from both preventive and responsive perspectives. A holistic approach promotes primary, secondary, and tertiary prevention, coupled with effective responsive services for those already separated from caregivers.

#### A Framework for a Holistic Approach to Measurement of Separation

It is beyond the scope of this paper to formulate specific guidance on the measurement of separation in humanitarian action, which is best achieved using inclusive, inter-agency and multi-context dialogue and consensus. However, it is useful to identify some of the practical implications of the analysis presented above. Below is a three-step outline of a measurement framework, together with examples that draw extensively on a public health approach. The outline that follows assumes the context of a protracted emergency.

The first step is to define separation in a contextual manner. This entails understanding child care in context and how family units are defined, including the boundaries of extended family. It requires an appreciation of what communities do when families are unable or unavailable to protect their children, including how customary care is understood and practiced. This involves an analysis of what types of separation are considered by the families and communities as protective or beneficial for children. It also warrants an analysis of existing laws related to child-family separation and care. Qualitative methods of inquiry should be employed to this end.

Part of this work can take place in the preparedness phase of a humanitarian intervention. Methods used within public health for the study of complex social phenomena, such as health seeking behaviors, can be adapted to this purpose (Birhanu et al., 2012; Gulliver, Griffiths, & Christensen, 2012). Birnbaum, et al. (Birnbaum, Muhorakeye, Gatete, & Canavera, 2015) conducted a grounded process of inquiry in Rwanda to determine how Congolese refugee communities define acceptable customary caregiving arrangements. While caregiving is only one component of the definition of separation, the process they used as well as practical tools they developed can guide the development of similar approaches to contextually define separation in a humanitarian context.

The second step is to assess the scale, characteristics and root causes of the issue, including risk and resilience factors. This should ideally be followed by setting up a population-based monitoring system that can provide up to date data to programmers. During an upsurge of adversities in a protracted context, a snapshot will be required as a baseline for programming and trend monitoring, which can be achieved through a survey. This snapshot should be followed by the establishment of a monitoring system that can continually provide data to inform the analysis

of changes in the nature and manifestations of separation. Methods used for this aspect must not only provide data on prevalence and incidence, but also generate information on root causes and characteristics of those being affected, such as age, gender, ethnicity, and special needs.

Therefore, a mix of qualitative and quantitative methods of inquiry is needed. Identification of root causes must include both risk and resilience factors. Identifying root causes can be done through the analysis of a mix of primary and secondary data.

Stark et al. (2016, 2018), developed and tested an approach that used rigorous research methods that generated reliable estimates of the prevalence of separation and basic characteristics of separated children. The methodology can be adapted and used in different contexts to help assess the scale and characteristics of separation in a relatively prompt fashion. The Deinstitutionalization of Orphans and Vulnerable Children in Uganda (DOVCU) project (ChildFund, 2018; Mutenyo, Machingaidze, Okello, Otai, & Asekenye, 2019) documented a participatory process of defining and prioritizing vulnerabilities that can lead to child-family separation. The Accelerating Strategies for Practical Innovation & Research in Economic Strengthening (ASPIRES) has also developed effective ways of assessing and addressing vulnerabilities to inform reintegration and prevention of unnecessary separations (FHI360, 2018; Moret, 2016). Rubenstein et al. (Rubenstein et al., 2015) documented the process of setting up and managing an active monitoring/surveillance system that is rooted in the community and linked to services. It is likely that a combination of methods used in these examples will provide the most holistic overview of the issue of separation.

The data from step two would be used by practitioners to implement a mix of preventative and responsive programs. The third step will be to evaluate the effectiveness of programs responding to the separation of children from their caregivers and preventing new

child-family separations. This step requires defining measurable indicators and establishing clear goalposts in response to both baseline data and information on patterns and trends of separation. Defining such indicators and goalposts for prevention of separation might be this step's most challenging aspect. While these should be explored locally, some tools and approaches exist within the health sector that could inform this step. For example, the "Lives Saved Tool" is used to estimate mortality prevention when introducing or scaling up maternal, newborn, and child health (MNCH) interventions. Such widely used approaches can provide well-tested structure for similar measurement of separations averted through preventative programs.

Canavera et al. (Canavera et al., 2017) developed and piloted a population-based survey to monitor the performance and effectiveness of the child protection system. This model has been tested in selected districts in Senegal and Côte d'Ivoire (Canavera et al., 2017; CPC, 2019). In the first step of this process, ethnographic interviewing methods were used to determine contextualized definitions of child protection and well-being, as well as child protection risks, and protective factors and assets. They used the contextual insights that emerged from the ethnographic interviews to inform their survey instruments. The survey component used a multi-stage sampling frame that produced representative data at the level of each department. This model can be adapted and complemented with other relevant approaches to support evaluation of prevention and response programs.

#### 4.6 Discussion

A public health approach to measurement and programming can transform the way child protection actors address child-family separation in humanitarian crises. Public Health's clear orientation towards measuring and addressing issues at the population level, coupled with its multi-disciplinary nature, can bring significant value add to the child protection sector. When

adapted and contextualized, public health methods enable measurement of prevalence and nature of separation at a population level, which helps both programmers and donors to act in a manner that is proportional to the magnitude and nature of the problem. It provides a careful analysis of the context, enabling contextually relevant humanitarian action. It identifies root causes as well as protective and promotive factors that can guide efforts at primary prevention at the population level. And it informs establishment of monitoring systems that can continually inform and improve programs. Collectively, this not only fills the previously identified gaps in current practice but also points the way toward a new era of measurement and action that stands to improve the lives of children.

Different types of humanitarian settings may require different approaches to measurement according to considerations such as the phase of the emergency, access, and movement of the population, among others. More similarities than differences exist across humanitarian crises in terms of information needs and applicable methods, but contextualization is necessary to ensure relevance. While the framework presented above is not to be taken as established guidelines, it provides a solid foundation to build upon. It must be further developed and tested in a variety of humanitarian contexts.

Much remains to be learned about how best to implement a public health approach and its feasibility in different humanitarian contexts. In some settings, it may not be possible to implement all aspects of a public health approach at the programmatic level. However, even a partial application of a public health approach can help gauge the scope and severity of the problem and provide valuable information to guide both preventative and responsive efforts, as well as the funding they require. It may also reveal trends and patterns that can help in conducting targeted advocacy with non-state actors for an end to recruitment and use of children.

There is scant literature on the cost effectiveness of taking a public health approach to child protection in humanitarian settings. While convincing evidence supports the cost-effectiveness of preventative approaches in the area of public health, the same has not been established for the child protection sector (AcademyHealth, 2018; Timothy T. Brown, 2016; Timothy Tyler Brown, 2014; Masters, Anwar, Collins, Cookson, & Capewell, 2017; UNICEF, 2019). Therefore, systematic evidence is needed to support an economics argument for primary prevention, both from cost-effectiveness and human capital perspectives. This evidence is fundamental for stimulating increased investment in this area. In developing public health approaches to child protection in humanitarian settings, it will be important to take an orientation of ongoing learning, using implementation science to strengthen the evidence-base and the feasibility of the approaches.

To be more effective, humanitarian action requires a multidisciplinary approach to prevention of harm to children. Efforts to support vulnerable children must ultimately be as holistic as are the causes of their vulnerability.

## Chapter 5: Conclusion

This dissertation examined in detail the various gaps outlined in the [Introduction](#) in regard to addressing issues of separated children in humanitarian settings. To take stock of what has been learned, the first part of this chapter (subsections 5.1 to 5.4) will review some of the main findings and conclusions regarding the key gaps, together with concrete suggestions on how to strengthen measurement and practice related to separation. Since one of the main conclusions of this dissertation is that a new generation of work on separation in humanitarian settings is needed, the second part (subsection 5.5) outlines some of the key priorities and steps that should be included in future work.

### 5.1 Contextual Understanding of Separation and UASC

This dissertation highlights the scarcity of contextual analysis related to child-family separation. The field of child protection, like all areas of humanitarian action, is under pressure to standardize approaches and to respond rapidly to erupting crises. Although these pressures have useful elements, they can sometimes encourage practitioners to treat particular approaches to measurement or programming as if they were universal and to apply them without an in depth understanding of the context.

This dissertation has underscored that humanitarian contexts are highly diverse and has shown that this diversity has powerful implications for which measurement methods are applicable. For example, as discussed in [Paper 1](#), in some humanitarian crises, children who had formerly been recruited into armed groups may congregate in particular places at regular times, and this pattern could enhance the feasibility of using a capture-recapture method of measuring the prevalence of child recruitment. In other crises, however, no such pattern may be present, making it inappropriate to use only a capture-recapture method of measurement. Similarly, a



core assumption of the neighborhood method—that neighbors are aware of the composition of their neighboring household before and after the emergency—may hold in some contexts, but not others. Or, the core assumption of RDS—that children are networked—may hold with children working on the streets in some contexts only. Clearly, contextual analysis is needed to determine not only the feasibility but also the validity and the reliability of methods.

Contextual analysis also emerged as critical regarding the ethical issues that frequently arise in connection with the measurement of separation. While speaking to outsiders in one context may potentially put children working on the street in danger of being stigmatized by their peers, it might be accepted as ‘normal’ in another context. Similarly, the identification of children associated with armed groups or gangs may put the children at risk (e.g., of re-recruitment) in some settings, but not in others. Because ethical issues vary according to the context, a contextual analysis is necessary to avoid causing unintended harm to children through the use of a measurement approach that increases the risks to the children being studied.

As emphasized in [Paper 3](#), the construct and definition of separation also deserves careful contextual analysis. Although the global definitions of separation and UASC can suggest that separation is a unitary, homogeneous construct, the categories of separated and unaccompanied children include significant diversity. For example, the lived experience of a separated child who lives with an aunt or a trusted neighbor might be completely different from the experience of a child associated with armed groups or one that lives in an institution. This dissertation cautions against rigid, universalized construction of the phenomenon of child-family separation in measurement and action. In particular, it invites a contextual analysis of the conception of separation, root causes of separation, sub-populations of UASC and of separated children's lived experience.

Lastly, as explained in [Paper 3](#), understanding the root causes of separation is also a highly contextual issue. While some commonalities may be found across different contexts, many risk and resilience factors will change from one context to another. For example, while in one context the lack of access to school may prompt families to send their children to institutions in hopes that they will be educated, in other contexts parents may not do so. In a similar manner, preventive approaches that are not grounded in contextual analysis of risk and resilience factors can employ the wrong promotive and preventive tactics and therefore be ineffective in preventing separation.

This analysis has two key implications for measurement and practice in regard to separated children. First, universalized definitions of and approaches to addressing separation should be avoided. Considering UASC as a homogeneous group of children will have serious implications for the quality and effectiveness of programs designed to support the well-being of this diverse population. Universalized approaches will not make it possible to achieve high standards of technical or ethical merit in programming for separated children. Second, researchers and practitioners should conduct a contextual analysis prior to embarking on data collection. This analysis can benefit from direct, but safe involvement of children, who are often best placed in helping researchers and practitioners gain insight to contextual specificity of these issues. Practitioners on the ground are uniquely placed to facilitate such contextual understanding, not only to support measurement, but also to design and implement more effective programs. Researchers are also called upon to more deliberately study and report on the importance of context in measurement.

## 5.2 Measuring the Scale and Characteristics of UASC

The field of child protection in humanitarian action is taking evidence strengthening seriously and making strides to better measure the scale and characteristics of UASC. The literature reviewed in Papers [1](#) and [2](#) included repeated calls to increase the rigor of measurement approaches in the field of child protection. Yet this dissertation finds that the quest for evidence strengthening is limited by the fact that innovative methods have rarely been used in humanitarian settings. Of the methods reviewed in [Paper 1](#), only the Neighborhood Method has been used in humanitarian settings.

This dissertation also shows that the selection of the measurement method cannot be decided on the basis of measurement considerations alone. Equally important are considerations of applicability related to feasibility and ethical appropriateness. At present, limited information about the practical applicability of different measurement methods is available. In addition, the measurement approach cannot be based on practice considerations only. As a consequence of the dominant case-based orientation toward the issue of separation, current measurement practices are geared mostly towards finding individual cases. [Paper 3](#) outlines the benefits of broadening the lens and looking at population level trends and patterns to inform policy and programming in a more comprehensive manner.

[Paper 1](#) of this dissertation shows how several existing innovative methods have the potential to be adapted and used for measurement of the scale and characteristics of UASC in humanitarian settings. [Paper 2](#) provides a concrete example of how the validity, reliability and feasibility of methods can be examined systematically, even in a humanitarian context. While none of the reviewed methods is a silver bullet, they each have advantages for use with certain sub-populations of UASC in certain contexts. Therefore, selecting the correct measurement

approach, or a combination of them, requires not only an understanding of the context but also the characteristics of different sub-populations of UASC.

Several recommendations for strengthening the measurement of the scale and characteristics of UASC emerged from this analysis. First, practitioners and researchers should use population-level measurement approaches that demonstrate appropriate levels of validity and reliability, feasibility, and ethical sensitivity. The population level approaches do not replace case-finding methods but complement them and enable a more comprehensive analysis of UASC and separation. Second, researchers and practitioners should avoid a singular focus on the prevalence and basic characteristics of UASC and conduct an analysis of the risk and resilience factors pertaining to separation. It is important to know the scale and characteristics of UASC. Yet the achievement of positive outcomes for children requires an understanding of the risk and resilience factors that programs must address in humanitarian crises. Third, selection of appropriate methods for measurement of UASC depends heavily on the sub-population of interest. A contextual analysis of such sub-populations and their attributes and tendencies can inform the selection of suitable measurement method(s).

### 5.3 A Preventive Approach to Measurement and Programming

This dissertation concludes that there is significant value in taking a public health approach to measurement and programming for separation. [Paper 3](#) demonstrates a strong need for primary prevention at population level. This dissertation, however, found limited literature on measurement and programming to support prevention of separation. While global policies, standards and guidelines mention prevention as an equally important aspect of child protection interventions, responsive approaches are significantly more commonplace in humanitarian action. Preventing separation is an ethical and moral imperative.

A first step in this process would be to shift the focus of measurement and practice to the issue of child-family separation, rather than only on UASC. While responding to the needs of UASC remains extremely important, they are the survivors of a series of complex and often preventable adverse events and conditions. Addressing those events and conditions will not only help those who have already been separated, but will also prevent new, unnecessary separations.

[Paper 3](#) of this dissertation lays out an argument in favor of a contextual approach to measurement that attends to root causes of separation, including risk and resilience factors. Such analysis is the key to enabling prevention of separation at the population level. Use of mixed methods, combining qualitative and quantitative methods of inquiry, can support such analysis.

The main implication is that researchers and practitioners must include primary prevention at the population level in their measurement and programmatic approaches. This prioritization of prevention requires a significant shift in mindset, practice, and investment. In fact, promoting the inclusion of preventive approaches will require a persistent and long-term investment and effort on the part of operational agencies, policy makers and donors. It will need to be reflected in training and capacity-building efforts, policy documents, technical guidelines and standards, and funding allocations.

#### 5.4 Attention to Ethics in the Measurement of Separation

The literature reviewed for this dissertation revealed that ethical issues related to the participation of children in evidence generation activities are under-studied and -reported. Limited reporting on the issue of do no harm was particularly noticeable. Questions of raised expectation, stigma, labeling, remuneration, coercion, perception of exclusion and discrimination, among others, are rarely referenced in the literature.

It is unclear why various measurement focused papers did not discuss ethics in depth. This may be due to the predominant focus on the technical aspects of measurement. It is also possible that researchers, having sought and obtained ethical approval from their IRB for their research, see the ethical issues as having been adequately covered. Or, researchers may be concerned over image loss associated with reporting ethical issues that had arisen in their work. However, [Paper 1](#) points out that humanitarian settings expand the risks to children while shrinking the supports for them, while also multiplying the ways in which humanitarian measurement and practice can cause unintended harm. Overall, this dissertation has highlighted the need for more proactive attention to ethics, based on the particularities of each humanitarian context and each sub-population of interest.

A practical strategy, visible in work on NM, is to take an empirical approach by actively examining the presence or absence of ethical concerns. This requires an analysis of the potential risks in a given context prior to data collection, keen observation to detect any emerging issues during data collection and ongoing ethics monitoring to identify and understand any potential harm that may arise after data collection. While such a transparent, ethically attentive approach may lead to discovery of harmful consequences and subsequent discreditation of the method, it is the only route to ethical research and practice. The key to this argument is that identifying any potential harm that may emerge because of our research enables us to address it then and in the future. Academic journals and IRBs are in a unique position to encourage such critical ethical inquiry.

An ethical issue that emerged as needing particular attention is that of informed consent in regard to children who may not be accompanied by parents or legal guardians. Practitioners and researchers alike struggle with the existing tension between a child's participation right and

the do no harm principle (Alliance for Child Protection in Humanitarian Action, 2019; Bennouna et al., 2017; Wessells, 2008, 2009). Children who have already survived violations and adversities may be more likely to want to avoid contact with outsiders, making them even less visible to practitioners and policy makers (Rubenstein & Stark, 2016). Therefore, the ethical participation of children in research requires having enumerators with high levels of ethical sensitivity; intuition; patience (which requires time); interviewing skills; cultural understanding and sensitivity; and an understanding of unspoken cues that enables them to identify children's level of comfort. These important topics warrant further evidence building and critical deliberation to help researchers better fulfill their ethical obligations vis a vis children who participate in research.

A key implication for measurement and practice is to make ethical sensitivity and analysis central in all measurement efforts pertaining to separation in humanitarian settings. Academic journals and IRBs should require inclusion of in-depth ethical analysis in all empirical work that involves children.

### 5.5 Next Generation of Measurement and Practice

The next generation of measurement and practice regarding separated children in humanitarian settings should have prevention at the population level as a central element. The child protection sector, and the field of child-family separation within it, will be significantly more effective in protecting children if it complements the dominant case-based approach with a population-based prevention focus. Factors such as limited funding, the changing nature of conflicts, long-lasting humanitarian crises, and the shrinking humanitarian space, make an emphasis on preventive approaches a necessity. As described above, prevention is also an ethical imperative. Additionally, the evidence from the public health sector suggests that population

level prevention approaches are cost-effective. While this change in approach may take time and resources, the potential benefits for children and families make it a safe investment on the part of practitioners and donors.

[Paper 3](#) of this dissertation outlines a basic framework for a more comprehensive approach to measurement and programming to prevent and respond to child-family separation. A holistic approach to prevention of and response to separation of children requires a shift in mindset. It entails changes in the way the sector thinks about, measures, plans for, and implements its programs to help children realize their well-being. [Paper 3](#) suggests a three-step process that can pave the way towards more comprehensive measurement of separation to effectively inform programming.

The first proposed step in this novel framework is meant to support a contextual understanding of separation. This includes an appreciation for common sub-populations of UASC and their characteristics. This will not only inform subsequent measurement efforts, but also the program design and implementation. The second proposed step focuses on the scale, characteristics and root causes of separation. A mix of qualitative and quantitative methods of inquiry is required for this step. In protracted settings, a monitoring system should be set up during this step. The data from these two steps should inform the design and implementation of a mix of preventative and responsive programs. The third step will be to evaluate the effectiveness of programs responding to the separation of children from their caregivers and preventing new child-family separations. The evaluation, combined with up-to-date data from the monitoring system, can inform the ongoing adaptation and improvement of program design and implementation.



There is much to be done beyond this dissertation to support the sector in this journey towards more prevention oriented, contextualized, ethical approaches that will strengthen the evidence and practice regarding separated children in humanitarian settings. Both researchers and practitioners have a role to play in this journey. Researchers' comparative advantage is in supporting more rigorous and holistic measurement of separation. Practitioners, among other things, are well placed to support contextual and ethical analysis. Embarking on this journey also necessitates an open mind on the part of donors, who will be needed as allies to support the sector in this change process.

The innovations called for in this dissertation entail taking risks, not least of which is that a new approach could be done badly. Fortunately, this risk is preventable through further research, analysis, inter-agency collaboration, and the development of a robust set of recommendations and technical guidance on both prevention of and response to child-family separation in humanitarian settings. The risks associated with change are well worth taking since the benefit could be the development of a more holistic approach that yields improved outcomes for UASC and children at risk of separation. The efforts of child protection actors in humanitarian settings must ultimately be as holistic and contextual as are the causes of separation and as diverse as are the lived experiences of separated children.

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