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## Information and Communication Technology for Child Protection Case Management in Emergencies: An Overview of the Existing Evidence Base

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### Abstract

Organizations working to protect the health and wellbeing of children in emergencies are moving away from traditional paper-based systems towards more sophisticated and innovative digitally-based systems. Formative research was conducted to identify the state of the current evidence base on the use of information and communication technology (ICT) for child protection case management in emergencies (CPCME). Most of the evidence is from the grey literature, and the sector is still nascent in linking ICT implementations to improvements in efficiencies of case management processes and outcomes in children. However, our preliminary findings, gleaned mostly from key informant interviews and reports, strongly suggest that using certain ICT applications can have a beneficial influence on reducing children's vulnerabilities and other key outcomes in emergency settings. The preliminary findings form the basis for currently ongoing subsequent research that will ultimately inform how ICT for CPCME can best contribute to improved outcomes in children in such settings. While there are challenges in the design, implementation, evaluation, and enabling environment to support ICT for CPCME that limit their potential impact, each challenge presents an opportunity for child protection programs to consider as the use of ICT for CPCME increases and matures over the next few years.

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### 1. Introduction

Children are among the most vulnerable populations, especially in times of conflict, famine, natural disasters and other emergency situations. With the increasing frequency of emergency situations globally, there is a notable need to ensure that child protection efforts are adequately prioritized and resourced. Quality, timely data and information are critical to the success of child protection initiatives [1, 2], especially in emergency settings where actions are time-sensitive. Accordingly, many of the leading agencies providing child protection services in emergencies, including the International Committee of the Red Cross (ICRC) (and its partners in the Red Cross and Red Crescent Movement, the National Societies), the United Nations High Commissioner for Refugees (UNHCR), and the United Nations Children's Fund (UNICEF) are moving away from traditional paper-based systems in favor of more sophisticated digital solutions in their humanitarian work, which includes child protection.

This move is based on the prevailing perceptions – along with experience and assessments of the needs in the field – that improved use of information and communication technology (ICT) to enhance service delivery and gathering, storing, analyzing and sharing individual data will translate into improved outcomes for vulnerable children, including those in emergency settings.

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Because many of these innovations may rest on assumptions that have not been fully researched or evaluated, a critical review is needed to examine the impact that the use of ICTs potentially have for child protection in emergencies.

To define and characterize the current evidence for the use of ICT for child protection case management in emergency settings (CPCME), a review of the literature complemented with key informant interviews was undertaken. This review will help determine current and future research opportunities and needs as well as identify key lessons and recommendations.

## 2. Methodology

A mix of data collection methods were used. Key informant interviews and a literature review were conducted to understand and characterize the evidence base for the use of ICT for CPCME. This included assessments of the current landscape and key challenges as well as barriers and opportunities to increase the uptake and measurement of outcomes associated with the use of ICT for CPCME. A media review of select emergencies was also incorporated as part of the literature review.

### 2.1. Key Informant Interviews

The purpose of the key informant interviews was to understand the history and scope of select ICT applications for CPCME, challenges and barriers faced in achieving uptake and impact from use of ICT applications for CPCME, and recommendations to improve the design, implementation, and impact of ICT applications for CPCME. A semi-structured interview guide was developed to facilitate the interviews (WCB and PNM). The guide was shared with informants prior to the individual interviews. Purposive snowball sampling was used to identify the key informants. Participants included representatives from the UNICEF, UNHCR and ICRC and recommended experts.

All interviews were filed as anonymous. Two researchers were present for each interview, and one researcher led the interview. No interviews were recorded; all were carried out remotely. Notes from the interviews were expanded and analyzed and synthesized using a thematic analysis approach. The key themes were developed to complement those identified in the literature.

### 2.2. Literature Review

The literature review was carried out to develop an understanding of: (1) CPCME definitions, processes and guidelines; (2) the spectrum of literature available on ICT for CPCME, (3) the landscape of ICT applications, and (4) any literature related to child protection outcomes linked to the use of ICTs. Key child protection agencies who work in emergency settings, including UNICEF, UNHCR and ICRC, shared relevant documents and a methodical review of the literature was conducted.

The research team developed keyword searches and approach for the literature review.. The search terms included the following keyword combinations: “child protection + technology,” “child protection + ICT,” “child protection + mobile technology,” and “child protection + information management.” Searches were conducted in Google Scholar and PubMed; Google news searches were also carried out to attempt to identify relevant literature from the media. Given the nature of website search engines and the large duplication of results generated, manual reviews of resource sections in select websites were also done. The following websites were prioritized for the review:

- Child Protection Global Cluster ([CPWG.net/tools-resources/](http://CPWG.net/tools-resources/))
- Global Protection Cluster ([GlobalProtectionCluster.org](http://GlobalProtectionCluster.org))
- Save the Children (Resource Center)
- UNICEF Resources ([UNICEF.org/protection/](http://UNICEF.org/protection/))
- Child Protection Learning Network ([CPCNetwork.org](http://CPCNetwork.org))
- Child Protection Monitoring and Evaluation Reference Group ([CPMERG.org](http://CPMERG.org))
- Children in Adversity ([ChildrenInAdversity.gov](http://ChildrenInAdversity.gov))
- Better Care Network ([BetterCareNetwork.org](http://BetterCareNetwork.org))
- Child Rights International Network ([CRIN.org](http://CRIN.org))
- United Nations SRSV Violence Against Children ([SRSV.ViolenceAgainstChildren.org](http://SRSV.ViolenceAgainstChildren.org))

The literature review was strictly limited to articles addressing ICT for CPCME. The inclusion criteria were intentionally kept broad and were as follows: related to child protection, dealt with case management, involved the use of digital tools, and were primarily focused on emergency settings. Document relevance was assessed in a step-wise manner. One researcher conducted the initial review for relevance of title, abstract, and/or summary. The resulting documents were then divided between two researchers for full document review. Documents not meeting all four of the inclusion criteria or solely describing methods or evaluation approaches were excluded. Relevant documents then underwent data abstraction and analysis.

### 3. Results

#### 3.1. State of the Existing Evidence

Over the last five years, there has been a technology shift in the area of child protection in emergencies that has led to a diversity of ICT tools being designed, tested, and implemented by child protection specialists, digital health practitioners and development professionals alike [3]. Over 600 documents were identified through agencies engaged in child protection in emergency settings, websites, and online databases. The agencies shared 48 documents, of which 16 were shortlisted for further review, with nine meeting the inclusion criteria [8, 9, 15, 18-20, 23, 26, 28]. Overall, only 21 sources from the shared documents, websites, and online databases met the inclusion criteria and were included for further review [3-23]. Of the 21 sources, two of the sources that underwent full document review were peer-reviewed articles [6-7], but were ultimately not relevant. The rest of the documents were from the grey literature and met the inclusion criteria. The media review returned limited information.

Consequently, the evidence is limited entirely to the grey literature and underlined the nascence of evidence that supports use of ICT for CPCME. The grey literature shortlisted in this review focused on descriptions of ICT applications for CPCME, in addition to providing qualitative accounts on the benefits and challenges of using an ICT application for CPCME and/or gaps and lessons learned during the implementation of an ICT application for CPCME. Where outcome evaluations were conducted, measurements were limited to outputs and short-term outcomes, including the number of children registered and the number of children reunified; and operational measurements, including the quality of data captured, and the reduction in time to register unaccompanied and separated children. There was limited information on how child-friendliness principles were taken into consideration, if at all.

There were a handful of ICT typologies identified in the literature that supported CPCME. This included the digitization of processes (e.g., electronic forms), child helplines, SMS-based citizen reporting, crowd-mapping, mobile research and survey tools, big data analysis and tech-driven advocacy campaigns [3]. Applications such as SMS-based citizen reporting and mobile research and survey tools used during an emergency have more developed evidence bases with more advanced evaluations assessing the potential impact of the ICT tools used for child protection [4-5]. While the media review did not return results relevant for ICT for CPCME, there was a focus on ICT for disaster risk reduction. Examples include early warning alert systems, community feedback, and resource management systems.

Expanding on the literature review, the key informant interviews uncovered challenges with data sharing, interoperability and capacity in ICT for CPCME. While there are data sharing protocols in place, operationalizing them, as a part of interagency collaboration, has been complicated. Further compounding the challenges with data sharing are the variety of ICT applications in use; it is not uncommon to have duplication of efforts and data. Lastly, high-staff turnovers and the limited capacity of staff to use ICT has been a significant challenge. Despite these challenges, the key informants valued the benefits of ICT for CPCME, including its potential to improve work efficiencies and have a positive impact on key child protection outcomes.

### 4. Discussion

#### 4.1. Benefits

The key informant interviews suggest that there is a perceived association between using ICT with factors that influence children's vulnerabilities and other key outcomes in emergency settings. The factors that potentially impact child vulnerability include, but are not necessarily limited to, the timeliness of responses, workload efficiencies, and data collection, management and utilization. Despite the paucity of rigorous evaluations of ICT applications for CPCME, it is clear from the grey literature and key informant interviews that there is value in using ICT for CPCME. Benefits of ICT include timely availability and retrieval of information, standardization and protection of sensitive information, as well as providing an incentive for increased accountability towards protecting children.

#### 4.2. Challenges and Opportunities

There are currently challenges in the design, implementation, and enabling environment to support ICT for CPCME, limiting the potential for its impact. Nevertheless, each challenge presents an opportunity for child protection programs to consider as the use of ICT for CPCME grows and matures over the next few years. The challenges include the loss of "human touch" in the case management process, limited outcomes research, data monitoring, and evaluation, issues connected with interagency and system interoperability, data sharing and data privacy, how to "prioritize" responses in situations involving large numbers of vulnerable children, and limited capacity to ensure proper use and comfort with ICT for CPCME.

#### 4.2.1. Child-Friendly Design Principles

A challenge with ICT for CPCME is the loss of “human touch” between caseworkers and children when conducting assessments. When typing information behind a computer into an ICT application, caseworkers risk missing subtle cues and signs of a child’s vulnerabilities. The opportunity for the next generation of ICT applications for CPCME is to design with child-friendliness in mind and have clear vulnerability criteria to establish prioritization of children most-at risk within large caseloads. Child-friendliness includes examining the intersection between vulnerabilities and technology, and ensuring that using ICT does not amplify existing vulnerabilities or otherwise cause further harm to the child.

#### 4.2.2. Outcomes Research

This literature review found a limited evidence base linking the use of ICT to improved operational and reduced vulnerability outcomes for CPCME. The evidence base is limited to the grey literature and largely focuses on descriptive and qualitative research. Illustrating the impact of CPCME through rigorous research, and establishing shared outcome measurements across agencies, is critical to developing and operationalizing an enabling environment, and attracting strategic and sustainable funding to continue to expand ICT applications for CPCME.

As a model for establishing an evidence base for using ICT, the health sector first focused on supporting research on output-based measurements (e.g., number of children registered, number of SMS messages sent, improved lab result turn-around times) before transitioning to outcomes-based measurements (e.g., health information leading to increase in early presentation to the first antenatal care visit) [24]. In the case of ICT for CPCME, output measurements, including the number of children registered, number of children reunified, and the time from child registered to child reunified are indicators to consider measuring to begin establishing a strong evidence for ICT for CPCME.

#### 4.2.3. Data Sharing and Privacy

In the last few years, several agencies, including UNICEF, UNHCR, ICRC, the Red Cross Societies and Save the Children, have made efforts to understand ICT for CPCME, establish interagency guidelines, and standardize data collection forms. However, operationalizing data sharing continues to be a gap, challenging the potential for ICT for CPCME to reduce vulnerabilities of children at risk as well as to measure the impact through the use of data captured within the various systems. In the absence of data sharing practices, the quality and reliability of referral mechanisms and follow-up is severely compromised. There is a significant opportunity to learn from the digital health sector on utilizing unique patient identifiers and standardized terminology to facilitate interoperability across ICT applications for CPCME, and approaches to operationalizing data sharing across a health system.

#### 4.2.4. ICT Capacity-Building

The introduction of ICT for CPCME in humanitarian settings is challenged by limited training and capacity-building of child protection staff, from caseworkers to data managers. Given the time-sensitive nature of humanitarian emergencies, the introduction of ICT for CPCME, combined with untrained workers, can pose operational inefficiencies. Capacity-building for ICT for CPCME is a long-term investment. In the interim, it is important to establish a framework to support decision making related to the environments and conditions optimal for ICT for CPCME be introduced. In parallel, strategic plans must be developed to invest in technical literacy of child protection staff in the short to medium term. Given the maturity of the digital health sector, there is an opportunity to draw from best practices on training community health workers on ICT.

### 5. Conclusion

The preliminary findings outlined in this paper address a major gap in the use of ICT for CPCME. There is a growing need for studies that identify and generate evidence supporting whether using ICT applications for CPCME contribute to reducing vulnerabilities of children by providing a more effective, child-friendly, secure and efficient method of managing information. Despite the desk review illustrating the paucity of the evidence linking the use of technology for CPCME to improved operational and child protection outcomes, these findings indicate that there is a potential association between using ICT and children’s vulnerabilities in emergency settings. These suggested associations warrant ongoing research, which is currently underway. The ongoing research will expand the scope of the literature review and focus on understanding the types of humanitarian settings in which the implementation of ICT applications for CPCME facilitates improved operations and outcomes for children in emergencies. The findings from this formative research will culminate in recommendations on how ICT can be used for case management in a way that will contribute to reduced vulnerability of children through reducing systemic inefficiencies and improving access to the services at risk children they need in a timely manner.

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## Appendix A. Definitions

### A.1. What is child protection?

In this report, we use the Child Protection Working Group's (CPWG's) and Save the Children's child protection definition and goal, respectively, to frame the discussion. The CPWG defines **child protection** as "*the prevention of and response to abuse, neglect, exploitation and violence against children.*" Building on this, Save the Children maintains that the goal of child protection is to "*promote, protect and fulfill children's rights to protection*" from those harms, as mandated by global and national human rights, laws and treaties [25].

### A.2. What is child protection in emergencies?

Child protection efforts in the setting of an emergency are often urgent. The response still requires a systems-based approach, bringing together numerous entities to provide the care and support that children and their families need [19, 23].

Emergencies, as we have delineated in this report, are situations and conditions that require immediate attention. Examples include natural disasters; armed conflict, civil unrest and other violent settings or acts of violence or abuse; toxic stress; labor and trafficking; famines and disease outbreaks [21, 26].

An important means to respond to issues that jeopardize the protection of children in emergency settings includes case management. **Case management** is the process of identifying, assessing, advocating (when necessary) and coordinating services for an individual (or household) [21, 27]. Other response mechanisms for child protection, which can and do overlap with case management, include advocacy; capacity-building for relevant service providers; community-based surveillance and responses; mainstreaming child protection activities; fostering child-friendly spaces and activities and family tracing, reunification and integration [21, 26, 28, 29]. In this research and report, we focus on case management.

### A.3. What is child protection case management?

According to the Inter Agency Guidelines for Case Management and Child Protection, child protection case management is defined as "*the process of helping individual children and families through direct social work-type support, and information management*" [26, 28, 29]. Child protection case management puts children as the central focus [27]. It provides structure and a means to systematically administer appropriate and timely support or referrals for children and their families in alignment with an initiative and context [28].

The case management process can be organized into six discrete steps [28, 30]. Some of the process is iterative, where earlier steps can be revisited and case plans extended if and when necessary.

1. Identification and registration
2. Assessment
3. Case planning
4. Starting the case plan
5. Follow-up and review
6. Case closure

Due to the challenging and pressing nature of emergencies, case management is often more complex and demanding to carry out in such situations. However, in emergency settings where case management is suitable, the process can help ensure that quality care and services are provided to children and their families on a consistent basis.

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