

INFORMATION AND COMMUNICATION TECHNOLOGY FOR CHILD PROTECTION CASE MANAGEMENT IN EMERGENCIES:

A FRAMEWORK FOR DESIGN, IMPLEMENTATION, AND EVALUATION

Prepared for UNICEF, UNHCR, and ICRC
30 March 2016



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ACKNOWLEDGMENTS

This report was prepared by the mHELP/HealthEnabled Research Team, comprised of Nadi Nina Kaonga, Bill Philbrick, Ekesa Obando and Dr Patricia Mechael. The team also recognises the contribution of Hima Batavia to Phase 1.

The mHELP/HealthEnabled Research Team would like to acknowledge and thank the Child Protection Research Advisory Committee (CP-RAC)—which included representatives from United Nations Children’s Fund (UNICEF), United Nations High Commissioner for Refugees (UNHCR), the International Committee of the Red Cross (ICRC), and the Government of the United Kingdom’s Department for International Development (DfID)—for initiating, guiding and supporting the research. Without the support from DfID, this research would not have been possible.

In particular, great thanks are due to Robert MacTavish and Saudamini Siegrist of UNICEF for convening the CP-RAC and Margarete Knorr, Joanne Macrae, Hannah Yapp and Margaret Vincent of DfID for coordinating and providing oversight on behalf of DfID, as well as Sophie Clavet, Monique Crettol, Frederique Desgrais, Lea Labaki, Monique Nanchen, Guilhem Ravier and Megan Rock of ICRC; Janis Ridsdel, Monika Sandvik-Nylund and Karen Whiting of UNHCR and Michael Copland of UNICEF for their invaluable feedback as a part of the CP-RAC. Gratitude is also due to Aciro Joyce Musa and Anthony Nolan of UNICEF South Sudan; Mach Dau

Lual, Malou “Moses” Ayuen Malouk, John Garang Nhail, Martin Odhiambo and Stephen Wori of Save the Children in South Sudan; Karine Benyahia, Bertrand de Marnix and Saira Gulzar of the ICRC Delegation in South Sudan; Wilson Kisiero, Bernard Njue Kiura, Christopher Njoroge and Jeanette Winjnants of UNICEF Kenya; Andrea Drury and Maryam Kashefi of the ICRC Nairobi Delegation; Umubyeyi Clarisse Ntampaka and Ivy Wahome of UNHCR Kenya and Lennart Hernander, Collins Onyango and Isaiah Osotsi of Lutheran World Federation (LWF) Kenya for coordinating the site visits, hosting the research team and contributing to the research.

We would also like to thank external peer reviewers for their valuable input and comments: Gabrielle Berman, UNICEF Office of Research-Innocenti; Dorothea Kleine, University of Sheffield, United Kingdom; and, Mario Viola de Azevedo Cunha, Institute for Technology & Society, Brazil.

Many thanks are also owed to the key informants and countless others who contributed to the realisation of this research.

It is the hope of the research team that this work will inform more supportive technology use, policies, and research that will increase the wellbeing and reduce the vulnerability of children in emergencies throughout the world.

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ACRONYMS AND ABBREVIATIONS

BIA	Best Interests Assessment
CAAFAG	Children Associated with Armed Forces or Armed Groups
CPCME	Child Protection Case Management in Emergencies
CPIMS/+	Child Protection Information Management System/+ (CPIMS+ is a module of PRIMERO)
CP-RAC	Child Protection Research Advisory Committee
DCPO	Deputy Child Protection Officer
DfID	Department for International Development (United Kingdom Government)
FLA	Family Links Answers (Red Cross National Society case management system)
FTR	Family Tracing and Reunification
GBVIMS	Gender-Based Violence Information Management System
ICRC	International Committee of the Red Cross
ICT	Information and Communication Technology
IDP	Internally Displaced Persons
ISP	Information Sharing Protocol
LWF	Lutheran World Federation
M&E	Monitoring and Evaluation
ODK	Open Data Kit
POC	Protection of Civilians
Primero	Protection-related Information Management for Emergency Response Operations (UNICEF)
proGres	Profile Global Registration System (UNHCR)
PROT6	ICRC protection case management system
RapidFTR	Rapid Family Tracing and Reunification (UNICEF)
SC	Separated Children
SGBV	Sexual and Gender-Based Violence
UAC	Unaccompanied Children
UASC	Unaccompanied and Separated Children
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund

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Executive Summary

Organisations like the International Committee of the Red Cross (ICRC), 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 favour of more sophisticated digital solutions for child protection case management in emergencies (CPCME). Accordingly, a critical examination of the impact that the use of information and communication technology (ICT) is needed. UNICEF, in partnership with ICRC and UNHCR, through funding from the Government of the United Kingdom's Department for International Development (DfID), contracted mHELP/HealthEnabled to undertake a three-phased research project — desk research; field research; and analysis and synthesis — to assess the impact of ICT on CPCME.

The research team observed and learned about various ICT systems that included case management and non-case-management tools, namely: Prot6, Profile Global Registration System (proGres), Child Protection Information Management System (CPIMS), CPIMS+ (a module of the Protection-related Information Management for Emergency Response Operations (Primer)), Family Links Answers (FLA), Government of Kenya System, the 5Ws, Open Data Kit (ODK), Gender-Based Violence Information Management System (GBVIMS), and Situational Monitoring Tools.

Through discussions, observations in two settings – one in Kenya and the other in South Sudan – and analysis of data, the following conclusions were made:

- There is limited evidence in the literature on the impact that the use of ICT for CPCME have on reducing vulnerability and improving child protection outcomes
 - Current evidence did not permit us to reach a definitive conclusion on the impact of the digitisation of CPCME, but it did permit us to develop a more robust theory of change for future evaluators and research teams to take a more systematic approach to evaluating ICT for CPCME
- Investments in ICT for CPCME have focused on data management solutions and reducing the time-consuming administration processes
- The systems observed had a strong focus on family tracing and reunification, with particular attention to registration

- Data sharing (when it occurs) enhances coordination and collaboration across agencies
 - Data is transmitted faster than paper
- Data was used to plan and take action, but was usually on an ad hoc basis (rather than routine)
- Major barriers of moving to digital included:
 - Lack of interoperability of agencies' data (leading to time-consuming manual data matching and follow-up challenges)
 - Concerns on confidentiality and data management
 - Speed provided by ICT to CPCME risked sacrificing quality of information collected
 - Technostructure limitations (e.g., limited connectivity)
 - High staff turn-over and loss of institutional memory
- If we are to realise the benefits of ICT in CPCME (and humanitarian action more broadly), then we need to:
 - Conduct further collaborative/cross-agency research to evaluate the impact of ICT for CPCME on outcomes (including costing studies)
 - Convene stakeholders to discuss and generate harmonised action plans for better coordination and inter-agency data sharing
 - Harness the power of cybersecurity measures to secure data storage, retrieval and transmission
 - Re-examine work flows and existing systems to see where processes can be augmented through automated ICT mechanisms
 - Use ICT to further engage children
 - Establish (if not already existing) mechanisms for user feedback and updating of existing systems

The findings from the research principally pave way for future research to empirically document the impact ICT has in CPCME. In addition, the findings from the site visits and key informant interviews underline the interest in and opportunities for ICT for CPCME. While this research focused on child protection, the implications are wider. Ultimately, the evidence accumulated and compiled through this research can provide a baseline foundation upon which future implementations (or expansions of existing programmes) and evaluations can reference.

I. BACKGROUND

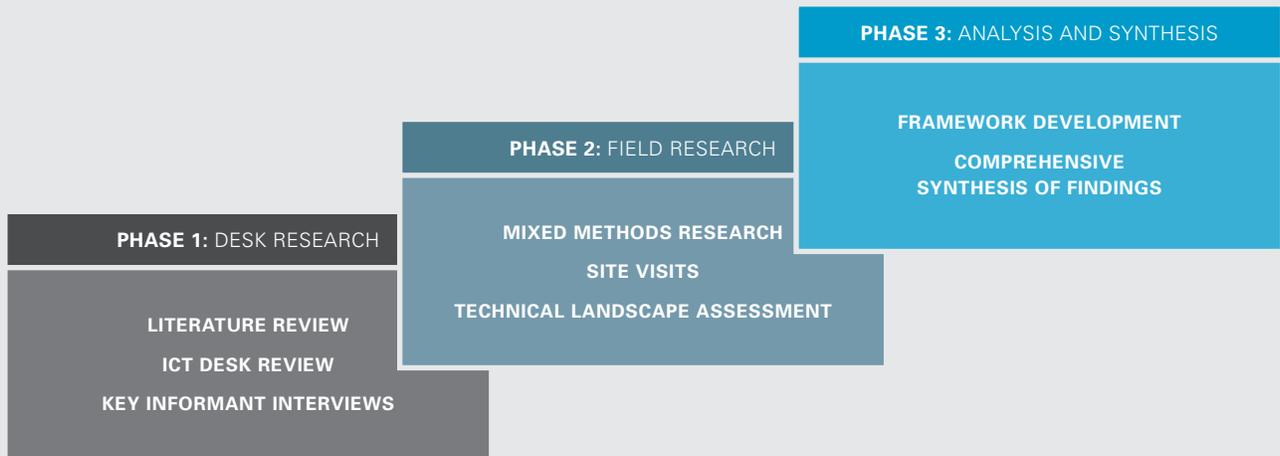
Organisations like the International Committee of the Red Cross (ICRC), the United Nations High Commissioner for Refugees (UNHCR) and the United Nations Children’s Fund (UNICEF) are moving away from traditional paper-based systems in favour of more sophisticated digital solutions for child protection case management in emergencies (CPCME). Accordingly, a critical examination of the impact that the use of information and communication technology (ICT) has is needed. UNICEF, in partnership with ICRC and UNHCR, through funding from the Government of the United Kingdom’s Department for International Development (DfID), contracted mHELP/HealthEnabled to undertake a three-phased research project (see Figure 1) to assess the impact of ICT on CPCME.

The research study aims to provide an answer to the following broad question: “Does the digitisation of

child protection case management in emergencies (ICT for CPCME) contribute to improved outcomes in terms of reducing vulnerabilities of children by improving factors such as time-efficiency, work-efficiency, child-friendliness and the ability to track children across case management systems?”

The steps taken to answer this question were cumulative and used a variety of quantitative and qualitative approaches. The culmination of the research is reflected in this report and provides a synthesis of information on the current state of ICT for CPCME and recommendations for improving ICT for CPCME in a way that contributes to reduced vulnerability of children by reducing systemic inefficiencies and improving access to the services children need.

FIGURE 1. Approach to the Research by Phase



II. METHODS

The research study used a mixed-methods non-experimental design. A combination of qualitative and quantitative data from a variety of sources (see *Appendix 1*) and triangulation of the data enabled the research team to gain insights from current ICT for CPCME implementations to develop a business process and framework to inform better decision-making and evaluation of the impact of technology on reduced vulnerability of children in the future. Vulnerability was defined according to the Interagency Guidelines for Case Management and Child Protection:¹ “Physical, social, economic and environmental factors that increase the susceptibility of a community of individuals to difficulties and hazards and that put them at risk as a result of loss, damage, insecurity, suffering and death.”

ETHICS AND CONSENT

During the course of the study, the researchers were careful to comply with the *UNICEF Procedure for Ethical Standards in Research, Evaluation and Data Collection and Analysis*.²

In order to ensure that service delivery was not interrupted during the course of the interviews, the research team consulted beforehand with the partner agencies’ management. Interview times were selected in a way that was not disruptive to staff work. Consent was requested and received by all key informants, as well as permission for their names and titles to be included in the final report (see *Appendix 2*).

With respect to the management of the data provided for this study, the researchers requested and received only data that was previously aggregated and de-identified. This data cannot be defined as publicly available, but it was taken from the data used in public reporting. The confidentiality of this data was maintained in line with the standard operating procedures and the information sharing protocols in effect. The research team was not required to undertake any efforts to removing identifying information, as the data had already been curated for the purposes of external sharing. The purpose of the request for this data was made clear by the research team, and consent was given. Data was managed and stored in encrypted, password protected files, and passwords were shared electronically via separate communication channels. The research team’s monitoring and evaluation expert maintained the data for analysis. After analysis these files were deleted, relevant emails were deleted, and the relevant computer’s trash folder was cleared.

PHASE 1: DESK RESEARCH

During Phase 1, the research team conducted a literature review, carried out key informant interviews and investigated existing ICT platforms and applications for CPCME through a desk review. The sources for the literature and ICT-desk review included documents shared by the partner agencies (UNICEF, UNHCR and ICRC), websites and peer-review databases. The guides for the key informant interviews were semi-structured; notes were taken during the interview as no interviews were voice-recorded. Common themes were identified and used to inform aspects of Phase 2. For the purposes of the ICT-desk review, special note was taken of the following systems during the key informant interviews, in addition to mining the literature for documentation: the Inter-Agency Child Protection Information Management System (CPIMS), the Profile Global Registration System (proGres) and PROT 5 and 6. The literature review strategy (see *Appendix 3*) established the following inclusion criteria: the documents needed to relate to child protection, deal with case management, involve the use of digital tools, and primarily focus on emergency settings. Documents not meeting the four inclusion criteria or describing methods or evaluation approaches rather than an implementation were excluded. These systems were in use and/or prioritized by the partner agencies.

PHASE 2: FIELD RESEARCH

The field research methodology was developed using the findings from Phase 1. To help structure the field research design and subsequent data analysis, a Theory of Change was created. The Theory of Change was designed in a way to attempt to draw correlations between the use of ICT for CPCME and opportunities to reduce child vulnerability. The assumptions and hypotheses were then put to the test during the site visits in South Sudan and Kenya. The sites selected by the partner agencies were emergency settings—one an internally displaced persons (IDP) area in South Sudan and the other a refugee camp in Kenya—with strong case management practices and the use of ICT for CPCME; they also had the potential to assess regional data sharing and cross-border activities.

At each site, key informants were identified through purposive snowball sampling; the roles of informants selected included child protection management, child protection caseworkers and database/ICT technical staff. Interviews and focus group discussions were carried out

Mingkaman, South Sudan

Beginning in 2013, IDPs escaping conflict migrated to the Mingkaman area; there are three main sites in the area. Mingkaman is located in Lakes State, which is centrally located in South Sudan. The IDP population is over 71,000, of which, 64% are children (aged 18 years and under).^{3,4} According to biometric registration data from 2015, most of the population has traveled from Bor South (Jonglei State), Awerial (Lakes State), Twic East (Jonglei State) and Duk (Jonglei State).⁵

Bor, South Sudan

Across the Nile River from Mingkaman is the town of Bor. Bor has been an epicenter of conflict in South

Sudan. The town currently hosts a POC site where over 2,000 civilians are under the protection of the United Nations Mission in South Sudan (UNMISS).⁶ ICT applications for CPCME similar to those in Mingkaman are in use in Bor.

The following ICT applications for CPCME were examined as part of the field research in South Sudan:

- CPIMS
- Profile Global Registration System (proGres)
- Prot 6*
- RapidFTR
- 5W's**

**Only observed in Juba*

***Not a case management system*

Kakuma, Kenya

Kakuma is located in Northwest Kenya. The refugee camp has been operational since the early 1990s. There are over 181,000 refugees in Kakuma.⁷ The majority of the camp population (50%) are South Sudanese, followed by Somalis and Sudanese.⁸ According to recent estimates, the number of new arrivals to the camp from South Sudan has been increasing, and of those new arrivals, most are women and children.^{9,10} There are over 2,000 registered unaccompanied minors (UAMs) and roughly 12,200 registered and supported separated children. Efforts are being made to strengthen the existing case management system and provide additional services and resources to enhance child protection and appropriately accommodate and serve the increasing child population in the camp.¹¹

The following ICT applications for CPCME were examined as part of the field research in Kakuma, Kenya:

- CPIMS
- CPIMS+ (a module of Protection-related Information Management for Emergency Response Operations (Primero))
- proGres v.3
- Family Links Answers

with the key informants using semi-structured interview guides, and observations of workflows, interactions with the ICT systems and the context of use in the camps were documented. In addition, a technical landscape assessment of how the agencies approached data protection, security and interoperability, including a review of current literature on standards, guidelines and protocols, was conducted. De-identified data and statistics generated from the ICT-systems were used to complement the qualitative data.

PHASE 3: ANALYSIS AND SYNTHESIS

The interviews from Phases 1 and 2 were reviewed together. After common themes were identified, the transcripts and notes were coded then analysed using NVivo 11 (*see Appendix 4*).¹² Raw quantitative data were analysed using Excel and SPSS (*see Appendix 4*). The synthesised findings, which are the main focus of this report, were used to update the Theory of Change and develop the recommendations and a framework for approaching ICT for CPCME in the future.

LIMITATIONS

This research had several limitations. There was a heavy reliance on qualitative data, and the data obtained reflect one period in time, rather than changes over time. With an attempt to be as focused as possible and flag areas for future investigation, the research did not cover all relevant topic areas. Most notably, the research did not investigate laws related to child protection and data sharing. Additionally, the research was not able to examine cross-border situations, nor did it investigate other emergency settings (i.e., post-natural disaster).

III. FINDINGS

There is limited peer-reviewed evidence on ICT for CPCME. The evidence on the impact that ICT for CPCME has on reducing the vulnerabilities of children in emergency settings is limited to the grey literature. More than 600 documents were identified through organisations involved in child protection in emergency settings and online databases. However, only 19 documents were ultimately relevant to ICT for CPCME.¹³ The documents primarily described the types of ICT applications and systems for CPCME and provided qualitative information on the benefits and challenges of ICT for CPCME. If documents did contain evaluation information, the findings were limited to outputs and short-term outcomes.

Evidence in the Literature on ICT for CPCME

- **There is limited evidence on the impact that the use of ICT for CPCME has on reduced vulnerability and improved child protection outcomes.**
- **Investments in ICT for CPCME have primarily focused on data management solutions and reducing the time-consuming administration of the case management process (e.g., identification and tracing).**
- **Data sharing, when it occurs (whether automatically or manually through the ICT systems), enhances coordination and collaboration across agencies.**

In addition, the findings from the site visits and key informant interviews (12 global key informants, 22 key informants in South Sudan, 33 key informants in Kenya) underline the interest in and opportunities for ICT for CPCME. Ultimately, the evidence accumulated and compiled through this research can provide a baseline foundation upon which future implementations (or expansions of existing programmes) and evaluations can reference.

A total of 67 key informants were interviewed: 12 global, 22 in South Sudan and 33 in Kenya. Most were child protection and case management specialists.

The global key informants included representatives of the partner agencies and other key stakeholders working in child protection that did not represent a specific country office and/or had experience across multiple regions and contexts. Most of the informants interviewed during the site visits in South Sudan and Kenya were child protection and case management specialists (n=27). The remaining key informants were data management, ICT specialists and registration workers (n=26) or worked in government (n=2) or health (n=1) (see Table 2).

Through the discussions and observations, key differences and similarities were identified between the two sites. The major differences between the contexts included

TABLE 1. Summary of the Types of Key Informants

TYPES OF KEY INFORMANTS	NUMBER
Child Protection and Case Management Specialists	27
Data Management Specialists	15
Global	12
ICT Specialists	7
Registration Workers	4
Government Representative	1
Health Worker	1

connectivity, staff capacity and clarity of referral pathways. Connectivity—especially for mobile phones—was limited in South Sudan. Staff capacity (both skills and numbers) was also low in South Sudan, and referral pathways were unclear. In Kakuma, referral pathways were more clearly outlined. Key CPCME activities were the same in both South Sudan and in Kakuma. Other similarities included the use of multiple ICT systems that were not interoperable between organisations (including government systems and processes), varying approaches to the case management process as well as an open referral loop and high staff turnover.

The synthesised findings across all phases of the research are presented below. They are organised to correspond to the components of the Theory of Change (see *Figure 2*).

Connectivity, as well as staff capacity, was more limited in South Sudan as compared to Kenya, and there was less clarity on referral pathways in South Sudan.

THEORY OF CHANGE

The Theory of Change was developed to identify correlational and potentially causal links between the use of ICT for CPCME and child vulnerability. Indicators from the literature were used to infer changes in vulnerability.^{14,15,16} The Theory of Change is based on the following assumptions. These were validated and refined following the site visits.

- ICT for CPCME is integrated into an existing, functional case management system or routine response in emergency settings.
- The minimum standards and services for child protection are met, where applicable.¹⁷
- ICT inputs are linked to reduced vulnerability and can improve quality of care.
- Routine use of better quality data leads to improved decision-making and action.
- Frequency of child interviews are a metric for child friendliness.
- Reduced time to receiving services and resolving cases leads to improved outcomes and a greater impact.

The activities in the change model highlight the areas that ICT is used in CPCME processes and the outputs and outcomes are based on findings from the desk research and key informant interviews. The foundation of the change model is the enabling environment for the effective use of ICT. The enabling environment refers to factors that need to be in place prior to the integration of technology and other innovations in CPCME.

Informed by the enabling environment, ICT-related inputs and interventions can be added and evaluated for their impact on case management outputs and child protection outcomes. With those components in place ICT can be used to complete different aspects of the case management process. It is believed that if the ICT applications generate quality data that is actively used for improved case management then improved case management will ultimately lead to reduced vulnerability of children at-risk.

The subsequent sections of the report explore the research findings, organized by each of the areas outlined by the Theory of Change in greater detail.

IMPACT

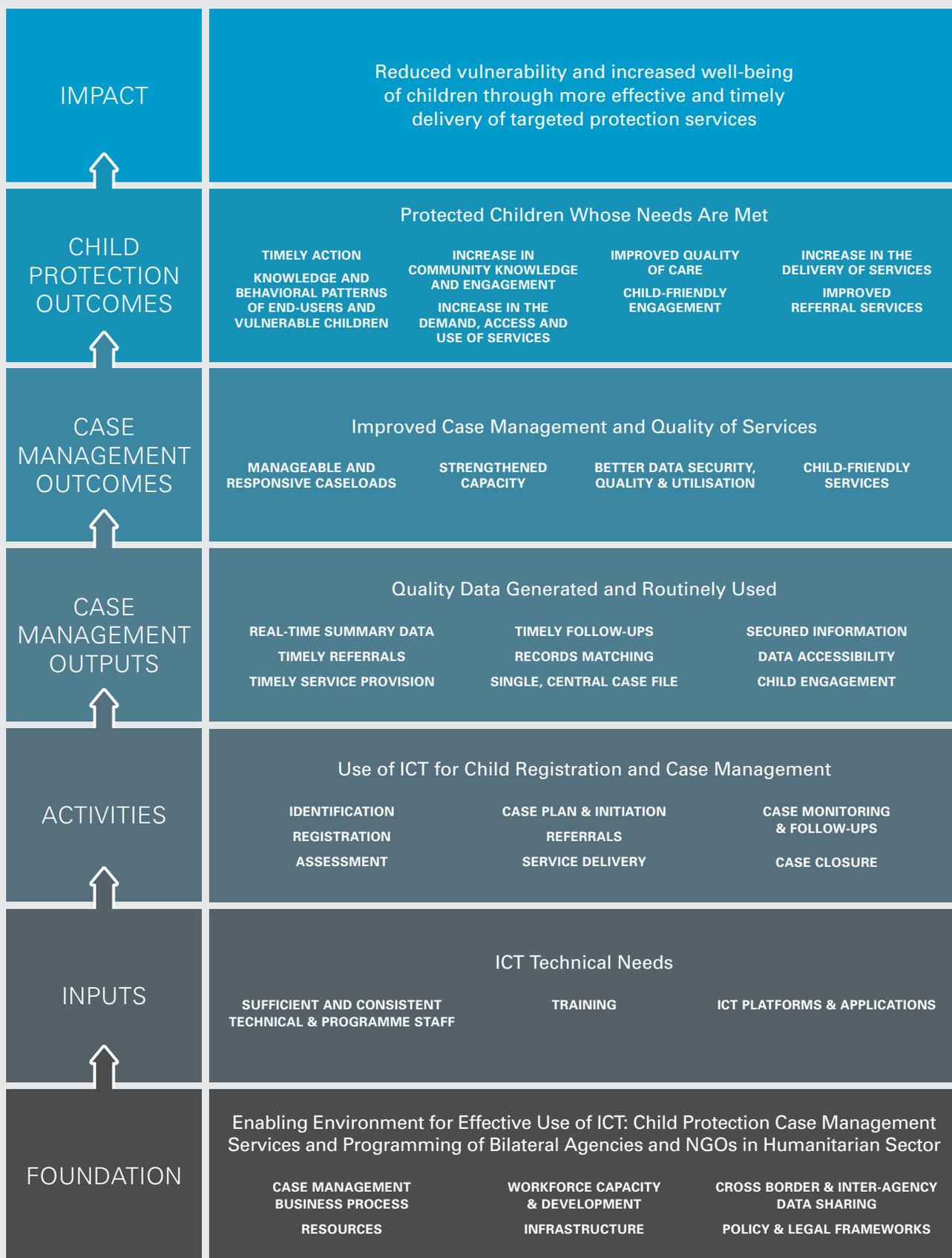
The highest-level impact for the use of ICT for CPCME is reduced vulnerability of children in emergencies. Neither the literature nor the empirical data collected enabled the distinct correlation between technology and child protection outcomes. In this regard, it is recommended that future research is designed and conducted to explicitly assess the impact that the use of ICT is having on child protection outcomes.

The main findings from the empirical data were related to increased efficiencies in case management processes and activities, including reducing time to transmit, enter, or share data (within the parameters of existing data sharing operating procedures); reducing the time it takes to close a case upon receiving notification to close the case; reducing the workload of the database managers to back-up data; and improving record keeping. The use of ICT for CPCME has also led to an increase in the number of cases registered and facilitated the retrieval of case information for case reviews and planning. The data are primarily restricted to outputs and short-term outcomes.

Child Protection Outcomes

As part of the overall research design, an analysis of anonymised and de-identified data from prioritised ICT for CPCME systems was included to assess whether such an undertaking could contribute to answering the research question. In particular it attempted to specifically explore the opportunity to leverage data generated by the systems to measure improved outcomes in terms of reducing vulnerabilities of children. As qualitative data was collected, the team also requested system data from agencies. Data were provided only in South Sudan from Save the Children (from CPIMS exported to Excel) and UNICEF from their Family Tracing and Reunification (FTR) caseload. Data from Save the Children entailed unaccompanied and separated children (UASC) caseload in Bor and Awerial Counties in South Sudan while UNICEF data were FTR caseload summaries.

FIGURE 2. Theory of Change



The type of data received was mainly nominal data¹⁸ and as such simple descriptive analyses were undertaken. Data from Bor and Awerial was for a caseload of 935 children, between January 2014 and March 2016, whose mean age was 9 years, with the youngest child being below one year and the oldest 18 years (see Tables 2 and 3). 52.5% of the children were girls and 47.5% were boys. The mode (most occurring age) was 5 years though children aged between 3-10 years comprised 53% of the cases. From the data, almost half (i.e. 49.5%) of the cases had been closed and slightly more than one quarter of the cases were open, while 12.7% had been reunified as shown in the table below.

The biggest proportion of the caseload comprised separated children, accounting for 84.2% of all the children while only 15.8% were unaccompanied children. Disaggregated by tribe, 98.5% were from the Dinka tribe while 0.5% were Anuak and 0.5% were Nuer. These children had very little education with 45.6% having no education at all while the rest (54.3%) had some primary education but most were marginally beyond primary level 3 (third grade).

Regarding care arrangements, most children (63.3%) were in the care of foster families. Other care arrangements are shown in the table below.

Nine out of ten children (i.e., 91.2%) of all children had been separated from their families due to violence.

Data from UNICEF shows a total caseload of 11,989 children aggregated from 20 UNICEF implementing partners, including UNICEF's data, in various parts of South Sudan. This data was from December 2013 to February 2016 (see Table 4). Out of this, 1,689 were unaccompanied with 41.5% being girls and 58.5% being boys. The number of separated children quadrupled compared to unaccompanied children with a caseload of 7,067 with girls comprising 47.2% and boys 52.8%. The number of missing children was 3,212 comprising of 1,628 girls and 1,584 boys. The total number of cases closed was 3,330, representing almost one-third (i.e., 27.8%) of all cases closed meaning that seven out of ten cases were still active and yet to be finalised. However, it was not possible to determine from the data how long it took for a case to close.

The data were from nine states in South Sudan with the highest number of cases being from Upper Nile, Jonglei and Unity States.

TABLE 2. Status of Bor and Awerial Unaccompanied and Separated Children Caseload: January 2014-March 2016

STATUS OF CASE	NO OF CASES	PROPORTION
Adult Verified	1	0.1%
Closed	463	49.5%
Monitored	98	10.5%
Open	250	26.7%
Referred	2	0.2%
Reunified	119	12.7%
Tracing	2	0.2%
Total	935	100.0%

TABLE 3. Care Arrangement for Bor and Awerial Unaccompanied and Separated Children Caseload: January 2014-March 2016

CARE ARRANGEMENT	NO OF CASES	PROPORTION
Child-Headed Household	34	3.6%
Extended Family	292	31.2%
Foster Family	592	63.3%
Interim Care Centre	1	0.1%
Living Without Adults	3	0.3
Others	13	1.4%
Total	935	100.0%

TABLE 4. Child Protection Sub-Cluster Data on the Child Protection Caseload in South Sudan Per State by Gender and Total

STATE	GIRLS	BOYS	TOTAL
Central Equatorial	582	657	1,239
Central Equatorial	1	1	2
Lakes State	784	930	1,714
Eastern Equatorial	228	259	487
Upper Nile	1,036	1,104	2,140
Jonglei	1,311	1,536	2,847
Unity	1,647	1,742	3,389
Warrap	87	81	168
Western Barh-El-Ghazal	2	1	3
Total	5,678	6,311	11,989

The data further shows that the reunification rate was 31.3%, representing a total of 3,752 cases out of the total caseload of 11,989. Most of the reunification were for separated children.

No inferential statistics were run for the data because of the limitations with the data and as such the research offers more opportunity for future research especially to be able to quantitatively look at the indicators as envisaged at the inception of the research. Specifically these indicators are listed in Table 6.

Case Management Outcomes

As reflected in the Theory of Change, the child protection and case management outcomes were primarily short-term outcomes. The outcomes cited in the literature and interviews are categorised into four major areas: caseloads, capacity, data quality and use and child-friendly services. The caseloads reflect the types of cases (based on vulnerability) and the caseload; capacity refers to the ability of the staff to address the children's needs, providing necessary services and follow-up; data quality and use are concerned with how accurate the data are and how the data are used for case planning; and child-friendly services refer to ensuring existing vulnerabilities are not amplified.

With a high number of cases, it has been difficult for organisations, especially in conflict settings, to keep up with the caseload. Often, technology is used by the database or ICT specialists, rather than the caseworkers. For the database or ICT specialists, at least five overwhelmingly felt that ICT had increased their efficiency. However, the efficiency sometimes leads to errors and compromises data quality. Supervisors also appreciated the 'real-time' aspect of the data, enhancing case planning.

In regards to the type of ICT in use, the systems observed largely focused on child protection registration. This focus, however, came at the expense of attention to case follow-up, which is a core component of CPCME. Overall, agencies were extremely mindful of child-friendly services and despite the use of ICT in their workflows, they would take care to ensure that the needs of the children were met and that technology did not impede their rapport with the children as highlighted by 6 informants.

Caseloads and Capacity

The emergencies that jeopardised children in the contexts of interest were primarily related to conflict or other violent situations. There were also cases of forced migration, cases of children in detention, and cases arising after natural disasters. One organisation shared aggregate caseload data from 2015, which showed that 78.5% of cases were unaccompanied and separated children and close to 6% were children associated with armed forces

or armed groups (CAAFAG). The estimates of the total number of cases were on the order of a few hundred to several thousand, with informants mentioning active cases ranging from 3,500 to over 10,000 (representing several locations) and quantitative data reflecting 935 cases for one organisation and close to 12,000 for another organisations and its partners; one organisation had a caseload of 1 caseworker for 150 cases. With the high burden of cases, caseworkers feel overwhelmed and are concerned that they are not doing the most they can for the children in their care. One organisation, after receiving feedback from caseworkers and reflecting on the case follow-up burden of eight cases per day, revised the policy and processes so caseworkers would see a minimum of three cases per day. The caseworkers felt that the revised burden was more manageable, did not adversely affect the children and better helped them to focus on priority cases, giving them the time to handle each case.

There was a strong focus family tracing and reunification (FTR). The driver behind this is the ease of identifying children without parents or caregivers. Technology has helped speed up the process of identifying and registering UASC; however, it is important to note that UASC is only one category of vulnerability, and UASC may not be the most vulnerable. Child protection and case management specialists felt that there was a loss of attention on other vulnerabilities of these and other (non-family tracing and reunification) children. For example, a child protection and case management specialist remarked, ***"[We] have this huge list of unaccompanied children, but if no one is doing case management for these children, what is the point of having this information?"*** Another remarked, *"We have 5,000 children at risk. How many of them have we done anything or done an initial interview? If you can't report on that, what's the point of the information? Some people didn't know this number was available."* Other examples of vulnerabilities that are often overlooked due to the strong focus on FTR include cases of gender-based violence and cases with mental health challenges.

Data Quality and Use

At least 5 informants found it helpful to have 'real-time' data for planning purposes. The data found most helpful across the different types of key informants included the number of children at risk, the number of children receiving follow-up, the number of cases closed and the case load. One agency used ICT to routinely identify dormant cases and take action. Agencies also used the systems to generate and disseminate weekly, monthly and quarterly reports, but often, data queries were on an ad hoc basis.

A database specialist shared how dramatically ICT had reduced the time to share data as compared to paper: *"Now you see that will take like 2 months just to send a form...but right now, if I just task you, the person will*

TABLE 6. Sample Indicators for Future Outcomes Research

FACTOR	INDICATOR(S)	HYPOTHESIS(ES)
Time-efficiency	Time to [endpoint]	Decrease in time to [endpoint]
Work-efficiency	Time to [endpoint]	Decrease in time to [endpoint]
Child-friendliness	# times child interviewed	Decrease in # times child interviewed per service provided (separated from counselling and support interventions)
Child-safety	# cases registered # cases reunified	Increase average # cases reunified Increase # cases in safe homes
Child-access to essential services	# cases referred # cases followed-up	Increase in # cases receiving referrals who obtain referral services
Ability to track children between case management systems	# cases traced # cases referred # cases reunified # duplicate cases	Increase average # cases traced Increase in # cases receiving referrals who obtain referral services Increase average # cases reunified Decrease in # duplicated cases

TABLE 5. Child Protection Sub-Cluster Data on Number of Cases Reunified Across South Sudan by Gender and Total

NO OF CASES REUNIFIED			
CATEGORY OF CASES	GIRLS	BOYS	TOTAL
Registered as unaccompanied minor	235	274	509
Registered as separated child	1,410	1,758	3,168
Reported missing	30	45	75
Total	1,675	2,077	3,752

receive that task immediately and he can follow it up. Now that [in] a day or two days, the person can receive and start following up.” ICT also facilitates immediate case closure once a task is received to close a task. “And again the other important thing that came up, you can say that it’s easy to close a case online without going to the field.”

While there was an appreciation of the increased speed that ICT provides to CPCME processes, there was a concern that speed “may sacrifice the quality of information collected,” especially in an emergency setting where reviews of data may not happen until later. “If you are putting it [the data] directly in the system, there could be errors and the child protection officer might only look at summary data.” In order to address data entry errors, a database manager at one agency wrote a script that automatically runs in the background of the system and allows him to flag errors and missing data and the responsible person(s). He is then able to follow-up directly with the person who entered the data to rectify the problem.

Mandatory Fields

Related to the data quality discussion, 6 key informants also raised the issue of mandatory fields. There was a division among supporters and non-supporters of mandatory fields, with more informants noting the challenges (rather than benefits) of mandatory fields. Those against mandatory fields felt that, “Mandatory fields encourage lies.” Several caseworkers and supervisors felt frustrated with mandatory fields and initially felt “like it was a crisis” as they could not submit incomplete forms as was mentioned by 5 informants. Caseworkers and data entry clerks would enter “X”. A child protection and case management specialist remarked that the mandatory fields requirement ultimately led to weak data “because [we] want to put information into the system, which is not fair to the child.” Whereas supporters felt that the data collected on paper already had errors and that the use of ICT reduced the time to identify such errors as it took considerably more time to send paper forms for data entry and review as compared to ICT data.

Child-friendly Services

In terms of child-friendly practices—which concerns minimising vulnerabilities, including in the presence of a technology-enabled system, and meeting the needs of the child—agencies took care to understand and operationalise the best interests and desires of the child. For instance, if a child did not want to be reunified, the child’s wish would be honoured. In addition, children were interviewed in a way and setting most comfortable to them (a child friendly practice). Ideas and opportunities for using technology to enhance child friendliness include (1) reducing duplication so children are not “subjected to multiple interviews and assessments” and (2) allowing children to tell their stories

through pictures and tablets with an application supporting painting and drawing could be used. Above all, the most important point that was primarily reiterated among the supervisors was that, “We are talking about children, they are not numbers.” This point was the motivator and driver for much of their work and efforts to ensure child-friendly services regardless of the types of tools available and in use.

Case Management Outputs

The case management outputs include: ‘real-time’ summary data; data accessibility; records matching and single case files; timely referrals, service provision and follow-up; and secured information and child engagement.

Summary data, data accessibility and records matching and single case files cover topics related to data generated by the systems for reporting and data sharing purposes, as well as records matching (for reunification purposes) and single case files (to reduce duplication). Data sharing, while it occurs, is complicated by the diversity of actors and a lack of interoperability between ICT systems. Despite the convenience of technology to automate processes like records matching for reunification purposes, the procedure is often manual due to data sharing practices and a lack of interoperability. The ICT systems, however, have helped reduce the duplication of case files internally, but it is possible for a client to have case files open across the different actors.

In the two settings, follow-up was a challenge and referrals were limited. In South Sudan the referral pathway was ad hoc, but in Kakuma, Kenya, there was a clear protocol for referrals. ICT has helped flag some of the issues and facilitate follow-up by identifying dormant cases and aiding in case planning.

In terms of securing case information, efforts are made to keep data confidential and secure both on paper and in the ICT systems. The respondents strongly felt that securely storing and exchanging data could not be compromised and was an important part of child engagement in CPCME.

Summary Data, Data Accessibility and Records Matching and Single Case Files

When retrieving output data from the system for review and sharing purposes, the indicators of interest include time to start implementation of a case plan, case prioritisation and case follow-up (or number of children served). Some of this information is shared in its aggregate form externally. For example, organisations in South Sudan submit monthly aggregate data on their child protection work to a 5Ws reporting tool. The 5Ws tool is an Excel-based spreadsheet that organisations use to enter their aggregate child protection data on a monthly basis. The data are then sent to the Child Protection Sub-Cluster for merging with data across the country. The resulting

data are then used to generate a snapshot of the national response to child protection, presenting regional data on the burden and reach of service provision actors. In one instance, the tool facilitated connecting two organisations working in the same region. They then worked on sharing data with one another in addition to continuing to report the 5Ws tool. A similar process takes place with CPIMS.

Organisations “share information in different ways”. The methods include email, ad hoc reports, meetings and Excel. If something is emergent phones will be used to set-up a meeting, but case information is not shared over the phone. Due to the variety of actors and overlapping mandates, data sharing agreements have been established. However, not all agencies signed on to the inter-agency data sharing agreements. Ultimately, data ends up being shared on an ad hoc basis. This poses a challenge to identifying duplicates and also matching for reunification purposes. Matching requests are often processed manually, even within agencies (in different regional settings). The “compatibility is not there...this is a very big challenge.” Furthermore, in one of the ICT systems in use, the ability to query for matches was not functional. For a separate system, the database manager could have the system conduct the matches at the click of a button. However, manual permutations of name spellings are sometimes necessary, even if the system can automate the matching process. Despite the challenges with external data sharing and matching, the systems do help reduce file duplication as they automatically bar the double-entry of case files.

However, all actors recognise that “A lot of these contexts require cooperation and multiple partners,” especially as “we are here to serve children, to serve the refugees.” Accordingly, there is “motivation...to bring systems together or better understand how to link them.” Considerations for data sharing include securing the information to protect a child’s confidentiality. For cross-border cases one agency shares reference numbers to facilitate hand-over of the case to the current location.

Referrals, Service Provision and Follow-Up

Follow-up is a challenge in the CPCME process. At times, information obtained from clients is inaccurate or it changes over time. Accordingly, follow-up is crucial. ICT has facilitated the follow-up process, including reducing the amount of time to and time to do follow-up. A database manager noted, “if you click dashboard, the lower part shows you the impending tasks. You see you have a lot of impending tasks, work on them. It’s very easy.” Another informant remarked that the prioritisation of a case at the time of registration helps guide follow-up and can be changed over time.

Secured Information and Child Engagement

In all of the systems observed, there are multiple user levels, rights and restrictions are assigned to different users, data are encrypted, there are audit histories and any access to the data requires a user log-in and password. There are concerns with transmission of case information over email especially with some partners who do not have official email addresses or have not been trained on confidentiality, which was brought up in the context of South Sudan. Similar concern was expressed on securing the paper-based forms. There are “various levels of resource capacities for certain agencies, data confidentiality is one of them. Because they don’t have enough facilities like a lockable cabinet, the filing system is not there...” Respondents felt that securing information and ensuring confidentiality were necessary components of child engagement.

ACTIVITIES

The activities where ICT for CPCME are most readily used includes: registration, identity verification, vulnerability assessments, referrals, service delivery and case monitoring. The interviews conducted were coded along the following main activities: identification, registration, assessment, case planning, and referral. Other ICT-related activities and issues included case management action or lack thereof, follow up and review, case closure, and confidentiality.

Case Management Identification and Registration

Identification and registration of cases varied depending on the entry point of the identified case. Since the research was concerned with both IDPs and refugees, the case identification and case registration processes were different. For instance, the identification and registration of cases at the IDP camps in South Sudan was primarily at the registration centres at the camps or in the community through community-based structures, while identification of cases for refugees in Kakuma was mainly at the transit centres after registration with the Kenyan authorities and UNHCR (where the refugees are received at the border point from one country to another), but actual case identification and child protection case registration took place at the reception centres. Unique to the refugee context in Kakuma was that the first step was with the government agency in charge of refugee affairs (ensuring registration of all persons seeking asylum or refugee status) followed by registration with UNHCR. Registration at the government agency involved the use of both paper forms and entry into a computerised system while UNHCR registration was purely into a computerised system.

The use of ICT to identify and register cases varied because there was a mix of both paper forms and ICT systems. However, in most cases, paper forms were the main form of identification and registration for onward entry (mostly by data clerks) into the ICT-based system in use. One respondent described the identification process for a refugee as follows:

We start our case management from the border of Kenya and Sudan, although there are those who come through Nairobi and through other sources... but for the people from Sudan we start our case management from the border transit centre at Nadapal. There we have a staff stationed there to do the assessments, like fill the BIA (Best Interest Assessment) forms and identify children with protection concerns i.e. the unaccompanied minors, separated children and children living with other vulnerabilities. So once we capture the children from there they are again moved to a reception centre and they come here where we also have a staff; we have a DCPO [deputy child protection officer] in the field station and two social workers. So they do further assessment and make recommendations depending on the condition of the child.

It is important to note, however, that registration of child protection cases (both paper-based or ICT system) was specific to individual cases (i.e., one child per registration) and captured basic information such as name, parent's name, circumstances of situation (separation), knowing the wishes of the child (e.g., if and with whom the child would like to be reunified), needs of child (immediate: health, shelter, food, other), interventions needed. In fact, in most cases the registration in the ICT system mirrored the information in the paper forms. However, not all systems were paper-based forms. For instance, one respondent stated that the *"Process starts with identification and registration in proGres database."* It was postulated that if refugee registration was done immediately and entered into an ICT system, the potential of reunification for a child was much higher. One informant stated: *"If [you are] able to register children and parents within 72 hours of separation, potential reunification is much higher. [What is] key [is the] time frame. [Of importance are] registration, response and tracing..."* However, the informant's rejoinder was that *"Registration per se does not mean that [a] child is less vulnerable."*

It is important to note that the different agencies had different opinions on whether to key in the entire

information in the registration forms or part of the information. Some respondents opined that *"when basic information is captured, one of the benefits is tracing time [is] more compressed or condensed [and it] helps connect and do the work more quickly."* Those with a contrary opinion felt that it was important to ensure all the information is entered into the ICT system to avoid back and forth follow up, especially for areas that were hard to reach.

Case Management Assessment and Case Planning

Once cases have been identified and registered—either on paper forms or in an ICT-based system or a mix of both—the cases are assessed. Importantly, the process from identification to assessment is usually along a continuum with no demarcated breaks/points. The research sought to identify the use of ICT in this process as well as how it aided in the assessment and planning process.

The data revealed that during the screening process the registration staff is trained to spot/flag specific needs and as they do this they either use paper forms or capture the information digitally. All the respondents in South Sudan and Kenya confirmed the use of BIA forms (though with variations contextualised to the specific location) to undertake registration and assessment. Consequently, BIA is the assessment tool, which combines with an action plan for the case. For refugees, a rapid risk assessment is first done at the border point (i.e., transit centre) to ensure immediate needs are addressed. This is done through paper forms and no ICT is used at this point. It was clear that all BIA forms were first manually captured before the information was entered into the ICT system.

Case planning, in most cases, was the mandate of a child protection supervisor/manager, who assigned cases to caseworkers. In one context, it was reported that the *"supervisor sits with caseworker to plan the support."*

Case Management Action, Follow Up, Review and Referral

The research revealed that in both sites (South Sudan and Kenya) a plethora of forms were used after the case registration had been undertaken. Some of these forms include: temporary care monitoring forms, referral forms, which are used for case management action, referral, follow up and review.

The first point of action for the unaccompanied children (UAC) and separated children (SCs) was to place them under foster care. This placement was either spontaneous

(where a child is UAC but already staying with a family who is prepared to continue with care) or organised foster care facilitated by the child protection agency. However, children unable to be placed in foster care are often placed in group care or child-headed households. This activity is captured using paper forms and later updated in the ICT system in use by the child protection agency.

The ICT system aids in case management action, follow up and review. One respondent described this in the following way.

In data management we work hand in hand with the case management team. We have the [system] that supports the victim case management process. And with the help of the [system], we keep the details, case by case for all the information captured by the case management team for the children of protection concerns—those are the UAMS [unaccompanied minors], separated children and other vulnerable children. Once the assessments have been done, starting from identification, follow ups and any other assessments which are done, we enter the information in the systems and keep it.

Another informant said, *“Having an electronic system to manage cases ensures that there is a proper follow-up. Emails lead to too much paper!”* However, not all the systems are structured to undertake follow up. This was corroborated by another respondent who asserted that *“[A] second thing that the [system] does is to guide the case workers to follow up the cases, and it reminds them on what to do and at what time they are supposed to do [it].”* It was agreed, however, that systems can be better designed to help with follow up of cases, especially through creation of automatic triggers or reminders to case workers and supervisors.

All caseworkers stated that referral of cases was done, mainly through an interagency referral form, which is a paper-based form. This, it was noted is laden with challenges because it is *“difficult to get feedback from service providers (no mechanism for feedback); no mechanism for coordinating of feedback to referring agencies.”* In addition, the paper referral forms did not accord the child (or referred case in general) privacy. However, other agencies did referrals through emails (work-related and not through personal emails) while trying to ensure the referral was password-protected. Within another location, because of challenges in referrals, the agencies developed a referral pathway to ensure

confidentiality of the person of concern, though this was specifically for sexual and gender-based violence (SGBV) cases only. They introduced ‘e-Referral’ (which is password protected for SGBV Working Groups); it is a lot of work but ensures confidentiality. Previously, they had filled out paper forms that exposed the details of the case. Most referrals were for medical concerns since the child protection agencies interviewed stated that their mandate was mainly on tracing and reunification.

Case Management Closure

In most situations cases remain open until they are formally closed. One respondent stated: *“So long as a child is a refugee, as long as there is a child protection case...the needs are addressed. They [refugee cases] tend to stay open, but not officially closed.”*

Cases of child protection case closure varied from one context to the other. For instance one respondent stated that, *“Case closure depends on the successful completion of the care plan. [This] depends upon the circumstances in which the child is identified,”* while another said that *“cases close when there is nothing to do anymore [and this may be in situations where] all possible activities have been exhausted.”* The system is invariably used to track any cases of case closure and the *“database manager regularly checks [the] system to see if there are cases that have not been updated in the last 3 months.”* Specifically, it was noted that one of the systems could *“inform case closure [especially] when a child reaches 18 years, it indicates it.”* Other instances of case closure include: resettlement, reunification, transfer to another camp, death, in care arrangement and long-term care plan with no additional vulnerability. All these aspects were captured in the various ICT systems reviewed.

Case Management Data Sharing and Confidentiality

Data sharing was one of the major bottlenecks experienced by partners engaged in child protection. This was experienced due to the information sharing restrictions and confidentiality embedded within the various agencies coupled with the various systems that did not “speak” to each other. Data sharing was such a major issue of concern that opinions were as varied as the respondents. One respondent stated: *“For [the] purposes of ensuring protection of persons of concern, sharing must be for specific purpose. Needs legitimate grounds for sharing of information, [for example] consent of person (but this can be problematic because often person does not have a choice in emergency situations).”*

However, it was agreed that sharing is important but *“on the Inter-Agency level, [there is] need to agree on minimum standards and what data needs to be shared, the circumstances, the specific purposes for data sharing, having the same safeguards, the proportionality for data sharing.”* Respondents also agreed that though they would like to see things working at the field level; most challenges were experienced at the higher management hierarchies, which precluded sharing and thereby created duplication of the work.

INPUTS

The major inputs in the Theory of Change include [trained] technical and programme staff, training, and the ICT platforms and applications. In the context of ICT for CPCME these inputs can be used by the various stakeholders to carry out an ICT-enabled case management process. As previously mentioned, the activities where ICT is most used is registration, but the case management process includes registration, identity verification, vulnerability assessments, referrals, service delivery and case monitoring and follow-up.

In the findings, training all child protection staff on CPCME was integral to programme success. For the benefits identified of the ICT systems in use, there were also challenges; however, the challenges were outweighed by the benefits and opportunities of using the ICT systems.

ICT Platforms and Applications

The research focused on the ICT programmes and applications in use by the main partners. These platforms included Rapid Family Tracing and Reunification (RapidFTR), CPIMS and CPIMS+ (a module of Protection-related Information Management for Emergency Response Operations (Primer)), proGres and PROT6. However, other ICT platforms were identified and investigated, including Family Links Answers (FLA), Excel, Access, Open Data Kit (ODK), biometric information management systems (e.g., fingerprints, iris scans) and web-based tools (e.g., websites, email). The use of Excel was pronounced and the workflows still relied heavily on paper. Agencies would not only develop their own Excel spreadsheets for data collection or supplementary data collection, Excel was also used to transmit data between systems.

Despite the numerous challenges with ICT, such as connectivity challenges, lack of interoperable systems and complexity, there was an overwhelmingly positive response on what ICT was facilitating and could do in the future.

ICT Benefits

For the ICT systems in use, users (predominantly the database and ICT specialists) found it easier to follow-up on cases, verify case information and for displaying aggregate data externally in dashboards and generating reports (noted by all of the database specialists). In addition, data was transmitted faster than paper. One database specialist remarked that, *“on a worst case scenario, we get forms in the system maybe three days later after registration. However, before...paper forms could take up to two or three weeks...and then our data entry clerk would start entry of this data in the system and it would take like close to a week or two weeks.”*

In Kenya, one agency is currently using electronic systems backed up by the manual system and will rely solely on the electronic system once it runs more smoothly; the same agency will also be introducing registration using tablets and phones. Fingerprint biometric registration systems are also in full use in Kakuma, to help identify refugees and provide them with the services they need.

One of the benefits of ICT is that updates to the system that reflect the needs of the users are possible. One agency was able to upgrade an existing system, which led to enhanced performance and reduced workload for the database specialists. Previously, the system had relied on the physical entry of data in one location, as well as updating. Once it was web-enabled, real-time data entry, updates and access were available across all of the agency’s geographical operations.

Informants across all agencies cited that, while paper forms were still in use (paper and soft copies coexisted), having an electronic form of their data provided a snapshot overview of their cases. That snapshot was found to be *“very useful”* not only by the caseworkers, but also by their supervisors for decision-making as opportunities are not missed as the information is immediate. In addition, a supervisor remarked that, *“These tools we are using are beautiful tools because they contain section by section”* all of the forms in use for case management; it also facilitated the registration of more cases than paper for that particular organisation and its partners. Importantly, that same informant also recognised that the tools were only as good as the programme. Two additional informants emphasised that even *“without digital tools, programme[s] would still run well.”* This underscores the point that, *“these ICT tools are NOT stand-alones...must be part of a wider [] strategy. ICT should be included as part of a larger response... cannot replace the human response, the work of the teams in the field, [it] needs to be complementary to that work.”*

With data back-ups, “if anything happen[s], we can still recover the information.”

Technology also has its advantages over paper. One informant from South Sudan shared that, *“situation used to be rough”* and when the conflict ensued, the hard copies *“were damaged and the soft copy file remain[ed].”* Furthermore, technology can also be used intermittently to address emergency situations. For example, one agency set-up a registration website where people can go to register who they are and/or locate their missing family. While there are concerns with the security risks associated with ICT, one key informant noted that, *“we need to be honest and look at how paper is used.”* He went on to remark that paper forms were often not stored properly or securely.

ICT Challenges

The most cited challenges of using ICT for CPCME were information sharing practices (n=15) and infrastructure challenges (n=8) such as connectivity and electricity, with the former being the primary area of concern. Additional challenges mentioned by the key informants (with some being related to the information sharing), included matching, mandatory fields, and the lack of user-friendly designs for the systems.

As previously mentioned, there is a formal data sharing agreement in place in Kakuma. However, despite the formal agreement, one informant noted that, *“Data sharing is not happening a lot, and we need to push for this.”* Illustrating the issue further, one key informant mentioned that the systems often worked in parallel to one another, rather than working synergistically. In another instance, an informant mentioned that even when systems were linked and/or the matching process could be done through uploading an Excel form, there was a lot of *“back and forth”* correspondence as the data collected were not compatible for the process. This was a similar issue in South Sudan, but there was no formal data sharing agreement in place in South Sudan.

One of the drivers behind the data sharing barriers is that information is coming in from different systems. As such, there can be duplication of information across agencies, in addition to missed opportunities in the provision of services to children. Another challenge is that, *“The children can also not be able to say the exact names and also because the South Sudanese have this wonderful fluid relationship with names [which] brings a problem with the code matching so you may end up having one child with one hundred matches which is not simple...physically we cannot be able to verify that...”* The issue of mandatory fields represents an example of the occasional tension between the ICT information and child protection specialists. ICT information specialists tended to support mandatory fields of information in the interest

of having as complete case information as possible. In contrast, child protection specialists favored a more liberal approach, allowing information fields to remain blank if it would avoid delays and expedite response times. In addition, three informants in South Sudan brought up the point that mobile phones were not good for transmitting sensitive information due to privacy concerns. Accordingly, most correspondence to update systems and/or address case concerns with other agencies happened over email or paper. In Kakuma, one informant noted that having personal connections with people at the other agencies facilitated the data sharing process (For more discussion of data sharing in the context of data protection, see the section on ‘Data Sharing and Interoperability between and among ICT Systems’).

Infrastructure also posed a threat to data sharing and the use of ICT for CPCME. In South Sudan, issues with electricity and connectivity have made data collection and reporting, let alone data sharing, difficult. There are times when agencies have issues accessing the system, and as one key informant noted, a *“laptop can only stay on for so long.”* As an example, for the web-enabled systems, work-arounds have been developed for data entry purposes. One organisation has caseworkers submit a short form in the system and then send their paper forms to a central office for complete data entry. The short form permits the rest of the team to know what information to anticipate. In another organisation, the partners with connectivity challenges often submit paperwork in bulk, delaying updates to the system. At times, it is difficult for the supervising agencies to know the cause of the delays, but once the issue has been identified as connectivity, the partners work together to reorganise how information can be updated in the system.

Complexity of the systems has also been cited as a concern. Two key informants mentioned that the introduction of new systems disrupted workflows as compared to updating existing systems. Another informant identified the ‘human factor’ as the core challenge behind the issue and shared that, *“some people can’t use [ICT] because they don’t know; it’s not a weakness of ICT, is it a weakness of the environment.”*

Human-systems interaction refers to the human-to-human and human-to-system interactions with the ICT system and its operational context (see Figure 3).

Two key informants explicitly mentioned that ICT is a tool and a tool is only as good as the user and the context of its use. Besides engaging with the system, the end-users also interact with others who may or may not have direct contact with that same ICT system or context of use. The collective interaction of the three main factors—the ICT system, the human-to-human interactions and human-to-

system interplay—collectively contribute to the direction and magnitude of CPCME outcomes (see Figure 3).

ICT Opportunities

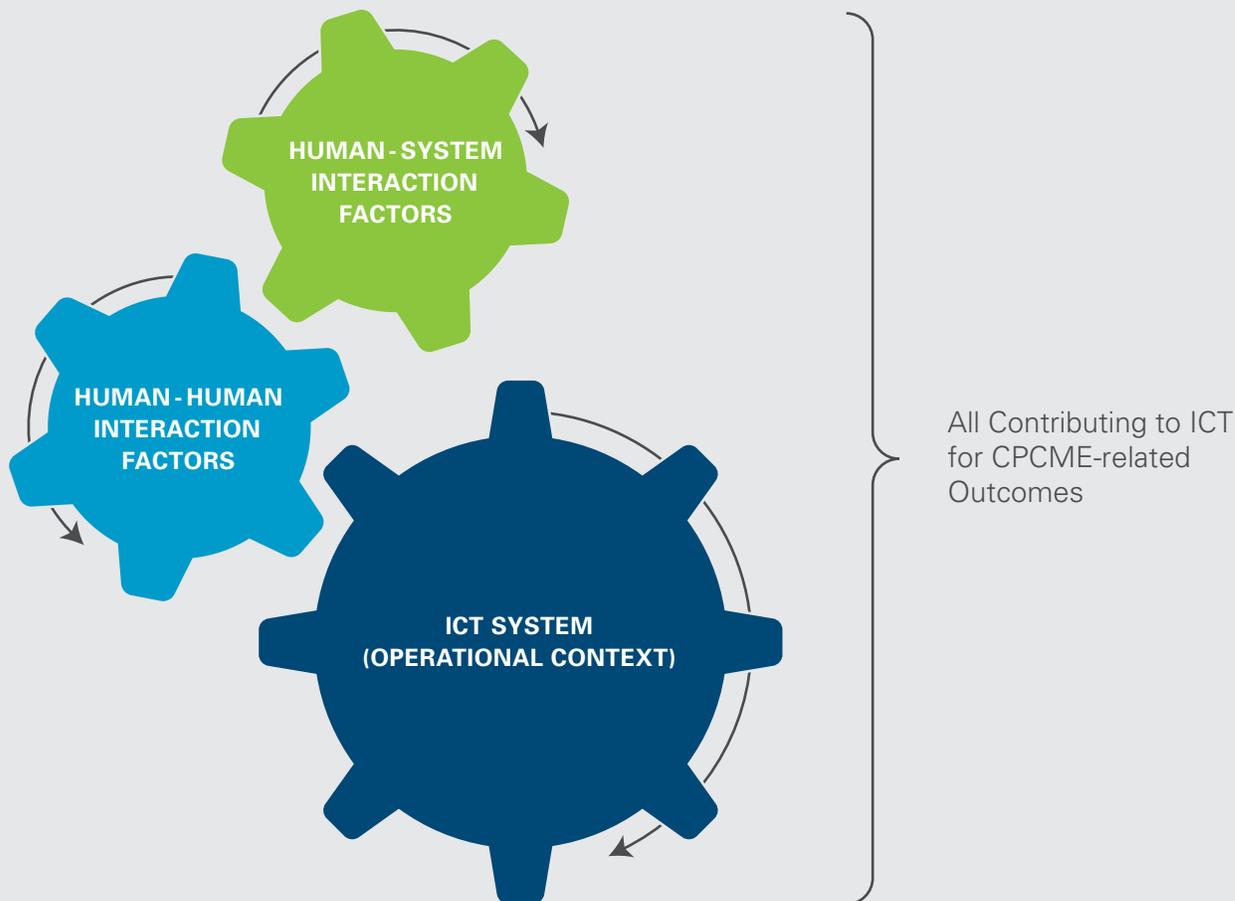
“Improved systems have more functionality. In Kenya, one system [is] able to share through any file form and talk with another agency’s system or share data in software coding language; can flag cases as well and write notes to forward.” This quote illustrates what an optimised ICT system or application looks like. With data and data exchange being integral to the CPCME processes, ICT systems can enable enhanced data sharing, storage and exchange.

For example, one key informant said, *“Yeah I wish that I would not have to get an excel sheet from [organisation];*

I wish that it could just be automatic.” Another expressed similar sentiments and specifically pointed out that agencies were *“wasting a lot of resources by not linking a lot of our work.”* The individual felt that ICT opened up an opportunity to reform how the agencies worked together.

On the same topic, another two key informants suggested that ICT could promote the use of standard information for ‘real-time’ data sharing, automated matching. In addition, with the features of some systems underutilised, four informants cited the following ICT opportunity for caseworkers to intimately manage their cases and also do direct data entry: *“Real potential that case managers or case workers by, through the use of ICT solutions themselves may get close to the information and analyse the information and look at the follow-up and value that information.”* There were also aspirations to link child

FIGURE 3. Human-System Interactions



protection databases with referral databases (e.g., medical referrals) so a complete picture of the vulnerability of the children could be obtained and also more readily addressed.

Three key informants stressed that case prioritisation could be a useful opportunity for ICT to be used for CPCME. ICT could also be developed in an intuitive manner to facilitate on-the-job training and be adaptable to the context (as noted by 2 key informants). Lastly, overwhelmingly the database specialists noted that ICT provided a faster pathway to verification, through enhancing the access, reliability and validity of data.

Technology and Programme Staff

The CPCME teams comprises both technology and programme staff. The technology staff include the database and ICT specialists, and the programme staff are child protection and case management specialists. There are different levels of specialists on the technology and programme sides. Both types of staff work in tandem with each other and sometimes share the same management or the technology staff are embedded within the programme staff teams. Given the nature of the work, all staff involved in CPCME receive training on CPCME. However, institutional memory is a challenge.

In South Sudan, staff capacity and the high turn-over rate were more pronounced than in Kenya. Four informants (2 in South Sudan and 2 global) brought up the issue more than once. The main reason for the turn-over was cited as a lack of stable resources in the humanitarian sector; another reason cited is that “partners are spread thin”. Caseworkers, especially, may also be involved in more than child protection case management, especially with organisations that have a broader mandate. Despite the challenges, training was identified as a priority and a means to ensure that everyone knew his or her role and responsibilities and could engage appropriately with the child protection work.

The organisational structure of the teams included a supervisor who oversaw or collaborated directly with a database and ICT specialist. The supervisors may have a regional manager to whom they report. Caseworkers, who were often trained community members receiving an incentive for their duties, reported directly to the supervisor. Everyone involved in child protection work receives training before starting their job.

On the database side, individuals who had more work experience trained new users on the systems. Three agencies noted the importance of training anyone working on child protection to be trained in CPCME, as it was not uncommon for clients to come directly to an agency’s office and a database and ICT specialist would be the available staff. The database and ICT specialists also, at

times, accompany the teams in the community, supporting their case management work most notably in emergency situations. To illustrate, five database managers across different organisations mentioned that, “we have to render services to a client.” A supervisor underscored this further,

“...And in most cases what we say is that for any data clerk even coming in, you first of all get to know who is unaccompanied and separated, the basic terms. And what is the process of doing FTR [family tracing and reunification]; you must know that before [you] even operate the system. They need to know what are the basics, how they can even provide quality into the programme by understanding the whole concept.”

The added benefit of requiring such training is that it provides an opportunity to introduce the importance of the “ethics of the work”, the legal framework and data confidentiality and data security.

Training

Training of technical and programme staff takes place when individuals are newly hired or appointed for a role; there are also refresher trainings. For database or ICT specialists working in CPCME, they receive training in both child protection case management and also using the system. It was not uncommon for partner organisations to conduct trainings together or host trainings as a lead agency. While training on the use of the systems and the processes that they are intended to enhance, informants often felt that additional investments in human resources were required.

While training, in general, often happens “very early in the process” and is comprehensive, one informant underlined the importance of training early on for “a couple of days” because of the steep learning curve on how to use the database; this was reiterated by another informant who noted that the various ICT systems and applications can be “very easy to use but for the beginners they will find it a bit difficult because it has a lot of steps. But when you undergo a formal training, it [becomes] very easy to use.” Trainings happen year round and there are also refresher trainings on the different tools to “renew knowledge”. One organisation even provided its staff with online training and/or targeted trainings on the ICT systems. However, the training was not always limited to ICT.

For two of the organisations, even if someone is hired as a database manager and has that expertise, “they are taken through issues [on] how to care for young children, how to deal with adolescents [and] how to communicate with the children in appropriate ways...” Two database managers emphasised that they were not only database specialists, but also child protection caseworkers. They received training in CPCME and often work in that capacity when

needed; they felt that their training as a caseworker better helped them do their job as a database specialist, knowing the basic terminology, understanding programmatic needs and identifying what information was crucial and how cases needed to be prioritised. A separate informant noted that the organisations where training of the database specialists and others working with the ICT systems does not include CPCME often have challenges in the quality of their data, as well as staff capacity overall.

With the high staff turn-over, which was especially pronounced in South Sudan, retraining often *“sets you back as a new person comes in, getting familiar with the system, working out what it can achieve, what it can do.”* A combination of high turnover rates and the subsequent loss of institutional memory contributed significantly to the decline of one of the ICT systems in use.

Informants also reinforced the importance of data confidentiality and the importance of understanding an organisation’s data sharing practices, especially if data were not frequently shared outside of the organisation. The organisations have specific guidelines on how to handle the protection of data, especially if the protection efforts concern children. The guidelines and information on data confidentiality and security are incorporated into trainings.

FOUNDATIONS: CPCME SERVICES AND PROGRAMMING

The ICT for CPCME foundation encompassed the enabling environment for services and programming. These processes were identified through mapping out the business processes for CPCME and in-depth conversations with key informants.

Journey of the Child and Business Processes for Child Protection Case Management

CPCME Business Process and the Journey of the Child

The exercise of graphically mapping the “Journey of the Child” and Business Process of a child protection case is useful for understanding and deciding the role that ICT can play for CPCME. Ideally, the exercise includes participation of all the stakeholders who are directly involved in CPCME implementation in the field. Because of their intimate knowledge of the programme realities on the ground, CPCME implementers are in the best position to inform the mapping exercise, identify the points where there are case management challenges, and opine on if and how using ICT at each of those points could address those challenges. As participants in the mapping exercise, CPCME implementers develop a sense of ownership in

any outcomes that may later become part of the CPCME programme design.

Being able to visualise each possible pathway that a vulnerable child must take as he or she manoeuvres through the CPCME process helps stakeholders to strategise how to use ICT to make the journey more “child-friendly”. This may include being able to identify redundant pathways and instances that require a child to recount a traumatic event more times than is necessary to provide appropriate care. Being able to visualise a flowchart for the CPCME Business Process as a sequence of CPCME activities, linkages, decision points, outputs, and the responsible stakeholder(s) at each point in the process, stakeholders are able to identify gaps and challenges, apply business logic, and strategise where ICT could add value.

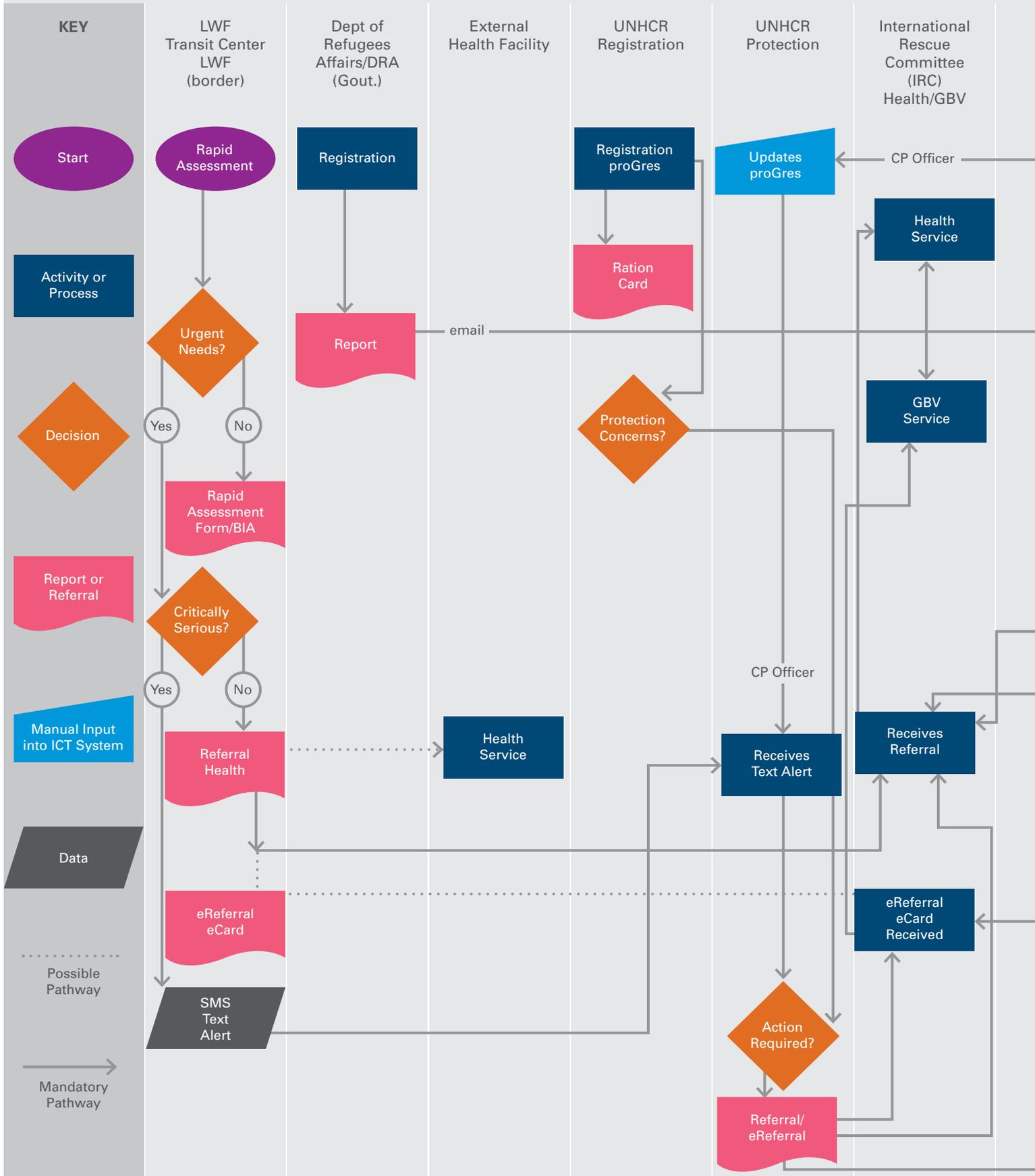
The compiled interviews with stakeholders working in the Kakuma Refugee Camp, Kenya informed the graphics of the journey of the child and the business process below. These graphics depict what happens when a child arrives at the Kakuma Transit Centre and is identified as “vulnerable”. Cases identified upon arrival were used, rather than those identified within the community for the most comprehensive view and simplicity. In addition, the processes were based on Kakuma instead of Bor and Mingkaman in South Sudan because cases and services in Kakuma tended to be more structured and linked than those in South Sudan.

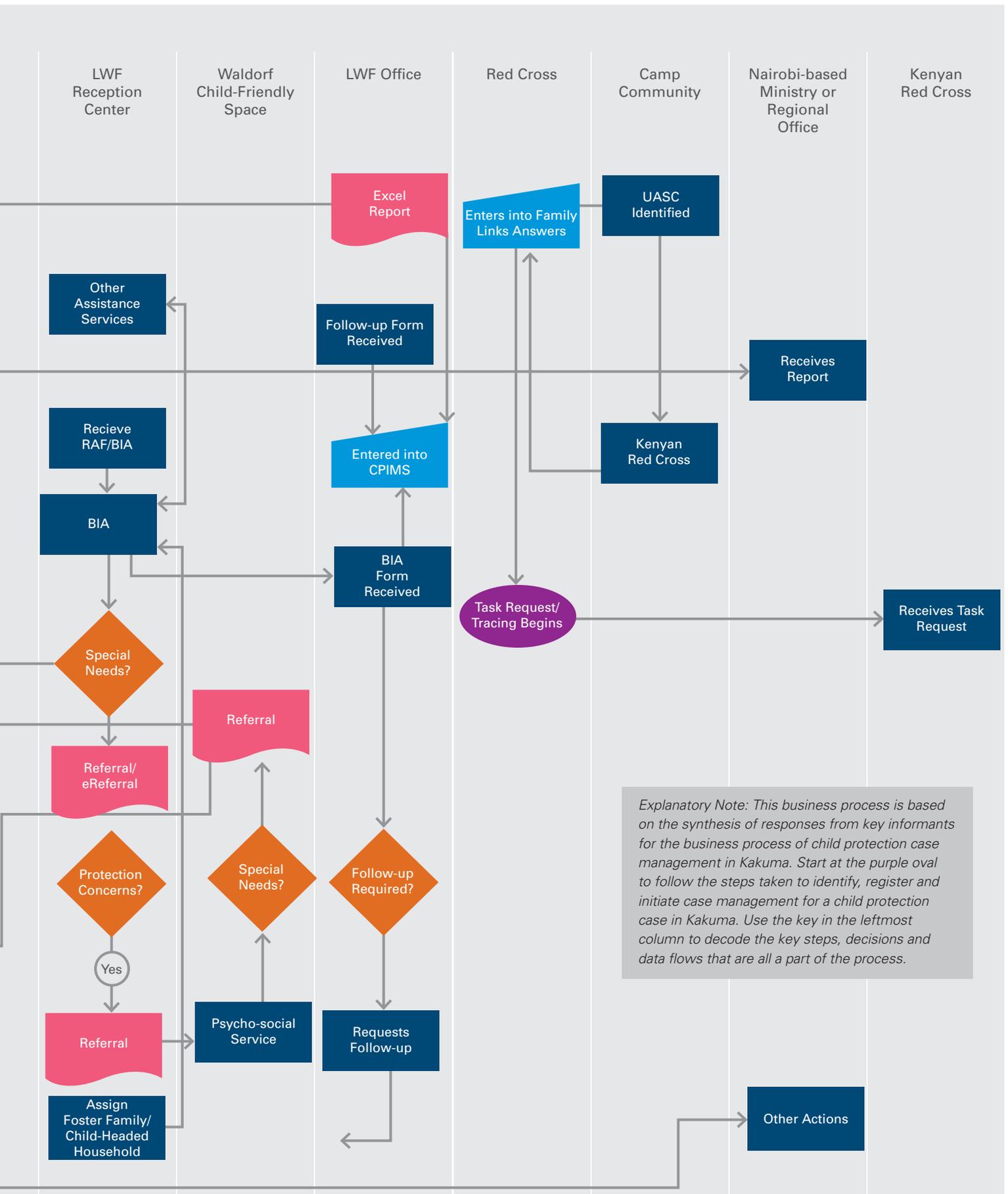
Viewing the entire CPCME Business Process and Journey of the Child avoids viewing the role of ICT *“in isolation”* that ultimately leads to *“more work and inefficiency”* (a problem noted by a senior informant, child protection and case management specialist). Business processes *“depend upon the level of the emergency”*. One informant who works with ICT for CPCME commented that not having a *“consensus”* in the identification of roles and responsibilities connected with using ICT was a major problem in planning for ICT. This problem can be avoided when multiple stakeholders who work in CPCME map the Business Process together, identifying who is responsible for each activity and the decisions to be made. Some of the interviews with service providers and stakeholders who supported service providers contained conflicting versions of the supposedly same business processes using ICT for CPCME underscoring the need to clarify and document them.

Resources

Several informants remarked that donors have been diverting resources to the Syrian refugee situation. Consequently, available resources for CPCME in Africa are becoming increasingly scarce. Multiple informants

FIGURE 5. Child Protection Case Management Business Process in Kakuma





in the region cited a lack of resources as one of the biggest challenges to CPCME. At least two informants who work directly with CPCME in the region noted that host governments are generally not willing to step in with necessary resources. Limited resources are generally available for short periods of time. Implementing agencies are “fighting for piecemeal” money. At least one informant who had direct experience with CPCME in multiple contexts within the region noted the potential to do better analyses of how resources were being used and to conduct costing analyses of case management processes and systems. The lack of proper data (that could be generated with ICT) regarding available resources (and the allocation of those resources) has resulted in case management mistakes such as sending children across borders without ensuring the proper resources and services needed were in place.

Workforce Capacity and Development

Multiple informants cited the lack of sufficient workforce capacity for CPCME, analysing data, and managing ICT as a key challenge in both refugee and IDP contexts. At least five informants based in the region also cited the high turnover of both CPCME and ICT specialists and the lack of institutional memory as a challenge.

Organisations often used a mix of staff and incentive workers from the community to operate as caseworkers. The incentive workers tended to have minimal education but were trained on CPCME and other workflows and received small incentives as reimbursement for their work and efforts. Since the incentive workers were recruited from the communities receiving CPCME services, they had frequent direct contact with the communities and vulnerable children as well as the organisations supporting the service provision. The staff were usually supervisors to the incentive workers, but they would also function as caseworkers.

At least four informants working directly with CPCME in the region cited the lack of skill and tools for prioritising cases as a major obstacle to effectively carrying out their jobs. At least 3 informants noted that most of the workers who interviewed and registered children had only basic child protection training, and inferred that they may not have the necessary interviewing skills for dealing with traumatised children. Two informants noted a lack of capacity in psychosocial counseling, a necessary skill when dealing with vulnerable children who have been traumatised. Several informants indicated that caseworkers and database managers all had the same training. Data entry workers responsible for entering children’s case information from paper forms into an ICT system generally had little or no child protection training and accordingly, did not understand the information they were keying in. However, at least two data entry and

ICT specialists had CPCME or social work training and experience. The researchers noted that those ICT and data entry specialists who had some sort of CPCME experience were more understanding of the case management business process, the purpose for collecting data for case management, and the importance of data quality (i.e., having accurate and complete case information).

At least six informants located both at agency headquarters and in the field cited the lack of a sufficient number of staff as the key challenge to timely updating case information in ICT systems. Several informants believed that the process of entering information collected on forms into ICT systems significantly increased the amount of time for CPCME, and led to backlogs in situations with massive numbers of children. Capacity challenges were partly addressed through the training and use of community-based “incentive workers” and mentors. However, many of these incentive and locally based workers do not have the level of literacy to work with SMS messaging. Many people, including team leaders lack capacity (in using phones to collect data), and particularly “struggle with smartphones”. One informant who was a case management specialist noted the necessity for building capacity of key national ministries (in a variety of areas relating to CPCME and ICT).

Several respondents noted that ICT could never be the solution to replace the “human element” and relationships necessary for CPCME.

Infrastructure

Understandably, multiple informants (n=13) raised the issue of the necessary infrastructure required for CPCME generally and using ICT for CPCME specifically because of the difficult contexts connected with IDP and refugee contexts in South Sudan and Kakuma, Kenya. Not having proper infrastructure such as computer hardware and physical supplies necessary for services were attributable partly to not having sufficient financial resources (2 informants). One informant mentioned that maintenance of whatever hardware they had was a continuing challenge. In Kenya, programme implementers were awaiting a supply of tablets to be used for CPCME in the field.

Ten informants cited challenges with insufficient networks and connectivity. At least two of the Kakuma informants cited network coverage (for using phones) as fairly good. Informants in both South Sudan and in Kakuma indicated that most people, including members of the IDP and Refugee communities owned or had access to a mobile phone. Most of those who carried mobile phones amongst the camp communities tended to be young males.

Policy & Legal Frameworks

In addition to the plethora of laws and conventions that promote guidance relating to some aspects of CPCME, there are numerous policies and rules developed by practitioners as guidelines, standards, standard operating procedures (SOPs), protocols, codes of conduct or frameworks to reflect good practices and instruct practitioners in the field. Because of the breadth of protection concerns that arise for children in emergencies, a multitude of written guidelines and standards apply to CPCME work. These guidelines and standards have been developed for a variety of topics including, but not limited to: child protection in humanitarian situations, case management and child protection in humanitarian situations, unaccompanied and separated children, alternative care, sexual and gender-based violence, children affected by or infected with HIV, and psycho-social support. In addition, there are numerous rules contained in policies, guidelines, and standards relating to how information is handled, protected and shared.

Interviews with some informants reflected a sense of being overwhelmed and a need for job aids to assist in following the various sets of guidelines, standards, standard operating procedures, and protocols. Even when trained, it is difficult to remember all the details after training had been completed without some sort of reinforcement training. In some cases, practitioners, particularly those working directly with clients were not aware of all the rules and guidance applicable to their work. One informant, familiar with ICT, suggested that an ICT based decision-making tool could assist practitioners in following protocols and compliance, including the reinforcement of training in guidelines. At least two informants suggested using ICT as

a job aid and decision-making tool for following established case prioritisation guidelines.

Compliance becomes complicated when separate agencies have different guidelines and protocols for the same work activity. Several informants noted the absence of accountability or compliance mechanisms. At least two informants noted specifically that many field practitioners did not follow applicable standards of practice either because they were not fully aware of them or because the practitioners were so overwhelmed with work that shortcuts (around SOPs) were more practical for quickly and effectively attending to the large numbers of protection caseloads.

Cross Border and Interagency Sharing

There were not many data from the interviews and site visits that could inform cross border considerations for ICT for CPCME. However, interagency sharing of data and key information was a significant topic. Informants acknowledged the potential risks connected with cross-border sharing of information and the information falling into the wrong hands. For example, information on refugees who are seeking asylum risk danger of persecution if their personal information is not adequately protected. However, multiple informants who worked directly with refugees and IDPs expressed a strong desire for some sort of (digital) system that would enable cross-border sharing and real-time matching of information for more expeditious tracing and reunification of families. A challenge identified is the accuracy of the information shared and follow-up. The findings from the interviews and the literature on data sharing are discussed in detail in the following section on data privacy.

IV. PRIVACY, CONFIDENTIALITY AND DATA PROTECTION

Privacy, confidentiality and data protection, along with interoperability of systems, were raised as key challenges in ICT for CPCME. In order to better understand the challenges and best practices, a review of the literature was conducted and questions on the subject were posed to all key informants. The results have been organised to reflect current practice, barriers and considerations and identify opportunities to address some of the challenges.

THE CONCEPTS OF PRIVACY, CONFIDENTIALITY AND DATA PROTECTION

For stakeholders working in CPCME, the concepts of privacy, confidentiality and data protection are complex, paramount concerns when considering if and how to use ICT. The ability to safeguard identifiable personal information relating to an individual child's protection concerns is one of the primary "requirements" that any ICT system must demonstrate for it to be considered as a case management tool in the unstable and volatile circumstances associated with emergencies. Privacy, confidentiality and data protection concerns are particularly acute when dealing with highly sensitive and stigmatising situations involving, but not limited to, sexual and gender-based violence, HIV, ethnic tension, political conflict and religious strife because of the potential harmful consequences to the child connected with disclosure to the wrong people.

For purposes of this research, the concept of "privacy" refers to an individual's right to control the acquisition, use, and disclosure of identifiable data.¹⁹ "Privacy" also relates to other types of identifiable data considered highly personal, and potentially stigmatising or otherwise harmful if disclosed inappropriately, such as data relating to being a victim of sexual violence. **In child protection case management, the scope of personal data warranting privacy protection is broad and includes "any data related to an individual who can be identifiable from that data and other information...[including] biographical data [biodata], such as name, sex, marital status, data and place of birth, country of origin, country of asylum, individual registration number, occupation, religion and ethnicity, biometric data such as photograph, fingerprint, facial or iris image, as well as any expression of opinion about the individual, such as assessments of the status and/or specific needs."**²⁰

Confidentiality refers to the obligations of those persons who receive data to preserve secrecy of information entrusted to them and use it only as necessary to provide the services.²¹ Data protection broadly refers to "physical, technological, or administrative safeguards or tools used to protect identifiable [personal] data from unwarranted access or disclosure, including the security of wireless networks, security of devices, applications security, back-end systems security and secure user practices."²¹

DATA SHARING AND INTEROPERABILITY BETWEEN AND AMONG ICT SYSTEMS

Privacy, confidentiality and data protection rules and practice must be balanced with the practical need to share data as part of CPCME. Collaboration between and among agencies working in the same emergency context is increasingly recognized as essential and a best practice for CPCME.²² Minimum standards needed to support coordination include "information sharing" and "not [creating] parallel structures" related to data and information on individual children with proper information sharing protocols.^{23, 24}

Because of the complexity of child protection concerns, the mobility of children, and the presence of multiple agencies providing different types of services in emergencies, coordinating efforts to ensure that all of a vulnerable child's urgent needs are holistically addressed warrants sharing of necessary case information between agencies (with proper protection precautions).²⁵ For example, in cases of gender-based violence, highly prevalent in many emergency situations, good practice dictates that protection and health service providers, which are not necessarily provided by the same agency, coordinate their interventions (while complying with confidentiality standards and the obligation to obtain consent).²⁶ This may mean that the health provider has information that a child has experienced sexual violence, so the appropriate post-rape health intervention can be promptly delivered.

One of the most pressing situations associated with emergencies that exposes a child to the highest risk of vulnerability is when the child is separated from his/

her parents and family. In such circumstances involving unaccompanied and separated children, multiple agencies may be working to trace, identify and reunify children and separated parents. Agencies are reticent about sharing information they may have with other agencies because of their own guidelines and perceived risks of harm connected with sharing identifiable personal information. As such, reunification efforts are often duplicative and run parallel with each other.

The field visits to Kakuma and South Sudan revealed that the majority of informants supported more proactive efforts by all agencies to share case data. Several informants acknowledged the importance of protecting privacy and personal data but opined that their headquarters should adopt a more flexible and pragmatic approach toward sharing data with other agencies, particularly for tracing and reunification cases. They cited rigid interpretation of existing data sharing rules as a primary obstacle to expeditiously reuniting separated and unaccompanied children with their parents. Notably, the child protection and case management programming specialists were most likely to support a more flexible and pragmatic approach to sharing data. The ICT specialists and data managers were more likely to hold stricter views against sharing data. Interestingly, however, ICT specialists and data managers who had direct experience with tracing and reunification efforts (beyond their ICT and data management responsibilities) supported a more liberal approach toward sharing personal data, which included having more leniency towards informal data sharing practices.

Multiple standards and guidelines exist addressing the protection and handling of personal data and apply to agencies and others working in emergencies. Some of these standards were developed collaboratively and apply at the global and inter-agency levels.²⁷ Some agencies crafted their own policies and guidelines for their staff.²⁸ Some of these guidelines and standards apply specifically to emergencies; others apply to a wide range of situations that may include emergencies. The multiplicity of applicable laws, standards and guidelines does create confusion among the many stakeholders working in emergency situations. In an attempt to provide clarity and a consensus on how data is protected, data protection and information sharing protocols (ISPs) are generally negotiated by the responding actors for specific emergency situations. Nevertheless, the policies and guidelines represented a common approach to data privacy and data protection.

Recognizing the changing paradigm due to the introduction of ICT, agencies working in CPCME have met on a number of occasions to collaborate identifying good practices for

best leverage ICT while protecting personal identifiable data in accordance with established standards.²⁹

Informants universally acknowledged the role that ICT can play in protecting personal data. At least six informants explicitly stated the generally widely held belief that ICT offered more privacy and data protection for personal data when compared to using paper. As an example, two informants referred to the 2013 violence in Bor that resulted in the loss and destruction of massive amounts of paper files held in agencies' offices. Because the agencies had digitally backed up those files, they were able to minimize the consequences of losing the paper files. However, at least two informants did not believe that mobile phones offered the same level of privacy as other forms of ICT and paper files, with one noting that a colleague had been arrested and beaten by police because he had his phone tapped. At least eight informants in Kakuma and South Sudan who handled case files saw advantages of using digital compared to paper case notes. One of the reasons offered by two of the informants for the preference was the significantly reduced probability of losing misplaced, misappropriated and left-behind hard copy case files.

Interoperability, or the ability of computer systems to exchange or make use of data, as a means to more efficiently share and access case information emerged as a key issue among informants. The concept of interoperable systems that may allow users of one system to access, through an interface, information in another system understandably triggers concerns about data protection and unauthorised disclosures of personal information. Eighteen of the informants, particularly those who worked directly in, or with the field (9 informants), addressed potential data sharing opportunities connected with ICT. At least four of those informants who were based at their agencies' headquarters or regional offices tended to take a relatively more cautious approach toward electronic data sharing, but not outright opposition. Two of the informants who were based in, or worked directly with the field, emphasized the critical 72 hour time period after separation when reunifications should take place otherwise FTR becomes difficult. While informants acknowledged that the most effective way to promote reunifications within 72 hours includes supporting spontaneous reunifications and community-based tracing mechanism, multiple informants expressed a belief that more liberal data sharing and real-time matching of information collected by different agencies would contribute greatly to expediting reunifications of unaccompanied and separated children.

Three of the informants who worked with the field described that when an agency shares personal data, it generally downloads the data into an Excel sheet that

is then sent by email to the recipient agency. The data may or may not include individual names of children. One informant with substantial data management and case management experience in the field remarked that it “was too easy to export data into Excel” and share with external organizations (not strictly complying with established data sharing guidelines). That informant believed that colleagues were actually doing this in the field.

At least one of the informants remarked that written data protection and sharing guidelines, including Information Sharing Protocols (ISPs), created delays in information sharing, and hindered the expeditious reunification of families. In fact, one informant cited waiting for ISPs as the “greatest challenge” to CPCME during the early acute stages of an emergency. That informant noted the time it took for agencies to agree on ISPs at the beginning of emergency delayed urgently needed data exchanges, inferring that any protection benefits the ISPs were perceived to offer were outweighed by the need for more prompt coordination responses. At least three of the informants working with the field questioned the usefulness of the ISP and cited unrealistic expectations that local partners, even after training, fully appreciate and follow data sharing guidelines during the initial stages of an emergency.

At least nine of the informants, primarily based in the field, supported some sort interoperability between systems that would allow agencies to share data to facilitate tracing and reunification of children with their families. Interoperable

digital systems were seen as particularly beneficial for cross-border cases when different agencies typically collect the same information on the same child.

Informants indicated that the information collected is generally “not very good”, and suggested that a digital system that allowed sharing (and matching) would help improve data quality through the need for data fields to be matched to be as accurate as possible. In addition, more flexible data sharing and matching would provide opportunities to compare data and make corrections when there are inconsistencies.

Previous studies, primarily in the health sector (which also grapples with issues of privacy and data protection) highlight the practical advantages of interoperability between ICT systems.³⁰ Two informants cited the experience with UNHCR’s Refugee Assistance Information (RAIS) system as an example of a digital interface that allows agencies working with refugees to share information with each other. Those informants working with CPIMS or proGres believed that the data sharing functions of the newest version of UNHCR’s proGres (version 4) with the new version of CPIMS, referred to as “CPIMS+ (a module of Primero)”, would enhance CPCME, particularly with respect to one of the greatest workload challenges in CPCME, updating information in the systems. In addition, the ability to use proGres version 4 for child protection case management will also reduce the need to operate separate databases in some cases.

V. FRAMEWORK TO OPTIMISE ICT FOR CPCME

Taking the evidence, findings and potential value of ICT for CPCME to improve child protection outcomes into consideration, a framework to optimise ICT for CPCME has been developed. The framework underscores the importance of the operational context of an ICT system as well as the role of the “human factor”. The framework functions as a decision guide that provides a series of interrelated key questions and considerations to make about future and existing ICT for CPCME implementations. The guide is primarily designed for programme staff and

can be used as a starting point to engage in discussions and explorations with colleagues, innovators and other specialists on ICT for CPCME. Through reflecting on the framework and following the guide, it is believed that marked improvements can be made in ICT for CPCME implementations, promote contributions to the evidence and have a positive impact on child vulnerabilities. A scenario provides an illustrative use case of an optimised ICT for CPCME implementation.

TABLE 7. ICT Optimisation Framework

STAGES OF ICT INTERVENTION DESIGN AND EVALUATION	ACTION	KEY CONSIDERATIONS	ADDITIONAL GUIDANCE
Programme Critique	Identify the problem or challenge of interest to resolve	<ul style="list-style-type: none"> Examine programmatic goals, systems and processes Map out harmonized structure for data sharing internally and externally Assess programme staff/capacity Identify programme benefits, gaps and opportunities Identify needs through consensus (stakeholder engagement) 	Address programme needs before introducing or updating an ICT intervention
ICT Needs Assessment and Landscape	Research relevant existing solutions/ platforms	<ul style="list-style-type: none"> Continue to engage with key stakeholders Collect and collate ideas on ICT for the programme 	Ground the needs assessment in the context of use and refer to the programme goals and needs
	Conduct a landscape assessment	<ul style="list-style-type: none"> Assess current infrastructure (e.g., connectivity, roads, electricity, mobile phones, computers, tablets) Identify end-user and supervisor/ management technoliteracy Examine the feasibility of implementing in settings of interest Review existing ICT systems and use (if any) Conduct a data protection impact assessment (with partners) 	<p>Do not introduce or update an ICT intervention if the infrastructure is lacking</p> <p>Explore the resources and repositories on digital health, which can be applicable to CPCME³¹</p>

STAGES OF ICT INTERVENTION DESIGN AND EVALUATION	ACTION	KEY CONSIDERATIONS	ADDITIONAL GUIDANCE
Participatory Design	Engage in a participatory design process (with stakeholders) to review landscape and prioritise ICT areas of intervention in child protection programme	<ul style="list-style-type: none"> • Workshop the vision and goals • Develop a use case • Identify and prioritise the settings of interest for the intervention • Clearly identify the roles and responsibilities for implementation, coordination and on-going maintenance/support and resources • Ensure system compatibility 	Make sure data protection considerations are taken into account throughout the entire process, and identify who owns and/or is a custodian of the data
Implementation	Develop a roadmap and budget for proposed strategy	<ul style="list-style-type: none"> • Assess benefits, costs and pitfalls • Conduct due diligence • Carry out an assessment on costing/total cost of ownership and strengths, weaknesses, opportunities and threats • Finalise selection of priority implementation sites, incorporating a study design to assess the impact of the intervention • Re-assess the feasibility of the idea and approach • Identify business process and funding model, as well as secure funding and investments in the intervention • Ensure that M&E mechanisms are in place and that there are indicators to examine outcomes 	<p>Identify if and how existing ICT implementations can be used or adapted</p> <p>Make sure data protection considerations are taken into account</p> <p>Ensure that any necessary information sharing protocols and data transfer agreements are developed</p>
	Develop a monitoring and evaluation (M&E) framework to assess the impact of the intervention		
	Iterate and update the ICT design and implementation		
Evaluation	Conduct formative research to assess the usability and feasibility of the intervention	<ul style="list-style-type: none"> • Establish a feedback mechanism and process for updates/expansion • Set up documentation and dissemination strategy to share lessons and findings, as well as preserve some institutional memory 	
	Conduct an experimental or quasi-experimental trial to assess the impact of the ICT implementation on CPCME		

SCENARIO

The following scenario was developed to illustrate what an optimised ICT for CPCME implementation may

David was tired but eager to start his day; today was a full day. He had a case-planning meeting with the five caseworkers that he supervised and the database manager, and then he had a final training for the four new community volunteers.

He started out the day **reviewing the alerts on his phone** in a **secure, password-protected application**. They were reminders of tasks that he needed to review with each of the caseworkers. He sent a mass text to the team letting them know how many cases were on the docket for review. Since each of the caseworkers received **personalised notifications**, he did not need to follow-up with them individually.

When he arrived at work, David met with the database manager, Grace. Together, using the **reference IDs from the notifications**, which were also in the system, they worked together to prioritise the order of the cases for discussion. Grace, who had received training and certification in case management, also functioned as a caseworker in times of need.

As the case workers trickled in, they quickly plugged in their devices to charge. Some of them also used the office's **wi-fi to upload the remainder of their case files** to the system. The **system refreshed itself automatically**. Before the case planning meeting started, the database manager received a **text notification on her phone through the secure application**. It looked like a match request from

entail. The scenario incorporates the most commonly mentioned benefits and opportunities of ICT by the informants—namely, alerts, case prioritisation, improved inter-agency data exchange and knowledge reinforcement..

another organisation in another country. After verifying the sender's credentials, she approved the request from her phone and the system automatically ran the request. It looked like it was a match! Grace then initiated the verification protocol with the partner.

A few moments later, the case planning meeting started. It started off with general updates and progressed from there. The team projected the case files in the system and reviewed everyone's case load. For the prioritised cases, the case history was inspected before initiating discussions on the aspects of the case that needed attention. Where necessary, the database manager **set-up automated notifications**. Towards the end of the meeting, the team revisited the next steps and set up the plan for the week. David encouraged his team and reminded them to let him know the moment they had any questions or challenges, as he could be reached on his phone or in-person.

Following lunch, David and Grace set-up for the training of the new community volunteers. They would use **tablets and mobile phones for the case management training**, and the volunteers would then be able to take the mobile phones with them as a tool for their work, carrying out case management activities—including identifying and logging new cases—to reduce vulnerabilities in children in emergency and other humanitarian settings

VI. RECOMMENDATIONS AND NEXT STEPS

The following set of recommendations have been developed based on the findings. The recommendations focus on improving the use of ICT for CPCME, as well as generating the necessary data and evaluations to assess the impact that ICT has on CPCME outcomes. Given the importance of evaluating the impact of ICT for CPCME, a section on future research outlines a potential study design that can address the current evidence gap.

RECOMMENDATIONS

- **Evaluate the impact of ICT for CPCME on outcomes.** There is limited information on the true impact that ICT has on child protection outcomes. Most of the information on its impact is based on anecdotal evidence. Accordingly, research studies that use an experimental design can be conducted to provide information on the impact on vulnerabilities and child protection outcomes. The evaluations should also be designed in a way to assess impact beyond outputs and short-term outcomes. In addition, cost-benefit assessments should be explored to generate data for additional decision-making purposes.
- **Explore more than the traditional CPCME outcomes.** ICT provides an opportunity to collect data on caseworker and client knowledge, attitudes and practices (or behavior) without needing to introduce new data collection tools or processes. The meta-data from the ICT platforms can be studied to understand end-user behavior and engagements with the community and vulnerable children. This can also apply to the children if they directly engage with the technology. The information could provide useful insights on behaviors and practices relevant to CPCME that would otherwise go overlooked.
- **Use the convening power of ICT to enhance inter-agency collaboration, data sharing and strategic planning.** More-so pronounced with ICT-enabled CPCME processes is the need for collaboration, standards and ISPs. Accordingly, ICT can bring (and already has brought) together the different stakeholders involved in CPCME. The convening of the stakeholders around the systems and workflows can be used to continuously improve upon collaboration, coordination and inter-agency data sharing, as well as problem-solve.

Data sharing is a major challenge in CPCME.

Unfortunately, not sharing data is both bad practice and can be detrimental to the well-being of children. Further consideration should be given to how the practice of not sharing personal data, particularly regarding UASC, may in fact be doing more harm to children by preventing expeditious reunification with their families. The delays in sharing data due to the numerous requirements that must be met under most data sharing guidelines and ISPs may conceivably be harmful when weighed against any perceived risks attached to interoperability or any sort of interface between systems. It is recommended that the agencies explore ways to effectively and securely share data to help reduce duplication in processes and data collection and also enhance matching for the reunification of children with their families. There should also be explorations into integration with the systems of other technical sectors (e.g., health) that receive referrals; this could help close the referral loop, thus improving the management and follow-up of cases.

Further discussions are warranted among all the agencies working in CPCME that would take into account the increasing sophistication of and the urgency of sharing information as close to the time of separation as possible. In addition, there is a disconnect between headquarters and field staff in perceptions about data sharing, the need for certain data sharing protocols, etc. Accordingly, discussions should include not only the legal and protection specialists based at agencies' headquarters, but also practitioners from the field who could provide the practical realities connected with CPCME. Ideally, these deliberations could lead to viable solutions. Solutions may include inter-agency harmonisation of existing data sharing standards and protocols. Ultimately, however, the best solution may include interoperability or some form of interface that would facilitate data sharing for CPCME, particularly for FTR, and leverage technological functions to provide maximum protection safeguards against inappropriate data disclosures.

- **Take advantage of the advanced security options that ICT offers for data protection.** Written standards and guidelines regarding privacy, data protection and data sharing are not keeping up with the evolution of technology. As more sophisticated technology increasingly and more effectively protects data, concerns about inappropriate data sharing are becoming less warranted. Agencies should consider

the possibility that data protection is probably better ensured by technological means (like encryption and audit functions) than by relying on humans to comply with written rules.

- **Identify opportunities to automate processes to enhance work effectiveness.** enhance work effectiveness. process relies on well-kept documentation. While paper-based forms may require re-inputting a child's demographic information, ICT could automate the process by automatically populating subsequent forms as-needed. In addition, there is an opportunity to use ICT to help prioritise cases and support and reinforce caseworker supervision. In particular, focus should be placed on using ICT as a tool to facilitate prioritising cases, worker supervision and for automatic reminders for follow-up, the most often cited tasks for which case workers needed help.
- **Involve children as decision-makers.** As a part of child-friendly practice, ICT can be used to draw out the desires of children for every step of their CPCME journey. Children can engage directly with the ICT platforms and applications along with the caseworker, allowing for the identification of wishes, including those that may otherwise be challenging to obtain through human interaction alone (as ICT-enhanced interactions may help reduce barriers between the children and their caseworker). Given this potential for direct interaction, now is the time for children to engage in the participatory design of new and existing ICT platforms and applications and identify opportunities for direct use.
- **Engage the end-users and beneficiaries of the ICT platforms and applications for CPCME regularly.** Agencies that regularly sought feedback from both the technology and programme staff on the ICT platforms and applications had more receptive use. Through engaging the end-users, especially programme staff, work flows can be better understood and technology, if appropriate, can more naturally be integrated into the business process. Regular user feedback is important as it helps identify opportunities to improve the systems; accordingly, there should be a mechanism to obtain and act upon the feedback. In addition, as part of the child-engagement process, children can provide inputs on how they would like to see technology used in CPCME and what would make them most comfortable. Noting the discernible differences in effective case management when the information management staff had child protection programming experience, provide more child protection case management training, including social work to information management personnel.

FUTURE RESEARCH

This research was not without its limitations. The research did not investigate laws related to child protection and data sharing. Additionally, the research was not able to examine cross-border situations as originally intended. Furthermore, the research focused specifically on refugee and IDP settings; not included in the scope were other emergency settings such as post-natural disaster environments. In addition, the research was cross-sectional in nature, and relied heavily on qualitative data.

Despite these limitations, this formative research could be used to strengthen existing ICT interventions in the settings described and inform future outcomes studies. As newly strengthened or new ICT interventions are implemented, it will be important to measure their impact on child protection outcomes with a particular focus on decreasing identified vulnerabilities and increasing reunification close to the time of separation, access and quality of referral services and tracking, and case closure rates and efficiency. The quantitative data obtained and analysed as a part of this research could serve as a baseline.

Future research studies can be conducted either as a prospective experimental cohort design or a step wedge quasi-experimental cohort design over a three to six month period. Based on the primary outcome of interest, the study sample ought to be powered to determine the number of children who will need to be assessed and tracked using current standard practice and tools and those who will be exposed to the newly strengthened or new ICT intervention. The optimal design would measure the outcomes in both groups simultaneously, randomly assigning children into each group. However, it is also valid to measure outcomes in the current situation for three months or until the optimal sample size is reached, introduce the intervention and measure outcomes for three months or until the optimal sample size is reached. This would be more like a pre-post design. The study could also be designed to measure costs for a separate cost-benefit analysis on the intervention as compared to the current standard, as well as enumerate the cost of not sharing data.

New ICT interventions or approaches can then be phased in and measured over time. Ideally, this would need to be done first in a location where there is a strong CPCME programme and clear business process (to isolate and measure the effects generated by the ICT intervention). It can then adapted and tested and then evaluated in more challenging environments, such as post-natural disaster settings. The research design could track cohorts of children, explore gender and further examine the effects of different ICT interventions on their outcomes in a rapid way that can then inform scale up of approaches that improve outcomes and contribute to the evidence base.

APPENDICES

APPENDIX 1. OVERVIEW OF THE RESEARCH APPROACH

TABLE: Overview of the Research Approach		
ACTIVITY	PURPOSE	ABOUT
PHASE 1: DESK RESEARCH		
Literature Review	To characterise the evidence base on ICT for CPCME.	A combination of website and database searches and relevant documents from the partner agencies (UNICEF, UNHCR and ICRC) and key informants were reviewed and analysed.
ICT Desk Review	To understand the breadth and depth of ICT applications or platforms used for CPCME.	All available documentation, including lessons learnt, regarding relevant ICT applications for CPCME were reviewed; the focus was on ICT platforms used by the partner agencies: the Inter-Agency Child Protection Information Management System (CPIMS), the Profile Global Registration System (proGres) and PROT.
Key Informant Interviews	To gain a preliminary understanding of ICT for CPCME, including its history and scope of use. To inform and feed into the overall research design.	Semi-structured interviews were conducted with key informants from partner agencies and experts recommended by the partner agencies.

TABLE: Overview of the Research Approach, *continued*

ACTIVITY	PURPOSE	ABOUT
PHASE 2: FIELD RESEARCH		
Site Visits	To directly collect data on the factors influencing the use of ICT for CPCME in practice. To observe the use of ICT for CPCME in practice.	Visits were made to an internally displaced persons (IDP) area and Protection of Civilians (POC) site in South Sudan and a refugee camp in Kenya to meet with and observe the context of CPCME processes.
Key Informant Interviews and Focus Group Discussions	To understand present and future use, value and impact of ICT for CPCME.	Semi-structured interviews and focus group discussions were conducted with key informants purposively snowball sampled from the partner agencies and other key stakeholders in CPCME.
Technical Landscape Assessment	To identify and review issues and approaches connected with ICT data protection, security and interoperability (relating to CPCME and broader humanitarian development interventions).	A review of the literature and responses to the questions included in the key informant interviews on privacy, security and interoperability were incorporated in the assessment.
PHASE 3: ANALYSIS AND SYNTHESIS		
Analysis of ICT-Generated Data	To support and draw connections between inputs and outputs/outcomes of ICT for CPCME. To complement statements from the literature, key informant interviews and focus group discussions.	Quantitative data generated by the ICT systems and applications for CPCME were conducted using Excel and SPSS.
Thematic Analysis of Interviews and Discussions	To inform the development of the theory of change and framework, as well as structure the findings.	Initial reviews of the qualitative data were used to structure broad themes for analysis of the qualitative data. The grounded-theory approach was used for analysis, with the interviews being coded (based on the themes) and analysed in NVivo.
Data Synthesis	To integrate the findings across all phases into salient key points.	A combination and summary of the findings across all phases of and data from the research.
Framework Development	To help identify the ideal conditions where the maximum benefit of ICT for CPCME can be realised. To guide and inform future investments and decisions in the use of ICT for CPCME.	A user-friendly guide based on the synthesis of the data and resulting findings and recommendations.

APPENDIX 2. LIST OF KEY INFORMANTS AND CHILD PROTECTION RESEARCH ADVISORY GROUP

TABLE: List of Key Informants and Child Protection Research Advisory Group

NAME	ORGANISATION	ROLE
Mark Bonyo	Child Protection Sub-Cluster South Sudan (UNICEF)	Information Management Officer
Ramon Olaf Broers	Child Protection Sub-Cluster South Sudan (UNICEF)	National Child Protection Sub-Cluster Coordinator
Hani Mansourian	Columbia University, Child Protection in Crisis (CPC) Network	Doctoral Candidate & Researcher
Dhieu Garang Jacob	Community in Need Aid (CINA)	FTR Officer
Emmanuel Tihook Ajith	CINA	Case Manager
Biar Abraham Dhieu	CINA	Monitoring and Reporting Officer
Kakuma Registration Workers		
Augustine Nyamai	Government of Kenya	District Children's Officer
Staff	Government of Kenya	Department of Refugee Affairs
Emmanuelle Alary	ICRC	Protection Data Coordinator
Monique Crettol	ICRC	Head of the Protection Data Unit
Lea Labaki	ICRC	Child Protection/Protection of Civilian Population
Massimo Marelli	ICRC	Head of Data Protection Office
Monique Nanchen	ICRC	Child Protection Advisor
Despoina Spanoudi	ICRC	Restoring Family Links Advisor
Maryam Kashefi	ICRC Nairobi Delegation	Regional Protection Coordinator
Linet Tocho	ICRC Nairobi Delegation	Database Administrator (Prot 6)
Karine Benyahia	ICRC South Sudan Delegation	Protection Coordinator
Bertrand de Marnix	ICRC South Sudan Delegation	Database Administrator (Prot 6)
Saira Gulzar	ICRC South Sudan Delegation	Restoring Family Links Unit

TABLE: List of Key Informants and Child Protection Research Advisory Group, *continued*

NAME	ORGANISATION	ROLE
Annalisa Brusati	International Rescue Committee (IRC)	Child Protection Senior Advisor
Angela Mutunga	IRC	Women, Protection and Empowerment
--	IRC	Health Coordinator - Kakuma
Julie Krause	IsraAid	Senior Child Protection Assistant
Abraham Kibeu	Kenya Red Cross Society	Tracing Officer
Faith Kimungui	Kenya Red Cross Society	Database Administrator (Family Links Answers)
Tom Adua	Lutheran World Federation	Youth Protection and Development Officer
Kapis Okeja	Lutheran World Federation	Child Protection Officer
Collins Onyango	Lutheran World Federation	Program Manager
Isaiah Osotsi	Lutheran World Federation	Data Management Officer
Harriet Holder	Save the Children	Senior Child Protection in Emergencies and Family Tracing and Reunification Specialist
Ajier Mary Ajak	Save the Children – South Sudan	Caseworker
Madol Majak Anyieth	Save the Children – South Sudan	CPIMS Clerk Bor/Mingkaman/Awerial
Guguei Garan Kuei	Save the Children – South Sudan	Caseworker
Ajah Makuei Kur	Save the Children – South Sudan	Caseworker
John Garang Nhial	Save the Children – South Sudan	Child Protection Officer Bor/Mingkaman/Awerial
Martin Odhiambo	Save the Children – South Sudan	FTR Specialist
Stephen Wori	Save the Children – South Sudan	Child Protection Coordinator Mingkaman/Awerial
Brian McDonald	South Sudan NGO Forum	Information Manager
Caroline Dulin Brass	UNHCR	Protection Officer
Janis Ridsdel	UNHCR	Protection Officer (SGBV/Child)

TABLE: List of Key Informants and Child Protection Research Advisory Group, *continued*

NAME	ORGANISATION	ROLE
Monika Sanvik-Nylund	UNHCR	Senior Adviser (Children)
Yvonne Agengo	UNHCR	Child Protection Advisor
Amanda Melville	UNHCR	Senior Regional Child Protection Officer
Rannie Mitchmael Cole	UNHCR – South Sudan	Associate Data management Officer
Mmone Moletsane	UNHCR – South Sudan	Community Services Officer
William Ngeze	UNHCR – South Sudan	Child Protection Specialist
–	UNHCR – South Sudan	ICT Officer
Ivy Wahome	UNHCR – Kakuma	Senior Child Protection Assistant
Winstan Otieno	UNHCR – Kakuma	Associate Data Management Officer
Michael Copland	UNICEF	Regional Specialist for Child Protection in Emergencies
Pernille Ironside	UNICEF	Chief of Field Operations
Robert MacTavish	UNICEF	Child Protection Specialist - Primero Global Coordinator
Jean Mege	UNICEF	Information Manager Rapid Response Team Child Protection Working Group
Stuart Campo	UNICEF Innovations	Innovation Deployment Specialist
Cary McCormick	UNICEF Uganda	Programme Specialist, Youth Engagement and Livelihoods
Jeannette Wijnants	UNICEF Kenya	Chief of Child Protection
Bernard Kiura	UNICEF Kenya	Child Protection Specialist
Anthony Nolan	UNICEF South Sudan	Child Protection Specialist
Paul Kibeu	Waldorf	Psychosocial Officer
Peter	Waldorf	

APPENDIX 3: LITERATURE REVIEW STRATEGY

ICTs for Child Protection Case Management in Emergencies, Literature Review Plan, December 2015

Background

International organisations involved in the protection of children and their rights – including the International Committee of the Red Cross (ICRC), the United Nations Commissioner for Refugees (UNHCR) and the United Nations Children’s Fund (UNICEF) – are increasingly using information and communication technology (ICT) to enhance their efforts. In the setting of emergencies, ICT has been applied to case management. To better inform investments and decision processes to more effectively use ICT for child protection case management in emergencies, the m- and eHealth Expert Learning Program (mHELP) is conducting a study to learn how prioritised ICT applications are reducing vulnerabilities in such populations and settings.

The study, which will take place from December 2015 through March 2016, is divided into 3 phases. Phase 1 involves intensive and focused desk research; key informant interviews, reviews of prioritised ICT systems and analyses of any available data will occur during phase 2; and phase 3 will be an analysis and synthesis of the findings from the first two phases, where the final product will be an informative framework and final report.

This document outlines the strategy for conducting the Phase 1 literature review.

Research Question

Does the digitisation of child protection case management in an emergency lead to a reduction in vulnerability?

Specific Aims

To characterize the evidence base for the digitisation of child protection case management in an emergency.

To use the findings from the literature review to inform subsequent phases of the research.

Methods

The literature review is structured to be highly focused on the use of ICT for child protection case management in emergencies. It will be conducted in accordance with the PRISMA guidelines for systematic reviews, setting it up for peer-review in the future. Search terms have been identified a priori, but may be subject to change as the review commences. Articles will be screened for their relevance by two researchers. In the event of discordance, the researchers will first have a discussion, but if the

issue is not resolved a third researcher will address the discordance.

Relevant information will be abstracted from the articles and logged in a matrix. The findings will be analyzed and presented in a report format. The report will include separate, but applicable information (generated through desk research) on the prioritized ICT applications.

Additional information on the eligibility criteria, information sources, search strategy and themes of interest can be found below in the remaining sections.

Eligibility Criteria

Articles and reports from both the peer-reviewed and grey literature are eligible for inclusion in the study. The documents must discuss the use of ICT for child protection case management in the setting of emergencies. Articles that do not deal with all four key points (ICT, child protection, case management and emergencies) will not be included for further analysis. When possible, the references of eligible documents will be examined to identify additional literature.

Information Sources

The following databases will be searched:

- Child Protection Global Cluster (CPWG.net/tools-resources/)
- Global Protection Cluster (GlobalProtectionCluster.org)
- Save the Children (Resource Center)
- UNICEF Resources (UNICEF.org/protection/)
- Child Protection Learning Network (CPCNetwork.org)
- Child Protection Monitoring and Evaluation Reference Group (CPMERG.org)
- Children in Adversity (ChildrenInAdversity.gov)
- Better Care Network (BetterCareNetwork.org)
- Child Rights International Network (CRIN.org)
- United Nations SRSG Violence Against Children (SRSG.ViolenceAgainstChildren.org)
- Orphans and Vulnerable Children Support (OVCSupport.net)
- Childwatch International Research Network (ChildWatch.uio.no)
- Child Migration Research Network (ChildMigration.net)
- Child Recovery and Reintegration Network (ChildRecovery.info)

- University of Edinburgh Child Protection Research Centre (ChildProtection.ed.ac.uk)
- PubMed
- OvidMedline
- Embase
- PsychInfo
- Cochrane Library
- NIH Project Reporter
- Clinical Trials
- Google Scholar
- Google
- GSMA mHealth Tracker
- mHealth Working Group Resources
- Center for Health Market Innovations
- mRegistry
- ITU Global eHealth Projects Repository
- African Strategies for Health

Resources from key informants and other stakeholders will be included, as well as reports and documents from the grey literature. References of eligible studies will be assessed for their eligibility.

Search Strategy

The following are the core search terms that will be used in the databases listed above. The search terms have been informed by documents including the Child Protection Working Group's minimum standards documentation, the Child Protection Rapid Assessment Toolkit and the Child Protection in Emergencies Coordinator's Handbook.

The core search terms will be adapted as-needed in each database. Using PubMed search language, an asterisk denotes where plural or singular will both be searched. Both British English and American English spellings will be used in the search.

Technology + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour

- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Information and communication technolog* (or ICT) + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Mobile phone* (or phone) + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Electronic device* + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination

- 3 Substitute with humanitarian, disaster, armed conflict, accident

Digital device* (or digital) + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Computer program + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Dashboard + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Software+ child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Computer* + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Biometrics + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Information management system + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Information system + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Information management + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Mobile health (or mHealth) + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Electronic health (or eHealth) + child protection¹ ± case management² ± emergenc^{*3}

- 1 Substitute with child well-being, child abuse, child sexual abuse, child prostitution, child trafficking, child abduction, illicit transfer of child*, child refugee, child [forced] migration, child vulnerability, child exploitation, child abandon*, violence against children, gender-based violence against children, sexual violence against children, family separation, child labour
- 2 Substitute with recovery and reintegration, reunification, rapid assessment, protection cluster, inter-cluster coordination
- 3 Substitute with humanitarian, disaster, armed conflict, accident

Themes of Interest

In addition to characterizing the evidence base of ICT for child protection case management in emergencies, several themes may be explored. The themes of note include gender, privacy and security, interoperability and standards and guidelines.

For additional questions about the research, please contact Dr. Patricia Mechael at patty@healthenabled.org.

APPENDIX 4. FIELD RESEARCH DESIGN AND DATA ANALYSIS PLAN

Qualitative Codebook

TABLE: ICTs for CPCME Research Codebook

CODE	EXPANDED VERSION	WHEN TO USE THE CODE
ENABLING ENVIRONMENT (FOUNDATION IN THEORY OF CHANGE)		
EE	Enabling Environment	Use when respondent discusses the enabling environment or aspects of it.
EE_CP	Enabling Environment_Capacity	Use when respondent talks about workforce capacity and development, including general CP/CM training and staff turn-over.
EE_IN	Enabling Environment_Infrastructure	Use when respondent discusses infrastructure. This can include infrastructure related to ICT (i.e., electricity, connectivity) and more general infrastructure (i.e., roads).
EE_PL	Enabling Environment_Policy&Legal Frameworks	Use when respondent mentions policy and legal aspects of CPCME, including laws, regulations, data privacy, confidentiality and security.
EE_DS	Enabling Environment_Data Sharing	Use when respondent talks about data sharing, collaboration and data use.
EE_DS_AP	Enabling Environment_Data Sharing_Actual Practice	Use when respondent discusses the actual practice in data sharing, collaboration and data use.
EE_DS_DP	Enabling Environment_Data Sharing_Desired Practice	Use when respondent discusses the desired or ideal practice in data sharing, collaboration and data use.
EE_BP	Enabling Environment_Business Process	Use when respondent discusses CPCME programmes, services, processes, implementations and roles and responsibilities.
EE_GE	Enabling Environment_Government Engagement	Use when respondent discusses the presence or lack of government engagement or involvement in CPCME (or, more broadly, the humanitarian response and provision of and ownership of services).
EE_CE	Enabling Environment_Community Engagement	Use when respondent talks about how the community is or could be involved in CPCME. <i>We can test if this should be added to the Theory of Change.</i>
EE_RE	Enabling Environment_Resources	Use when respondent mentions non-human resources including funding and allocation of those funds for programming purposes.

TABLE: ICTs for CPCME Research Codebook, *continued*

CODE	EXPANDED VERSION	WHEN TO USE THE CODE
INPUTS		
IN	Inputs	Use when respondent discusses inputs for ICT for CPCME.
IN_TS	Inputs_Technology Staff	Use when respondent talks about ICT staff.
IN_PS	Inputs_Program Staff	Use when respondent talks about CP/CM staff.
IN_TR	Inputs_Training	Use when respondent discusses ICT trainings.
IN_ICT	Inputs_ICT Platforms & Services	Use when respondent discusses existing or ideal ICT platforms, applications and services.
IN_PD	Inputs_Participatory Design	Use when respondent mentions the development and design of ICT platforms, applications and services for CPCME. <i>We can test if this is should be added to the Theory of Change.</i>
CASE MANAGEMENT ACTIVITIES		
CMA	Case Management Activity	Use when respondent talks about case management activity/activities.
CMA_ID	Case Management Activity_ Identification	Use when respondent discusses the case management step of identifying children in need and their type of need.
CMA_RG	Case Management Activity_ Registration	Use when respondent talks about case management registration and risk stratification/prioritisation as a part of the registration process.
CMA_AS	Case Management Activity_ Assessment	Use when respondent discusses the case management assessment process of gathering and analysing information about a child's situation and needs.
CMA_PL	Case Management Activity_ Case Planning	Use when respondent mentions case planning (responding to issues identified through assessments and follow-up). This should include communications.
CMA_REF	Case Management Activity_ Referral	Use when respondent talks about the case management referral process. This should include how referrals are communicated.
CMA_AC	Case Management Activity_ Action	Use when respondent discusses action and implementation based on the case plan.
CMA_AC_N	Case Management Activity_No Action	Use when respondent discusses dormant cases.

TABLE: ICTs for CPCME Research Codebook, *continued*

CODE	EXPANDED VERSION	WHEN TO USE THE CODE
CMA_FUP	Case Management Activity_ FollowUp&Review	Use when respondent talks about the case management follow-up and review process, including checking in with the child, regularly monitoring the case and re-assessing the case, as needed.
CMA_CC	Case Management Activity_ Case Closure	Use when respondent mentions how a case can be closed.
CMA_CONF	Case Management Activity_ Confidentiality	Use when respondent discusses case confidentiality.
CASE MANAGEMENT OUTPUTS		
CMO	Case Management Outputs	Use when respondent talks about case management outputs.
CMO_FUP	Case Management Outputs_ FollowUp	Use when respondent discusses data and statistics on the follow-up of cases.
CMO_DATA	Case Management Outputs_ Data	Use when respondent discusses statistics or figures on case management output. This should be figures or estimates.
CMO_DATA_USE	Case Management Outputs_ Data_Use	Use when respondent mentions how the data collected are used for planning purposes. This should include the case file and history.
CMO_DATA_RV	Case Management Outputs_ Data_Review	Use when respondent discusses review of the data (for activity planning purposes).
CMO_DATA_IND	Case Management Outputs_ Data_Indicators	Use when respondent talks about case management output indicators (e.g., # cases registered).
CMO_MATCH	Case Management Outputs_ Matching	Use when respondent discusses case matching (not reunification) or handling of duplications.
CMO_SI	Case Management Outputs_ Secured Information	Use when respondent discusses how information (the records) are secured or stored.
CHILD PROTECTION OUTCOMES		
CPO	Child Protection Outcomes	Use when respondent talks about child protection outcomes.
CPO_CL	Child Protection Outcomes_ Case Load	Use when respondent discusses the case load or case burden.
CPO_DQ	Child Protection Outcomes_ Data Quality	Use when respondent talks about data quality.

TABLE: ICTs for CPCME Research Codebook, *continued*

CODE	EXPANDED VERSION	WHEN TO USE THE CODE
CPO_VN	Child Protection Outcomes_Vulnerability	Use when respondent mentions vulnerability.
CPO_CF	Child Protection Outcomes_Child-Friendliness	Use when respondent discusses child-friendliness.
CPO_DATA	Child Protection Outcomes_Data	Use when respondent discusses statistics or figures on child protection outcomes. This should be figures or estimates.
CPO_DATA_PR	Child Protection Outcomes_Data_Protection	Use when respondent mentions how well information are or are not protected or secured.
CPO_DATA_IND	Child Protection Outcomes_Data_Indicators	Use when the respondent talks about indicators on child protection outcomes (e.g., % cases reunified).
INFORMATION AND COMMUNICATION TECHNOLOGY		
ICT	Information and Communication Technology	Use when respondent talks about ICT (not system-specific) in the context of CPCME.
ICT_CU	ICT_Current Uses	Use when respondent mentions current use of ICT. This can include community mobile phone use.
ICT_OP	ICT_Opportunities	Use when respondent talks about opportunities for ICT, not including current uses.
ICT_CH	ICT_Challenges	Use when respondent discusses challenges of ICT. This may also include mandatory fields. <i>May add sub-categories.</i>
ICT_BN	ICT_Benefits	Use when respondent talks about the benefits of ICT. <i>May add sub-categories.</i>
ICT_PS	ICT_Privacy&Security	Use when respondent talks about ICT privacy and security.
ICT_EX	ICT_Data Exchange	Use when respondent talks about data exchange between ICT systems. This should include the matching process between systems and interoperability.
ICT_IM	ICT_Impact	Use when respondent discusses the impact of ICT.
ICT_IM_CP	ICT_Impact on Child Protection Outcomes	Use when respondent talks about the impact of ICT on child protection outcomes.
ICT_IM_WO	ICT_Impact on Work	Use when respondent mentions the impact of ICT on work, especially as it relates to work efficiencies.

TABLE: ICTs for CPCME Research Codebook, *continued*

CODE	EXPANDED VERSION	WHEN TO USE THE CODE
[INFORMATION AND COMMUNICATION TECHNOLOGY] SYSTEMS		
SYS	System	Use when respondent discusses specific ICT systems for CPCME.
SYS_RFTR	System_RapidFTR	Use when respondent talks about the RapidFTR system – both the web portal and mobile phone application.
SYS_PRGS	System_proGres	Use when respondent discusses the proGres system.
SYS_PROT	System_Prot	Use when respondent talks about any version of the Prot system.
SYS_CPIMS	System_CPIMS	Use when respondent discusses CPIMS.
SYS_EXCEL	System_Excel	Use when respondent mentions Excel.
SYS_OTHER	System_Other	Use when respondent mentions any other existing ICT CPCM system or application.
ORGANISATION		
ORG	Organisation	Use when respondent talks about [an] organisation[s].
ORG_UNICEF	Organisation_UNICEF	Use when respondent discusses UNICEF.
ORG_UNHCR	Organisation_UNHCR	Use when respondent discusses UNHCR.
ORG_ICRC	Organisation_ICRC	Use when respondent discusses ICRC.
ORG_PN	Organisation_Partner	Use when respondent discusses partner organisations.
LOCATIONS		
LOC	Location	Use when respondent discusses a location/place/setting.
LOC_IDP	Location_Internally Displaced Person	Use when respondent discusses internally displaced persons (IDP) areas/camps.
LOC_RF	Location_Refugee	Use when respondent mentions refugee camps.
LOC_POC	Location_Protection of Civilians	Use when respondent talks about Protection of Civilians.
LOC_SS	Location_South Sudan	Use when respondent discusses South Sudan.
LOC_SS_JB	Location_South Sudan_Juba	Use when respondent talks about Juba.
LOC_SS_MK	South Sudan_Mingkaman	Use when respondent talks about Mingkaman.

TABLE: ICTs for CPCME Research Codebook, *continued*

CODE	EXPANDED VERSION	WHEN TO USE THE CODE
LOC_SS_BR	South Sudan_Bor	Use when respondent talks about Bor.
LOC_KY	Location_Kenya	Use when respondent discusses Kenya.
LOC_KY_KA	Location_Kenya_Kakuma	Use when respondent talks about Kakuma.
LOC_KY_NA	Location_Kenya_Nairobi	Use when respondent mentions Nairobi.
LOC_GENEVA	Location_Geneva	Use when respondent mentions Geneva.
LOC_OTHER	Location_Other	Use when respondent brings up locations other than South Sudan, Kenya and Geneva.
FUTURE RESEARCH		
FR	Future Research	Use code to identify areas of potential future research.
FR_IND	Future Research_Indicators	Use when respondent discusses indicators for future research in ICT for CPCME.

Statistical Analysis Plan

To complement the qualitative site visit data, a structured analysis of quantitative data generated from the ICT systems and applications for CPCME present in each site will be conducted. The quantitative analysis seeks to address the Phase 1 finding that no publications assessed the links

between the use of ICT applications for CPCME and CPCME outcomes. This component of the research will build on the Theory of Change and be structured to draw connections between the inputs and outcome, using select activity and output indicators, as articulated in the change model.

TABLE: Factors, Sample Indicators and Hypotheses for Quantitative Data Analysis

FACTOR	SAMPLE INDICATOR(S)	HYPOTHESIS(ES)
Time-efficiency	Time to [endpoint]	Decrease in time to [endpoint]
Work-efficiency	Time to [endpoint]	Decrease in time to [endpoint]
Child-friendliness	# times child interviewed	Decrease in # times child interviewed
Child-safety	# cases registered # cases reunified	Increase average # cases reunified
Child-access to essential services	# cases referred # cases followed-up	Increase in # cases receiving referrals who obtain referral services
Adherence to global and organisational standards, guidelines and protocols	Standard operating procedures (or an equivalent) in place (yes/no)	Increase completeness of data entry forms
Ability to track children between case management systems	# cases traced # cases referred # cases whose family links were restored # duplicate cases	Increase in average # cases traced Increase in # cases receiving referrals who obtain referral services Increase in average # cases with restored family links Decrease in # duplicated cases
Coordination of services	Data sharing protocol or process in place (yes/no)	Increase in data sharing
Data protection	Data safety protocol in place (yes/no)	Increase in data protection

APPENDIX 5. INTERVIEW GUIDES

The interviews commenced with the researchers introducing themselves, mHELP, the purpose of the research study and how the data collected were intended to be used. Each informant was instructed that the interview was anonymous and that s/he would not be identified with any particular response.

At no time did the research team directly or indirectly observe children being provided services. The researchers explicitly avoided contact with children during the course of this investigation, and made efforts to ensure that service provision was not disrupted as a result of the field visits.

Types of Key Informant Interview Guides by Category of Key Informant

Category 1: Global Key Informant

Category 2: Child Protection Management

1. Child Protection Manager
2. Data Manager, M&E Specialist

Category 3: Child Protection Caseworkers

3. Child Protection Specialist
4. Child Protection (or other technical sector) Service Provider

Category 4: ICT Technical Teams

5. ICT Specialist

Interview Guide

(Questions to be assigned to appropriate stakeholder based on their specific role)

- Ensure confidentiality
- Not evaluating any particular system

Global Key Informant

1. Introduction
 - a. Explain project objectives briefly and what we are trying to learn;
 - b. Explain the intended use of information
 - c. Assurance of confidentiality
2. Background information/Experience
 - a. What is your name and title? Could you briefly explain your role and responsibilities? Could you briefly

share with us your experience with working in child protection case management in emergencies?

- b. What is your experience with using ICT in emergencies? Which platform(s) are you familiar with? (Locations?)
3. Child Protection Case Management
 - a. What are the most significant needs and vulnerabilities of children in emergencies that require attention? (noting different contexts)
 - b. What are the essential components for child protection case management in emergencies?
 - c. From your experience, what are generally the biggest challenges in carrying out effective child protection case management in emergencies (i.e. effectively addressing needs and vulnerabilities)?
 - d. What currently is working well in child protection case management in emergencies?
 4. Using ICT for child protection case management in emergencies
 - a. From your experience how does ICT facilitate case management for child protection in emergencies? (Examples of where is it working well and why) (Think about each stage of the case management process)
 - b. Follow-up if not addressed in the previous question: Is ICT effective in addressing any of the needs and vulnerabilities you previously identified?
 - c. Where are the gaps in child protection case management that using ICT has not been able to fill?
 - d. Are there particular types of emergency situations in which it is not advisable to use ICT, or in which context plays a particularly restrictive role in using ICT?
 - e. Does using ICT have any effect on the amount of time and/or work to:
 - i. Identify, reunify and reintegrated separated and unaccompanied children with their families?
 - ii. Provide access to essential services to children?
 - iii. Reducing time between steps in the case management process from identification through case closure (e.g. from point of registration until child's first access to a service)
 - f. Does ICT have any effect on the worker's workload and how he/she carries out the workload? (makes it easier/harder); enable him/her to register/handle/refer/follow more cases?

- g. How are referrals and follow-ups accomplished?
5. Using and Sharing Data (may come up in earlier questions)
- a. What is your experience in using ICT to collect and manage information on your clients? (Please describe.)
 - b. Exactly how do you (your organisation) use that data generated by ICT?
 - c. Do you ever share that data (or does anybody share data with you)? If so, with whom, and under what circumstances? If not, why not?
 - d. What is the process for referrals using ICT?
 - e. If you do not, are there any circumstances in which you believe sharing of data would benefit child clients?
 - f. Describe viable data sharing methods. Does sharing information improve “coordination” in case management? How could that “coordination” be measured?
 - g. What is your opinion on interoperability between and among different ICT platforms- getting systems to “speak” to each other.

6. ICT vs. Paper

- a. Under what circumstances should paper be used for collecting, and under what circumstances might ICT better be used?
- b. Do you think there is a difference in terms of information security and preserving confidentiality between using paper and using ICT (to record client information? Make individual assessments? Make referrals?)

7. Recommendations

- a. If you were suggesting guidelines and standards of when to use ICT in case management, conditions and the type of ICT to use, what would be your key recommendations?
- b. Do you have any questions and/or additional comments for us?

Suggestions of other informants whom we should contact? Documents we should look at?

Child Protection Manager

1. Please describe your role in CPCME.
2. Please outline the CPCME process for us, and indicate which parts of the process your organisation supports. (Probe on components of the process).
 - a. What types of services are provided for vulnerable

children, and who provides those services?

- b. What are the “formal” and “informal” services provided in emergency settings? How are they coordinated? What role does the community play in CPCME?
 - c. How do you track and manage information relating to the provision of services to children?
3. Please describe in detail your experience in how ICT is used to support CPCME.
 4. From your experience, how has ICT contributed to the CPCME process that would not have otherwise happened if using paper? Please provide specific examples. Probe on the following:
 - a. Referrals
 - b. Other linkages with services
 - c. Service quality
 5. From your experience, how has using ICT affected the amounts of time between different steps of CPCME (increase, decrease, no effect)? Please provide specific examples.
 6. In what situations would you recommend not using ICT for case management?
 7. What do you expect ICT to do for you in the area of CPCME? In what ways has it met your expectations? In what ways has it failed to meet your expectations? (Probe on time between steps in the CPCME process).
 8. What would you characterise as “good data quality”? What steps have you taken to ensure good data quality?
 9. How do you use data?
 10. How would you ensure the optimal use of ICT so that it best supports the CPCME process?
 11. What aspects of CPCME would you like to see ICT facilitating that have not already been mentioned?
 12. What correlations between using ICT for CPCME and the reductions in child vulnerability and/or improvements in child well-being have you observed? How would you recommend measuring these?
 13. How is information shared between different agencies for the CPCME process?
 - a. What are the important considerations when deciding if and how to share information?
 - b. What actions should occur or conditions should be in place to best support sharing of information and protecting personal data?

Data Manager, M&E Specialist

1. Please describe in detail your role and experience using ICT to support CPCME.
2. How is data collected, managed and utilised using the application? What have been the advantages of using ICT?
3. What are the challenges involved in using ICT for data collection, management, and utilisation. What recommendations might you have for overcoming those challenges?
4. Please describe all the steps in the process for data collection, management and utilisation (including the time it takes)? Please show us the dashboard for accessing the data. How is data presented to the users? How is data shared with decision-makers? How is data shared with those who collect it?
5. Who uses the data, and for what purpose?
6. Based upon your experience and your understanding of ICT, what sorts of untapped opportunities exist to enhance data collection, management and utilisation for CPCME?
7. What sorts of training are required for ICT data collection, management and utilisation? Who receives training? Who ought to receive each type of training?
8. From your experience, what do you believe are the ideal conditions that ought to be present for optimum use of ICT to achieve the maximum benefits from using ICT for data collection, management and utilisation?
9. From an M&E perspective, what correlations are there between using ICT for CPCME and changes in child vulnerabilities and/or improved child wellbeing? What indicators or proxy indicators would you suggest to support the correlation(s)?
10. Please describe data protection features of the ICT application.
 - a. What sorts of conditions are in place to guard against unauthorised access to personal data?
 - b. How is information shared? What sorts of mechanisms are in place to secure information that is shared?
 - c. What are your thoughts about an electronic interface or interoperability that facilitates data sharing with another agency (using another application)? What sorts of conditions, features, and/or guidelines would need to be present?

Child Protection Specialist

1. Please describe your role in supporting child protection in emergencies, and more specifically, CPCME.
2. What vulnerabilities do children face that require specific support and services?
3. Please outline the CPCME process for us, and indicate which parts of the process your organisation supports?
 - a. What types of services are provided for vulnerable children? Who provides those services?
 - b. What are the “formal” and “informal” services provided in emergency settings? How are they coordinated?
 - i. What role does the community play in 1) child protection and ii) CPCME?
4. Please describe in detail your experience in using ICT to support child protection specifically, and CPCME in general.
5. From your experience, how has ICT contributed to protecting children from abuse, violence, neglect and exploitation that would not have otherwise have happened if using paper? Please provide specific examples.
6. In what situations would you like to see ICT being used to further support child protection generally, and CPCME specifically that have not already been mentioned?
7. What particular areas would you caution against the use of ICT in supporting a) child protection generally, and b) CPCME specifically?
8. What would your suggestions be for ensuring the optimal use of ICT so that it best supports the CPCME process? What aspects of CPCME could you see ICT supporting or facilitating that have not already been mentioned?
9. What correlations between using ICT for CPCME and the reductions in child vulnerability and/or improvements in child well-being have you observed? How would you recommend measuring these?
10. How is information shared between different agencies for the CPCME process?
 - a. What are the important considerations when deciding if and how to share information?
 - b. What actions should occur or conditions should be in place to best support sharing of information and protecting personal data?

Child Protection/Other Technical Sector Service Provider

1. What is your role in providing child protection (or other services) to vulnerable children?
2. What are examples of different kinds of vulnerabilities that children face that require specific support and services?
3. Do you have any experience in using ICT to support child protection specifically, and CPCME in general? Could you please describe in detail?
4. *(If they did have experience with using ICT)* What were the primary advantages in using ICT to deliver services to vulnerable children?
 - a. What were the challenges in using ICT to deliver services to vulnerable children?
 - b. What access do you have to information that is collected using ICT? How do you use that information?
5. In general, what are the primary gaps and challenges in delivering child protection services (or any other technical service)?
6. Based upon your experience, what are your recommendations for using ICT to support your work in delivering services to vulnerable children?
 - a. May probe into integration with other technical service areas, e.g., health, HIV, shelter, education, etc.
7. What correlations between using ICT for CPCME and the reductions in child vulnerability and/or improvements in child well-being have you observed? How would you recommend measuring these?
8. How does your organisation handle data sharing?
 - a. Probe on personal data protection and important considerations.
9. *(If relevant)* From observing how ICT is used to support child protection (or other technical areas) and CPCME, what might you propose as guidelines to ensure the optimum use of ICT to achieve maximum child protection and child well-being impact?

ICT Specialist

1. Please describe in detail your role and experience using ICT to support CPCME.
2. Please describe the process of deploying the ICT application at the onset of an emergency, including the amounts of time required at each step?
3. Who is involved in setting up the ICT application, and the role of each?
4. What are the primary challenges in deploying and launching the ICT application?
5. How is the ICT system managed day-to-day? What is the process for troubleshooting?
6. What sort of training is involved in the successful running of the application? Who is trained?
7. What would you characterise as essential “Guidelines” for using ICT for CPCME?
8. From your experience, what are the optimum enabling conditions (environment) for using the application?
9. Under what sorts of conditions/environment would you advise against using ICT for CPCME?
10. How are the data collected, managed and used in the application? What are the challenges involved, and what recommendations might you have for addressing those challenges?
11. What data protection policies and features are in place?
 - a. Probe on safeguards on disclosure of personal information.
 - b. Probe on data sharing (if any).
 - c. Probe on interoperability and conditions that would optimise interoperability.

APPENDIX 6. SITE VISIT OBSERVATION GUIDE

Direct observations were conducted where possible. The following guide was used to document caseworkers and database and ICT specialists conducting registration or

assessments as part of the field research component of the research study on examining the linkage of using ICT for CPCME to reducing child vulnerability.

CATEGORY	INCLUDES	RESEARCHERS SHOULD NOTE
ENVIRONMENT		
Interview space	Child-friendly space guidelines: protected environment in which children can participate in organised activities to play, socialise, learn, and express themselves as they rebuild their lives	The ambiance of the space and if it is comfortable, warm and inviting for a child. The availability of games and exercises for children according to their reaction and needs.
Privacy	Presence of other people not involved in assessment, human traffic (people who enter and leave the room), enclosed space	The level of privacy that the assessment is conducted and if the environment is conducive for a child to share personal details.
REGISTRATION AND ASSESSMENT		
Verbal behaviours and interactions	Who speaks to whom and for how long; who initiates interaction; languages or dialects spoken; tone of voice	Gender, age, ethnicity. Dynamics of interaction. Note how the caseworker makes the child feel comfortable and explain why the assessment is being completed. Observe the comfort level of the child to questions being asked and willingness to answer.
Physical behaviour and gestures	What people do, who does what, who interacts with whom, who is not interacting	How caseworkers use their bodies and voices to communicate different emotions; what caseworkers behaviors indicate about their feelings toward the child, and their relationship with the child.
Information Sharing	What is said and not said	How do caseworkers explain the process to children? What information is given to explain next steps, provide reassurance and empathy and what is excluded?
TECHNOLOGY		
Technology use	Ease of using the technology, impact of technology on assessment flow, comfort using technology	Note how the use of the ICT applications, Excel spreadsheets and/or paper-based tools impacts the interaction with the child, in terms of a flowing conversation. Observe how comfortable the caseworker feels with using the ICT applications, Excel spreadsheets and/or paper-based tools, and how it fits into the registration or assessment workflow.
Productivity	Time of completing the registration process or assessment	Record how long it takes to complete the registration or assessment and the role of the ICT applications, Excel spreadsheets and/or paper-based tools in potentially reducing or increasing the time to completion.

APPENDIX 7. STANDARDS, GUIDELINES, RULES AND PROTOCOLS APPLICABLE TO PRIVACY, DATA PROTECTION & DATA SHARING FOR CPCME

STANDARDS, GUIDELINES, RULES OR PROTOCOLS	ORGANISATION(S)
Regional Information Sharing Protocol for Unaccompanied and Separated Children Affected by the South Sudan Conflict	Multi-Agency
Inter-Agency Guidelines for Case Management & Child Protection	Multi-Agency
Minimum Standards for Child Protection in Humanitarian Action	Multi-Agency
Restoring Family Links Code of Conduct on Data Protection	ICRC
ICRC Rules on Personal Data Protection	ICRC
Professional Standards for Protection Work Carried Out by Humanitarian and Human Rights Actors in Armed Conflict and Other Situations of Violence	Multi-Agency
Policy on the Protection of Personal Data of Persons of Concern to UNHCR	UNHCR
UNHCR Information Classification, Handling & Disclosure Policy	UNHCR
Guidance on Information Handling and Management in Child Protection Information Management Systems	UNICEF
The Sphere Project, Humanitarian Charter and Minimum Standards in Humanitarian Response	Multi-Agency
SPHERE Core Humanitarian Standard on Quality and Accountability	Multi-Agency
Core Humanitarian Standard on Quality and Accountability	Multi-Agency
United Nations General Assembly's Guidelines for the Regulation of Computerized Personal Data Files, as adopted by Resolution A/Res/45/95 of 14 December 1990.	Multi-Agency
Gender-based Violence Information Management System Rollout Guidelines	Multi-Agency
Monitoring & Reporting Mechanism Information Management System	Multi-Agency
Guidelines for the Alternative Family Care of Children in Kenya	Multi-Agency
GBV Emergency Response & Preparedness Participant Handbook	IRC
IASC Guidelines for GBV Interventions in Humanitarian Settings: Focusing on Prevention and Response to Sexual Violence in Emergencies	Multi-Agency
GBV Resource Tool: Establishing GBV Standard Operating Procedures (SOP Guide). 2008	Multi-Agency

ENDNOTES

- 1 <http://cpwg.net/resources/inter-agency-guidelines-case-management-child-protection-cpwg-january-2014/>
- 2 http://www.unicef.org/supply/files/ATTACHMENT_IV-UNICEF_Procedure_for_Ethical_Standards.PDF
- 3 http://reliefweb.int/sites/reliefweb.int/files/resources/ssd_factsheet_mingkaman_population_count_key_findings_jan_2016_1_0.pdf
- 4 http://reliefweb.int/sites/reliefweb.int/files/resources/reach_camp_sdd_factsheet_mingkaman_july2015_6.pdf
- 5 <http://reliefweb.int/map/south-sudan/south-sudan-cccm-crisis-response-idp-biometric-registration-mingkaman-february-2015>
- 6 <http://reliefweb.int/sites/reliefweb.int/files/resources/UNMISS%20PoC%20Update%20No.%2068.pdf>
- 7 <https://www.lutheranworld.org/content/kenya-djibouti>
- 8 <http://reliefweb.int/report/kenya/unhcr-kenya-kakuma-operational-update-01-15-february-2016>
- 9 <http://www.unhcr.org/pages/49e483a16.html>
- 10 http://reliefweb.int/sites/reliefweb.int/files/resources/KEN_SSD_Update01to15February2016.pdf
- 11 http://reliefweb.int/sites/reliefweb.int/files/resources/KEN_SSD_Update01to15February2016.pdf
- 12 <http://www.qsrinternational.com/>
- 13 Information and Communication Technology for Child Protection Case Management in Emergencies: Overview of the Research and the State of the Evidence” drafted by the mHELP Research Team for UNICEF, UNHCR and ICRC (2016).
- 14 UNICEF. (2012). *Measuring and Monitoring Child Protection Systems: Proposed Core Indicators for the East Asia and Pacific Region* (Strengthening Child Protection Series, Rep. No. 3). Bangkok: UNICEF EAPRO.
- 15 The Child Protection Working Group. (2012). *Minimum standards for child protection in humanitarian action* (Rep.).
- 16 The Child Protection Working Group. (2014). *Inter Agency Guidelines for Case Management & Child Protection* (Rep.).
- 17 The Child Protection Working Group. (2012). *Minimum standards for child protection in humanitarian action* (Rep.).
- 18 Nominal data are items which are differentiated by a simple naming system.
- 19 See, e.g., *Patient Privacy in a Mobile World: A Framework to Address Privacy Law Issues in Mobile Health* (2013), (TrustLaw Connect, mHealth Alliance, Baker & McKenzie), p. xi. [hereinafter, “TrustLaw”]
- 20 See, e.g., *Policy on the Protection of Personal Data of Persons of Concern to UNHCR*, (UNHCR), p. 11; see also International Red Cross and Red Crescent Movement Family Links Network Code of Conduct on Data Protection (November 2015)
- 21 Trustlaw, p. xi.
- 22 See, e.g., *Inter-Agency Guidelines for Case Management & Protection* (2014), p. 21; *Child Protection Minimum Standards, Standard 1 (Coordination)* p. 37-43; *SPHERE Core Standard 2*, p. 58.
- 23 *Child Protection Minimum Standards, Standard 5*, p. 55, *Standard 1* p. 42.
- 24 <http://www.unglobalpulse.org/privacy-and-data-protection>
- 25 See, e.g., *Case Management & Child Protection Guidelines; Sphere Minimum Standards in Humanitarian Response* (2011)
- 26 See generally, *IASC Guidelines for GBV Interventions in Humanitarian Settings: Focusing on Prevention and Response to Sexual Violence in Emergencies, 2005*; *GBV Resource Tool: Establishing GBV Standard Operating Procedures (SOP Guide)*. 2008. IASC Sub Working Group on Gender & Humanitarian Action; *Managing GBV Programming in Emergencies, 2011*, UNFPA; *GBV Emergency Response & Preparedness Participant Handbook*, International Rescue Committee.
- 27 See, e.g., *Minimum Standards for Child Protection in Humanitarian Action* (2013) (“Child Protection Minimum Standards”); *Inter-Agency Guidelines for Case Management & Child Protection* (2014) (“Case Management & Child Protection Guidelines”); *Gender-Based Violence Information Management System Rollout Guidelines*; *The Sphere Project, Humanitarian Charter and Minimum Standards in Humanitarian Response* (2011) (“SPHERE Minimum Standards”); *SPHERE Core Humanitarian Standards on Quality and Accountability; Monitoring and Reporting Mechanism Information Management System: Final Report* (2009); *United Nations General Assembly’s Guidelines for the Regulation of Computerized Personal Data Files*, as adopted by Resolution A/Res/45/95 of 14 December 1990.
- 28 See, e.g., *Restoring Family Links Code of Conduct* (ICRC); *ICRC Rules on Personal Data Collection*; *ICRC Professional Standards for Protection Work*; *Policy on the Protection of Personal Data of Persons of Concern to UNHCR*; *UNHCR Information Classification, Handling and Disclosure Policy*.
- 29 See, e.g., *Protection Incident and Monitoring Workshop* (2011); *PRIMERO & proGres v. 4 Workshop*.
- 30 See, e.g., J. Payne, *The State of Standards and Interoperability for mHealth among Low- and Middle-Income Countries*, March 2013 (mHealth Alliance/United Nations Foundation).
- 31 *Digital health RMNCH Toolkit*: http://www.healthenabled.org/resources/rmnch_toolkit.pdf

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